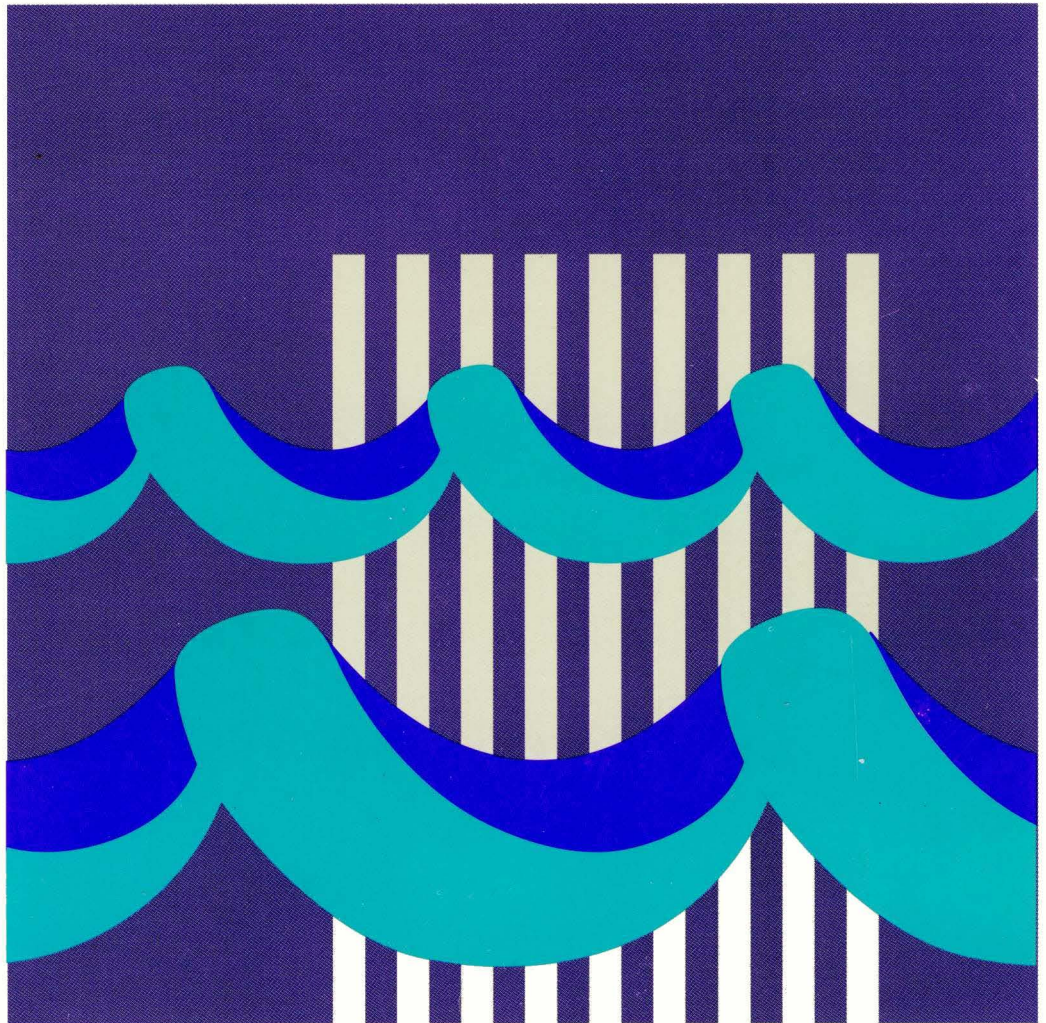


Network Control Program
Emulation Program

LY43-0030-01

**Reference Summary and Data Areas
Volume 2**

NCP Version 7 Release 2
EP Release 12





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Note!

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Programming Interface Information

This publication is intended to help the customer to do diagnosis of the Advanced Communication Function for Network Control Program (NCP) and Emulation Program for IBM Communication Controller (EP). This publication documents information which is Diagnosis, Modification, or Tuning information provided by NCP and EP.

Warning: Do not use this Diagnosis, Modification, or Tuning information as a programming interface.

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MVS/SP	MVS/XA	VM/ESA
VM/XA	VSE/ESA	

About This Book

This section contains the following information:

- Who should use this book
- How to use this book
- IBM 3745-130, 3745-150, 3745-160, and 3745-170 Communication Controllers
- How “IBM special products or user-written code” is used
- How “CSS,” “37CS,” and “3746 Model 900” are used
- What is new in this book
- Where to find more information.

This book provides reference information about Version 7 Release 2 of the Advanced Communications Function for Network Control Program (NCP); Release 12 of the Emulation Program for IBM Communication Controllers (EP), and the Partitioned Emulation Program (PEP) Extension.

Who Should Use This Book

This book is for system programmers and IBM program support representatives who are responsible for diagnosing and debugging problems.

How to Use This Book

This book consists of 2 volumes containing NCP reference information.

Volume 1 contains the data area formats. Volume 2 contains detailed reference information about the flow of data and commands through the functional components of NCP and EP and the flow control mechanisms used by NCP and EP.

How “MVS”, “VM”, and “VSE” Are Used

The term *MVS* means the *MVS/XA**, and *MVS/ESA** systems. The term *VM* means the *VM/ESA** system in the CMS environment. The term *VSE* means the *VSE/SP*, and *VSE/ESA** operating systems.

How IBM 3745 Communication Controller Model Numbers Are Used

In this book, the term *IBM 3745 Communication Controller* refers to all IBM 3745 models. When particular models are discussed, the appropriate model numbers are specified. Model numbers include IBM 3745-130, 3745-150, 3745-160, 3745-170, 3745-17A, 3745-210, 3745-21A, 3745-310, 3745-31A, 3745-410, 3745-41A, 3745-610, and 3745-61A.

How “Ethernet-Type LAN” Is Used

The term *Ethernet-type LAN* means a local area network (LAN) that uses either the Ethernet Version 2 or IEEE 802.3 protocol.

How "IBM Special Products or User-Written Code" is Used

This book sometimes refers to *IBM special products or user-written code*. This phrase means IBM special products such as Network Terminal Option (NTO), Network Routing Facility (NRF), and X.25 Packet Switching Interface (NPSI), or user-written code.

How "CSS", "37CS", and "3746 Model 900" Are Used

The terms *connectivity subsystem (CSS)* and *37CS* refer to the 3746 Model 900 connectivity subsystem, an expansion frame that extends the connectivity and enhances the performance of the IBM 3745 Communication Controller.

How "Token-ring" Is Used

NCP can connect to an IBM Token-ring Network using the NCP/Token-ring interconnection (NTRI) or the 3746 Model 900 connectivity subsystem attachment. This book uses the term *token-ring* when referring to either type of connection.

How "Frame-relay" Is Used

To support frame-relay networks, NCP can use a transmission subsystem (TSS) or high performance transmission subsystem (HPTSS) adapter on the 3745, or NCP can use a communication line processor (CLP) adapter on the 3746 Model 900 connectivity subsystem. Unless otherwise stated, this book uses the term *frame-relay* when referring to a 3745 or a 3746 Model 900 connection.

How "NCP V7R2" Is Used

In this book, unless otherwise specified, the term *NCP V7R2* refers to NCP Version 7 Release 2 with or without the optional NCP Feature for 3746 Model 900 connectivity subsystem support. To use this feature, you must have the 3746 Model 900 installed in your controller.

What is New in This Book

This edition contains information on new NCP and EP functions, as well as editorial, organizational, and technical changes. New or changed technical information is identified by a vertical bar (|) in the left margin.

NCP V7R2 and EP R12 offers the following enhancements:

- 3746 Model 900 Frame-relay
- Spare SDLC Lines
- Frame-relay Communications Rate Enhancement

Supported Releases

Table 0-1 on page xxiii shows the releases of NCP and EP that are currently supported by IBM. If you need information on an unsupported release of NCP or EP, refer to an earlier edition of this book.

Table 0-1. Supported Releases of NCP and EP

Product	Release	Operating Systems
NCP	V4R1	VSE
	V4R2	MVS, VM
	V4R3.1	MVS, VM, VSE
	V5R3	VSE
	V5R4	MVS, VM, VSE
	V6R1	MVS, VM
	V6R2	MVS, VM
	V6R3	MVS
	V7R1	MVS, VM, VSE
	V7R2	MVS
EP	R3	VSE
	R4	MVS, VM
	R6.1	MVS, VM, VSE
	R7	VSE
	R8	MVS, VM, VSE
	R9	MVS, VM, VSE
	R10	MVS, VM
	R11	MVS, VM
	R12	MVS, VM, VSE

Monitoring and Tuning NCP

With the following new products, you can monitor and tune NCP while it is running in the communication controller:

- The NTune Monitoring Facility uses online panels and messages to display the current status of various NCP resources and identify network problems. The NTune Monitoring Facility runs under the NetView* program in the host and interacts directly with any NCP activated by VTAM.
- The NTune Tuning Facility enables you to enhance NCP performance by changing various NCP parameters while NCP is running. The NTune Tuning Facility runs in the controller along with NCP and functions in conjunction with the NTune Monitoring Facility.

For more information about these products, refer to *NTune User's Guide* and *NTuneNCP Reference*.

Where to Find More Information

The NCP, SSP, and EP library, available in hardcopy and softcopy form, contains information on a wide variety of tasks related to these products. This section introduces the library, as well as other sources of information that will aid you in performing these tasks.

A Good Place to Start

A good place to start any task regarding NCP, SSP, or EP is *NCP V7R2, SSP V4R2, and EP R12 Library Directory*. This directory introduces the enhancements for the current release and shows where these enhancements are described in the NCP library. It gives you an overview of NCP, SSP, and EP and directs you to information on a variety of tasks related to these programs. When you are using the

book online, you can use *hypertext links*¹ to move directly from task and enhancement descriptions to the appropriate chapters of other books in the library.

Information for NCP Tasks

The books in the NCP, SSP, and EP library are listed here according to task, along with closely related books and tools you may find helpful. See "Bibliography" on page X-13 for brief summaries of each book in the NCP, SSP, and EP library and listings of related publications.

Table 0-2. Sources of Information by Task

Order No.	Title	Hardcopy	Softcopy
Planning			
SC31-7122	<i>Planning for NetView, NCP, and VTAM</i>	■	■
SC31-7123	<i>Planning for Integrated Networks</i>	■	■
SX75-0092	<i>Planning Aids: Pre-Installation Planning Checklist for NetView, NCP, and VTAM</i>	■	
SC31-6259	<i>NCP V7R2, SSP V4R2, and EP R12 Library Directory</i>	■	■
Installation and Resource Definition			
SC31-6221	<i>NCP, SSP, and EP Generation and Loading Guide</i>	■	■
SC31-6258	<i>NCP V7R2 Migration Guide</i>	■	■
SC31-6223	<i>NCP, SSP, and EP Resource Definition Guide</i>	■	■
SC31-6224	<i>NCP, SSP, and EP Resource Definition Reference</i>	■	■
Customization			
LY43-0031	<i>NCP and SSP Customization Guide</i>	■	
LY43-0032	<i>NCP and SSP Customization Reference</i>	■	
Operation			
SC31-6222	<i>NCP, SSP, and EP Messages and Codes</i>	■	■
N/A	<i>Online Message Facility</i>		D
Diagnosis			
LY43-0033	<i>NCP, SSP, and EP Diagnosis Guide</i>	■	
LY43-0037	<i>SSP V4R2 Trace Analysis Program</i>	■	
LY43-0029	<i>NCP and EP Reference</i>	■	
LY43-0030	<i>NCP and EP Reference Summary and Data Areas</i>	■	
LK2T-1999	<i>NCP, SSP, and EP Diagnosis Aid</i>		D
Monitoring and Tuning			
SC31-6247	<i>NTune User's Guide</i>	■	■
LY43-0035	<i>NTuneNCP Reference</i>	■	

D Available on diskette for the IBM OS/2 environment.

Those publications available as softcopy books have cross-document search and hypertext links for speedy, online information retrieval. These softcopy books are grouped together on an electronic bookshelf and are part of the *IBM Networking Systems Softcopy Collection Kit* on compact disc read-only memory (CD-ROM).

¹ A *hypertext link* is a pointer from a location in an online book to another location in the same book or another book. By selecting highlighted information, such as a message number, you can move quickly to related information and, if desired, back again.

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Data Area Relationships

Section 2. Data Area Relationships	2-1
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Section 2. Data Area Relationships

Figure 2-1 through Figure 2-51 illustrate the relationships between data areas for NCP and EP.

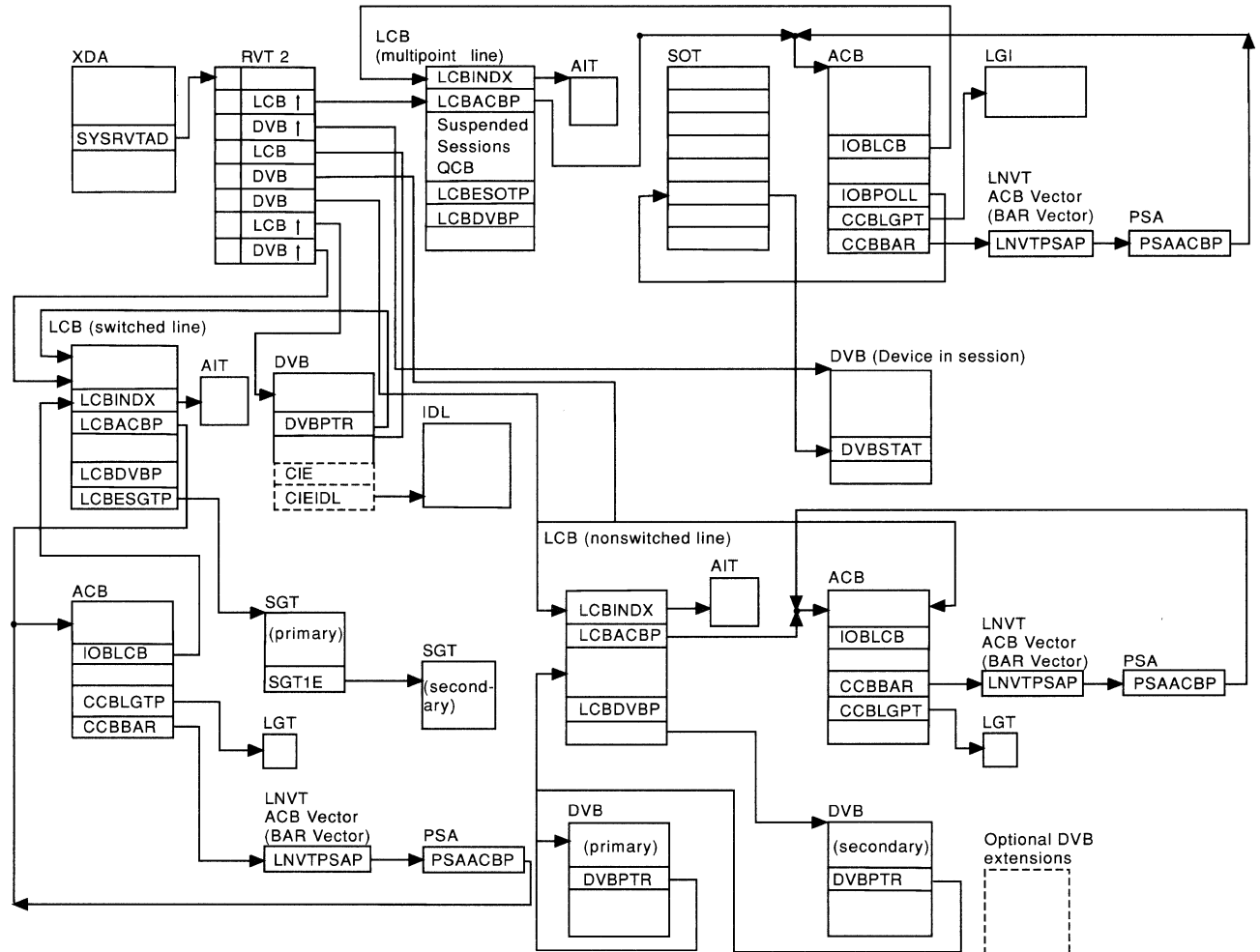


Figure 2-1. NCP Control Block Relationships for BSC and Start-Stop Lines (3745)

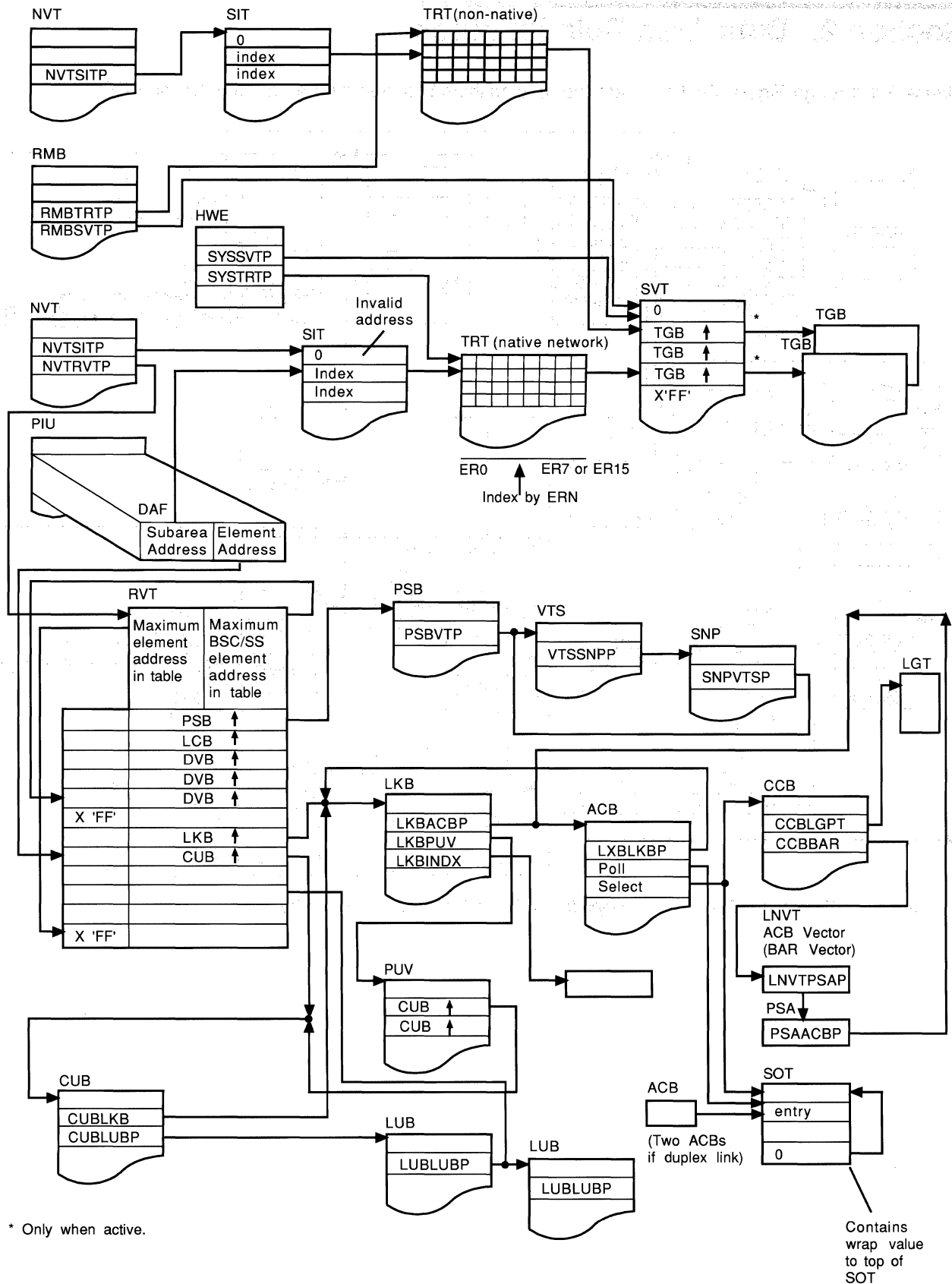
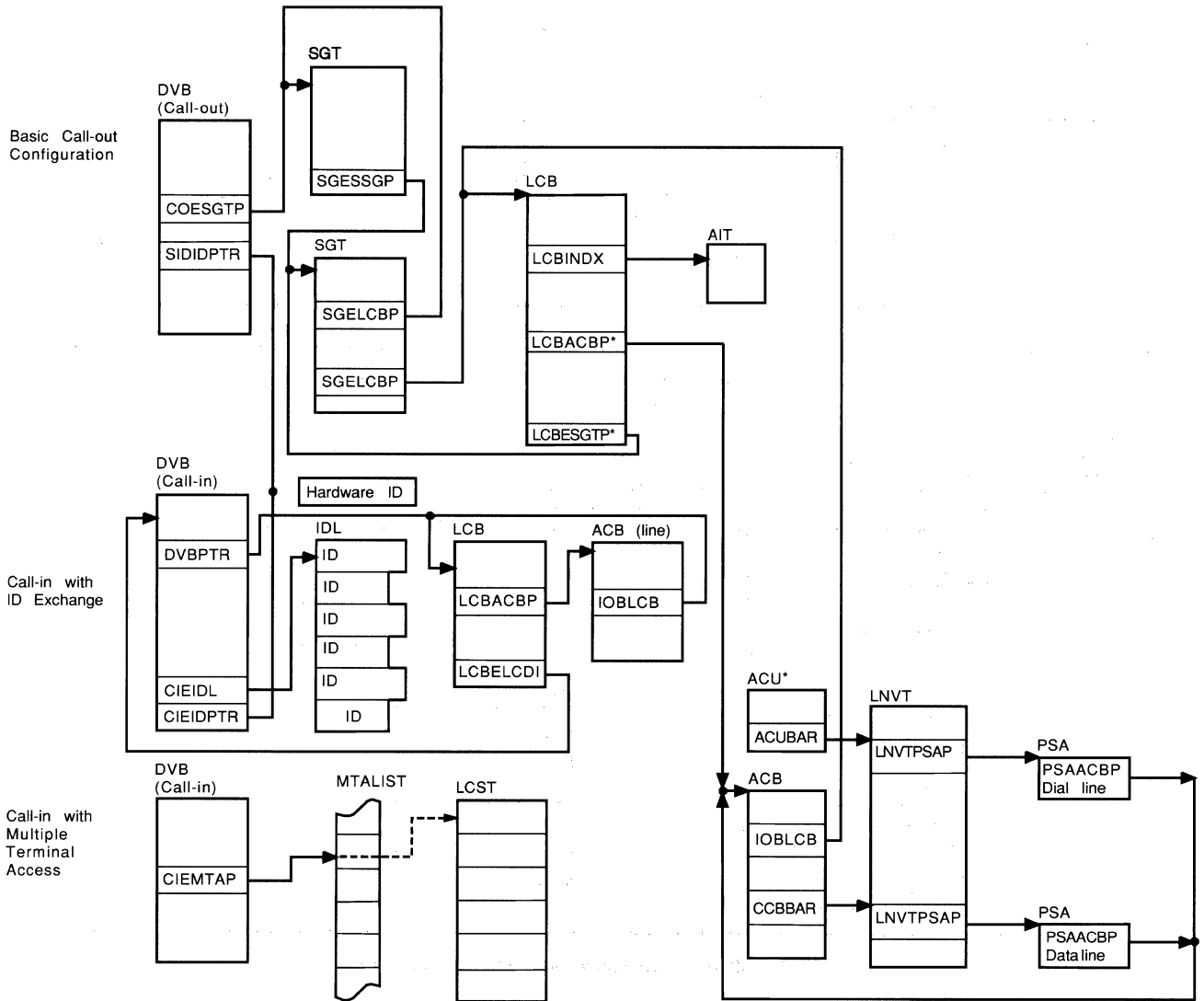


Figure 2-2. NCP Control Block Relationships for SDLC Links (3745)



*The ACU is attached to the beginning of the ACB.

Figure 2-3. NCP Control Block Relationships for Switched BSC and Start-Stop Lines (3745)

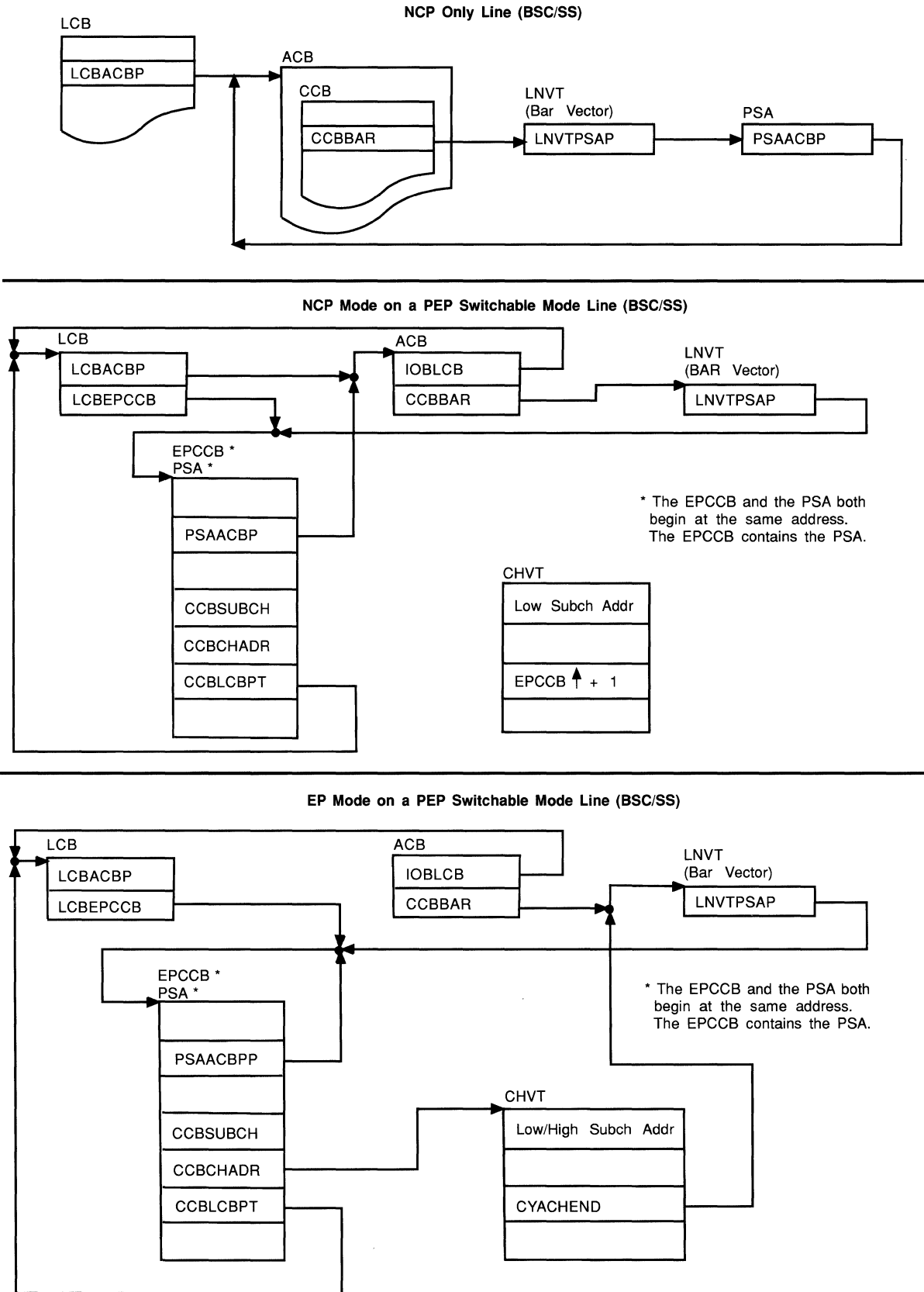


Figure 2-4 (Part 1 of 2). Pointers to the Character Control Block (CCB)

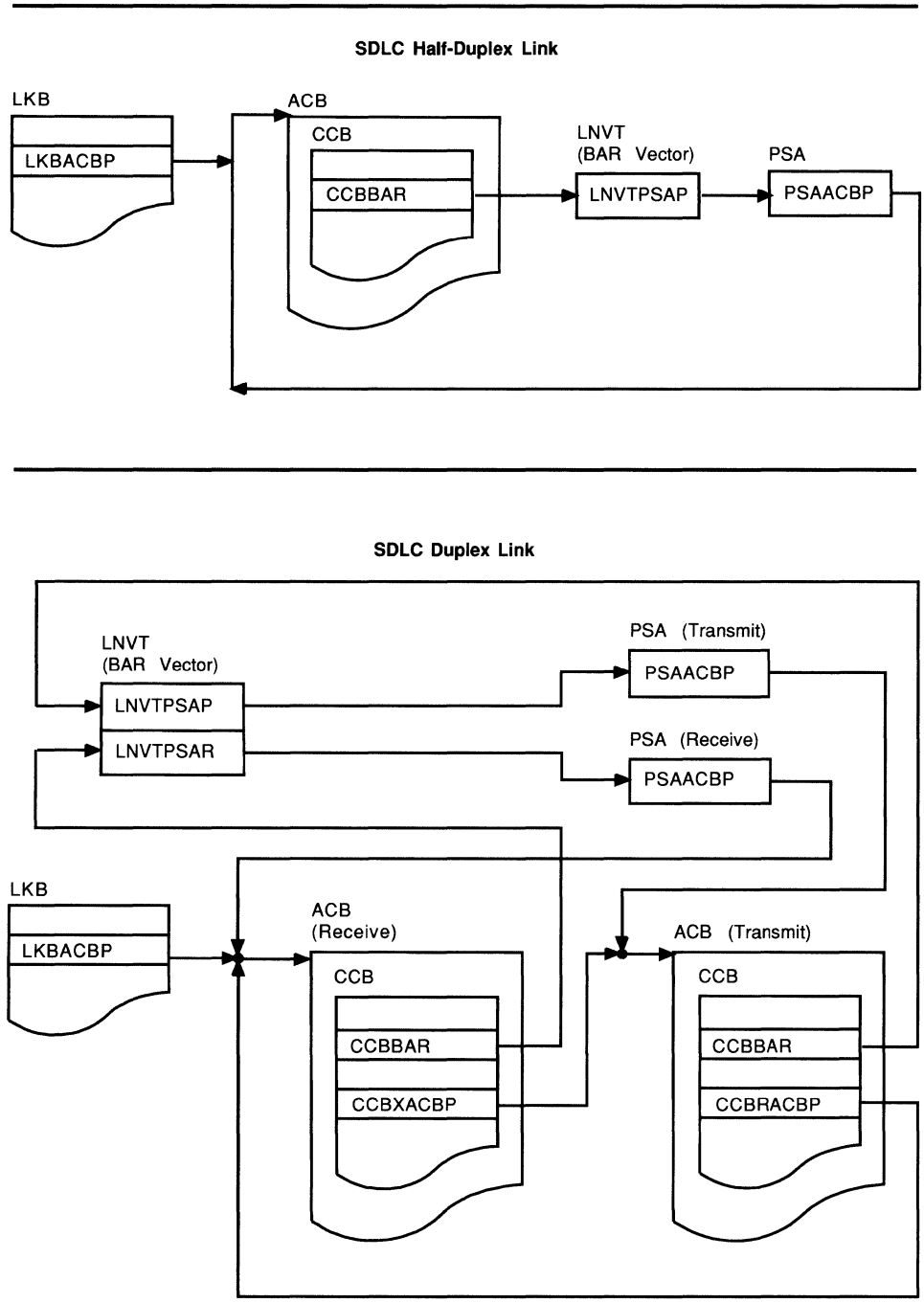
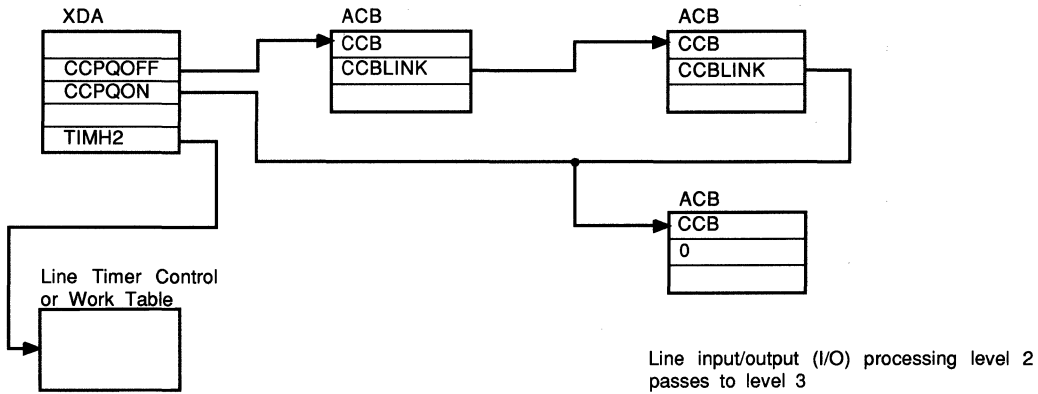


Figure 2-4 (Part 2 of 2). Pointers to the Character Control Block (CCB)



See Figure 2-32 on page 2-31 for an example of ODL timer chain pointers.

Figure 2-5. NCP SDLC Line Timer Chain Pointers

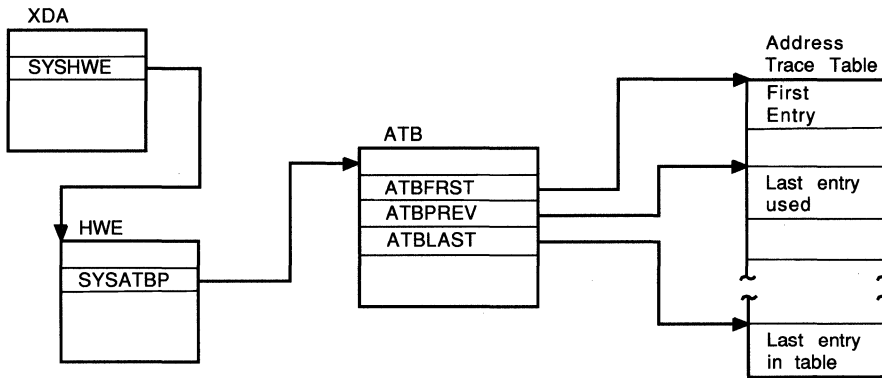


Figure 2-6. Location of the NCP Address Trace Table

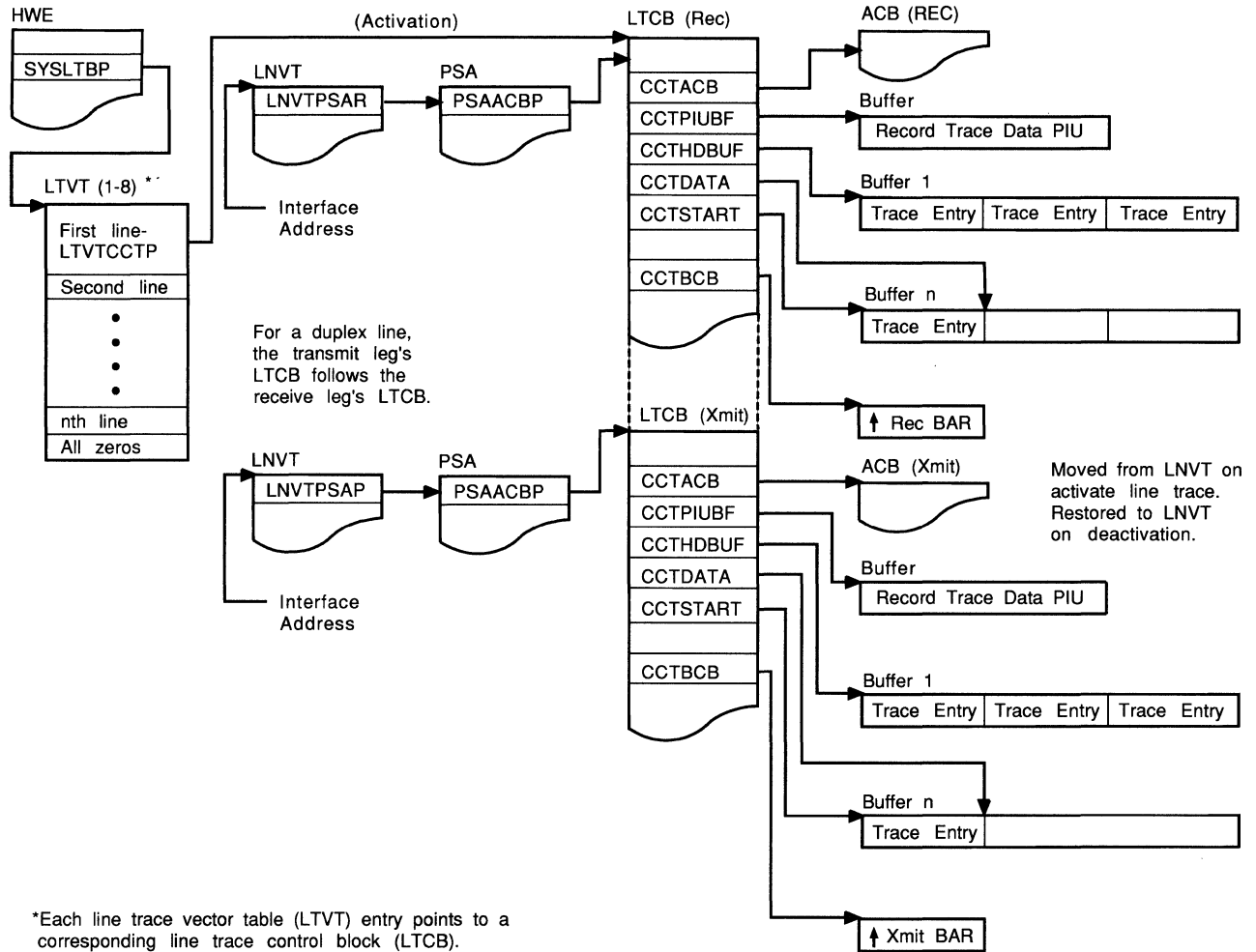


Figure 2-7. Control Block Relationships for NCP Line Trace

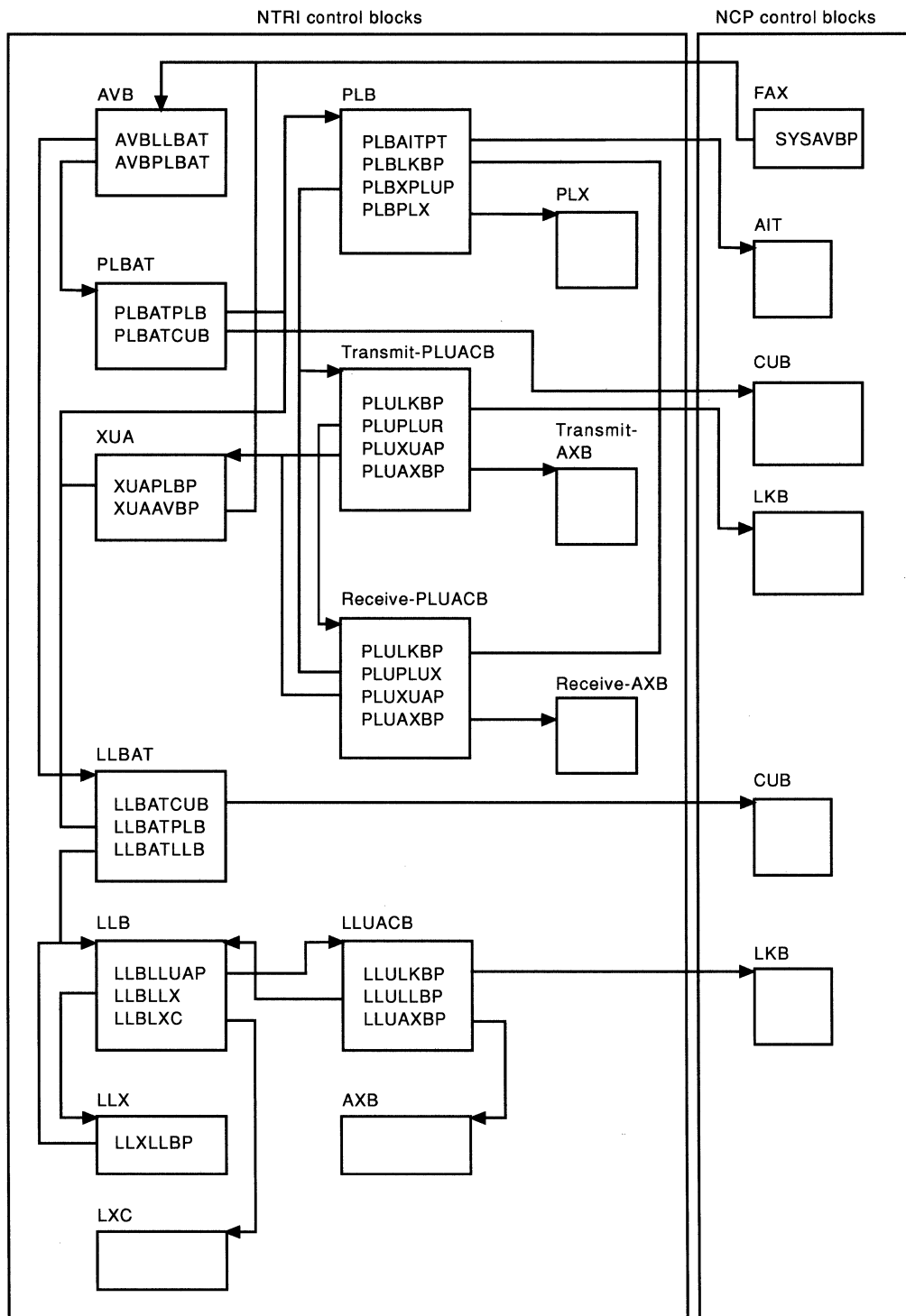
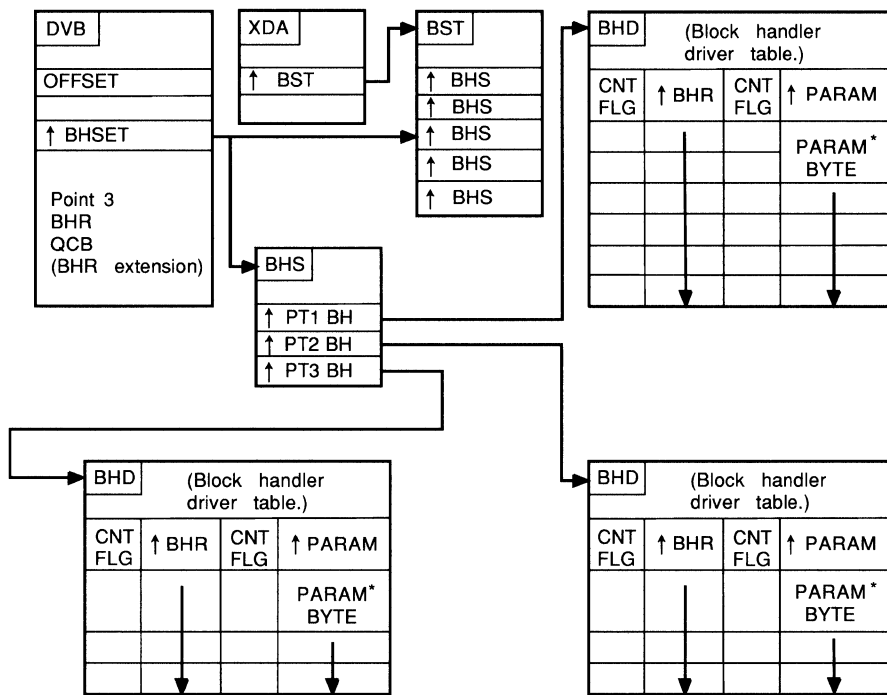


Figure 2-8. NCP and NTRI Control Block Relationships



* Block handler routines (BHRs) have either a pointer to a parameter list or a byte parameter in their entry in the block handler driver table (BHD).

Figure 2-9. NCP Control Block Relationships for Block Handler Routines (BHRs)

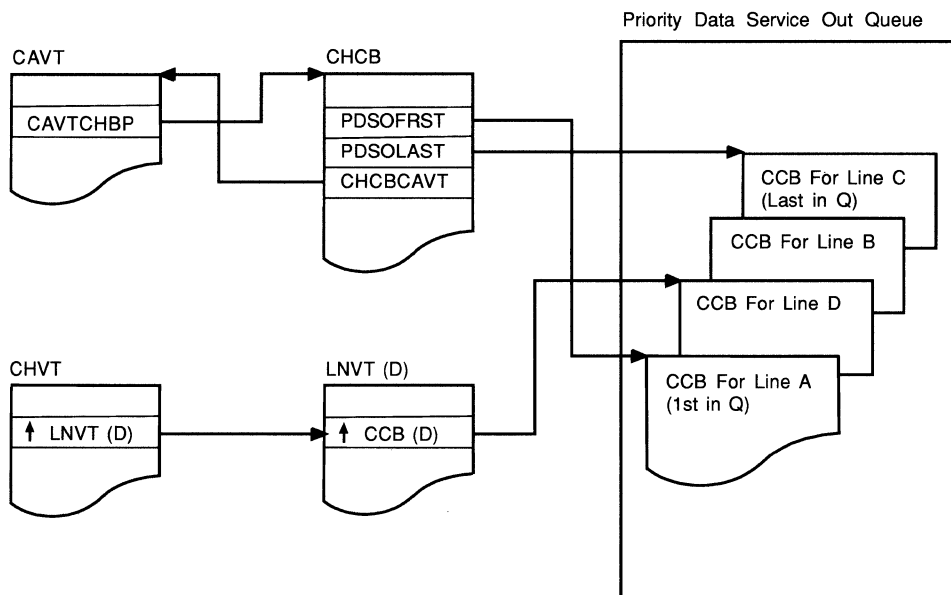


Figure 2-10. EP/PEP Control Block Relationships

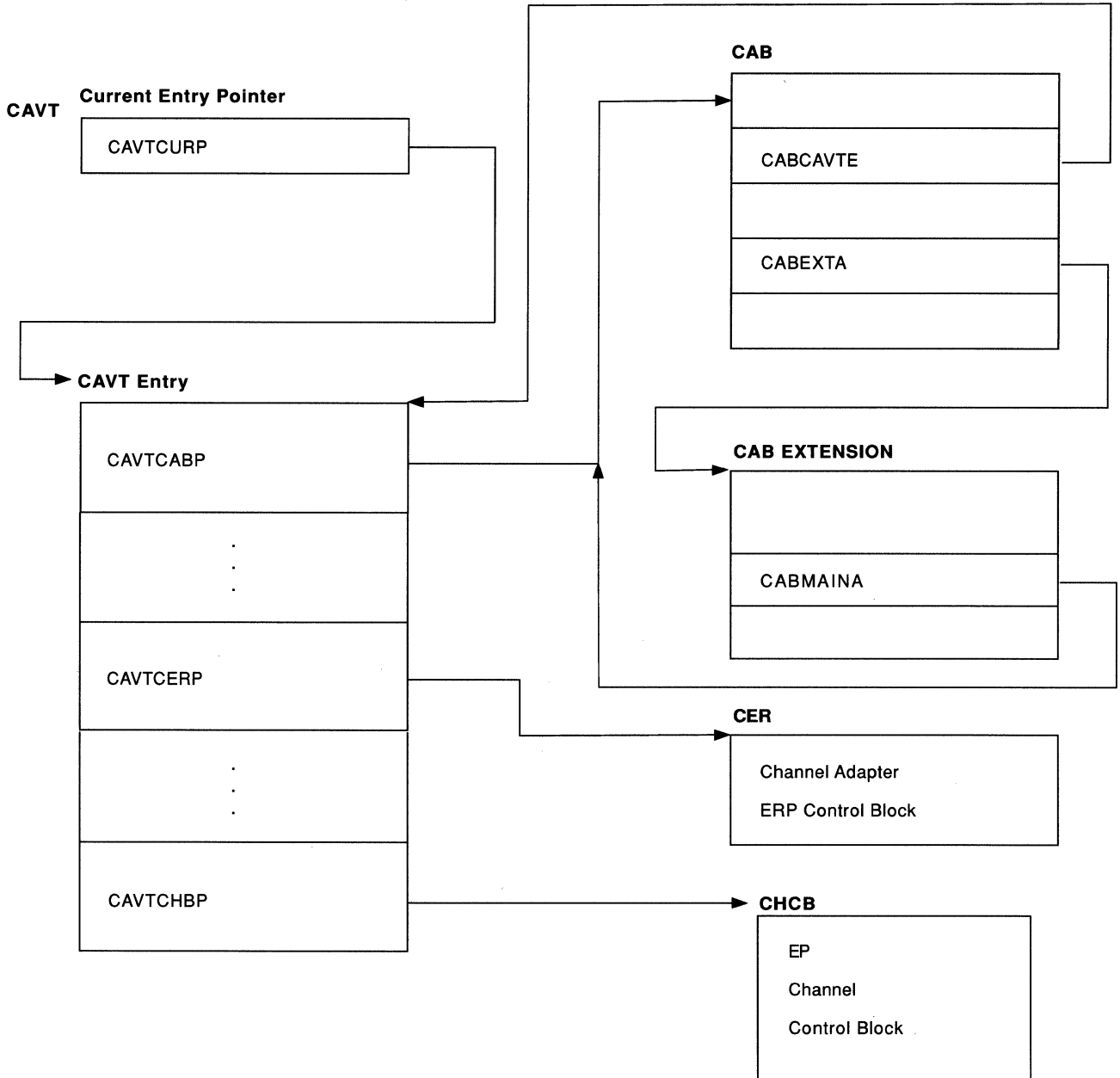
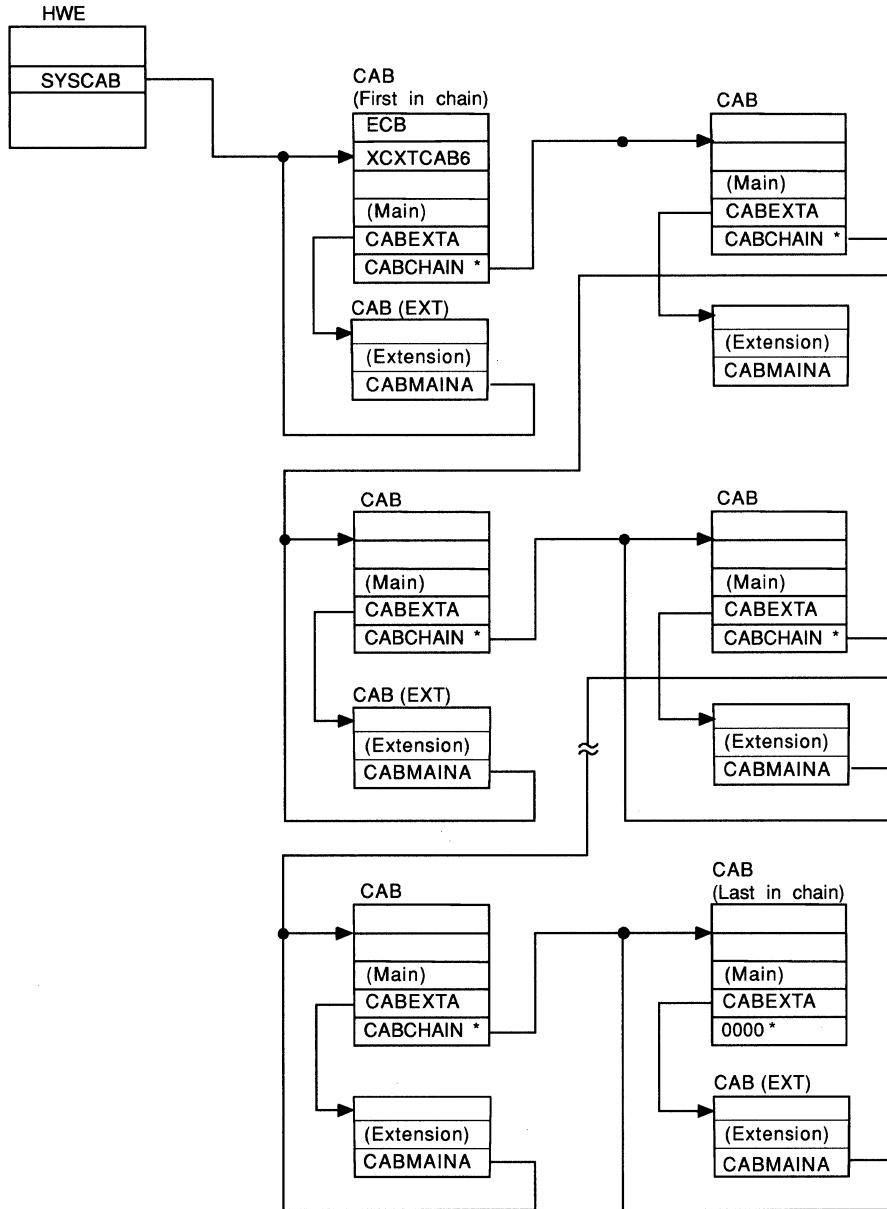


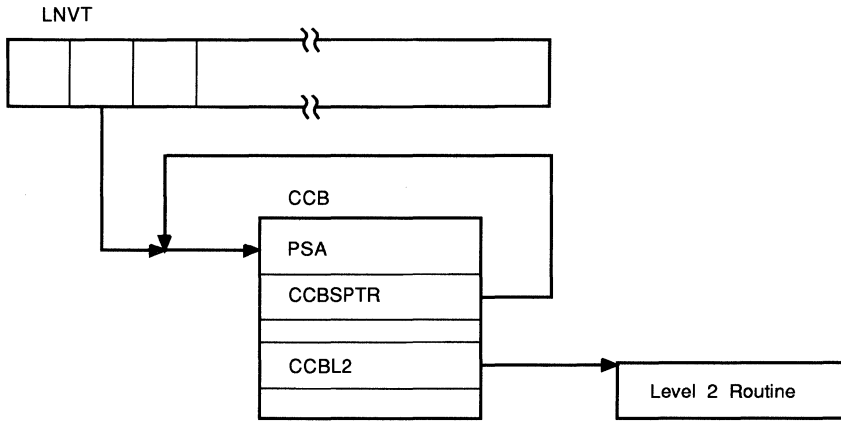
Figure 2-11. NCP Channel Adapter Control Block (CAB) Relationships (for the channel adapter currently being processed in Level 3)

This example shows six channel adapters generated active.



* Last CAB in the chain has zeros in CABCHAIN field

Figure 2-12. NCP Channel Control Block Timer Chain Relationships



Normal EP Control Block Structure

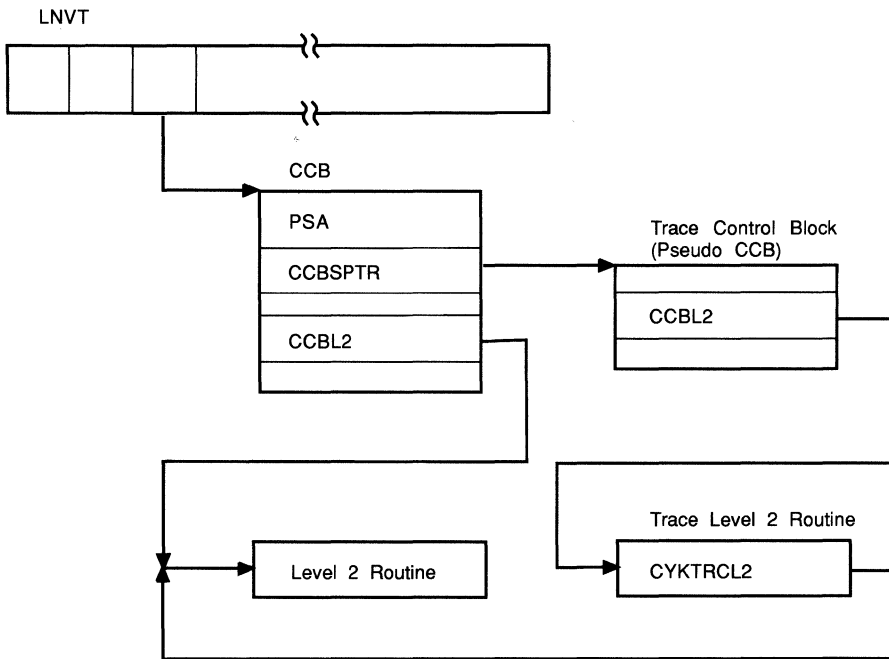


Figure 2-13. EP Control Block Structure When Tracing Level 2

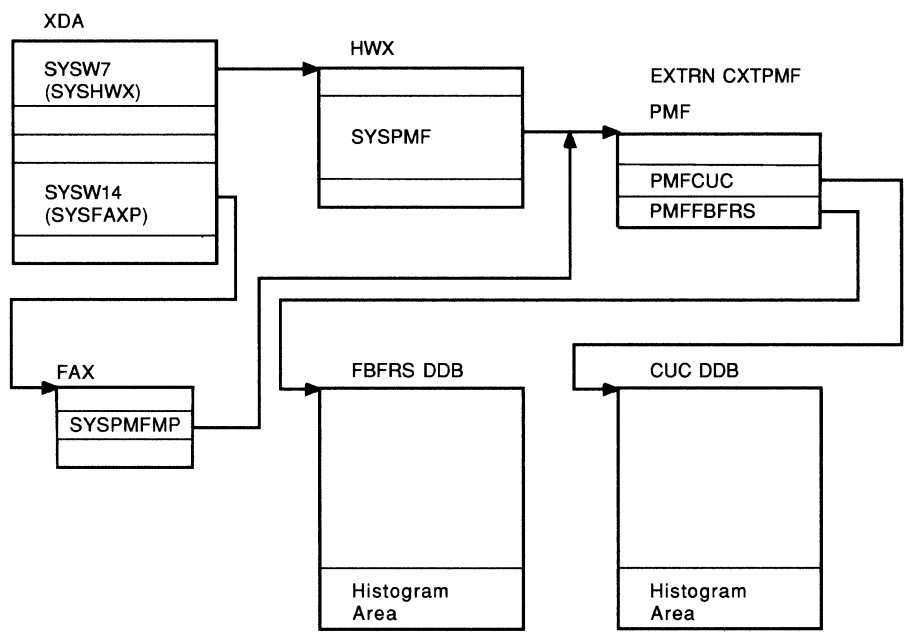


Figure 2-14. Performance Measurement Facility (PMF) Control Block Relationships

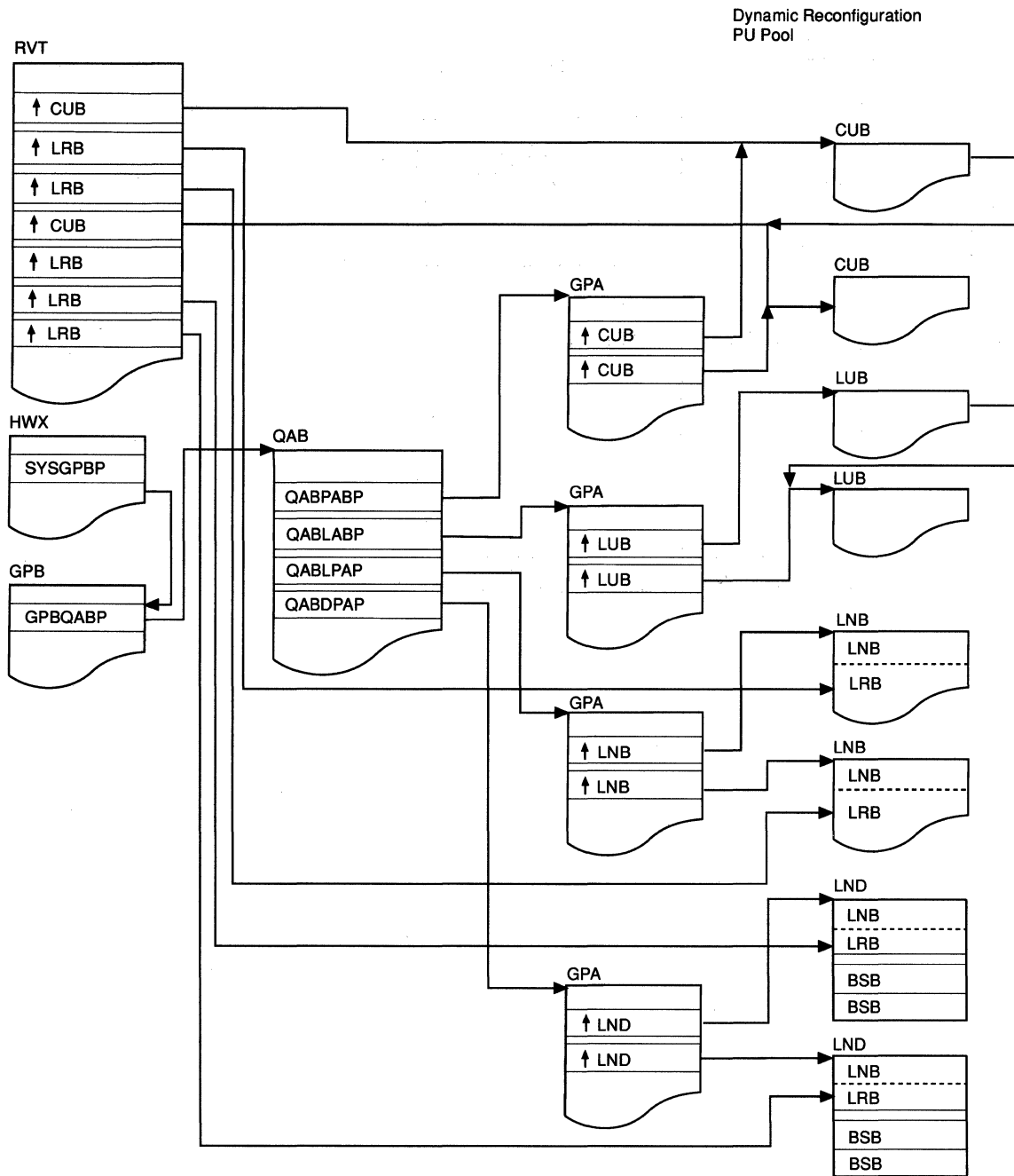


Figure 2-15. Dynamic Reconfiguration Control Block Relationships

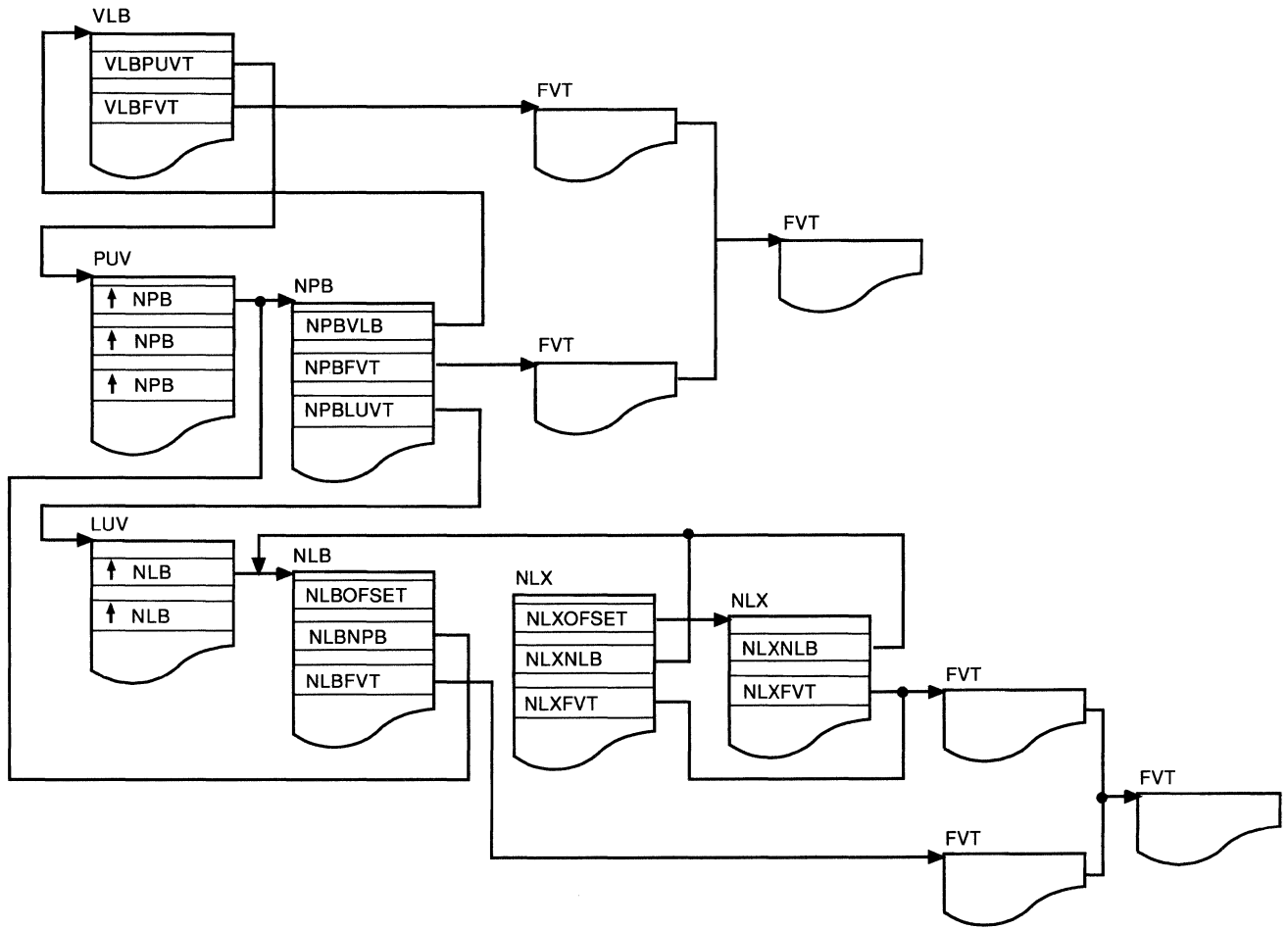
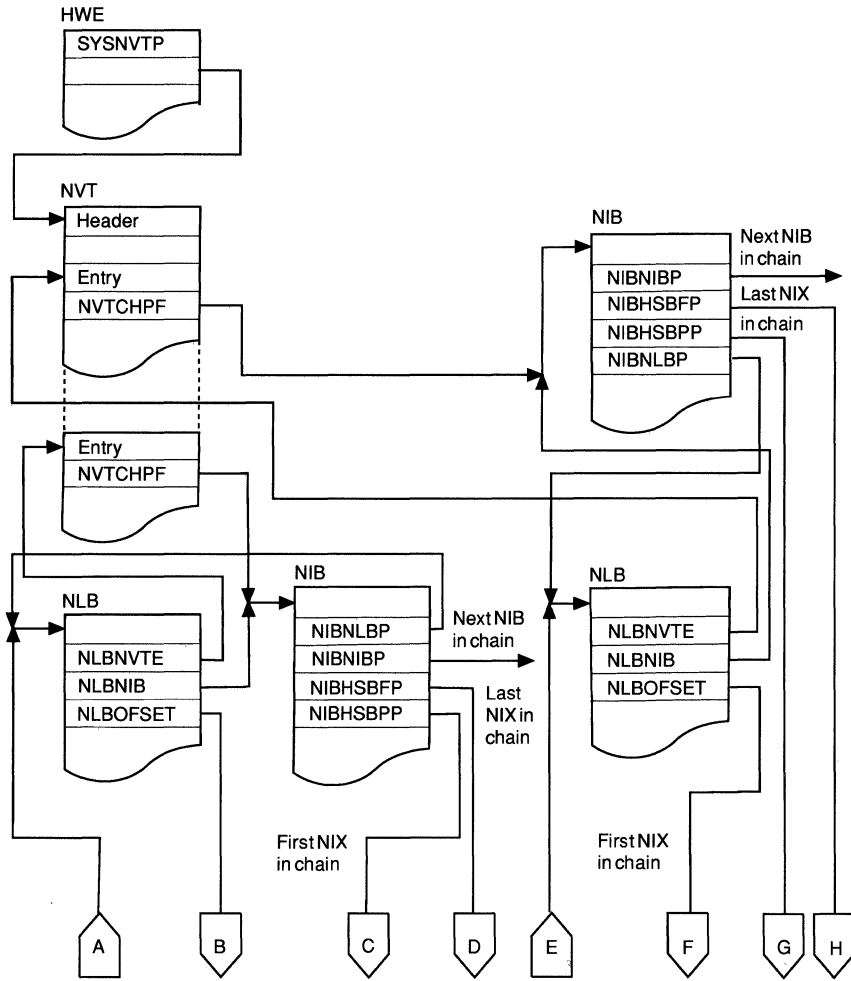


Figure 2-16. Programmed Resources Control Block Relationships



To and From Part 2 of 2

Figure 2-17 (Part 1 of 2). SNA Network Interconnect Session Control Block Relationships

To and From Part 1 of 2

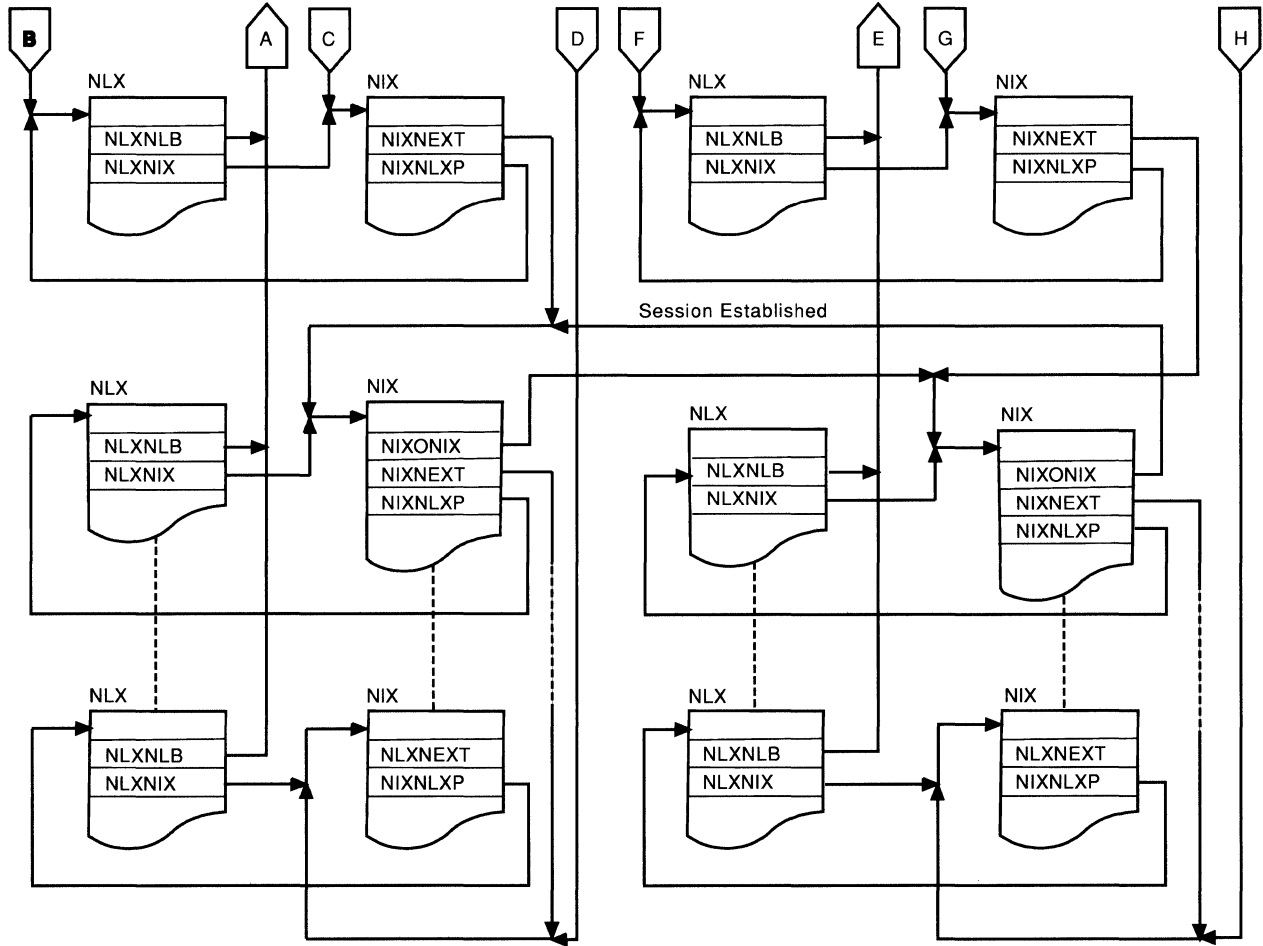


Figure 2-17 (Part 2 of 2). SNA Network Interconnect Session Control Block Relationships

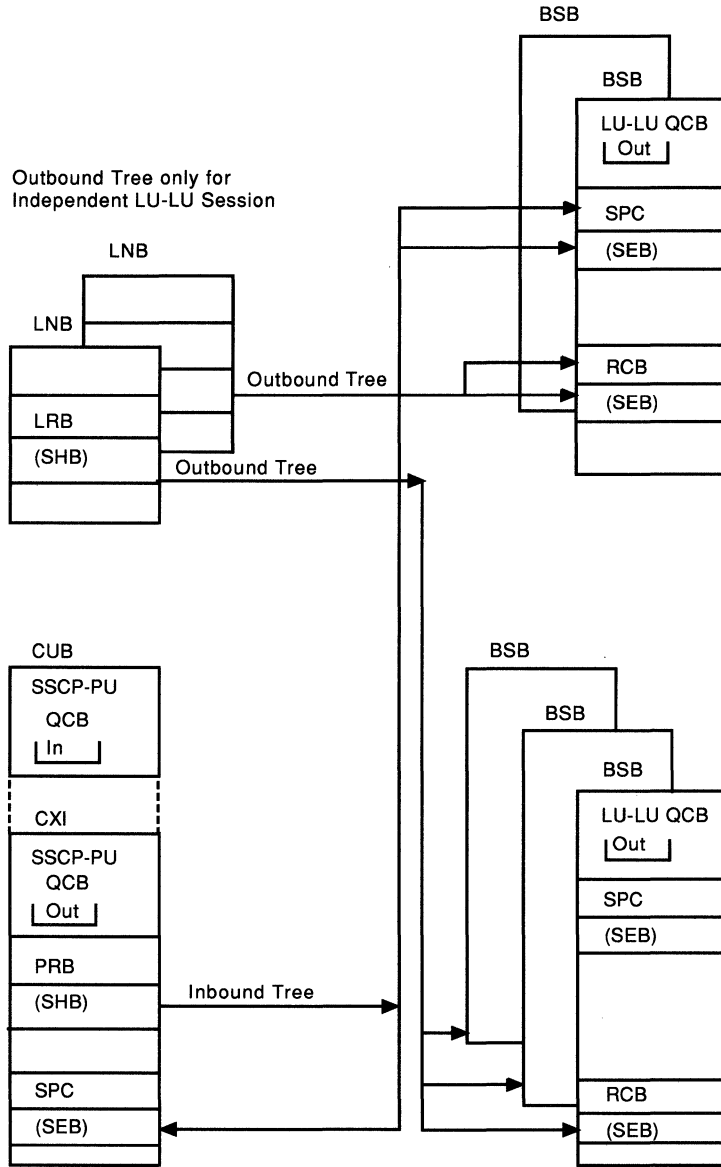


Figure 2-18. NCP Control Block Relationships for Inbound and Outbound Trees

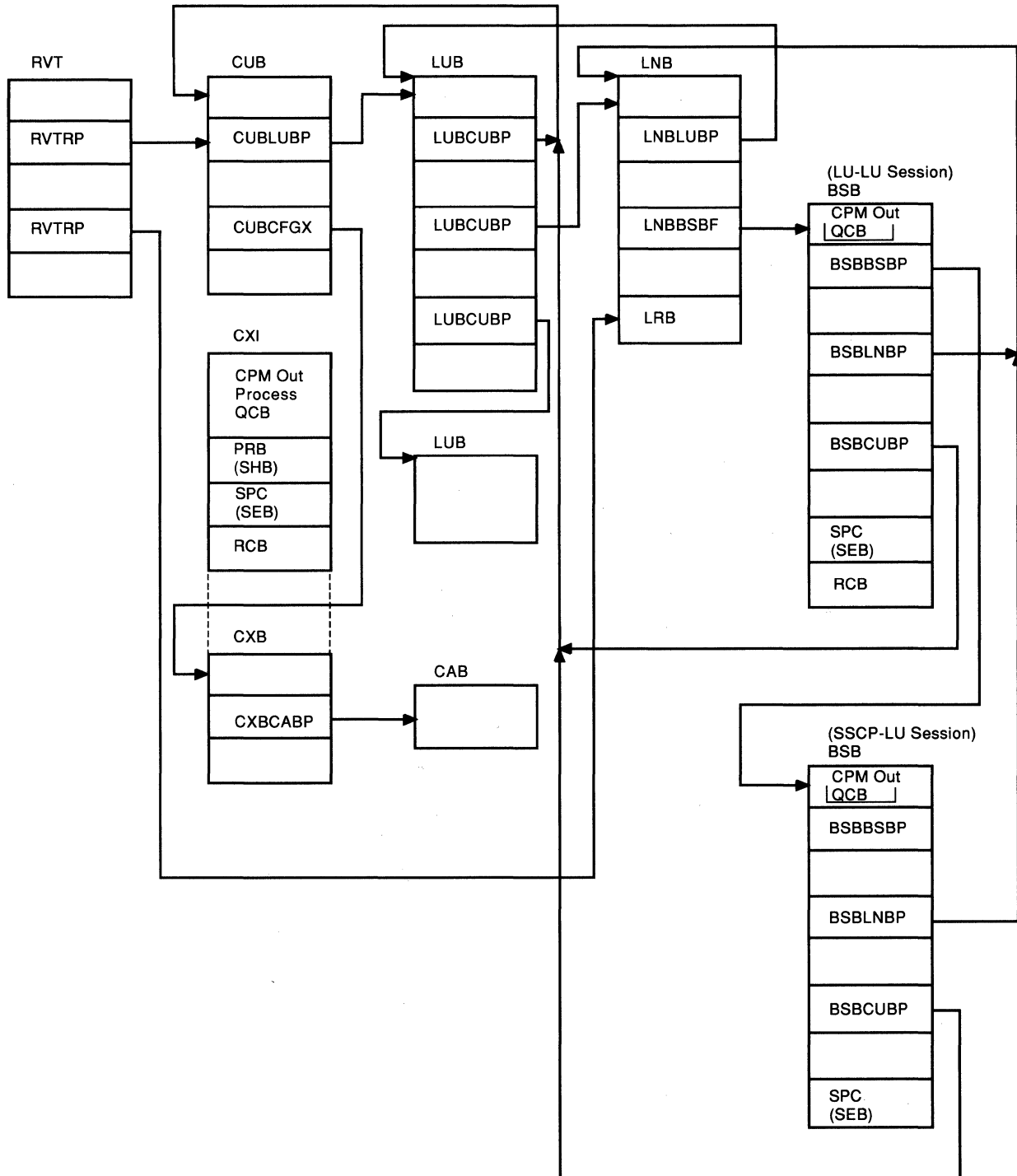


Figure 2-19. NCP Control Block Relationships for a Dependent LU in SSCP-LU or LU-LU Sessions

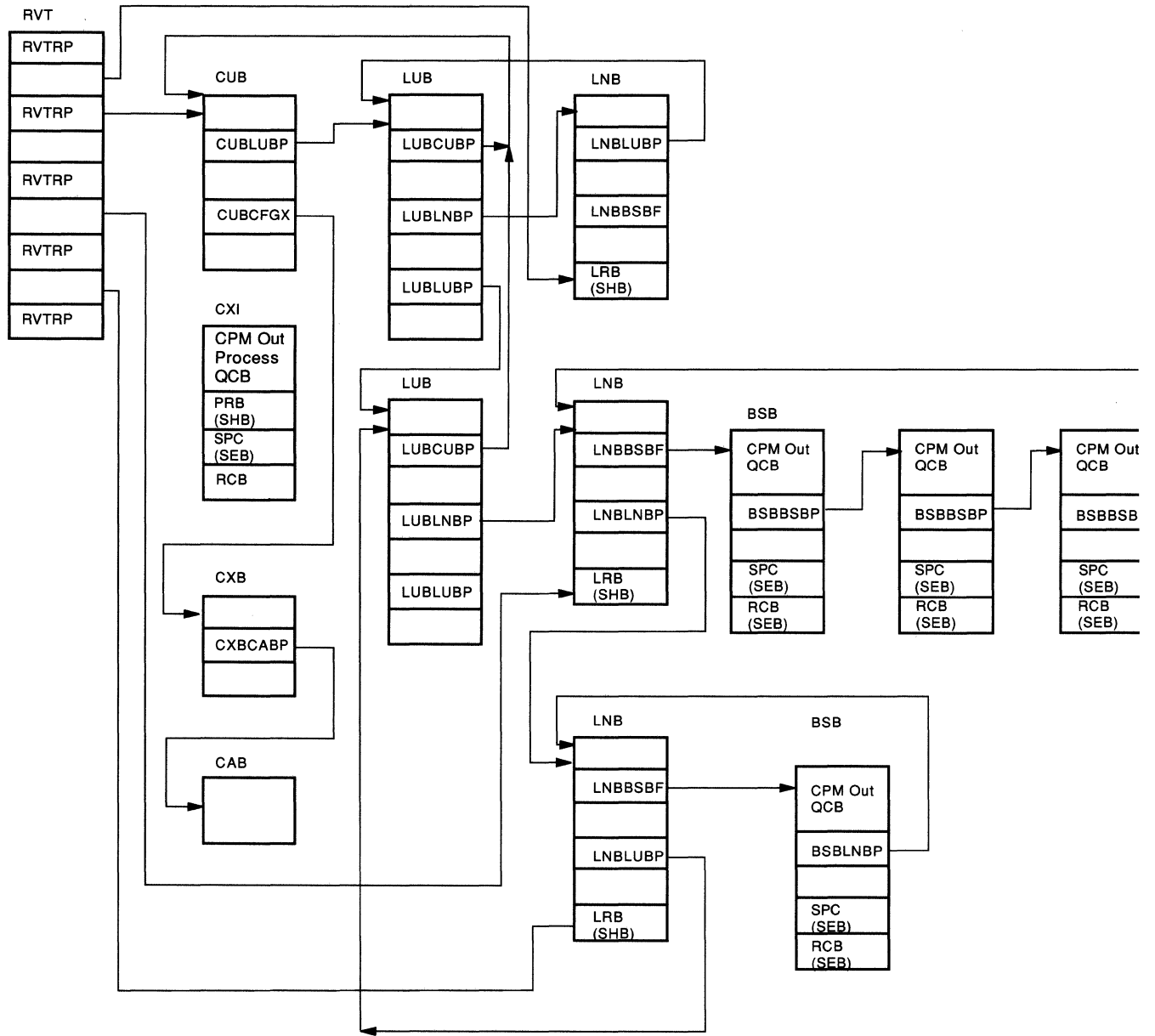
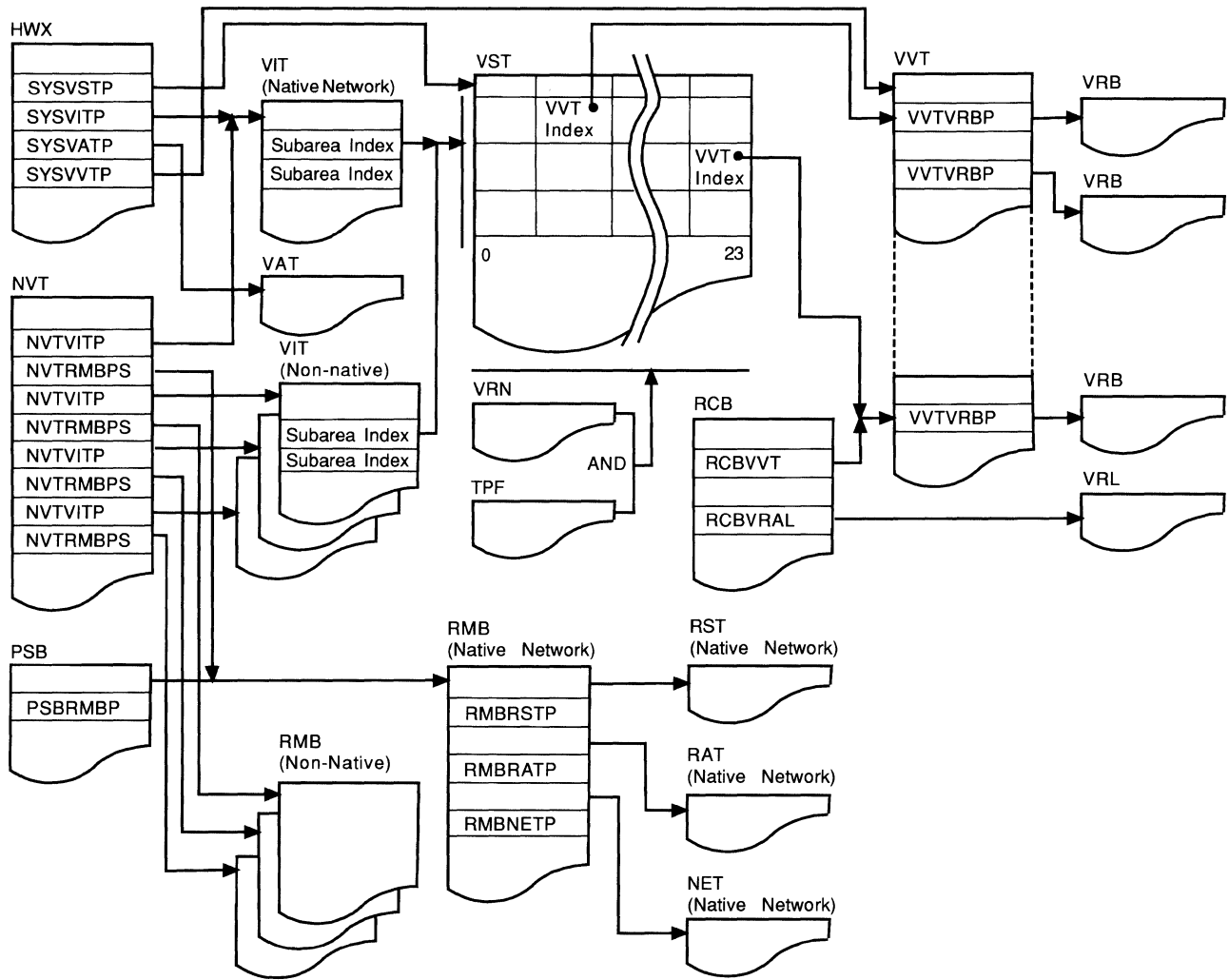


Figure 2-20. NCP Control Block Relationships for an Independent LU in an LU-LU Session



* Linkage established by the ATTACHVR macro and terminated by the DETACHVR macro.

Figure 2-21. Routing Control Block Relationships

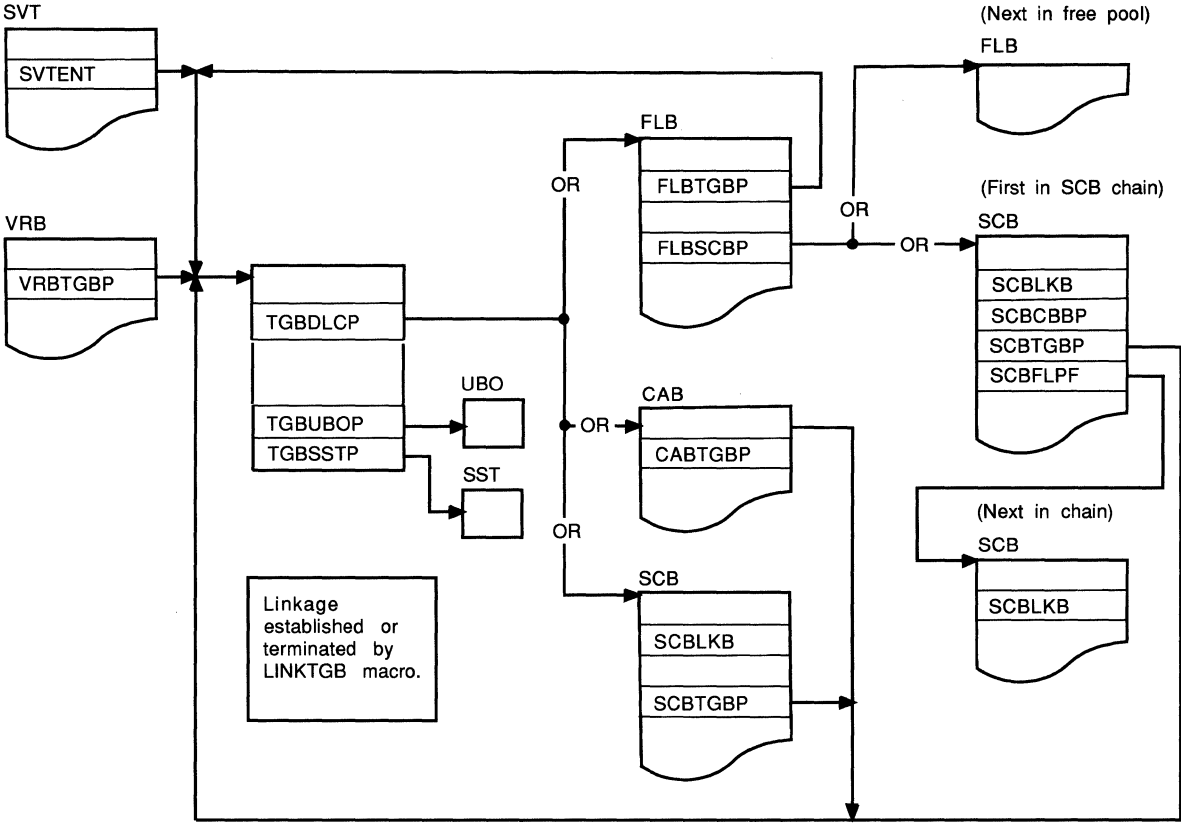
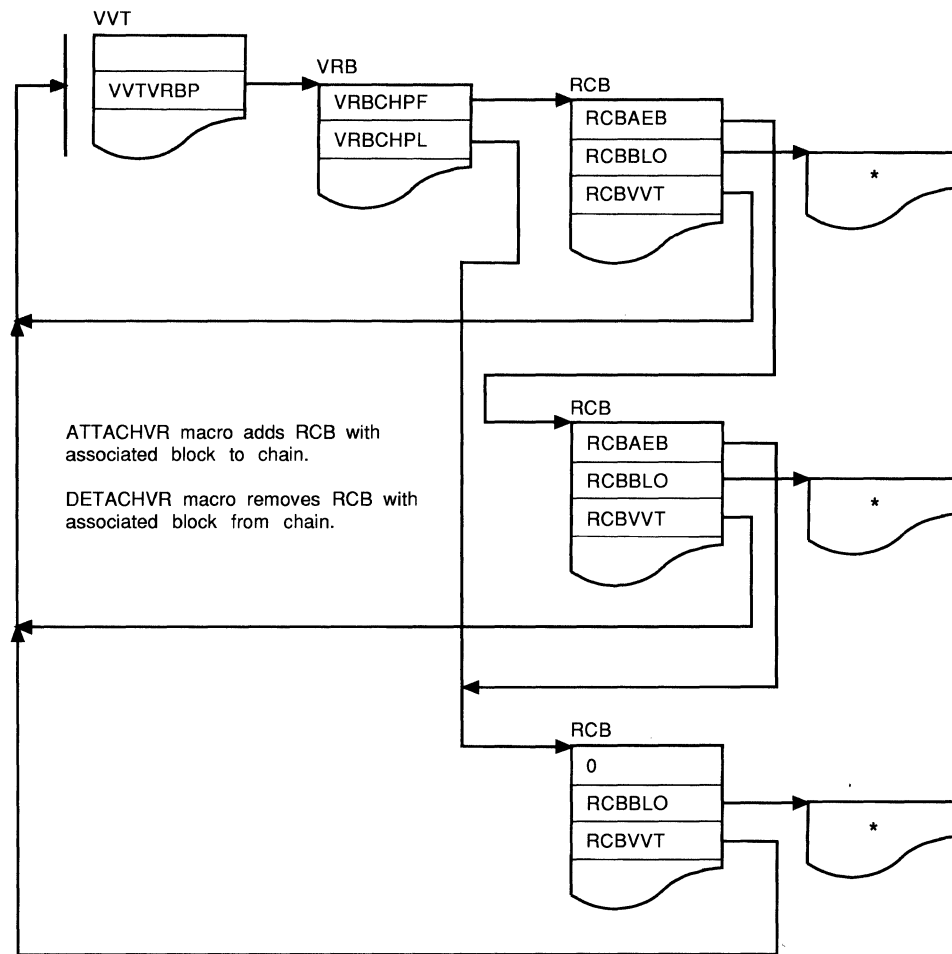


Figure 2-22. Transmission Group Control Block (TGB) Relationships



* BSB/CUB/DVB/NLB/NLX/NPB/SNP/GPT/LUX

Figure 2-23. Virtual Route Session Relationships

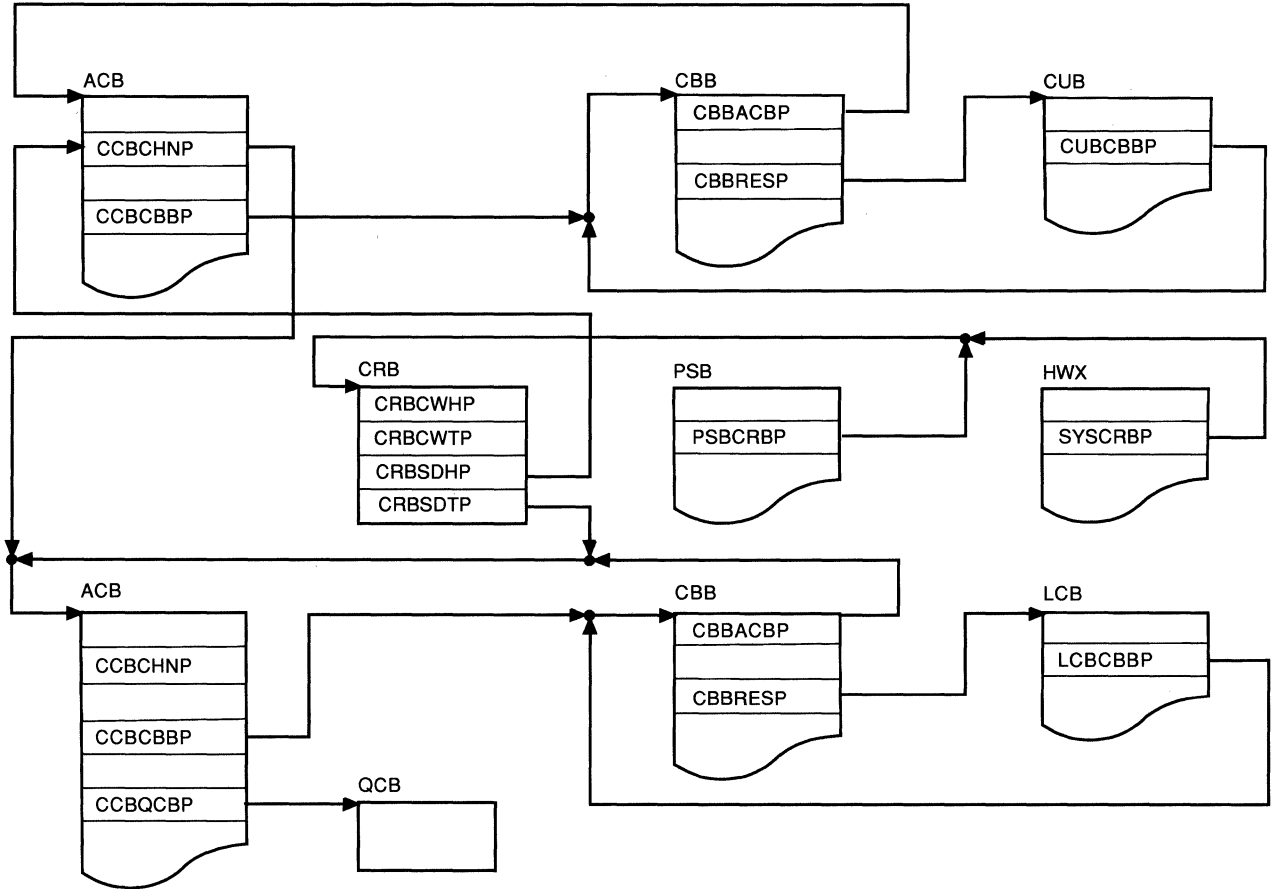
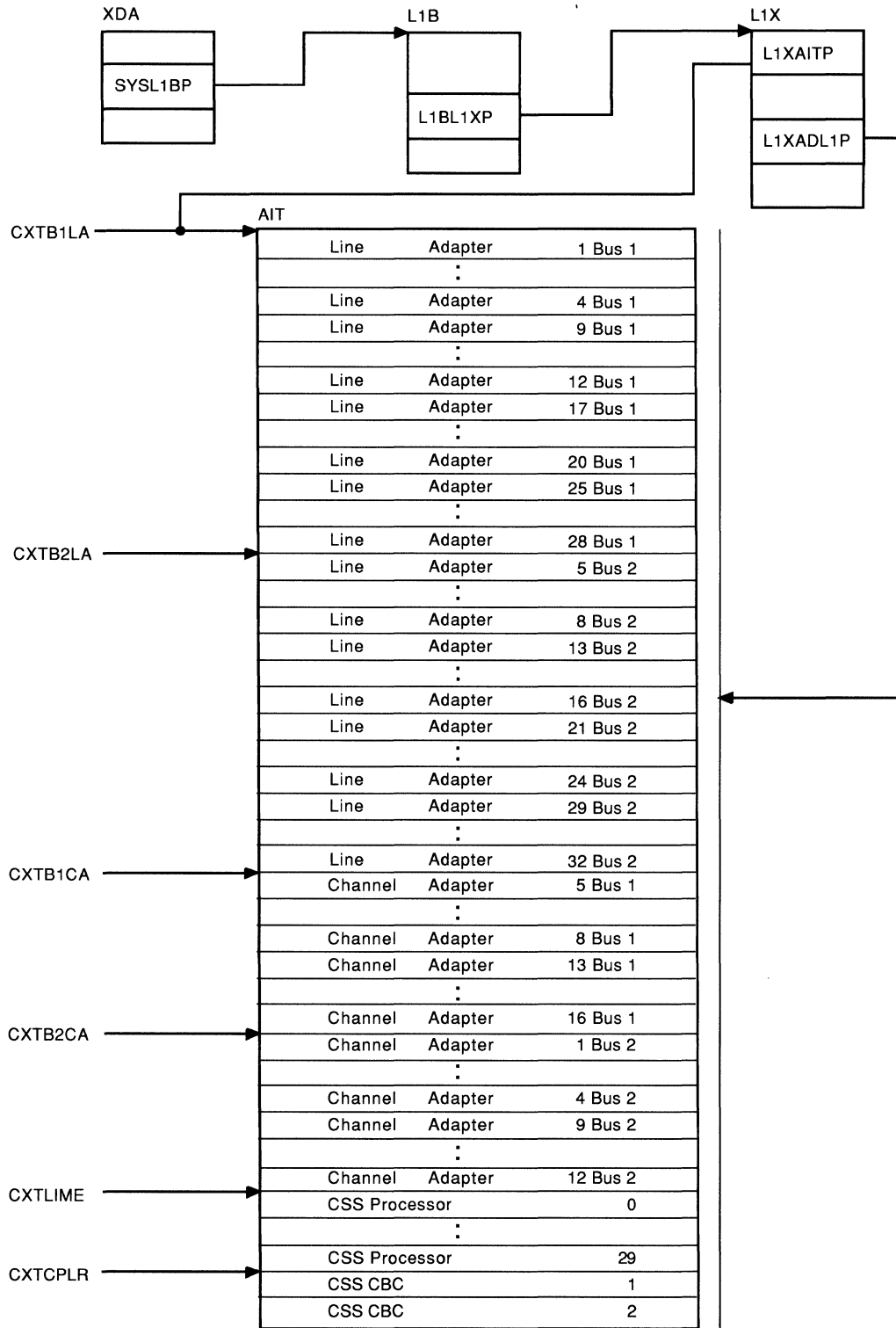
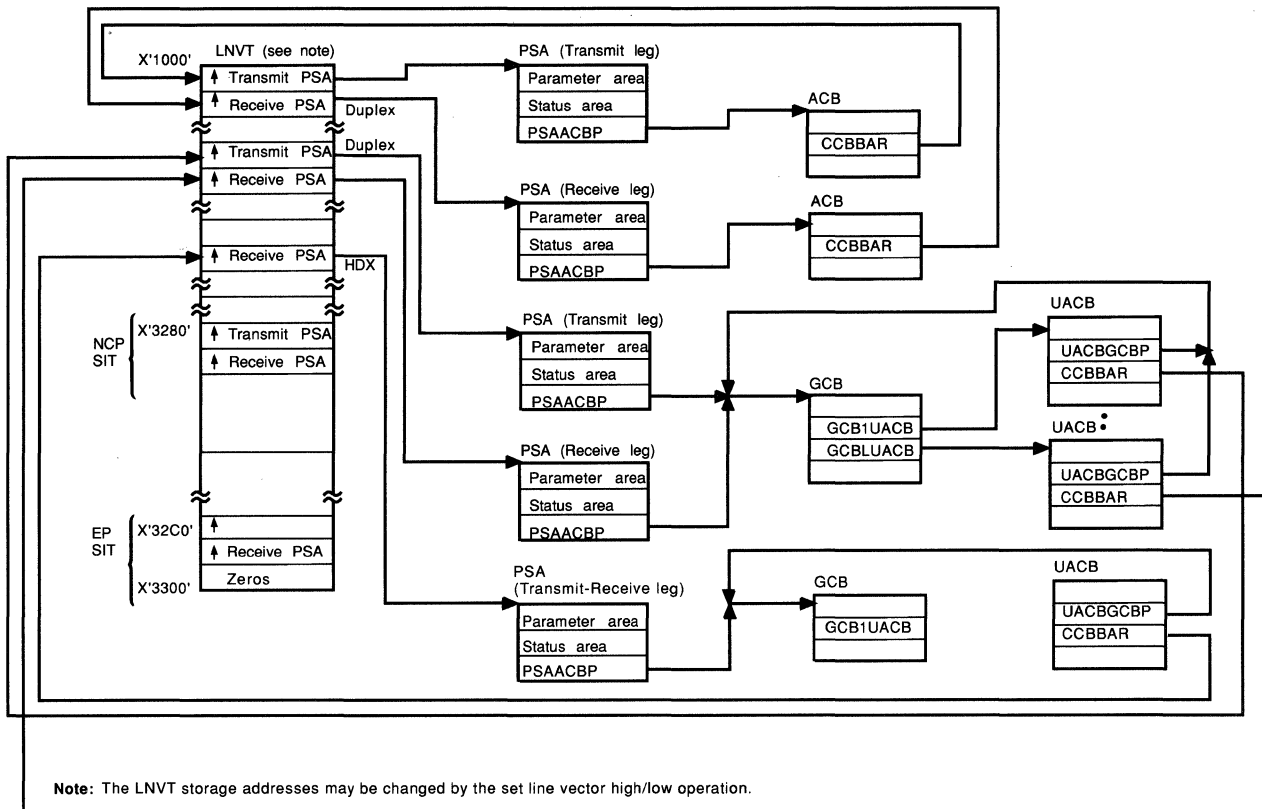


Figure 2-24. Committed Buffer Control Block Relationships



Each adapter position is 32(20) bytes.

Figure 2-25. Level-1 Control Block Relationships (3745)



See Figure 2-31 on page 2-30, Figure 2-33 on page 2-33, and Figure 2-34 on page 2-34 for examples on ODL links and processor representations, and control block structures.

Figure 2-26. CSP Control Block Relationships for NCP (3745)

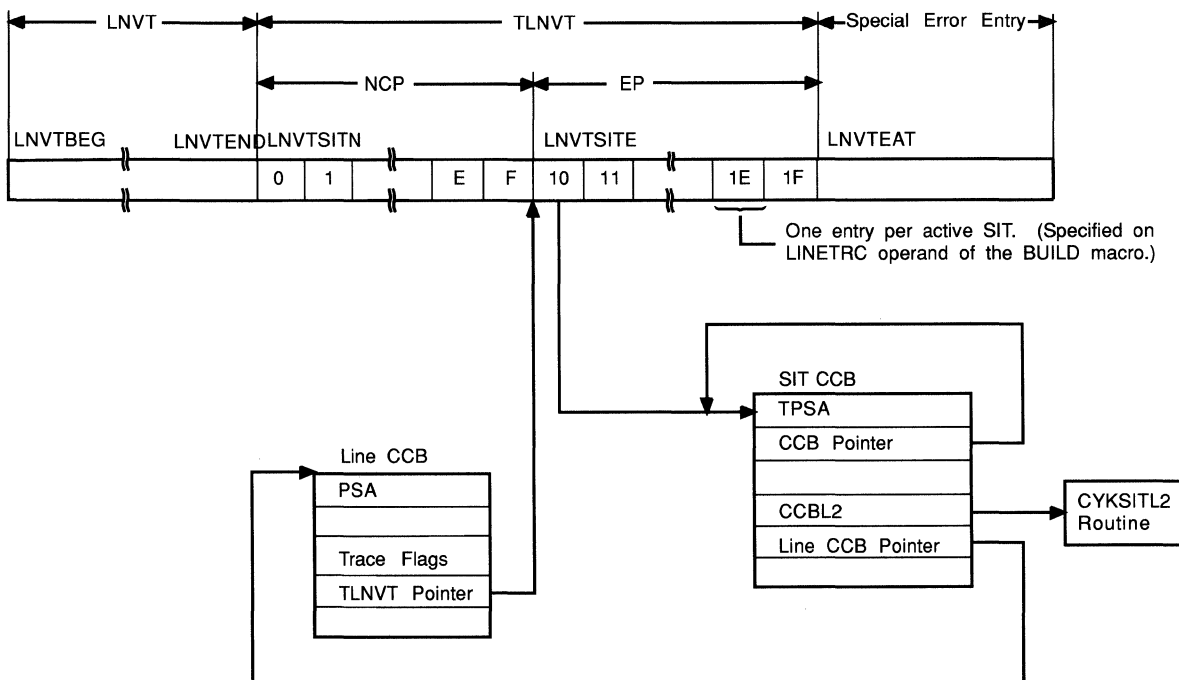


Figure 2-27. SIT Control Block Structure for EP (3745)

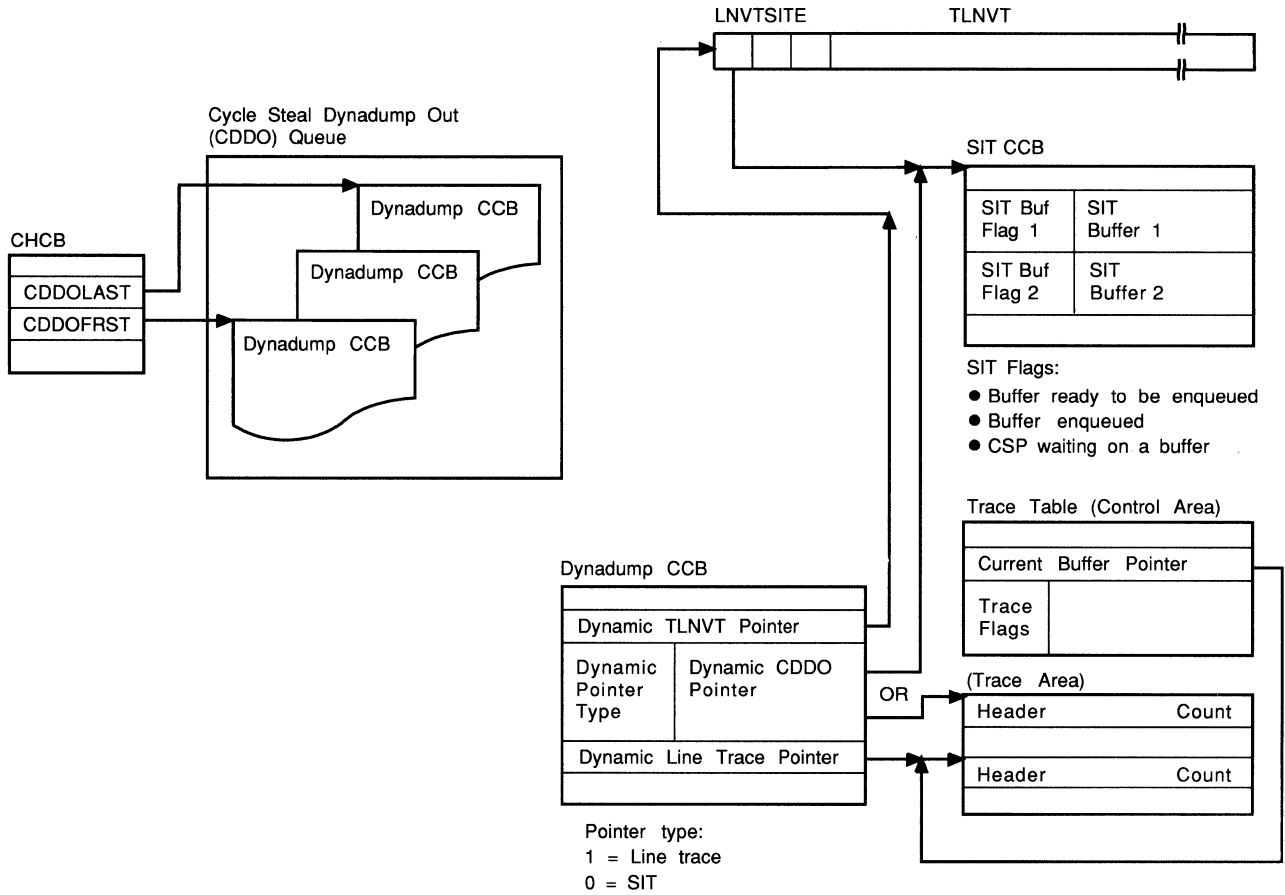


Figure 2-28. Control Block Relationships—Buffer Search for Dynamic Dump

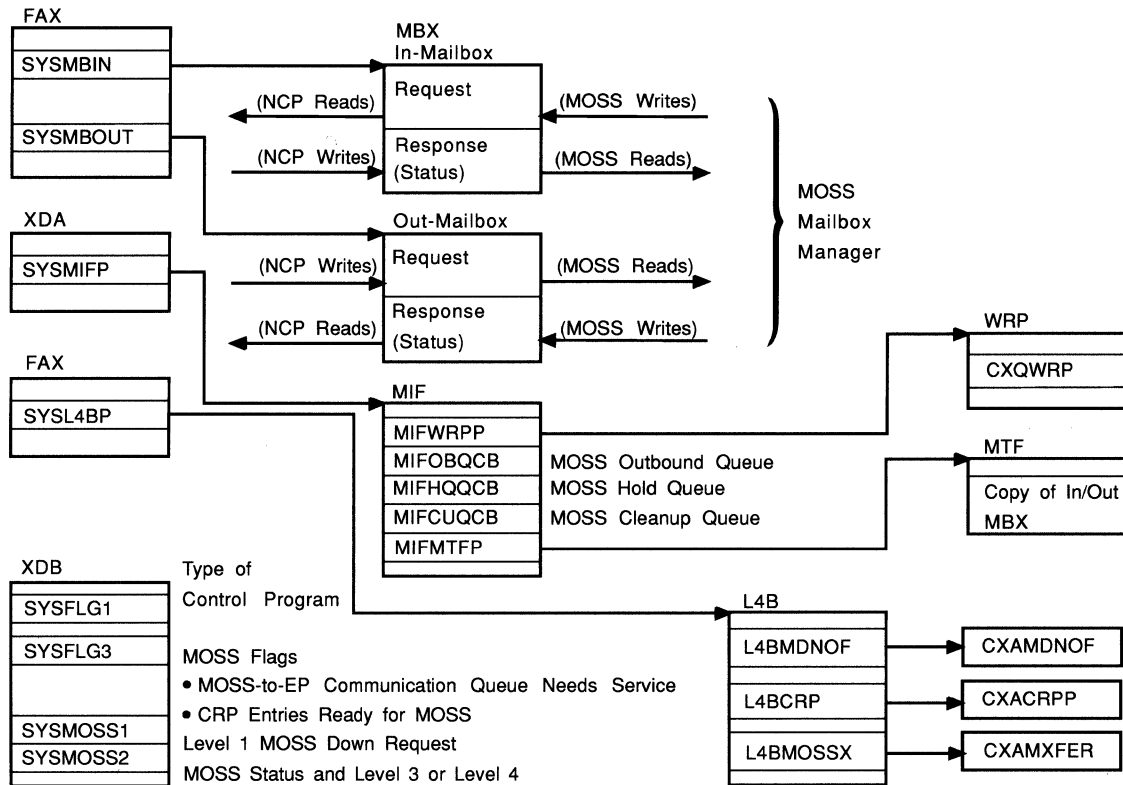


Figure 2-29. MOSS Control Block Relationships

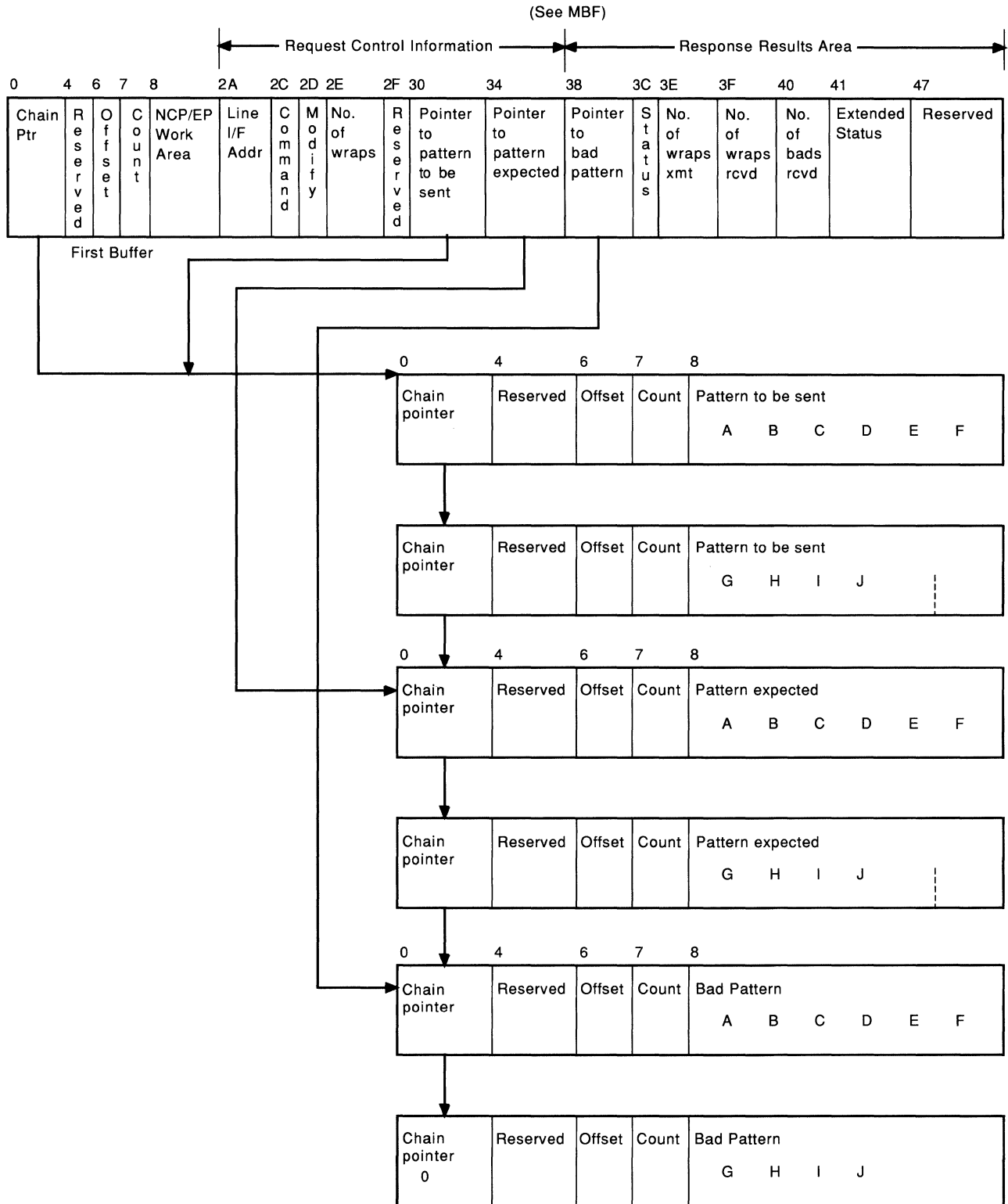
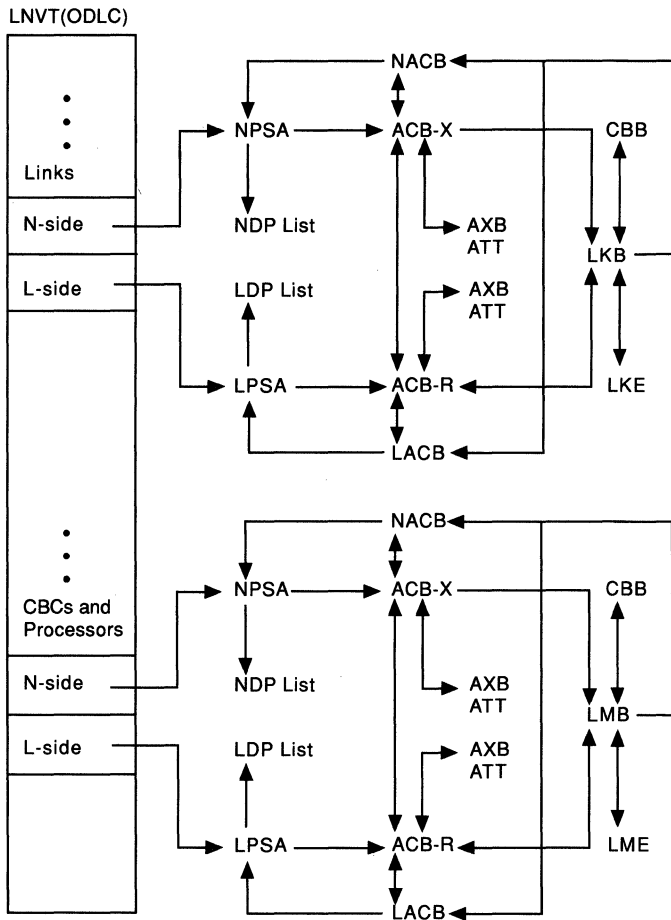
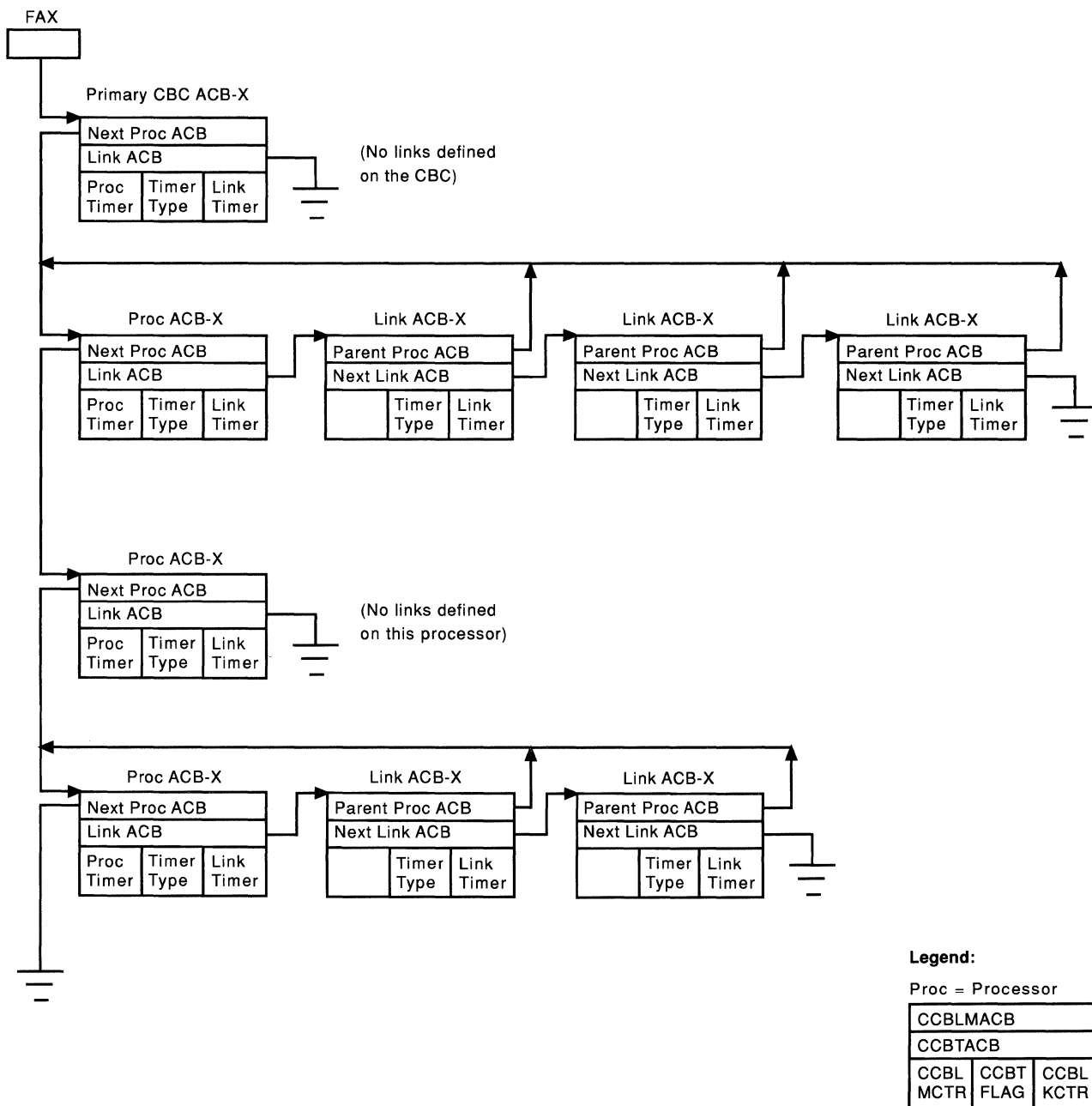


Figure 2-30. Wrap Results Buffer Chain for Start Wrap



Note: There is a pointer from each ODLC link's ACB-X to its processor's ACB-X.

Figure 2-31. ODLC Link, CBC, and Processor Representations



See Figure 2-5 on page 2-6 for an example of SDLC timer chain pointers.

Figure 2-32. NCP ODLC Timer Chain Pointers

ODLC ESCA Control Block Relationship: ESCA logical lines are represented as half-duplex leased secondary SDLC links. There will be one ACB and an NACB/LACB pair for each logical line. The logical NACB and LACB will each have a shortened form of the NACB and LACB used for physical lines. ESCA logical lines will also have a LKB and LKE. ESCA physical lines will have a transmit ACB/receive ACB pair and an NACB/LACB pair.

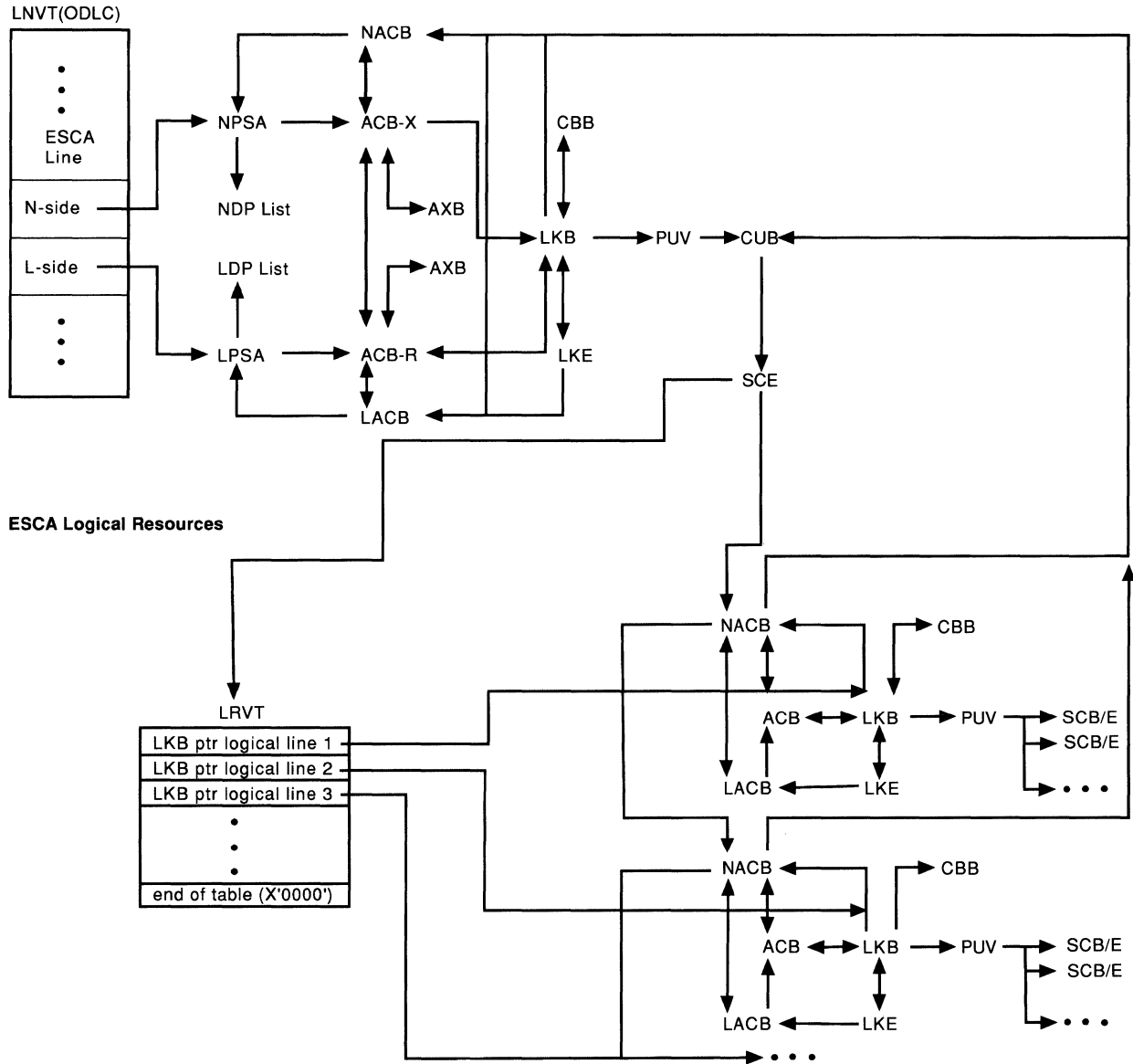
ESCA logical stations will be represented as stations on leased secondary SDLC links. There will be an SCB/CUB and SCE for each logical station.

The control block linkage for the logical control blocks will be the same as for the physical control blocks, with these exceptions:

- Each logical NACB will have a pointer to the next NACB in the **active logical line list**. An NACB is added to the list when it is activated and removed from the list when it is deactivated.
- The physical CUB (which represents the PU for the physical line) contains a pointer to the **active logical line list**.
- Each logical NACB contains a pointer to the physical NACB.
- Each logical NACB contains a pointer to the physical CUB.
- Each logical NACB contains a pointer to the NPSA for the associated physical line (at the same offset as the NPSA pointer in the physical NACB).
- Each logical LACB contains a pointer to the LPSA for the associated physical line (at the same offset as the LPSA pointer in the physical LACB).

Figure 2-33 on page 2-33 summarizes the resource control block relationship.

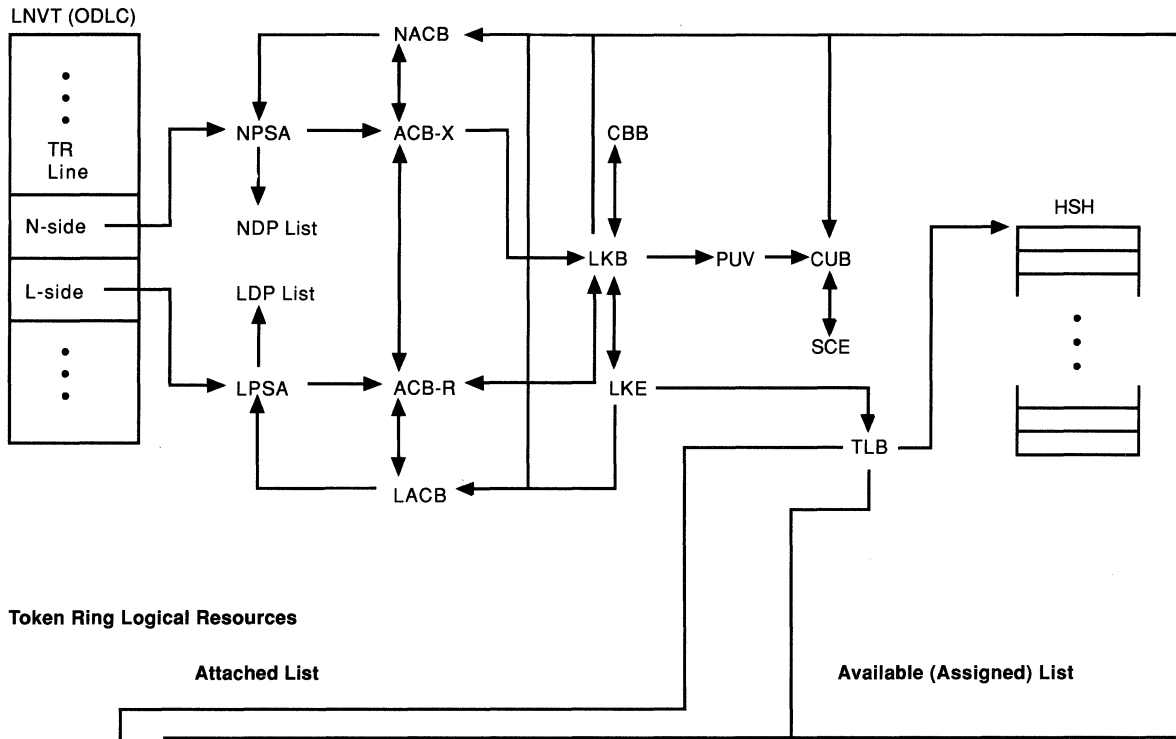
ESCA Physical Resources



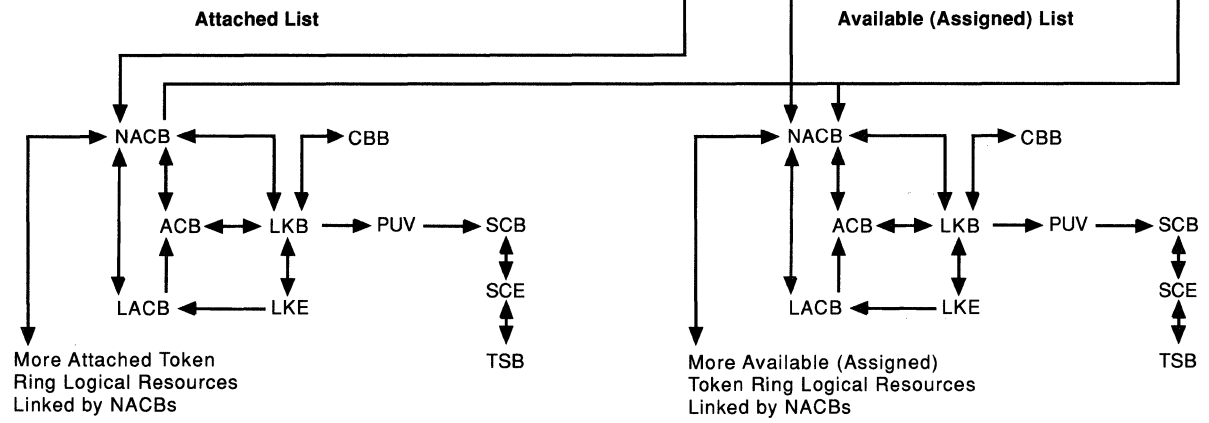
Note: Each logical NACB has a pointer to the physical NPSA
 Each SCE (logical and physical) has a pointer to its associated LACB

Figure 2-33. Control Block Structure for ESCA Physical/Logical Resources

Token Ring Physical Resource



Token Ring Logical Resources



Note: Each logical NACB has a pointer to the physical NACB and to the physical CUB and the physical NPSA
 Each SCE (logical and physical) has a pointer to its associated LACB

Figure 2-34. Control Block Structure for Token-Ring Physical/Logical Resources

This figure lists selected control block pointers. The fields may point to different control blocks at different times. Each row below lists a field, the control block in which the field is located, all of the possible control blocks to which the field may point, and, most importantly, under which conditions the field will point to that specific control block. Listed under the conditions is the appropriate bits which need to be tested to make that condition true.

For a pictorial layout of these pointers, see Figure 2-36 on page 2-37 through Figure 2-44 on page 2-41.

```

=====
CONTROL
BLOCK   FIELD       POINTS TO:   CONDITIONS
-----
LNVT    LNVTPSAP/R    PSA         DEFINED LINE AND NOT IN USE BY EP.
                                     (LNVTFLLGS BIT 1 OFF)
                                     (LNVTFLLGS BIT 7 OFF)
LNVT    LNVTPSAP      EPCCB       DEFINED LINE AND IN USE BY EP.
                                     (LNVTFLLGS BIT 1 OFF)
                                     (LNVTFLLGS BIT 7 ON)
                                     THE EPCCB CONTAINS THE PSA.
LNVT    LNVTPSAP/R    DUMMY PSA   UNDEFINED LINE OR LINE INTERFACE (HDX lines)
                                     (LNVTFLLGS BIT 1 ON)
=====

CONTROL
BLOCK   FIELD       POINTS TO:   CONDITIONS
-----
PSA     PSAACBP      ITSELF      IN USE BY EP.
                                     (LNVTFLLGS BIT 7 ON)
PSA     PSAACBP      GCB         NEO.
                                     (GCBFLGAS OR CCBSETYP BIT 6 ON)
PSA     PSAACBP      LTCB        LINE TRACE ACTIVE.
                                     (PSAACBF BIT 0 ON)
                                     WHEN SIT IS ACTIVE THE PSA WILL POINT TO
                                     THE LTCB IN THE SIT PORTION THE LNVT.
PSA     PSAACBP      ACB         NCP LINE WITHOUT LINE TRACE
                                     (CCBSETYP BIT 6 OFF).
=====

CONTROL
BLOCK   FIELD       POINTS TO:   CONDITIONS
-----
LTCB    CCTACB      ACB         LINE TRACE ACTIVE.
                                     (PSAACBF BIT 0 ON)
LTCB    CCTACB      UACB        NEO WITH LINE TRACE ACTIVE.
                                     (GCBFLGAS OR CCBSETYP BIT 6 ON)
                                     (PSAACBF BIT 0 ON)
                                     (CCTFLAG BIT 4 OFF)
  
```

Figure 2-35 (Part 1 of 3). Control Block Structure Pointer Conditions


```

=====
CONTROL
BLOCK  FIELD      POINTS TO:  CONDITIONS
-----
ACB    CCBBAR      LNVT       EACH ACB HAS A BACKWARD POINTER TO
                                ITS CORRESPONDING LNVT ENTRY.
ACB    IOBLCB     LCB        BSC/SS.
                                (CCBTYPE BIT 7 OFF)
ACB    LXBLKBP   LKB        SDLC.
                                (CCBTYPE BIT 7 ON)
=====
  
```

```

=====
CONTROL
BLOCK  FIELD      POINTS TO:  CONDITIONS
-----
GCB    GCB1UACB   FIRST UACB  NEO.
                                (GCBFLAGS OR CCBSETYP BIT 6 ON)
GCB    GCBLUACB  LAST  UACB  NEO.
                                (GCBFLAGS OR CCBSETYP BIT 6 ON)
                                NOTE: THE GCB POINTS TO THE BEGINNING AND
                                END OF A CHAIN OF UACBS. THIS CHAIN
                                CONTAINS ALL OF THE UACBS FOR ALL OF THE
                                LINES WITHIN THIS GROUP.
=====
  
```

```

=====
CONTROL
BLOCK  FIELD      POINTS TO:  CONDITIONS
-----
UACB   -----    LKB        NEO--NO FORMAL POINTER. WILL BE SAME AS
                                ACB IF NEO HAS COMPATIBLE CONTROL
                                BLOCKS.
UACB   UACBGCBP   GCB        NEO.
                                (GCBFLAGS OR CCBSETYP BIT 6 ON)
                                NOTE: EACH UACB HAS A POINTER
                                BACK TO ITS GCB.
UACB   CCBBAR     LNVT ENTRY  EACH UACB HAS A BACKWARD POINTER
                                TO ITS CORRESPONDING LNVT ENTRY.
=====
  
```

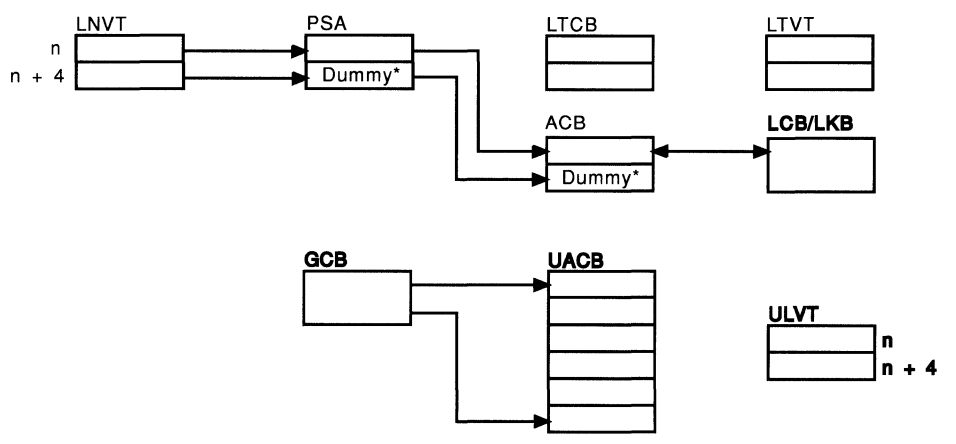
```

=====
CONTROL
BLOCK  FIELD      POINTS TO:  CONDITIONS
-----
LCB    LCBACBP\    ACB RECEIVE  NON-NEO.
LKB    LKBACBP/
                                (GCBFLAGS OR CCBSETYP BIT 6 OFF)
                                NEO--NO FORMAL POINTER.
                                (GCBFLAGS OR CCBSETYP BIT 6 ON)
=====
  
```

Figure 2-35 (Part 2 of 3). Control Block Structure Pointer Conditions

CONTROL BLOCK	FIELD	POINTS TO:	CONDITIONS
LTVT	LTVTCCTP	LTCB RECEIVE	SIT OR LINE TRACE ACTIVE. (PSAACBF BIT 0 ON) (CCTFLAG BIT 4 ON) NOTE: POINTS TO THE RECEIVE LEG FOR DUPLEX LINES. THE TRANSMIT LEG IMMEDIATELY FOLLOWS THE RECEIVE LEG OF THE LTCB.
ULVT	ULVTUACB	UACB TRANSMIT	THE ULVT MIRRORS THE LNVT. IT HAS THE SAME OFFSETS AS THE LNVT AND IS USED FOR POINTING TO THE UACB. I.E., THE UACB FOUND BY USING THE POINTER AT OFFSET "N" IN THE ULVT IS FOR THE SAME INTERFACE AS FOUND AT OFFSET "N" IN THE LNVT.
ULVT	ULVTUCBR	UACB RECEIVE	FOR A HALF DUPLEX LINE, THE ENTRY WILL BE ZEROS. FOR AN AUTO-CALL LINE, THE POINTER WILL BE THE SAME AS THE TRANSMIT UACB.

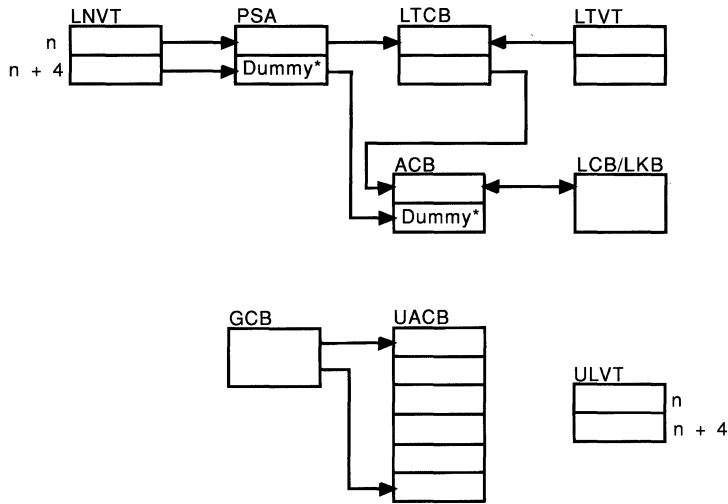
Figure 2-35 (Part 3 of 3). Control Block Structure Pointer Conditions



Mode (NCP/NEO) : NCP
 Line Type (HDX/FDX) : HDX*
 Line Trace Active : No

*HDX lines always have the second LNVT interface point to the dummy PSA which in turn points to the dummy ACB.

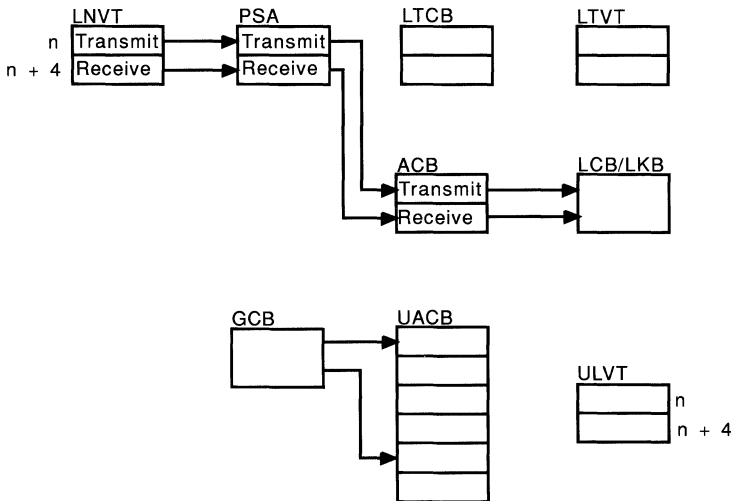
Figure 2-36. Control Block Structure for an NCP Half-Duplex Line without Line Trace Active



Mode (NCP/NEO) : NCP
 Line Type (HDX/FDX) : HDX*
 Line Trace Active : Yes

***HDX lines always have the second LNVN Interface point to the dummy PSA which in turn points to the dummy ACB.**

Figure 2-37. Control Block Structure for an NCP Half-Duplex Line with Line Trace Active



Mode (NCP/NEO) : NCP
 Line Type (HDX/FDX) : FDX
 Line Trace Active : No

Figure 2-38. Control Block Structure for an NCP Duplex Line without Line Trace Active

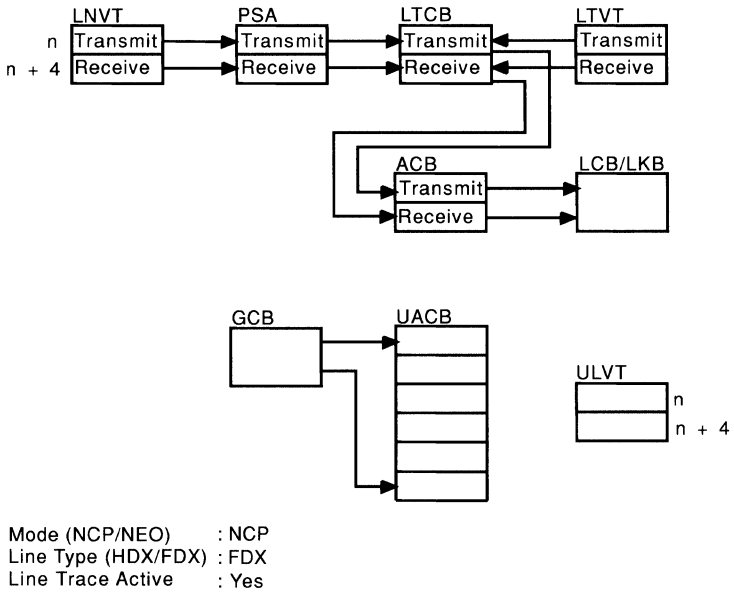
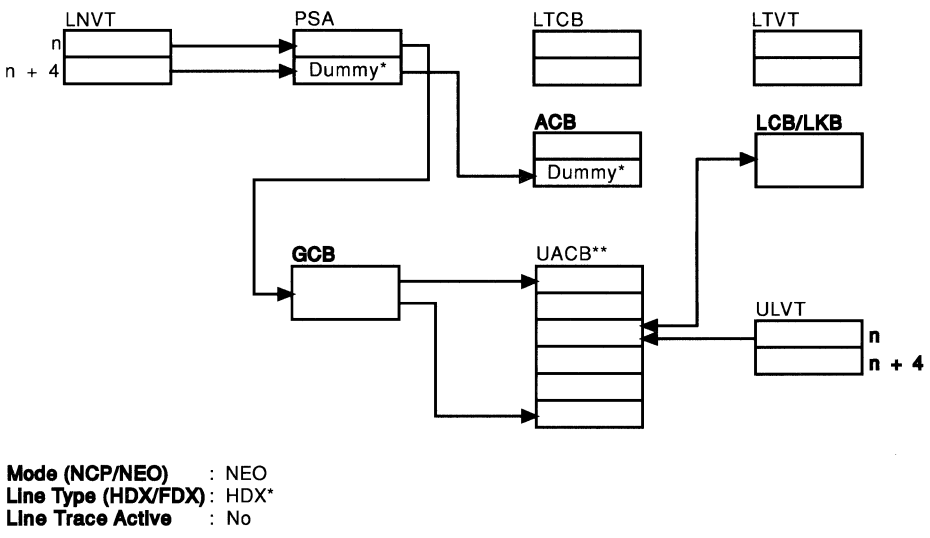


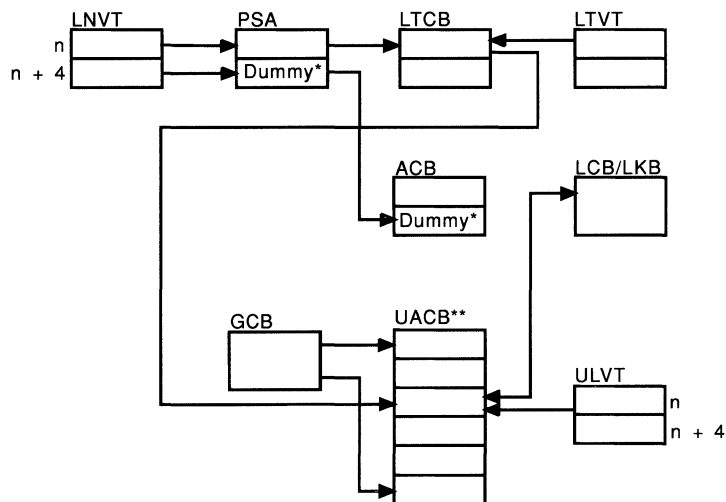
Figure 2-39. Control Block Structure for an NCP Duplex Line with Line Trace Active



* HDX lines always have the second LNV interface point to the dummy PSA which in turn points to the dummy ACB.

**Each UACB has a pointer to the GCB.

Figure 2-40. Control Block Structure for an IBM Special Products or User-Written Code Half-Duplex Line without Line Trace Active

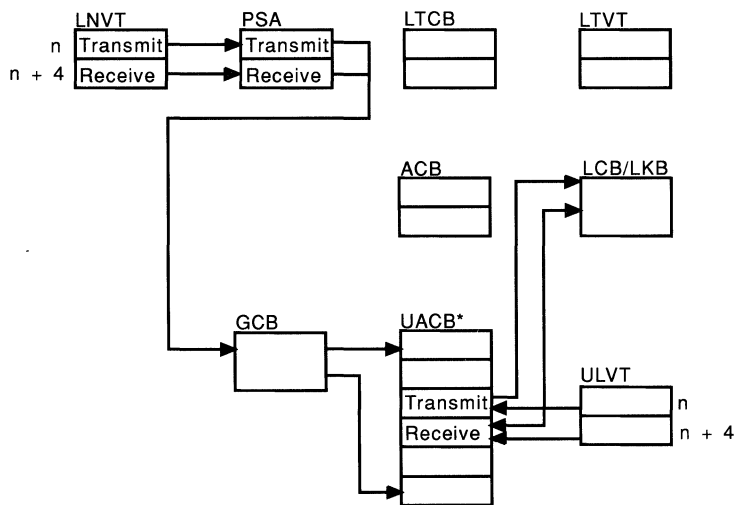


Mode (NCP/NEO) : NEO
 Line Type (HDX/FDX) : HDX*
 Line Trace Active : Yes

* HDX lines always have the second LNVN interface point to the dummy PSA which in turn points to the dummy ACB.

**Each UACB has a pointer to the GCB.

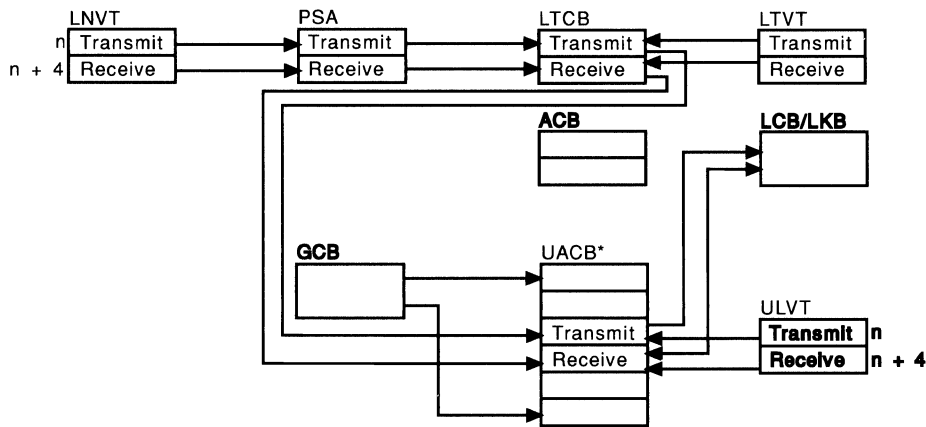
Figure 2-41. Control Block Structure for an IBM Special Products or User-Written Code Half-Duplex Line with Line Trace Active



Mode (NCP/NEO) : NEO
 Line Type (HDX/FDX) : FDX
 Line Trace Active : No

*Each UACB has a pointer to the GCB.

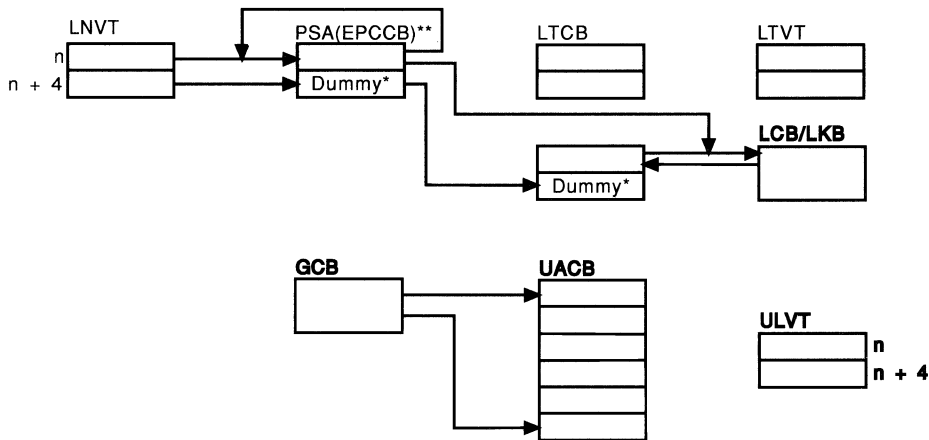
Figure 2-42. Control Block Structure for an IBM Special Products or User-Written Code Duplex Line without Line Trace Active



Mode (NCP/NEO) : NEO
 Line Type (HDX/FDX) : FDX
 Line Trace Active : Yes

*Each UACB has a pointer to the GCB.

Figure 2-43. Control Block Structure for an IBM Special Products or User-Written Code Duplex Line with Line Trace Active



Mode (NCP/NEO) : PEP in EP mode
 Line Type (HDX/FDX) : HDX*
 Line Trace Active : No

* HDX lines always have the second LNVN interface point to the dummy PSA which in turn points to the dummy ACB.

**The EPCCB control block contains the PSA and the CCB portion points back to the beginning of the control block.

Figure 2-44. Control Block Structure for a PEP in EP Mode Half-Duplex Line without Line Trace Active

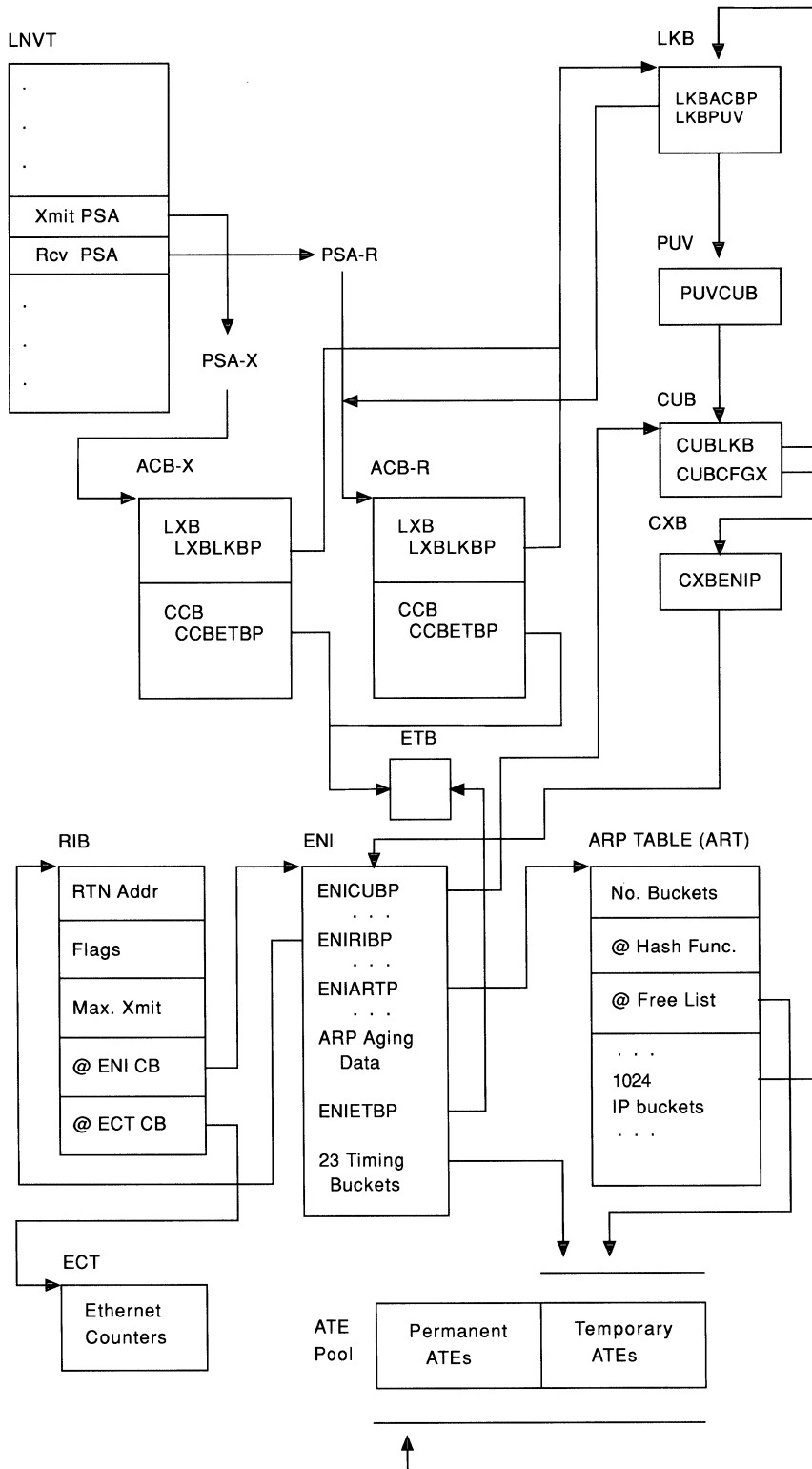


Figure 2-45. Data Link Control and Ethernet Interface Control Block Relationships

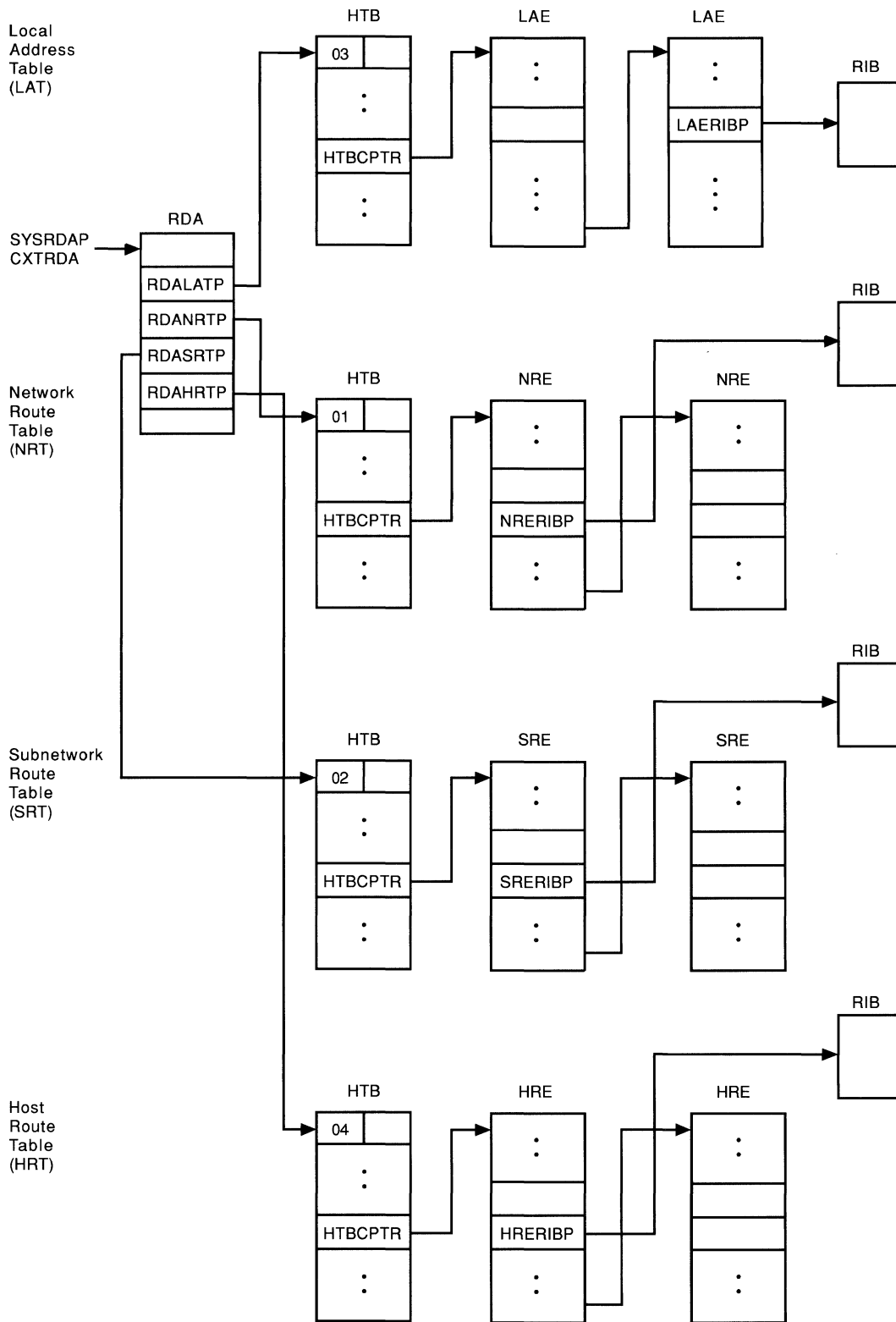


Figure 2-46. SNA-Internet Protocol Interface Control Block Relationships

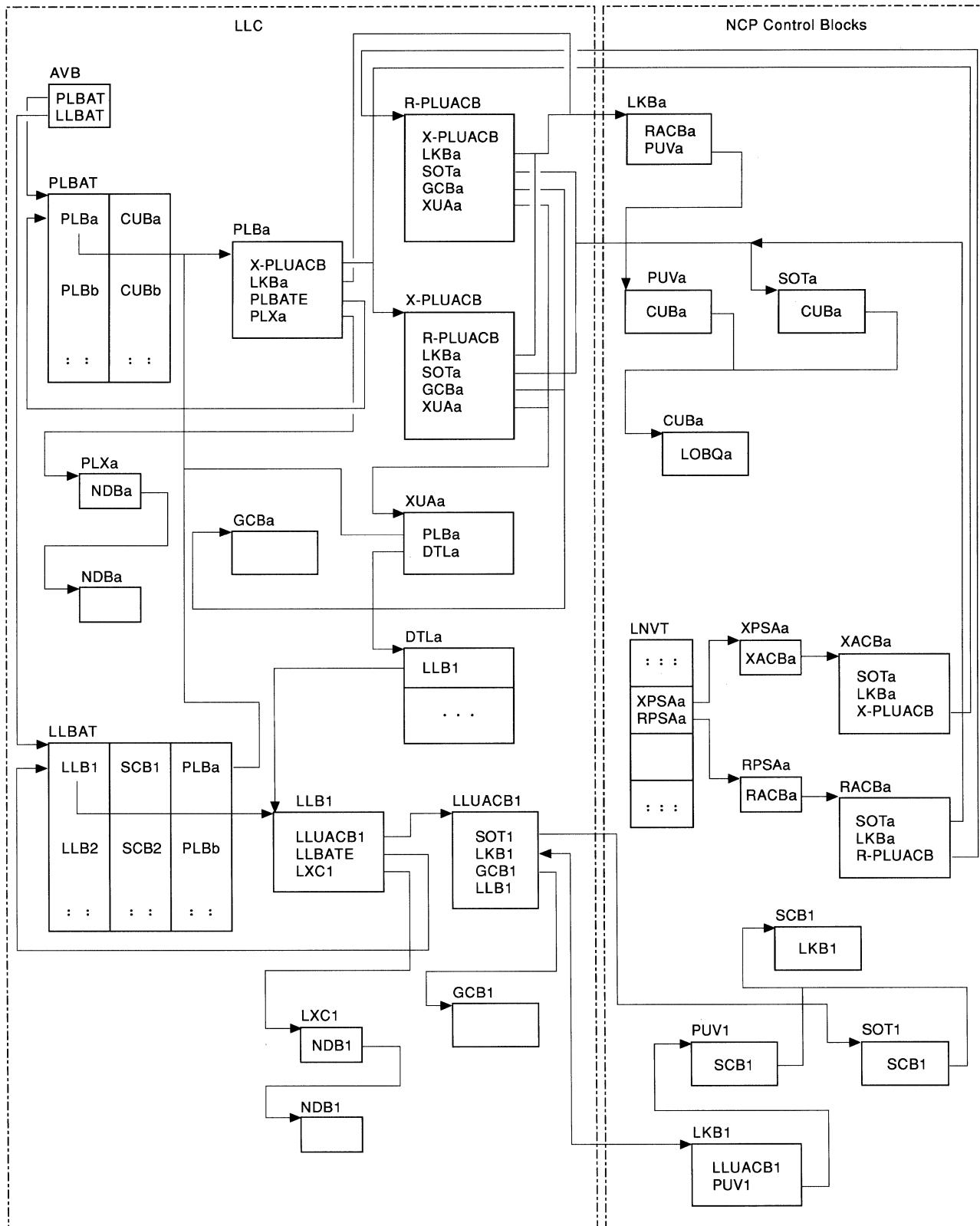
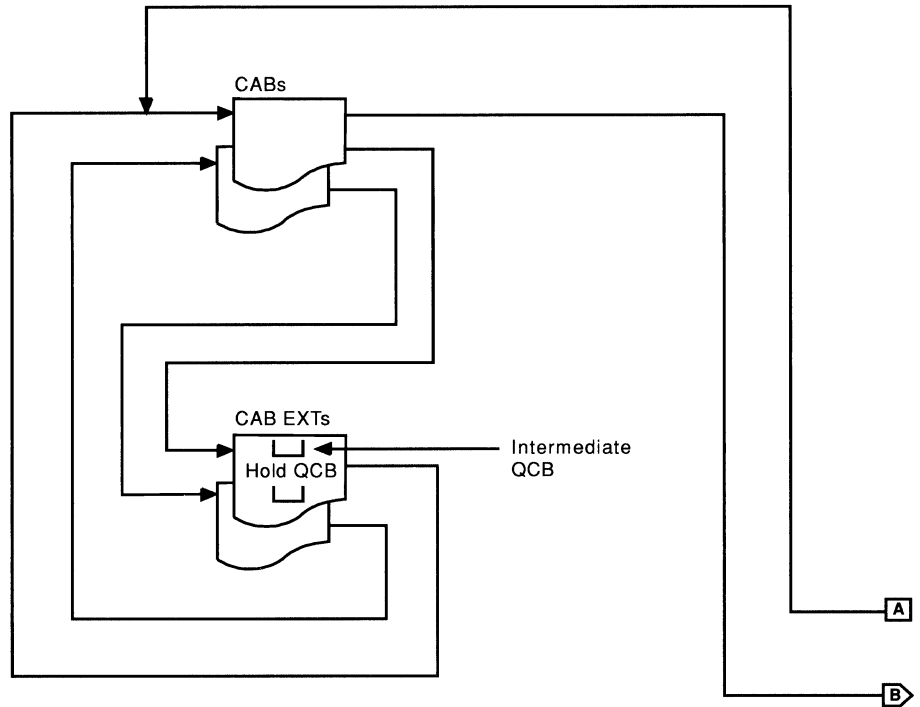


Figure 2-47. NCP and Logical Link Control, Control Blocks for Frame Relay

Channel



SDLC

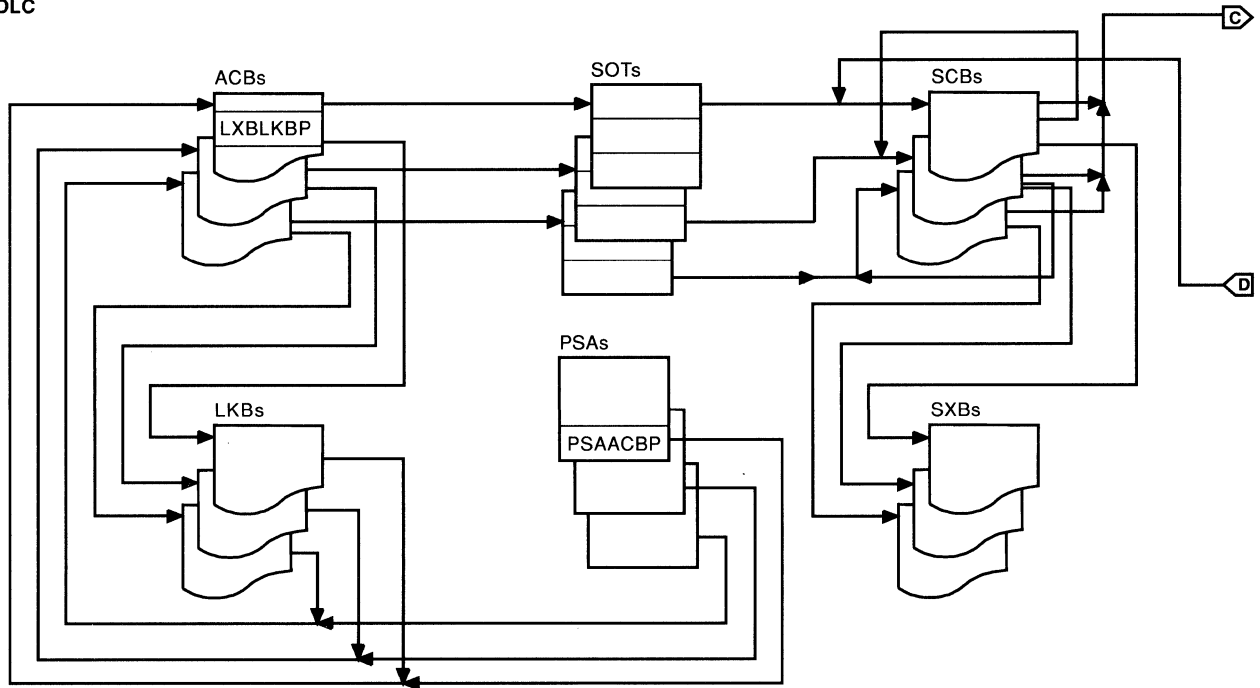


Figure 2-48. Data Link Control, Control Blocks Inbound

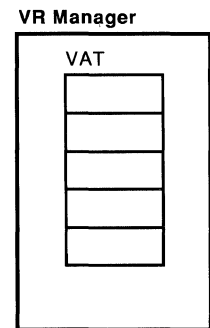
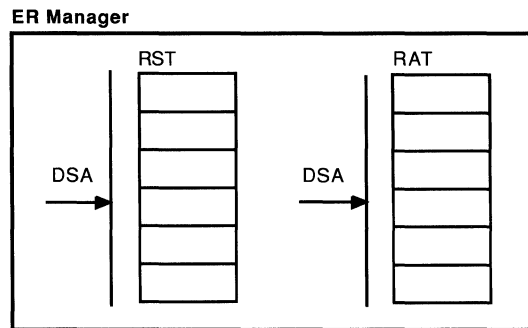
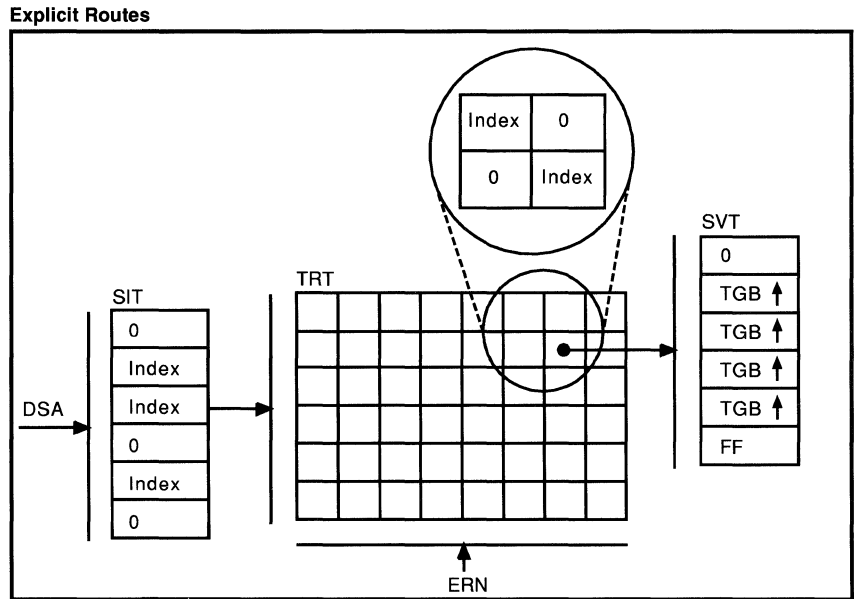
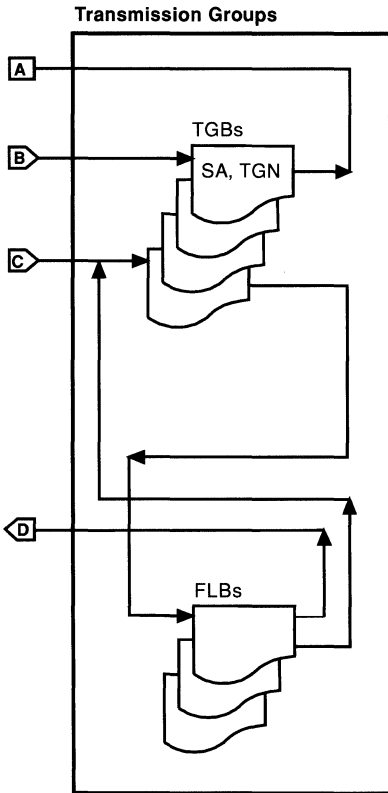
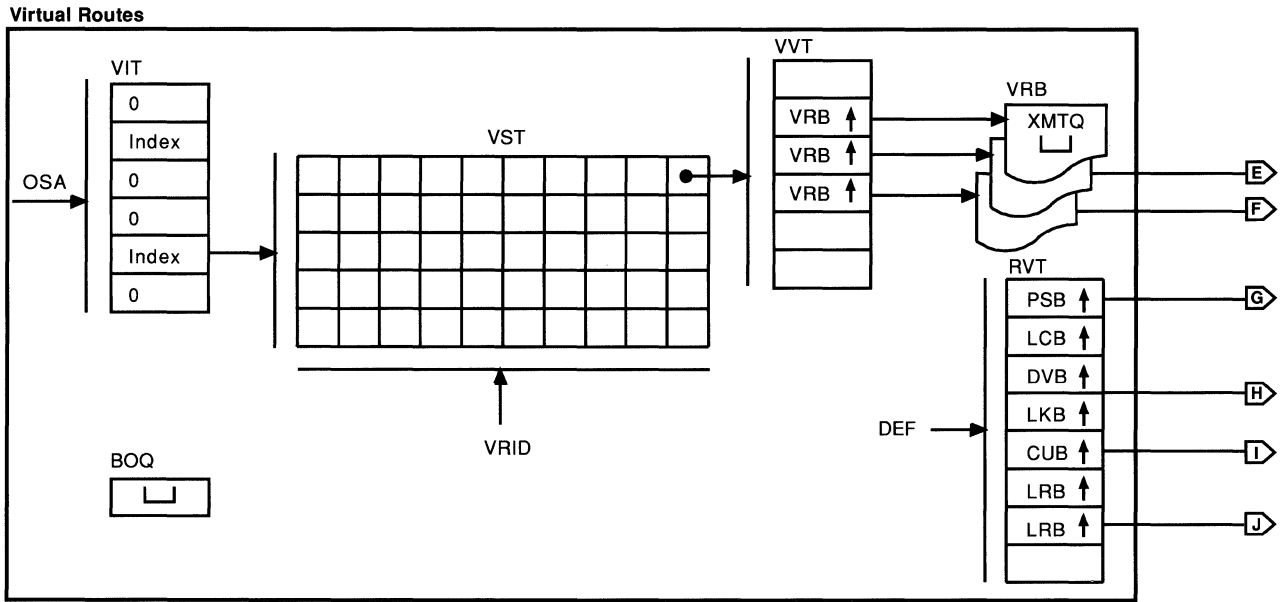


Figure 2-49. Subarea Node Control Blocks

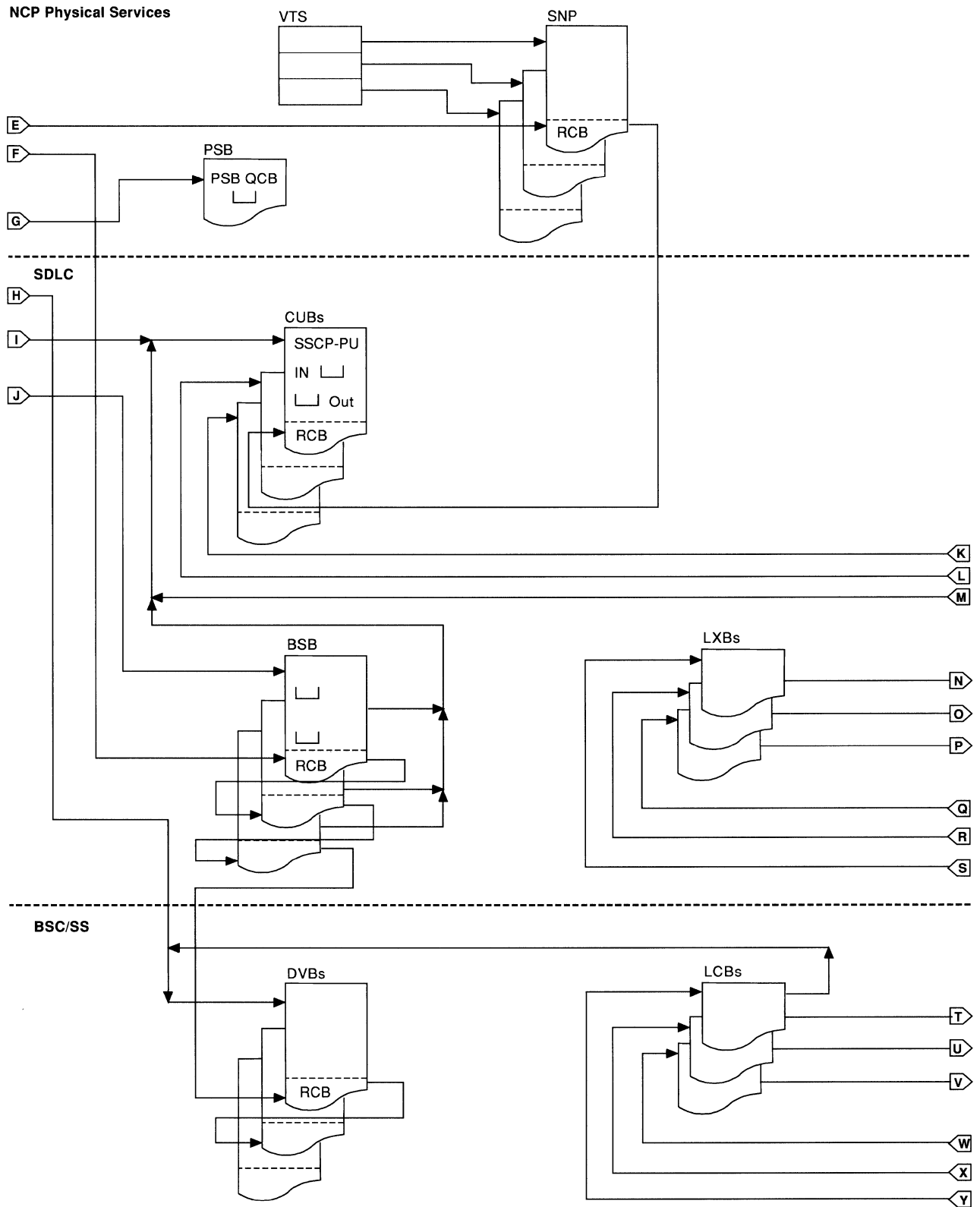


Figure 2-50. Peripheral Node Control Blocks

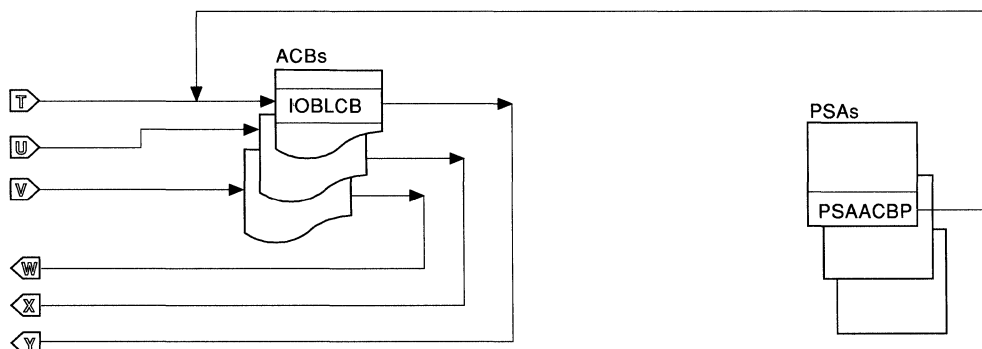
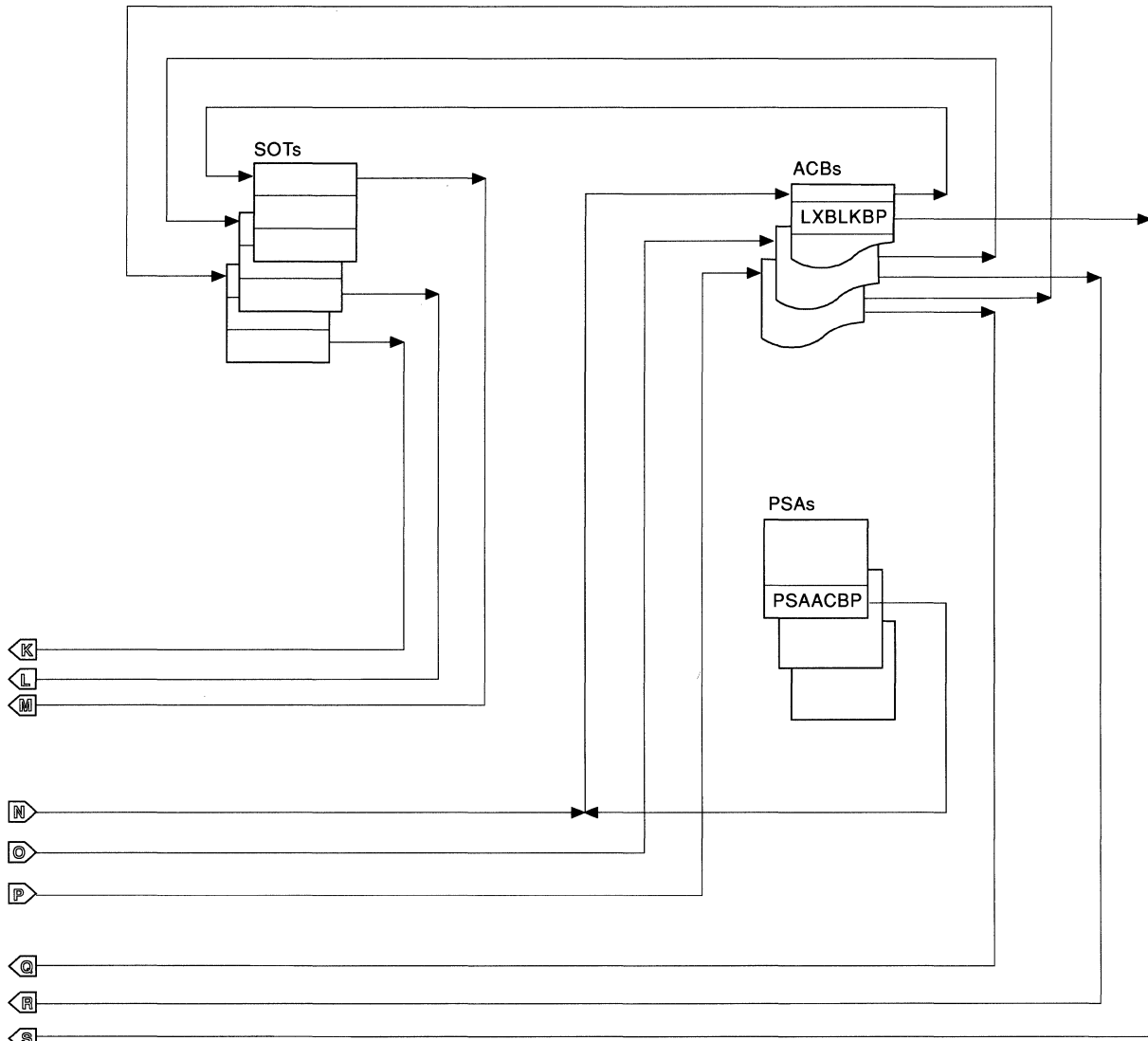


Figure 2-51. Data Link Control Outbound

BTU Commands, Modifiers, and Responses

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Section 3. BTU Commands, Modifiers, and Responses

Following is a list of the BTU commands with a brief description of each modifier and the hexadecimal value.

Null Command (X'00')

No modifier fields apply to the Null command.

Read Command (X'01')

Modifier (hex)	Command	Meaning
00	Read Normal (R)	Unit of data for this command is that specified by the TERMINAL definition statement at NCP generation.
01	Read Block (Rb)	Unit of data for this command is the block. Ends with the End of Block character (EOB).
02	Read Message (Rm)	Unit of data for this command is the message. For BSC, ends with End of Text (ETX). For SS, ends with End of Transmission (EOT).
03	Read Transmission (Rt)	Unit of data for this command is the transmission (ends with EOT).
04	Read Transmission Disconnect (Rd)	Command is executed as a Read Transmission command followed by a Disconnect command.
05	Read with Invite (Ri)	Command is executed as a Read Transmission command with Disconnect followed by an Invite Normal command.

Write Command (X'02')

Modifier (hex)	Command	Meaning
00	Write Normal (W)	Unit of data is one block.
01	Write with End of Message (Wm)	Unit of data is one block followed by the appropriate control sequence or character for an End of Message (EOM).
02	Write with End of Transmission (Wt)	Unit of data is one block followed by the control sequence for End of Transmission (EOT).
03	Write with Disconnect (Wd)	Command is executed as a Write Transmission command followed by a Disconnect command.
06	Write with Read (implied EOT) (Wr)	Command is executed as a Write command followed by a Read command.
07	Write with Invite (Wi)	Command is executed as a Write command with an EOT followed by a Disconnect command and then an Invite command.
08	Write with Contact* (Wc)	Command is executed as a Contact command followed by a Write Normal command.
09	Write with Contact* (implied ETX) (Wcm)	Command is executed as a Contact command followed by a Write with EOM.

Modifier (hex)	Command	Meaning
0A	Write with Contact* (implied EOT) (Wct)	Command is executed as a Contact command followed by a Write with EOT.
0B	Write with Contact* and Disconnect (implied ETX and EOT) (Wcd)	Command is executed as a Contact command followed by a Write with EOT followed by a Disconnect command.
0E	Write with Contact* and Read (Wcr)	Command is executed as a Contact command followed by a Write with EOT followed by a Read Normal command.

* Contact may not begin a telephone connection to a BSC call-in device.

Test Command (X'03')

Note: These commands are sent in the request unit of an FID1 execute test request.

Modifier (hex)	Command	Meaning
00	Test Device Normal (T)	Command tests a device.
01	Test Device with Contact (Tc)	Command establishes a session with the device to be tested.
02	Test Device with Disconnect (Td)	Command ends a session with the device to be tested.
03	Test Device with Contact and Disconnect (Tcd)	Command establishes and ends a session with the device to be tested.
04	Test Line Normal (TI)	Command tests a line.
05	Test Line with Contact (Tlc)	Command establishes a session with the line to be tested.
06	Test Line with Disconnect (Tld)	Command ends a session with the line to be tested.
07	Test Line with Contact and Disconnect (Tlcd)	Command establishes and ends a session with the line to be tested.

Invite Command (X'05')

Modifier (hex)	Command	Meaning
00	Invite Normal (I)	Unit of data for this command is that specified by the TERMINAL definition statement at NCP generation.
01	Invite Block (Ib)	Unit of data for this command is the block. Ends with the End of Block character (EOB).
02	Invite Message (Im)	Unit of data for this command is the message. For BSC, ends with End of Text (ETX). For SS, ends with End of Transmission (EOT).
03	Invite Transmission (It)	Unit of data for this command is the transmission (ends with EOT).
04	Invite Transmission with Disconnect (Id)	Command is executed as an Invite Transmission command followed by a Disconnect command.
05	Invite with Auto Restart (Ia)	Command is executed as an unbounded series of Invite with Disconnect commands. This command must be terminated with a Reset request.

Modifier (hex)	Command	Meaning
06	Invite Perpetual (valid only for clusters) (lp)	Command is executed as an unbounded series of Invite Transmission commands with no intervening Disconnect commands.

Contact Command (X'06')

Modifier (hex)	Command	Meaning
00	Contact Normal	Contact is normal.
01	Contact with Return Resource ID	Command returns the resource ID of the line used to establish the dial connection.

Disconnect Command (X'07')

Modifier (hex)	Command	Meaning
00	Disconnect Normal (D)	No modifier
01	Disconnect with Invite (Di)	Command is executed as a Disconnect Normal command followed by an Invite Normal command.
02	Disconnect with EOC (De)	For switched lines, this modifier results in the physical connection between the terminal and the communications controller being broken. For all other lines, this modifier is the same as normal.
03	Disconnect with EOC and Invite (Dei)	Command is executed as a Disconnect with End of Call (EOC) followed by an Invite command.

Control Command (X'08')

Modifier (hex)	Command	Meaning
01	Display Line Status	Command displays the current status of the line.
02	Replace Session Initiation Information for a Line	Command replaces line control block (LCB) information associated with the initiation.
05	Copy Session Initiation Information	Command accesses information associated with the initiation of a session.
12	Change Modem Speed	Command allows the user to change the speed at which the appropriate modems operate a line.
14	LPDA Test Interrupt	Command starts the link problem determination aid (LPDA) test when the line goes from busy to idle. (This command is internal to NCP.)
18	Copy Destination Mode	Command accesses the mode information of a device from the device base control block (DVB).
1C	Physical Disconnect	Command breaks the physical dial connection.
21	Copy Device Session Information	Command accesses the device's polling characters, addressing characters, and, if the device is switched callout, the dial digits.

Modifier (hex)	Command	Meaning
22	Replace Device Session Information	Command replaces the device's polling characters and addressing characters in the DVB control block. If the device is switched callout, it replaces the dial digits in the callout control block extension (COE).
23	Set Session Address	Command transfers the use of a BSC/SS device to another SSCP.
41	Reset Error Lock	Command clears the error lock condition on a device. The first request on the device work queue is honored at the completion of this command.
42	Reset Device Queues	Command returns all commands for a device that were accepted but have not yet been honored. The response BTU of the returned commands indicates that they were reset.
43	Request Control Mode Reset	Command sends Reverse Interrupt (RVI) on BSC lines.
44	Reset Immediate	Command ends the current operation on a device without regard to data loss.
48	Reset Online Terminal Test	Command aborts the execution of the chain of Online Terminal Tests (OLTTs), tests the diagnostic mode, and clears the device queues. Note: This command is sent in the request unit of an FID1 Execute Test request.
4A	Switch to Backup	Command requests switched line backup.
4C	Switch from Backup to Primary	Command requests that the primary line be activated.
50	Reset Conditional	Command tests the status of the top command for a device. If data transfer has not started, the reset takes place immediately. If data transfer has started, the reset is not done.
60	Reset at End of Command	Command ensures that the device input queue and device work queue are idle and empty so a new sequence of operations can begin.
8D	Modify Block Handler Set Association	Command activates, deactivates, and changes the association of a block handler set (BHS) with a device.
9A	Set Destination Mode	Command replaces the device mode flags for a particular device.
E3	Override Session Address	Command reestablishes contact with the owning SSCP.

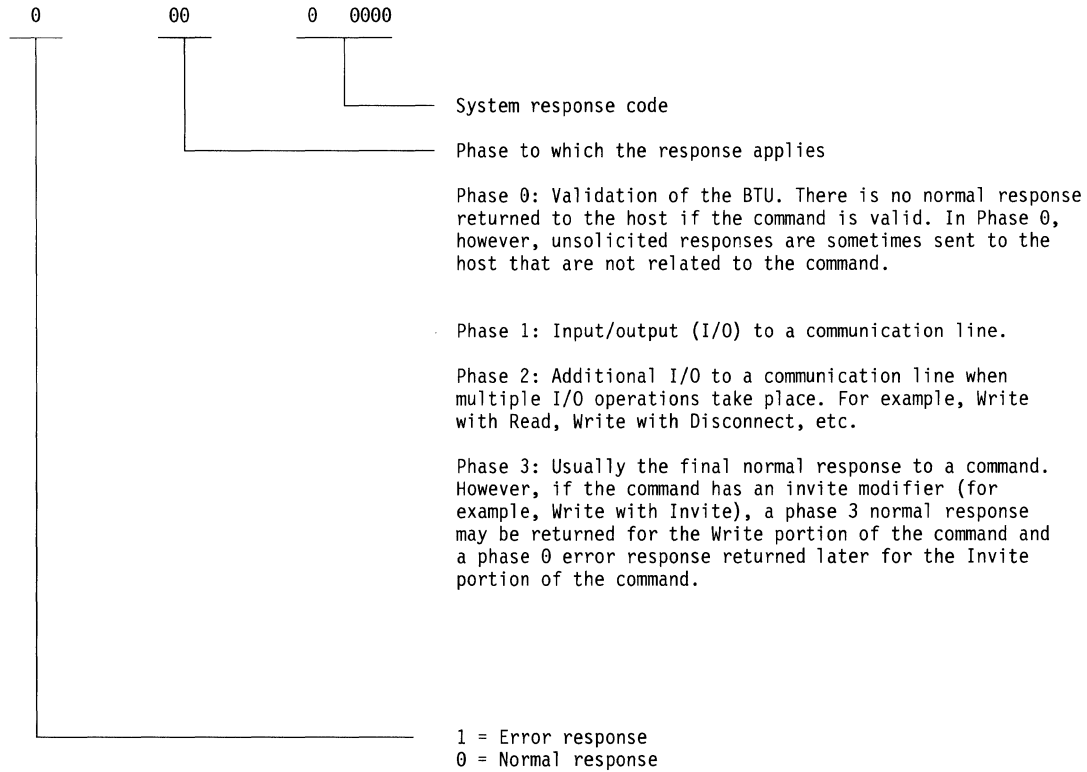
Unsolicited Response (X'77')

This section lists the responses that are returned to the host in the BTU. The response contains 2 bytes:

- System response (BCUSRES)
- Extended response (BCULRES). Extended response is also referred to as the line response.

System Response Byte

The system response byte has the following format:



Summary of BTU Responses

Note: Phase 0 error responses can be returned for any portion of a BTU on which there is a validity error.

Command and Modifier	Phase 0 Error	Phase 1 Error	Phase 1 Normal	Phase 2 Error	Phase 2 Normal	Phase 3 Normal
Invite Normal (I)	Any part	I	I			I(final)
Invite Block (Ib)	Any part	I				Ib
Invite Message (Im)	Any part	I	I			Im
Invite Transmission (It)	Any part	I	I			It
Invite Transmission with Disconnect (Id)	Any part	I	I	D		Id
Invite with Auto Restart (Ia)	Any part	I	I	D		Ia
Invite Perpetual (Ip)	Any part	I	I or R			It or Rt
Disconnect Normal (D)	Any part	D				D
Disconnect with EOC (De)	Any part	D				De
Disconnect with Invite (Di)	Any part	D/I	I			D/I (final)
Disconnect with EOC and Invite (Dei)	Any part	D/I	I			D/I (final)
Write Normal (W)	Any part	W				W
Write with EOM (Wm)	Any part	W				Wm
Write with EOT (Wt)	Any part	W		Wt		Wt
Write with Disconnect (Wd)	Any part	W		D		Wd
Write with Invite (Wi)	Any part	W/I	I	D		Wd (final)
Write with Read (implied EOT) (Wr)	Any part	W		Wt/R	Wt/R	R (final)
Write with Contact (Wc)	Any part	C/W				Wc
Write with Contact (implied ETX) (Wcm)	Any part	C/W				Wcm
Write with Contact (implied EOT) (Wct)	Any part	C/W		Wt		Wct
Write with Contact and Disconnect (implied ETX and EOT) (Wcd)	Any part	C/W		D		Wcd
Write with Contact and Read (Wcr)	Any part	C/W		Wt/R	Wt/R	R (final)
Read Normal (R)	Any part	R	R			R (final)
Read Block (Rb)	Any Part	R				R (final)
Read Message (Rm)	Any part	R	R			Rm
Read Transmission (Rt)	Any part	R	R			Rt
Read Transmission Disconnect (Rd)	Any part	R	R	D		Rd
Read with Invite (Ri)	Any part	R/I	R/I	D		Rd/I (final)
Contact (C)	Any part	C				C

Notes:

1. See Section 3, “BTU Commands, Modifiers, and Responses,” for the meanings and symbols for the commands and modifiers.
2. Explanation of the chart using the “Write with Contact and Read” command and modifier:
 - Phase 0 error—“Any part” means the error can occur during the Contact, Write with EOT, or Read. See “Phase 0 Error Responses” on page 3-7 for details.
 - Phase 1 error—C/W means the error can occur during Contact or Write with EOT. See “Phase 1, 2, and 3 Error Responses” on page 3-8 for details.
 - Phase 2 error—Wt/R means the error can occur during Write with EOT or Read. See “Phase 1, 2, and 3 Error Responses” on page 3-8 for details.
 - Phase 2 normal—Wt/R means the normal response can occur during Write with EOT or Read. See “Phase 1, 2, and 3 Normal Responses” on page 3-9 for details.
 - Phase 3 normal—response during Read. See “Phase 1, 2, and 3 Normal Responses” on page 3-9 for details.
3. Diagnostic aid example using the Write with Disconnect command and modifier: X'02 03 A0' example.

Phase 0 Error Responses

Response	Meaning
X'81'	Invalid resource ID
X'82'	Invalid command
X'83'	Invalid modifier
X'84'	Reset of Deactivate is in progress.
X'85'	Device is inactive.
X'86'	Line is inactive.
X'87'	Command is not valid for the resource.
X'88'	Command syntax error
X'89'	Command was rejected because it did not conform to BSC specifications.
X'8A'	Invalid control data length
X'8B'	Reset was not performed.
X'8C'	Data is not resident in storage.
X'8D'	Dial set queue limit has been reached.
X'8E'	Line and device incompatibility on switched callout
X'8F'	Invalid test length
X'91'	Invalid control data
X'92'	Incomplete BTU
X'93'	Command was rejected because of an error on one or more of the devices.
X'94'	Data is in use.
X'95'	Invalid Control command modifier, or the Control command is not valid for the resource.
X'96'	Online Terminal Test (OLTT) command was rejected; the queue is not empty.

Response	Meaning
X'97'	Online Terminal (OLT) is active; the non-OLT command was rejected.
X'98'	Multiple dial requests
X'99'	Mode inconsistency. (A request was made to alter the mode of a resource, but the resource was already in that mode.)
X'9A'	Buffers required to complete the operation are not available; system is in slowdown mode.
X'9B'	Command was rejected; system is in auto network shutdown (ANS).
X'9C'	Command was rejected; error lock set.
9D	Command was rejected; the resource is not available.
9E	Command was rejected; line deactivated or command reset.
9F	See "Conditional Extended Responses" on page 3-12.

Phase 0 Unsolicited Responses

Response	Meaning
X'00'	Invalid bit configuration
X'02'	Control mode reset, End of Transmission (EOT) not received
X'03'	Device association is completed.
X'04'	Multiple terminal access (MTA) device is identified.
X'0A'	RECMS records accompany the BTU.
X'0B'	Route extension failure occurred.
X'0C'	Override session address is received.
X'0D'	Gateway node was generated.
X'1A'	Link was forced into deactivation.
X'1D'	PLU-device session was terminated by auto network shutdown (ANS).
X'1E'	Serviceability aid—host logging

Phase 1, 2, and 3 Error Responses

Phase 1 Response	Phase 2 Response	Phase 3 Response	Meaning
A0	C0	E0	Data check
A1	C1	E1	Possible intervention required
A2	C2	E2	Intervention required
A3	C3	E3	Negative poll limit reached—WAIT option
A4	C4	E4	Yielded to contention
A5	C5	E5	Device error—BSC status pending
A6	C6	E6	ID Error
A7	C7	E7	Line trace terminated due to error
A8	C8	E8	Test command or Reset Online Terminal Test command processing terminated

Phase 1 Response	Phase 2 Response	Phase 3 Response	Meaning
A9	C9	E9	Session not started due to hardware error
AA	CA	EA	BSC error status message
AB	CB	EB	General poll operation aborted due to error
AC			Fanout backup limit exceeded
	CC	EC	Disconnected
B3	D3	F3	Break received on this block
B8	D8	F8	Contact rejected—session started
B9	D9	F9	Dial data inconsistency
BA	DA	FA	Buffers required to complete operation are not available.
BE	DE	FE	Command rejected, line deactivated or command reset
		FF	Invalid address

Phase 1, 2, and 3 Normal Responses

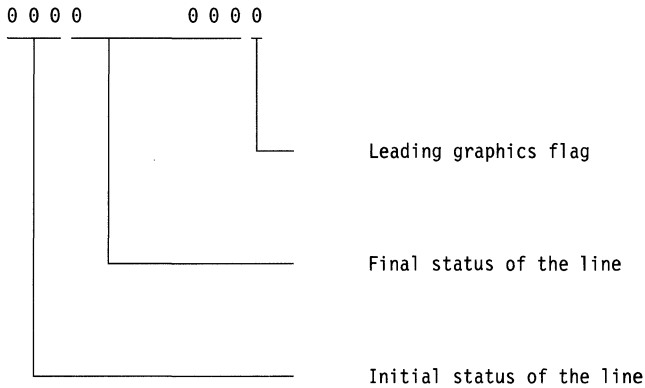
Phase 1 Response	Phase 2 Response	Phase 3 Response	Meaning
20	40	60	Command executed OK this far (pertains to all commands not represented by 22, 42, or 62)
21	41	61	Leading graphics received
22	42	62	One of the following commands executed OK this far: <ul style="list-style-type: none"> • Read or Invite • Write (in conversational mode) • Write with Read or Write with Contact and Read (WCR) commands in the read phase.
23	43	63	Negative poll limit reached—QUEUE option (NCP generation)
24	44	64	Online Terminal Test (OLTT) request message
25	45	65	BSC status message
26	46	66	Negative poll limit reached—NOWAIT option (NCP generation)
27	47	67	Line trace output

The following responses occur when the line is in monitor mode:

Response	Meaning
X'EC'	Disconnect received
X'ED'	IPL required
X'EE'	Permanent trunk error
X'EF'	Block from the queue caused an abnormal condition.

Extended Response Byte

The extended response byte contains either a normal extended response or a conditional extended response. The normal extended response appears in both BCULRES and the second byte of IOBSTAT. It has the following format:



A conditional extended response applies to one specific system response and does not have a fixed format. It appears only in BCULRES. The following extended response definitions apply only if an input/output operation is involved.

Extended Responses

Initial Status

000.	Control mode
001.	Text mode
010.	Transparent text mode (BSC only)
011.	Heading mode (BSC only)
100.	Special
111.	Hardware/user error

Normal Final Status when Initial Status=Control, Text, Transparent Text, or Heading

...0 000.	Time-out. One or more characters have been received, but may not be stored (control mode).
...0 010.	Cutoff. This bit indicates that a controlled length field (for example, an ID field) was too long and was cut off at the end of the correct length.
...0 011.	Reply to transmitted data was an Enquiry (ENQ); transmission is aborted.
...0 100.	An End of Transmission (EOT) was received on a block that began without a Start of Text (STX), Start of Header (SOH), or circle D; text was received in control mode.
...0 101.	End of Data Link Escape (DLE) control (BSC only)
...0 110.	Wrong Acknowledgment (ACK). ACK1 was received when ACK0 was expected, or ACK0 was received when ACK1 was expected.
...0.111.	For start-stop, Negative Acknowledgment (NAK) returned in response to a selection, poll, write, or NAK reply to text. For BSC, an EOT returned in response to a selection, poll, or write.
...1 000.	Received sub-block
...1 001.	End of text (ETX)
...1 010.	End of block (EOB)
...1 011.	Data or leading graphics received with an ENQ, or ENQ by itself
...1 100.	EOT received with no errors
...1 101.	Reverse Interrupt (RVI)
...1 110.	Positive ACK returned and no errors indicated on a write operation

...1 111. Weak Acknowledgment (WACK) received (could be an error condition)

Final Status when Initial Status=Special

...0 000. Time-out with nothing received
...0 001. Command reject (a should-not-occur error) set by the communications scanner code
...0 010. Level-2 and level-3 buffer pools are depleted; level 4 may still have buffers left. When this bit is on, data is lost.
...0 011. Selected (BSC tributary only), or modem test in progress, or a valid Auto Speed Detect line speed was not found. (TWX only. This status is found in IOBSTAT only. BCULRES will reflect “disconnected.”)
...0 100. Received disconnect signal on TWX or DLE/EOT on BSC
...0 101. Data was received when it was not expected.
...0 110. A reset occurred.
...0 111. The device has been polled, or a valid Auto Speed Detect line speed was found. (TWX only. This status is found in IOBSTAT only. BCULRES will reflect “connected.”)
...1 000. Transmitted sub-block
...1 001. An EOT was sent after a specified number of WACKs were received in response to a request or operation.
...1 010. Received break in text (two consecutive stop-bit errors). The last 2 characters stored are invalid. They may be incorrect length control characters or all spaces.
...1 011. Polling stop. Device was polled to the polling limit and responded negatively, or a Read Initial with a single polling modifier was directed to a polled line.
...1 100. EOT transmitted
...1 101. Received a break signal while transmitting
...1 110. Disconnected
...1 111. Connected

Final Status when Initial Status=Hardware/User Error

...0 000. User error normally indicates an incorrect NCP generation.
...0 001. Clear to Send (CTS) dropped during a transmit operation.
...0 010. Backup timer expired because a scanner was down or the line was automatically reset because the scanner was down.
...0 011. SDLC transmit underrun limit exhausted
...0 100. Communications line adapter check. Occurs whenever a level-2 interrupt (not dependent on an external source) is expected and not received. For example, after starting to transmit, a level-2 interrupt is expected. If none is returned, the internal clock may not be working properly.
...0 101. Adapter feedback check
...0 110. Scanner hardware failure
...0 111. Data Set Ready (DSR) dropped during command.
...1 000. Modem error. Comes on with the modem check bit in the secondary control field (SCF) of the parameter/status area control block (PSA) and is not used for single current telegraph.
...1 001. Modem transmit clock or Clear to Send (CTS) error. Comes on when in the transmit mode and the first character cannot be transmitted. Indicates an external clock error.
...1 010. DSR-on check. For leased lines, comes on if DSR does not come up within three seconds after Data Terminal Ready (DTR).
...1 011. Cable not installed
...1 100. DSR-off check. For switched lines, comes on if DSR does not drop within three seconds of DTR.
...1 1010. CTS failure with test indicate (TI) lead up
...1 110. Auto-call unit (ACU) check. No response was received from an auto-call unit when one was expected. If this bit is on, check that the NCP generation parameter that sets the auto-call time-out contains a greater value than the time-out duration in the ACU.
...1 1111. Program failure

Leading Graphics Flag

.... ...1 Leading graphics received

Conditional Extended Responses

Extended Response when System Response=X'9F'

X'82'	Change Speed command is invalid for the line.
X'83'	Specified line is unavailable.
X'84'	Error lock
X'85'	Usage tier exception. The ACU line is on an LA not allowed by usage tier.
X'E0'	Switch Line Mode command was received, but the line was not generated as mode-switchable.
X'E1'	Switch Line Mode command was received, but a command is already executing on the line or line trace is active on the line.

NCP Channel Commands

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Section 4. NCP Channel Commands

The following table lists NCP commands, command codes, and descriptions.

Command Code	Command	Meaning
X'01'	Write	Command transfers data from the host processor main storage to controller storage.
X'02'	Read	Command transfers data from controller storage to the host processor main storage.
X'03'	No-op	This command is required as the last channel command word (CCW) in a Read or Write CCW chain.
X'04'	Sense	Maximum 6 bytes of sense data is transferred to the host.
X'05'	Write IPL	The host initiates this command to replace the controller load module. Normally this command is decoded and handled by the controller hardware and not by NCP. Receipt of this command causes a power-on-reset and initializes the hardware to accept a new control program load. Normally a control program running in the communications controller when the Write IPL is accepted ceases to execute immediately without notification that a Write IPL has occurred.
X'09'	Write Break	The Write Break command is identical to the Write command except that it is used to indicate that it is the last or only Write command in a chain of Write CCWs.
X'31'	Write Start 0	This is the first command expected in a Write channel program after an IPL of NCP or after a Restart Reset command. It is also expected after each successful Write Start 1 command.
X'32'	Read Start 0	This is the first command expected in a Read channel program after an IPL of NCP or after a Restart Reset command. It is also expected after each successful Read Start 1 command.
X'51'	Write Start 1	This is the first command expected in a Write channel program after each successful Write Start 0 command.
X'52'	Read Start 1	This is the first command expected in a Read channel program after each successful Read Start 0 command.
X'61'	Write XID	Command signals to NCP that a channel contact sequence is beginning and to expect the host identification data.
X'62'	Read XID	Command notifies NCP that the host expects to read the NCP identification data.
X'72'	Read Configuration Data	Command requests a predefined number of bytes as indicated in Sense ID data for the controller.
X'93'	Restart Reset	Command causes NCP to reset its switches to indicate that the last Write Start and Read Start commands were Write Start 1 and Read Start 1 and that the next expected commands are Write Start 0 and Read Start 0.
X'A3'	Discontact	Command tells NCP to exit the contacted state with the host. The host acts as follows: <ul style="list-style-type: none"> • Indicates that the channel is no longer contacted • Indicates that attachment to the transmission group should be broken • Releases PIUs on the channel hold and the intermediate queues.

NCP Network Commands

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Command Code	Command	Meaning
X'C3'	Contact	Command tells NCP to set up for operation with the host identification data.
X'E4'	Sense ID	Contains a maximum of 12 bytes of Sense ID data transfers and RCD command information.

Note: See the appropriate *Communication Controller Principles of Operation* for a description of the operation of the test input/output X'00' channel command.

Channel Status and Sense Indications

NCP returns the status to the operating system where the channel places it in the channel status word (CSW). The host program then examines the CSW to determine the status.

The following table is for a device status byte supplied by NCP and 37XX channel adapter hardware.

Status Bit	Condition	Testing Priority
32	Attention (See note)	2
33	Status modifier	20
34	Control unit end	18
35	Busy	19
36	Channel end	23
37	Device end	24
38	Unit check	5
39	Unit exception	21

Note: If attention occurs with other status, the host program remembers its occurrence but proceeds with the testing of other lower priority bits.

The following table is for the channel status byte supplied by host channel hardware.

Status Bit	Condition	Testing Priority
40	Program controlled interrupt	15
41	Incorrect length	22
42	Channel program check	16
43	Protection check	17
44	Channel data check	4
45	Channel control check	1
46	Interface control check	3
47	Chaining check	14

When unit check is present in the CSW, the host program must examine the sense byte (obtained by a Sense command).

Sense Bit	Condition	Testing priority
0	Command reject	12
1	Intervention required	6

Sense Bit	Condition	Testing priority
2	Bus out check	10
3	Equipment check	9
4	Data check	11
5	Overrun	13
6	Not initialized	7
7	Abort	8

Testing priority refers to the priority by which the host operating system tests the indicators in the CSW (and sense byte when UC is on the CSW). Generally, only one of the indicators properly describes the condition of the channel, while other indicators that are set on indicate secondary effects. Use the testing priority to determine the primary condition. Some device or control unit errors can cause more than one sense bit to be present.

Channel Program Required for NCP

The following channel programs are minimum requirements:

Read Channel Program	
CCW X'32' or X'52',*,X'60',1	Read Start command
CCW X'02',BUF1,X'60',L'BUF1	
-	
-	Read commands
-	
CCW X'02',BUFn,X'60',L'BUFn	
CCW X'03',*,0,1	No-op

Notes:

1. The number of Read CCWs must equal the number specified on the MAXBFRU value from an XID for an SNA 4.2 host.
2. The byte count in each Read CCW must equal the number specified in the UNITSZ value from an XID for an SNA 4.2 host.

Write/Write Break Channel Program	
CCW X'31' or X'51',*,X'60',1	Write Start command
CCW X'01',BUF1,X'60',L'BUF1	
-	
-	Write and Write Break commands
-	
CCW X'09'.BUFn,X'60',L'BUFn	
CCW X'03',*,0,1	No-op

Write/Write Break and Read Channel Program

CCW X'31' or X'51',*,X'60',1	Write Start command
CCW X'01',BUF1,X'60',L'BUF1	
-	
-	Write and Write Break commands
-	
CCW X'09'.BUFn,X'60',L'BUFn	
CCW X'03',*,0,1	No-op ¹
CCW X'32' or X'52',*,X'60',1	Read Start command
CCW X'02',BUF1,X'60',L'BUF1	
-	
-	Read commands
-	
CCW X'02',BUFn,X'60',L'BUFn	
CCW X'03',*,0,1	No-op

¹ This No-op is not essential for correct operation although it may be desirable for compatibility when the status modifier option is selected. If the status modifier option is not selected, then the Write Break CCW may be command chained to the Read Start CCW. If status modifier is selected, the No-op should be included and not be command chained to the Read Start CCW. If compatibility is desired, include the No-op in the channel program and turn the command chain flag on and off as needed.

Section 5. NCP Network Commands

The following request/response unit (RU) bytes of a PIU in an SSCP or CDRM session are valid if request/response header (RH) byte 0 contains X'xB' (X'xF' for sense). The x value indicates the following:

- 6 Session control (SC)
- 4 Data flow control (DFC)
- 2 Network control (NC)
- 0 Network services (NS).

Summary of NCP Network Commands

This section contains RU formats only for those SNA commands that NCP processes. The RU formats contain only details that apply to NCP. For other SNA commands and non-NCP details, refer to *SNA Formats*.

Notes:

1. The RU formats in this section are for an NCP operating in the extended network addressing (ENA) mode.
2. An asterisk (*) indicates a command that NCP does not process.

RU	Command	Function
00 (sense)		Contains user sense data only
01 00 01		Change Device Transmission Limit allows a user to change the number of End of Transmission characters (EOTs) that NCP sends to or receives from a device on a BCS/SS multipoint line before servicing other devices on the line.
01 00 02		Change Line Negative Poll Response Limit allows a user to change the number of consecutive negative responses to polling that are acceptable before termination of the Read command.
01 00 03		Change Line Session Limit allows a user to change the number of BSC/SS sessions that can be active on this BSC/SS line.
01 02 01	CONTACT	Contact starts a contact poll operation to an SDLC station or remote communications controller.
01 02 02	DISCONTACT	Discontact causes NCP to stop polling a resource.
01 02 03	IPLINIT	Load Initial initiates the IPL of a remote communications controller.
01 02 04	IPLTEXT	Load Data transfers the text of a load module to a remote communications controller.
01 02 05	IPLFINAL	Load Final informs the remote communications controller that the load process is complete and requests that it provide the NCP entry point to be given control.
01 02 06	DUMPINIT	Dump Initial initiates a remote communications controller storage dump.
01 02 07	DUMPTXT	Dump Data causes the remote NCP to send a portion of its storage to the SSCP.
01 02 08	DUMPFINAL	Dump Final informs the remote communications controller that the dump procedure is complete.

RU	Command	Function
01 02 09	RPO	Remote Power Off invokes a power-off sequence in a remote communications controller.
01 02 0A	ACTLINK	Activate Link activates the data set associated with the SDLC link and, for leased lines, initiates the continuous transmission of flag characters.
01 02 0B	DACTLINK	Deactivate Link deactivates the data set associated with the link.
01 02 0E	CONNOUT	Connect Out causes NCP to initiate an outbound call on a switched SDLC link. For auto-dial, NCP performs the dial operation with the dial digits provided in the command. For manual dial, NCP enables the link, and the operator performs the dial operation.
01 02 0F	ABCONN	Abandon Connection causes the PU to terminate a switched connection.
01 02 11	SETCV	<p>Set Control Vector</p> <p>Time and Date (RU byte 5=X'01') allows the SSCP to replace the time and date in NCP. The time is maintained in 24-hour continental time.</p> <p>Note: The SSCP is not allowed to retrieve the time and date with a sense state vector request.</p> <p>Link Backup (RU byte 5=X'02') associates a link-attached NCP's subarea with a particular SDLC link.</p> <p>Physical Unit (RU byte 5=X'03') changes dynamic fields in the common PU block (CUB) that are associated with the specified PU.</p> <p>Logical Unit (RU byte 5=X'04') changes dynamic fields in the LU control block (LUB) and completes initialization of the LU vector table (LUV).</p> <p>Channel Attention Delay (RU byte 5=X'05') allows the SSCP to change the channel attention delay values in the channel adapter control block (CAB).</p> <p>Note: The SSCP is not allowed to change attention delay in a link-attached NCP.</p> <p>Gateway Node (RU byte 5=X'15') contains one or more control vectors that cause the gateway NCP to perform one or more of the following actions:</p> <ul style="list-style-type: none"> • Insert the sending SSCP in the gateway SSCP SNP mask • Record the real address of an LU or SSCP • Obtain a list of virtual routes for session initiation • Obtain LU names for substitution in BIND and BIND response. <p>Dynamic Path Update (RU byte 5=X'42') allows the SSCP to dynamically update the explicit route and virtual route path data.</p> <p>Physical Unit (RU byte 5=X'43') allows the SSCP to update parameters for the SDLC secondary station.</p>
01 02 14	ESLOW	Entering Slowdown informs the SSCP that the normal flow of data in NCP is impeded due to limited available buffers.
01 02 15	EXSLOW	Exiting Slowdown informs the SSCP that the limitation on NCP buffers is lifted. Normal data flow to NCP may resume.
01 02 16	ACTCONNIN	Activate Connect In causes NCP to put the specified link in answer mode. This enables the link to answer incoming calls.
01 02 17	DACTCONNIN	Deactivate Connect In causes NCP to discontinue answer mode on the specified link.
01 02 18	ABCONNOUT	Abandon Connect Out causes NCP to halt the dialing operation over the specified link.
01 02 19	ANA	Assign Network Addresses assigns a set of network addresses to a specified PU (SDLC switched link only).

RU	Command	Function
01 02 1A	FNA	Free Network Addresses causes NCP to free the network addresses that were assigned to a PU.
01 02 1B	REQDISCONT*	Request Discontact requests that NCP issue a Discontact.
01 02 80	CONTACTED	Contacted informs the SSCP of conditions presently existing in the resource.
01 02 81	INOP	Inoperative reports a loss of contact to the SSCP.
01 02 84	REQCONT	Request Contact informs the SSCP that a physical connection has been established between NCP and a PU (contains the station ID).
01 02 85	LSA-NS	Lost Subarea informs the SSCP that subareas have been lost.
01 03 01	EXECTEST	Execute Test causes NCP to execute an Online Terminal Test (OLTT) for the resource specified by the network address.
01 03 02	ACTTRACE	Activate Trace is used by the host to initiate the following traces: <ul style="list-style-type: none"> • Line trace • Scanner interface trace (SIT) • Internal PIU trace (includes a transmission group trace) • Generalized PIU trace.
01 03 03	DACTTRACE	Deactivate Trace is used by the host to terminate the following traces: <ul style="list-style-type: none"> • Line trace • SIT • Internal PIU trace (includes a transmission group trace) • Generalized PIU trace.
01 03 11	SETCV	Set Control Vector Intensive Mode (RU byte 5=X'08') allows the SSCP to activate or deactivate intensive mode.
01 03 31	DISPSTOR	Display Storage requests NCP physical services to return up to 256 bytes of NCP, MOSS, or communication scanner processor (CSP) storage beginning at a specified location.
01 03 34	RECSTOR	Record Storage is sent to the SSCP with data previously requested by a successful display storage command.
01 03 81	RECMS	Record Maintenance Statistics. See Section 14, “Record Maintenance Statistic (RECMS) Request/Response Unit (RU) Formats.”
01 03 82	RECTD	Record Test Data informs the SSCP of the current status of an OLTT.
01 03 83	RECTRD	Record Trace Data sends line trace information to the SSCP.
01 06 04	NSPE*	NS Procedure Error informs the issuer of a nonsequenced request that an error occurred after the request was accepted but before the procedure was completed.
01 06 81	INIT-SELF*	Initiate-Self allows an LU to request a session with the SSCP.
01 06 83	TERM-SELF*	Terminate-Self allows an LU to request the termination of a session with the SSCP.
02 (NC)	IPL-FINAL	IPL Final
03 (NC)	IPL-INIT	IPL Initial
04 (NC)	IPL-TEXT	IPL Text
05 (DFC)	LUSTAT*	Logical Unit Status sends status information from an LU to its session partner.
05 (DFC)	RTR*	Ready to Receive is used in bracket protocol to indicate that the bidder is now allowed to initiate a bracket.

RU	Command	Function
05 (NC)	LSA	Lost Subarea informs the adjacent NCP or SSCP that subareas have been lost.
06 (NC)	ER.INOP	Explicit Route Inoperative informs NCP that an explicit route is inoperative.
07	ANSC	Auto Network Shutdown Complete informs the SSCP that NCP auto network shutdown is complete.
08 (sense)		Request Rejected
09 (NC)	ER.TEST	Explicit Route Test determines the network address of the last usable node in an explicit route, or verifies that an explicit route is usable for data transfer.
0A (NC)	ER.TEST.REPLY	Explicit Route Test Reply carries results of an ER.TEST command back to the ER.TEST command originator.
0B (NC)	ER.ACT	Activate Explicit Route activates an explicit route.
0C (NC)	ER.ACT.REPLY	Activate Explicit Route Reply carries results of an ER.ACT command back to the ER.ACT command originator.
0D (NC)	ACTVR	Activate Virtual Route activates a virtual route.
0D (SC)	ACTLU	Activate Logical Unit establishes a session between the SSCP and an LU.
0E (NC)	DACTVR	Deactivate Virtual Route terminates a virtual route.
0E (SC)	DACTLU	Deactivate Logical terminates the session between the SSCP and an LU.
0F (NC)	ER.OP	Explicit Route Operative informs NCP that the explicit route is operative.
10 (sense)		Request Error
11	ACTPU	Activate Physical Unit establishes a session between the SSCP-NCP PU physical services or SSCP-PU physical services.
12	DACTPU	Deactivate Physical terminates the session between the SSCP-NCP PU physical services or SSCP-PU physical services.
14	ACTCDRM	Activate CDRM activates a CDRM session.
15	DACTCDRM	Deactivate CDRM deactivates a CDRM session.
20 (sense)	State Error	
31	BIND	Bind Session establishes a session between a host application program and an LU.
32	UNBIND	UNBIND Session terminates the session between the host application program and an LU.
33	SWITCH	A primary LU (PLU) sends Switch Data Traffic to a secondary LU (SLU) to change the extended recovery facility (XRF) state of the LU-LU session from XRF-primary to XRF-backup or from XRF-backup to XRF-primary.
40 (sense)		RH Usage Error
41 02 10	RNAA	Request Network Address Assignment requests NCP to allocate the specified number of network addresses to the specified network resource and to update path control routing.
41 02 20	NOTIFY	Flowing from the SSCP to NCP, this command causes NCP to abort preparations for a specified session. Flowing from NCP to the SSCP, it informs the SSCP that a session was terminated or could not be initiated.
41 02 87 (NC)	LCP	Lost Control Point informs each SSCP in session with NCP PU services of a lost SSCP.

RU	Command	Function
41 02 89	ROUTE.INOP	Route Inoperative informs SSCP's when a virtual route or explicit route has become inoperative.
41 02 8A	REQACTCDRM	REQACTCDRM prompts the receiving SSCP to issue RNAA and SETCV to set up a cross-network address transform.
41 03 04	REQMS	Request Maintenance Statistics is used by the host to solicit link problem determination aid (LPDA) status, summary error data, and engineering change (EC) level data. It is also used by the host to enable session trace, inhibit session trace, or request trace data.
41 03 05	TM	Test Mode causes NCP to execute an SDLC link test level 2 (LL2) for the dedicated resource specified by the network address or to stop an active link test.
41 03 07	ROUTE.TEST	Route Test causes NCP to report the status of specified routes and optionally to send NC.ER.TEST on these routes.
41 03 84	RECFMS	Record Formatted Maintenance Statistics. See Section 15, "Record Formatted Maintenance Statistic (RECFMS) Request/Response Unit (RU) Formats."
41 03 85	RECTR	Record Test Results sends the test results of the SDLC LL2 to the SSCP.
41 03 86	ER.TESTED	Explicit Route Tested is a copy of the explicit route test reply request, and it notifies the owning SSCP of the results of an explicit route test.
41 03 8D	NMVT	Network Management Vector Transport. See Section 16, "Network Management Vector Transport (NMVT) Request/Response Unit (RU) Formats."
51		Switch Line to NCP Mode (BSC/SS) switches the line from EP to NCP mode.
52		Switch Line to EP Mode (BSC/SS) switches the line from NCP to EP mode.
80 (sense)		Path Error
80	QEC*	Quiesce at End of Chain directs a function manager to enter the quiesce state at the end of the chain it is currently sending.
81 (DFC)	QC*	Quiesce Complete indicates that the issuer of the request has placed itself in the quiesce state.
81 06 01	CINIT*	Control Initiate
81 06 02	CTERM*	Control Terminate
81 06 20	NOTIFY	Notify sends information from an LU to the SSCP, or from the SSCP to an LU.
81 06 80	INIT-OTHER	Initiate-Other
81 06 81	INIT-SELF*	Initiate-Self
81 06 82	TERM-OTHER	Terminate-Other
81 06 83	TERM-SELF*	Terminate-Self
81 06 85	BINDF*	Bind Failure
81 06 86	SESSST*	Session Started
81 06 87	UNBINDF*	UNBIND Failure
81 06 88	SESEND	Session Ended
81 26 01	BFCINIT	Boundary Function (BF) Control Initiate. The SSCP requests BF (PLU) to attempt to activate (through a BIND) a session with the specified SLU.
81 26 29	BFCLEANUP	The SSCP sends a Boundary Function Clean Up PIU to terminate a specific LU-LU session.

RU	Command	Function
81 26 81	BFINIT	BF (PLU) sends BF Initiate to the SSCP to request initiation of a session between two LUs named in the BIND image.
81 26 83	BFTERM	BF (PLU) sends a BF Terminate PIU to the SSCP to request assistance in the termination of the identified LU-LU session.
81 26 86	BFSESSST	BF (PLU) sends a BF Session Started PIU to inform the SSCP that a new session has been activated and to provide information about the active session.
81 26 88	BFSESEND	BF (PLU) sends a BF Session Ended PIU to notify the SSCP that the LU-LU session identified has been deactivated.
81 26 8C	BFSESSINFO	The BF Session Information PIU provides the SSCP with information about sessions with independent LUs in a peripheral node when taken over by a receiving SSCP.
81 86 20	NOTIFY*	Notify sends information from an SSCP to an SSCP.
81 86 41	CDINIT*	Cross-Domain Initiate
81 86 43	CDTERM*	Cross-Domain Terminate
81 86 45	CDESSSF*	Cross-Domain Setup Failure
81 86 46	CDESSST*	Cross-Domain Session Started
81 86 47	CDESSSTF*	Cross-Domain Session Takedown Failure
81 86 48	CDESESEND*	Cross-Domain Session Ended
81 86 49	CDTAKED*	Cross-Domain Takedown
81 86 4A	CDTAKEDC*	Cross-Domain Takedown Complete
81 86 4B	CDCINIT*	Cross-Domain Control Initiate
82	RELQ*	Release Quiesce releases a function manager from the quiesce state.
83	CANCEL*	Cancel terminates a partially sent chain of function manager (FM) data requests.
84	CHASE*	Chase requests the receiving function manager to return all outstanding data responses and data flow control responses.
A0	SDT	Start Data Traffic enables data flow in a session. It is the final request in a data flow initialization or recovery procedure.
A1	CLEAR	Clear removes and discards all PIUs with the same OAF/DAF pair from the destination process queue.
A2	STSN*	Set and Test Sequence Numbers resynchronizes the specified sequence number.
A3	RQR*	Request Recovery initiates data traffic recovery procedures.
C0	SHUTD*	Shutdown requests the secondary function manager to enter the highest level of quiesce.
C1	SHUTC*	Shutdown Complete indicates that the sender has shut down.
C2	RSHUTD*	Request Shutdown informs the primary function manager that the secondary function manager is at "end of job" and requests the primary function manager to issue a shutdown request.
C8	BID*	Bid is used in bracket protocol to request permission to begin a bracket.
C9	SIG*	Signal sends an expedited signal through the network against the normal flow of data.

Bring-Up Command Sequence

The following command sequence is followed for bring-up and session initiation for switched SDLC on a channel-attached NCP peripheral link. The nonswitched SDLC sequence is provided by skipping those entries identified as being required for switched SDLC.

Command	Description
WXID ¹	Host alerts NCP beginning channel contact.
Write Break ¹	Host sends the host exchange identification (XID) to NCP.
RXID ¹	Host expects to receive the NCP XID.
Read ¹	Host reads the NCP XID.
Contact ¹	From host to put NCP in a contacted state (activates the channel transmission group)
....	Explicit route status is exchanged through Explicit Route Operative (ER OP) PIUs.
Activate Explicit Route	From SSCP to NCP
Activate Explicit Route Reply	From NCP to SSCP
Activate Virtual Route	From SSCP to NCP
....	Virtual route pacing responses are exchanged.
Activate Physical Unit	From SSCP to NCP physical services
Start Data Traffic	From SSCP to NCP physical services
Set Control Vector	From SSCP to NCP physical services
Activate Link	From SSCP to NCP physical services
Contact Out or Activate Connect In (Switched)	SSCP to NCP physical services connection point manager-outbound (CPM-OUT)
Request Contact (Switched)	NCP physical services to SSCP
Set Control Vector PU (Switched)	SSCP to NCP physical services
Contact	From SSCP to NCP physical services
Contacted	From NCP physical services to SSCP
Activate Physical Unit	SSCP to the NCP PU process queue

¹ Host channel commands. The host channel Read and Write commands for the other PIUs are not shown.

Command	Description
Assign Network Addresses (Switched)	SSCP to NCP physical services
Set Control Vector LU (Switched)	SSCP to NCP physical services
Activate Logical Unit	SSCP to the LU/SSCP process queue
Initiate-Self (LU-initiated logon only)	From LU to SSCP
Bind	Host application to LU
Start Data Traffic	From host application to LU
Inoperative ²	From NCP physical services to SSCP

² May be required at any point in the command sequences after the Activate Link command.

The following command sequence brings up a cross-domain subarea link.

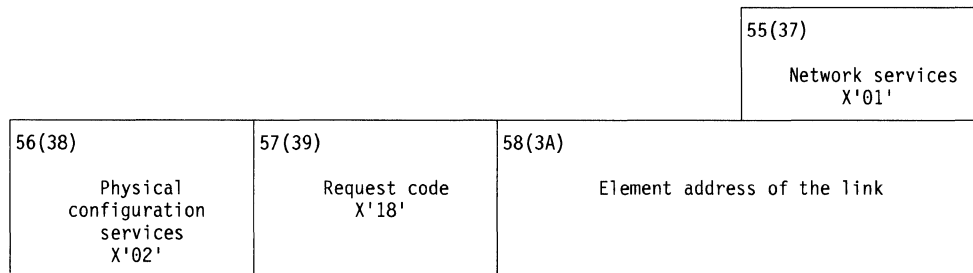
Command	Description
WXID ¹	Host alerts NCP beginning channel contact.
Write Break ¹	Host sends the host XID to NCP
RXID ¹	Host expects to receive the NCP XID.
Read ¹	Host reads the NCP XID
Contact ¹	From host to put NCP in a contacted state (activates the channel transmission group)
....	Explicit route status is exchanged through Explicit Route Operative (ER OP) PIUs.
Activate Explicit Route	From SSCP to the channel-attached NCP
Activate Explicit Route Reply	From the channel-attached NCP to SSCP
Activate Virtual Route	From SSCP to the channel-attached NCP
....	Virtual route pacing responses are exchanged.
Activate Physical Unit	SSCP to the channel-attached NCP's physical services
Start Data Traffic	SSCP to the channel-attached NCP's physical services
Activate Link	SSCP to the channel-attached NCP's physical services
Contact	SSCP to channel-attached NCPs (activates the link transmission group)
Contacted	Channel-attached NCP to SSCP
....	Explicit route status is exchanged through Explicit Route Operative (ER OP) PIUs.
Activate Explicit Route	SSCP to the link-attached NCP
Activate Explicit Route Reply	Link-attached NCP to SSCP
Activate Virtual Route	SSCP to the link-attached NCP
....	Virtual route pacing responses are exchanged.
Activate Physical Unit	SSCP to the link-attached NCP's physical services
Start Data Traffic	SSCP to the link-attached NCP's physical services

¹ Host channel commands. The host channel read and write commands for the other PIUs are not shown.

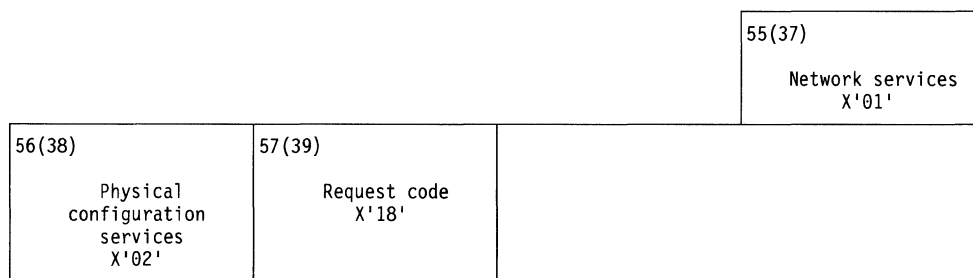
Request/Response Unit (RU) Formats

Abandon Connect Out (ABCONNOUT) RU

Request Format



Positive response Format



Abandon Connection (ABCONN) RU

Request Format

		55(37) Network services X'01'
56(38) Physical configuration services X'02'	57(39) Request code X'0F'	58(3A) Element address of the link

Positive Response Format

		55(37) Network services X'01'
56(38) Physical configuration services X'02'	57(39) Request code X'0F'	

Activate Connect In (ACTCONNIN) RU

Request Format

		55(37) Network services X'01'
56(38) Physical configuration services X'02'	57(39) Request code X'16'	58(3A) Element address of the link
60(3C) Link connections indicators*	61(3D)-n Control vectors (Possible control vector is X'46')**	

* Indicates a byte expansion follows.

** See "Control Vectors and Control Lists" on page 5-138.

Positive Response Format

		55(37) Network services X'01'
56(38) Physical configuration services X'02'	57(39) Request code X'16'	

Byte Expansions

Offset/Field Name	Bit Pattern/Hex Value	Contents
60(3C)	x... ..	Link connections indicators Incoming calls indicator: 1 = Disable link for incoming calls 0 = Enable link for incoming calls
	.1.. ..	Information on link connection is requested

Activate Cross-Domain Resource Manager (ACTCDRM) RU

Request Format

			55(37) RUIACDRC Request code field X'14'
56(38) RUIACDFC* Format code	57(39) RUIACDFM ACTCDRM FM profile byte	58(3A) RUIACDTS ACTCDRM TS profile byte	59(3B) - 66(42) RUIACCON
8-character representation of implementation and installation information			67(43) RUIFMTPU* Format and PU type
RUIACTID 6-character field including the ID of the issuing SSCP			
		73(49) RUI1TSUSA* TS usage	74(4A) - n Control vectors. (Possible control vectors are X'06', X'09', X'13', and X'18'.)**

* Indicates a byte expansion follows.

** See “Control Vectors and Control Lists” on page 5-138.

Positive Response Format

			55(37) RUIACDRC Request code field X'14'
56(38) RUIACDFC* Format code	57(39) RUIACDFM ACTCDRM function manager (FM) profile byte	58(3A) RUIACDTS ACTCDRM TS profile byte	59(3B) - 66(42) RUIACCON
8-character representation of implementation and installation information			67(43) RUIFMTPU* Format and PU type
RUIACTID 6-character field including the ID of the responding SSCP			
		73(49) RUI1TSUSA* TS usage	74(4A) - n Control vectors. (Possible control vectors are X'06', X'09', X'13', X'18', and X'FE'.)**

* Indicates a byte expansion follows.

** See “Control Vectors and Control Lists” on page 5-138.

Byte Expansions

Offset/Field Name	Hex Value	Contents
56(38) RU1ACDFC		Format code
	X'01'	Cold activation
	X'02'	Error recovery procedure (ERP) activation
67(43) RU1FMTPU		Format and PU type
	0000	ACTDRM format bits
	.... xxxx	PU type of SSCP node
73(49) RU1TSUSA		TS usage
	..xx xxxx	Request Format—Primary CPMGR receive window size Response Format—Secondary CPMGR receive window size

Activate Explicit Route (NC.ER.ACT) RU

Request Format

		55(37) RU4ERCMD Request code X'0B'	
56(38) Reserved		58(3A) RU4RUF Format code X'01'	59(3B) Reserved
60(3C) RU4ERL Explicit route length	61(3D) RU4MERL Maximum explicit route length	62(3E) RU4RQDSA	
Destination subarea (right-justified)		66(42) Route definition capability of the RU sender*	67(43) RU4DERN Destination explicit route number (ERN) (... xxxx)
68(44) RU4RQOSA Request origination subarea (right-justified)			
72(48) RU4RERNM Reverse ERN mask		74(4A) RU4MPS X'0000'	
76(4C) Reserved			
84(54) - 91(5B) RU4ARSI Time of day			

* Indicates a byte expansion follows.

Byte Expansion

Offset/Field Name	Bit Pattern	Contents
66(42)	1... ..	RU sender allows dynamic route definition.

Activate Explicit Route Reply (NC.ER.ACT.REPLY) RU

Request Format

		55(37) RU4ERCMD Request code X'0C'	
56(38) Reserved		58(3A) RU4RUF Format code X'01'	59(3B) RU4ARTF* Type field
60(3C) RU4ERL Explicit route length	61(3D) RU4MERL Maximum explicit route length	62(3E) RU4RQDSA	
Destination subarea (right-justified)			
		66(42) Reserved	67(43) RU4DERN Destination explicit route number (ERN) (.... xxxx)
68(44) RU4RQOSA Request origination subarea (right-justified)			
72(48) RU4ERNM Reverse ERN mask		74(4A) RU4MPS X'0000'	
76(4C) X'0000'		78(4E) - 83(53)	
Reserved			
84(54) RU4ARSI Time of day			
92(5C) Reserved		94(5E) - 97(61) RU4SARB	
Subarea of the reply builder			

* Indicates a byte expansion follows.

		98(62) - 101(65) RU4SATG*	
Subarea on the other end of the transmission group			
		102(66) RU4RTGN* Reported transmission group's transmission group number (TGN)	103(67) Reserved

* Indicates a byte expansion follows.

Byte Expansions

Offset/Field Name	Hex Value	Contents
59(3B) RU4ARTF		Type field
	X'00'	Route is activated.
	X'01'	Race condition by two nodes requesting explicit route activation
	X'02'	Route is not reversible.
	X'03'	Encountered a node that did not support the explicit route
	X'04'	Maximum explicit route length is exceeded.
	X'05'	Transmission group is not active.
	X'06'	Explicit route is not defined in the NC.ER.ACT.REPLY originating node.
98(62) RU4SATG		Subarea on the other side of the transmission group (depends on Type field in RU4ARTF)
	Type	Subarea address defined
	X'00'	Reserved
	X'02'	Subarea on the explicit route prior to that with no reverse explicit route defined
	X'03'	Subarea that does not support the explicit route
	X'04'	Subarea on the explicit route preceding the subarea where explicit route length (ACT ER byte 5) is incremented beyond maximum explicit route length (byte 6)
	X'05'	Subarea on the other end of the inactive transmission group
	X'06'	Subarea on the explicit route from which the PU (explicit route not defined) received a corresponding NC.ER.ACT
102(66) RU4RTGN		Reported transmission group's TGN
	X'00'	Reserved
	X'MM'	TGN of the transmission group between the subarea address of the reply builder and the subarea address on the other end of the transmission group

Activate Link (ACTLINK) RU

Request Format

		55(37) Network services X'01'
56(38) Physical configuration services X'02'	57(39) Request code X'0A'	58(3A) Element address of the link to be activated
60(3C) RU1INDF* Indicator field		

Positive Response Format

		55(37) Network services X'01'
56(38) Physical configuration services X'02'	57(39) Request code X'0A'	58(3A) Element address of the link to be activated
60(3C) Control vector key X'0F'.**		

* Indicates a byte expansion follows.

** See "Link Capabilities and Status Control Vector" on page 5-151.

Byte Expansion

Offset/Field Name	Bit Pattern	Contents
60(3C) RU1INDF		Indicator field
	1... ..	Subarea dial is supported.
	.x... ..	Subordinate link indicator
		0 = Activating SSCP does not consider this a subordinate link
		1 = Activating SSCP considers this a subordinate link (subordinate to a physical PU)

Activate Logical Unit (ACTLU) RU

Request Format

		55(37) ACTLU Request code X'0D'
56(38) Type of activation*	57(39) FM profile in first nibble TS profile in second nibble	58(3A) - 63(3F)
Optional control vectors (Possible control vector is X'0E')**		

Positive Response Format

		55(37) ACTLU Request code X'0D'
56(38) Type of activation*	57(39) FM profile in first nibble TS profile in second nibble	58(3A) - 62(3E)
Control vector key X'00'***		63(3F) - 70(46)
Control vector key X'0C'****		71(47) - n
Control vectors (Possible control vectors are X'28' and X'2A')**		

* Indicates a byte expansion follows.

** See "Control Vectors and Control Lists" on page 5-138.

*** See "SSCP-LU Session Capabilities Control Vector" on page 5-140.

**** See "LU Session Services Capabilities Control Vector" on page 5-149.

Byte Expansion

Offset/Field Name	Bit Pattern/ Hex Value	Contents
56(38)		Type of activation
	1... ..	Enhanced address management is supported
	.x... ..	Static or dynamic address indicator: 0 = Sender considers the LU address static 1 = Sender considers the LU address dynamic
		Note: This bit is reserved if bit 0=0.
	.... ..01	Cold, IPL not required
	.... ..10	Error recovery procedure (ERP)

Activate Physical Unit (ACTPU) RU

		55(37) RU1APURC Request code (ACTPU) X'11'	
56(38) RU1APUFC* Format and type of activation	57(39) RU1APURR	58(3A) - 63(3F) RU1CPIDO	
ID of the SSCP issuing ACTPU Implementation and installation dependent binary identification.			
64(40) - n Control vectors. (Possible control vectors are X'09', X'0B', X'0E', X'11', and X'18'.)**			

Positive Response Format

		55(37) RU1APURC Request code (ACTPU) X'11'	
56(38) RU1APUFC* Format and type of activation	57(39) - 64(40)*** Load module name of the PU being activated (8 bytes)		
65(41) - n**** Control vectors. (Possible control vectors are X'09', X'0B', X'0E', and X'FE'.)**			

- * Indicates a byte expansion follows.
- ** See "Control Vectors and Control Lists" on page 5-138.
- *** If byte 56(38) indicates format 0, byte 64(40) is the RU.
- **** If the format is type 3, bytes 65(41) through *n* are present.

Byte Expansion

Offset/Field Name	Bit Pattern	Contents
56(38) RU1APUFC		Format and type of activation
	..00	Format 0 = No control vector
	..11	Format 3 = Control vector present
		Type of activation
	.... ..xx	
		01 = Cold, IPL is not required.
		10 = Error recovery procedure (ERP)

Activate Trace (ACTTRACE) RU

Request Format

		55(37) Network services X'01'
56(38) Physical maintenance services X'03'	57(39) Request code X'02'	58(3A) Element address of the link to be traced
		----- Element address of the NCP PU when type=GPT
60(3C) RU1WT* Trace type	61(3D) Option*	62(3E) Hierarchy element address for the generalized PIU trace (GPT)
		----- Count* for line trace (LT) and scanner interface trace (SIT)

* Indicates a byte expansion follows.

Byte Expansions

Offset/Field Name	Bit Pattern/ Hex Value	Contents
60(3C) RU1WT		Trace type
	..xx .xx.	Reserved bits (2, 3, 5, and 6)
	0000 0001	LT alone*
	0000 1000	SIT alone*
	0000 1001	LT and SIT*
	0100 0000	Generalized PIU trace (never combined)
	1000 0000	Transmission group trace alone
	1000 0001	Transmission group and LT
	1000 1000	Transmission group and SIT
	1000 1001	Transmission group, SIT, and LT

Note: For lines attached to an NCP/token-ring interconnection (NTRI), note the following:

- When LT is specified, NCP activates both an LT line trace and an IOH trace.
- When SIT is specified, NCP activates a token-ring interconnection coupler (TIC) internal trace of the SIT.

61(3D)		Option
		GPT
	X'01'	Specific hierarchy. Bytes 7 and 8 contain the hierarchy element address.
	X'00'	All eligible resources
		LT/IPT/SIT
	X'01'–X'FF'	Time interval between entries

Offset/Field Name	Bit Pattern/ Hex Value	Contents
62(3E)		Option
		GPT
	Bytes 7 and 8	Element address of the specific hierarchy
		LT (CSP normal mode) and SIT
	Byte 7	Count of data bytes to copy
	X'00'	Trace no data.
	X'FF'	Trace all data. For Ethernet line trace only, X'FF' indicates to trace X'2A' bytes of data.
	Byte 8	Reserved

Activate Virtual Route (NC.ACTVR) RU

Request Format

		55(37) RU4AVRRC Request code X'0D'	
56(38) Reserved	58(3A) RU4AVRFC Format code (ACTVR) X'01'	59(3B) Reserved	
60(3C) RU4ACVER Receive explicit route number (ERN) mask		62(3E) RU4SNDER Send ERN mask	
64(40) RU4VRSSN Virtual route send sequence number		66(42) Reserved	67(43) RU4MAXWS Maximum pacing-group size
68(44) Reserved	69(45) RU4MINWS Minimum pacing-group size	70(46) RU4MSPL Maximum send PIU length	
72(48) RU4MRPL Maximum receive PIU length			

Positive Response Format

55(37) RU4AVRRC Request code X'0D'

Negative Response Format

		55(37) First byte of exception response	
56(38) Second byte of exception response	57(39) First byte of user sense	58(3A) Second byte of user sense	59(3B) Request code X'0D'
60(3C) Reserved			

Assign Network Address (ANA) RU

Request Format

		55(37) Network services X'01'	
56(38) Physical configuration services X'02'	57(39) Request code X'19'	58(3A) Network address of the PU	
60(3C) Number of network addresses to be assigned	61(3D) Type: X'80' noncontiguous	62(3E) - n Network addresses to be assigned (2 bytes each)	

Positive Response Format

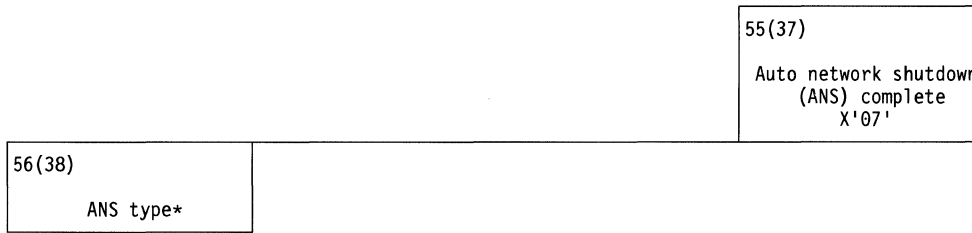
		55(37) Network services X'01'	
56(38) Physical configuration services X'02'	57(39) Request code X'19'		

Negative Response Format

		55(37) First byte of exception response	
56(38) Second byte of exception response	57(39) First byte of user sense	58(3A) Second byte of user sense	59(3B) Network services X'01'
60(3C) Physical configuration services X'02'	61(3D) Request code X'19'		

Auto Network Shutdown Complete (ANSC) RU

Request Format



* Indicates a byte expansion follows.

Byte Expansion

Offset/Field Name	Hex Value	Contents
56(38)		ANS type
	X'01'	Panel is initiated.
	X'02'	Attention or activity is initiated.
	X'03'	Unexpected Activate Physical is initiated.
	X'04'	DISC is initiated.
	X'05'	SNRM is initiated.
	X'06'	Unrecoverable path error is initiated.
	X'07'	Deactivate Physical is initiated.
	X'08'	Lost subarea is initiated.
	X'09'	Channel Discontact is received.

Boundary Function Clean Up (BFCLEANUP) RU

Request Format (Format Type of X'00':BFCLEANUP(PLU/SLU))

		55(37) RU1BFCH1 Network services X'81'	
56(38) RU1BFCH2 LU services X'26'	57(39) RU1BFCH3 Request code X'29'	58(3A) RU1BFCA Element address of the subject LU	
60(3C) RU1BFCH2 Format type X'00'	61(3D) Reserved		63(3F) - n RU1BFCHV
Session keys X'15' or X'0A'***			
(n+1) - p Control vector X'35'**			

** See “Control Vectors and Control Lists” on page 5-138.

*** See “Session Keys” on page 5-194.

Boundary Function Control Initiate (BFCINIT) RU

Request Format (Format Type of X'00': BFCINIT(PLU))

		55(37) RU1BFSS Network services (NS) X'81'	
56(38) RU1BFNLS LU services X'26'	57(39) RU1BFNRC Request code X'01'	58(3A) RU1BFNTA Element address of the primary LU (PLU)	
60(3C) RU1BFNTF Format type X'00'	61(3D) RU1BFNFG* Flags	62(3E)	
Reserved			
		67(43) RU1BFNBL	
Length of the BIND image field			
69(45) - m		RU1BFNBI	
BIND image. The image extends from the request code X'31' at 55(37), through the user request correlation field****			
(m+1) Network-qualified secondary LU (SLU) name type X'F3'	(m+2) Length of the network-qualified SLU name	(m+3) - n	
Network-qualified SLU name Note: The PLU name of the BIND image contains the network-qualified PLU name			
(n+1) - p Session key X'0A'***			
(p+1) - q Control vectors (Control vectors X'0D', X'15', X'2C, and X'60' are always present, while X'0E', X'16, X'27', X'2B', X'2D', and X'68' are conditional.)**			

* Indicates a byte expansion follows.

** See “Control Vectors and Control Lists” on page 5-138.

*** See “Session Keys” on page 5-194.

**** See “Bind Session (BIND) RU” on page 5-36 for the format of the BIND image.

Request Format (Format Type of X'10': BFCINIT(RSCV))

			55(37) RU1BFSS Network services (NS) X'81'
56(38) RU1BFNLS LU services X'26'	57(39) RU1BFNRC Request code X'01'	58(3A) RU1BFNTA Element address of the secondary LU (SLU)	
60(3C) RU1BFNTF Format type X'10'	61(3D) RU1BFNFG* Flags	62(3E)	
Reserved			
			67(43) RU1BFNBL
Length of the BIND image field			
69(45) - m		RU1BFNBI	
BIND image. The image extends from the request code X'31' at 55(37), through the user request correlation field****			
(m+1) Network-qualified secondary LU (SLU) name type X'F3'	(m+2) Length of the network-qualified SLU name	(m+3) - n	
Network-qualified SLU name Note: The PLU name of the BIND image contains the network-qualified PLU name			
(n+1) - p Control vectors (Control vectors X'15', and X'60' are always present, while X'0E', X'2B, X'2C', and X'2D' are conditional.)**			

- * Indicates a byte expansion follows.
- ** See "Control Vectors and Control Lists" on page 5-138.
- *** See "Session Keys" on page 5-194.
- **** See "Bind Session (BIND) RU" on page 5-36 for the format of the BIND image.

Byte Expansions

Offset/Field Name	Bit Pattern/ Hex Value	Contents
61(3D) RU1BFNFG		Flags
	x...	Reserved
	.1..	Substitution source (reserved if bits 4–5 do not equal 11):
		0 = Use the names contained in the control vector X'0E's. The control vector X'0E' for the PLU is not included in the BIND
		1 = Use the names contained in the control vector X'16'. If bit 6=1, the control vector X'0E' for the PLU is included in the BIND
	..1.	Save RSCV for RSP(BIND)
	...1	Copy RSCV to BIND request
	.... xx..	Name substitution in BIND NS name fields:
		00 = No name substitution is performed by the receiver
		01 = No name substitution is performed by the receiver, but network identifiers are present and are to be removed from the NS name fields in the BIND
		10 = No name substitution is performed by the receiver, but the network name control vector X'0E' for the PLU is included in the BIND
		11 = Name substitution is performed by the receiver; the names from one or more control vectors indicated by bit 1 are substituted into the NS name fields in the BIND
		Note: Values B'10' and B'11' are reserved if bit 6=0
	.... ..x.	Type of BIND sent to the SLU
		0 = Non-extended BIND
		1 = Extended BIND
	.... ....x	Reserved

Boundary Function Initiate (BFINIT) RU

Request Format (Format type X'00': BFINIT(PLU))

			55(37) RU1BFISS Network services X'81'
56(38) RU1BFILS LU services X'26'	57(39) RU1BFIRC Request code X'81'	58(3A) RU1BFALS Element address of the adjacent link station	
60(3C) RU1BFIFT Format type X'00'	61(3D) RU1BFIBL Length of the BIND image field		63(3F) - m RU1BFIBI
BIND image (including control vectors)			
(m+1) - n Session key X'0A'***			
(n+1) - p Control vector X'23'***			

** See "Control Vectors and Control Lists" on page 5-138.

*** See "Session Keys" on page 5-194.

Request Format (Format type X'10': BFINIT(RSCV))

			55(37) RU1BFISS Network services X'81'
56(38) RU1BFILS LU services X'26'	57(39) RU1BFIRC Request code X'81'	58(3A) RU1BFALS Element address of the adjacent link station	
60(3C) RU1BFIFT Format type X'10'	61(3D) RU1BFIBL Length of the BIND image field		63(3F) - m RU1BFIBI
BIND image (including control vectors)			
(m+1) - n Session key X'15'***			

*** See "Session Keys" on page 5-194.

Boundary Function Session Ended (BFSESEND) RU

Request Format

		55(37) RU1BFEH1 Network services X'81'	
56(38) RU1BFEH2 LU services X'26'	57(39) RU1BFEH3 Request code X'88'	58(3A) RU1BFEEA Element address of NCP	
60(3C) RU1BFEF* Format type X'00'	61(3D) RU1BFEUB Cause for deactivation.****	62(3E) Reserved	63(3F) - n RU1BFECV
Session key X'15'.*** Control vectors X'35 and X'60' (conditional).**			

- * Indicates a byte expansion follows.
- ** See "Control Vectors and Control Lists" on page 5-138.
- *** See "Session Keys" on page 5-194.
- **** See "UNBIND RU" on page 5-136.

Byte Expansion

Offset/Field Name	Bit Pattern	Contents
60(3C) RU1BFEF		Format type
	0000	Format 0
	.... .xxx	Reserved
	.... x...	0 = The subject LU is a secondary LU in this session. 1 = The subject LU is a primary LU in this session.

Boundary Function Session Information (BFSESSINFO) RU

Request Format

		55(37) RU1BFHB1 Network services X'81'
56(38) RU1BFHB2 LU services X'26'	57(39) RU1BFHB3 Request code X'8C'	58(3A) RU1BFEA Element address of the adjacent link station
60(3C) RU1BFFM* Format type X'00'	61(3D) RU1BFSTA* Takeover status	62(3E) Reserved
64(40) RU1BFLUL Length of the LU name	65(41) - m RU1BFLUN LU name	
(m+1) - n	RU1SICVS Control vector X'2A'.**	

* Indicates a byte expansion follows.

** See "Control Vectors and Control Lists" on page 5-138.

Byte Expansions

Offset/Field Name	Bit Pattern	Contents
60(3C) RU1BFFM		Format type
	0000 xxxx	Format 0 Reserved
61(3D) RU1BFSTA		Takeover status
	1... .... .1.. .... ..1. .... ...x	PU takeover is completed. LU takeover is completed. LU does not require system definition to receive network services. Static/dynamic address indicator:
		0 = Sender considers the LU to have a static secondary address. 1 = Sender considers the LU to have a dynamic or unassigned secondary address.

Boundary Function Session Started (BFSESSST) RU

Request Format

		55(37) RU1BFSH1 Network services X'81'	
56(38) RU1BFSH2 LU services X'26'	57(39) RU1BFSH3 Request code X'86'	58(3A) RU1BSEA Element address of NCP	
60(3C) RU1BFSF* Format type X'00'	61(3D) - n RU1BFSCV		
Session key X'15' (always present).*** Control vectors X'1E' and X'23' are always present, and control vectors X'2B', X'31', and X'60' are conditional.**			

- * Indicates a byte expansion follows.
- ** See "Control Vectors and Control Lists" on page 5-138.
- *** See "Session Keys" on page 5-194.

Byte Expansion

Offset/Field Name	Bit Pattern	Contents
60(3C) RU1BFSF		Format type
	0000	Format 0
	.... 1....	0 = The subject LU is a secondary LU in this session. 1 = The subject LU is a primary LU in this session.
	.... .xxx	Reserved

Boundary Function Terminate (BFTERM) RU

Request Format

			55(37) RU1BFTSS Network services X'81'
56(38) RU1BFTLS LU services X'26'	57(39) RU1BFTRC Request code X'83'	58(3A) RU1BFTEL Element address of the LU	
60(3C) RU1BFTFT* Format type X'00'	61(3D) RU1BFTCS* BFTERM completion status	62(3E) Reserved	63(3F) - n RU1BFTCV
Session key X'0A' or X'15'. (One is always present.)***			
(n+1) - p Control vectors. (Possible control vectors are X'35', X'60', and X'1B'.)**			

- * Indicates a byte expansion follows.
- ** See "Control Vectors and Control Lists" on page 5-138.
- *** See "Session Keys" on page 5-194.

Byte Expansions

Offset/Field Name	Bit Pattern/Hex Value	Contents
60(3C) RU1BFTFT		Format type
	0000	Format 0
	.... xxxx	Reserved
61(3D) RU1BFTCS		Completion status
	X'00'	Session activation request rejected
	X'01'	Virtual route activation failure
	X'02'	UNBIND from the primary LU
	X'03'	VR failed before session activation could complete

Bind Session (BIND) RU

Request Format

Positive Long Response Format is the same as the request format but session parameters may have changed.

RU1TYP=X'00'—negotiable BIND only

			55(37) RUIRCO Request code (BIND) X'31'
56(38) RU1TYP* Format and type	57(39) RU1PRO Function manager (FM) profile	58(3A) RU1TS TS profile	59(3B) RU1FMP* Primary LU (PLU) protocol
60(3C) RU1FMS* Secondary LU (SLU) protocol	61(3D) Protocol common to both units		63(3F) RU1TSU1* TS usage (inbound pacing)
	RU1FMC*	62(3E) RU1FMC1*	
64(40) RU1TSU2* TS usage (NCP/LU pacing)	65(41) RU1TSU3 TS usage (SLU max RU)	66(42) RU1TSU4 TS usage (PLU max RU)	67(43) RU1TSU5* TS usage (host/NCP pacing)

* Indicates a byte expansion follows.

68(44) RUI TSU6* TS usage	69(45) RUI TPSP* Presentation services (PS) profile	70(46) - 80(50) RUI TPSU	
Presentation services usage			
<table border="1" style="margin: auto;"> <tr> <td style="text-align: center;">RUI TPSU1* LU-6 level</td> </tr> </table>			RUI TPSU1* LU-6 level
RUI TPSU1* LU-6 level			
80(50) RUI TPSUA*	81(51) RUI CLEN Length of cryptography data	82(52) RUI DAT	
Cryptography data (not used by NCP) (9 bytes if RUI CLEN=X'x9'; not present if RUI CLEN=X'x0')			
Length of the PLU name	PLU name (1 to 17 bytes)		
Length of user data	User data (1 to 65 bytes if present)		
Length of user request correlation	User request correlation (0 to 12 bytes)		
Length of the SLU name	SLU name (1 to 17 bytes)		
Control vectors. (Possible control vectors are X'0E', X'27', X'2B', X'2C', X'2D', and X'60'.)**			

* Indicates a byte expansion follows.

** See "Control Vectors and Control Lists" on page 5-138.

Positive Short Response Format—non-negotiable BIND only

56(38) RUI TYP Format and type X'01'	55(37) RUI RCO Request code (BIND) X'31'
---	---

Negative Response Format—both negotiable and non-negotiable BIND

			55(37) First byte of exception response.
56(38) Second byte of exception response	57(39) First byte of user sense X'00'	58(3A) Second byte of user sense X'00'	59(3B) RU1RC0 Request code (BIND) X'31'
60(3C) RU1TYP Format and type			

Byte Expansions

Offset/Field Name	Bit Pattern/ Hex Value	Contents
56(38) RU1TYP		Format (bits 0–3) and type (bits 4–7)
	X'00'	Negotiable BIND
	X'01'	Non-negotiable BIND
59(3B) RU1FMP		PLU protocol
	x... ..	1 = Allow multiple RU chains. 0 = Allow single RU chains.
	.x.. ..	1 = Delayed request mode 0 = Immediate request mode
	..xx ..	00 = No response 01 = Exception response 10 = Always a definite response 11 = Definite or exception response
	.... ..1. .... ..1	Compression Primary will send end bracket (EB).
60(3C) RU1FMS		SLU protocol
		Same definitions as RU1FMP except that.... ..1 indicates that the secondary will send EB.
61(3D) RU1FMC		Protocol common to both units
	1... ..	Whole BIUs required indicator
	.1.. ..	May have an FM header
	..1.	Bracketed session
	...x	Bracket determination: 1 = Conditional 0 = Unconditional.
	.... 1...	Alternate code
62(3E) RU1FMC1	xx..	Send/receive mode: 00 = Duplex 01 = Half-duplex contention 10 = Half-duplex flip-flop 11 = Reserved.
	..x.	Recovery responsibility: 1 = Sender 0 = Contention loser.
	...x	Contention winner: 1 = Primary first speaker 0 = Secondary first speaker.
	.... ..1. .... ..x	Control vectors included after SLU name: 1 = Primary wins contention. 0 = Secondary wins contention.

Offset/Field Name	Bit Pattern/ Hex Value	Contents
63(3F) RU1TSU1	x... .. .x... .. ..xx xxxx	TS usage—inbound pacing 1 = SLU-to-PLU two-stage pacing 0 = SLU-to-PLU one-stage pacing. Reserved Secondary send window size
64(40) RU1TSU2	1... .. .x... .. ..xx xxxx	TS usage—NCP/LU pacing Adaptive pacing is supported by sending node. Reserved Secondary receive window size
67(43) RU1TSU5	x... .. .x... .. ..xx xxxx	TS usage—host/NCP pacing 1 = PLU-to-SLU one-stage pacing 0 = PLU-to-SLU two-stage pacing. Reserved Primary send window size
68(44) RU1TSU6	xx.. .. ..xx xxxx	TS usage Reserved Primary receive window size
69(45) RU1PSP	0... .. .xxx xxxx	PS profile Basic format LU type: 000 0000 LU type 0 000 0001 LU type 1 000 0010 LU type 2 000 0011 LU type 3 000 0100 LU type 4 000 0110 LU type 6 000 0111 LU type 7.
70(46) RU1PSU1	X'02'	LU-6 level LU 6.2
80(50) RU1PSUA	.x... ..	Limited resource indicator: 1 = Contention-winner LU will deactivate the limited resource session when it is no longer busy. 0 = Contention-winner LU will not deactivate the limited resource session.

Change Device Transmission Limit (BSC/SS) RU

Request Format

		55(37) Network services X'01'	
56(38) BSC/SS X'00'	57(39) Request X'01'	58(3A) Element address of the BSC/SS multipoint line	
60(3C) New transmission limit			

Change Line Negative Poll Response Limit(BSC/SS) RU

Request Format

		55(37) Network services X'01'	
56(38) BSC/SS X'00'	57(39) Request code X'02'	58(3A) Element address of the BSC/SS line	
60(3C) New negative poll response limit			

Change Line Service-Seeking Pause (BSC/SS) RU

Request Format

			55(37) Network services X'01'
56(38) BSC/SS X'00'	57(39) Request code X'04'	58(3A) Element address of the BSC/SS line	
60(3C) Number of seconds to pause (HEX)			

Change Line Session Limit (BSC/SS) RU

Request Format

			55(37) Network services X'01'
56(38) BSC/SS X'00'	57(39) Request code X'03'	58(3A) Element address of the BSC/SS line	
60(3C) New session limit			

Clear RU

Request and Response Formats

55(37)

Request code
X'A1'

Connect Out (CONNOUT) RU

Request Format for Switched Subarea Line

			55(37) Network services X'01'
56(38) Physical configuration services X'02'	57(39) Request code X'0E'	58(3A) Element address of the line, if ENA is supported; otherwise, its network address	
60(3C) SDLC link station identifier	61(3D) Dial type*	62(3E) Dial retry limit	63(3F) Number of dial digits
64(40) - n Dial digits			
(n+1) - (n+3) Specific ID			(n+4) - m
Control vectors (Possible control vector is X'12')**			

* Indicates a byte expansion follows.

** See "Control Vectors and Control Lists" on page 5-138.

Request Format for Non-Switched Peripheral Link Station

			55(37) Network services X'01'
56(38) Physical configuration services X'02'	57(39) Request code X'0E'	58(3A) Element address of the link station	
60(3C) SDLC link station identifier	61(3D) Dial type*	62(3E) - n	
Control vectors (Possible control vectors are X'0E' and X'46')**			

* Indicates a byte expansion follows.

** See "Control Vectors and Control Lists" on page 5-138.

Note: The CV4680 control vector is present when the connection is APPN level and the APPN networking functions support bit (byte 5, bit 4) is set in the ACTPU and ACTPU response.

Request Format for Switched Peripheral Line

			55(37) Network services X'01'
56(38) Physical configuration services X'02'	57(39) Request code X'0E'	58(3A) Element address of the line, if ENA is supported; otherwise, its network address	
60(3C) SDLC link station identifier	61(3D) Dial type*	62(3E) Dial retry limit	63(3F) Number of dial digits
64(40) - n Dial digits			
(n+1) - m Control vectors (Possible control vectors are X'0E' and X'46')**			

* Indicates a byte expansion follows.

** See "Control Vectors and Control Lists" on page 5-138.

Note: The CV4680 control vector is present when the connection is APPN level and the APPN networking functions support bit (byte 5, bit 4) is set in the ACTPU and ACTPU response.

Positive Response Format

		55(37) Network services X'01'
56(38) Physical configuration services X'02'	57(39) Request code X'0E'	

Byte Expansions

Offset/Field Name	Bit Pattern/ Hex Value	Contents
61(3D)	x...	Dial type Connection type: 1 = CONNOUT for non-switched lines 0 = CONNOUT for switched lines
	.00.	Autodial call
	.01.	Reserved
	.10.	Manual connection (not for X.21 lines)
	.11.	Direct call (X.21 only)
	.... .x..	Connection support 1 = Node is APPN 0 = Node is LEN
	.... ..1.	The sender is a network node
	.... ...x	Static/Dynamic address indicator 1 = Sender considers the adjacent link station (ALS) to be dynamic 0 = Sender considers the ALS to be static
	...x x...	Reserved

Contact RU

Request Format

		55(37) Network services X'01'
56(38) Physical configuration services X'02'	57(39) Request code X'01'	58(3A) Element address of the resources to be contacted
60(3C) RU1CNTF* CONTACT flags	61(3D) RU1TGN Transmission group number (TGN)	62(3E) - n Control vectors (Possible control vectors are X'0E' and X'46'）**

* Indicates a byte expansion follows.

** See "Control Vectors and Control Lists" on page 5-138.

Byte Expansions

Offset/Field Name	Bit Pattern/ Hex Value	Contents
60(3C) RU1CNTF		CONTACT flags
	1...	Network services are available from the XID sender via a CP-CP session
	.1..	Enhanced address management is supported
	..x.	Static or dynamic address indicator: 1 = Sender considers the PU address dynamic 0 = Sender considers the PU address static Note: This bit is reserved if bit 1 = 0
	...1	Limited resource is supported
	.... x...	CP-CP session support indicator 1 = CP-CP sessions supported and CP-CP sessions requested bits set 0 = CP-CP sessions supported and CP-CP sessions requested bits reset
	.... .x..	Connection support indicator 1 = APPN connection 0 = LEN connection
	.... ..1.	The sender is a network node
	.... ...x	Non-native NETID usage indicator 1 = Use the native NETID as the NETID for all LUs on the connection 0 = Use the adjacent node's non-native NETID as the NETID for all LUs on the connection

Contacted RU

Request Format

Note: Bytes 55(37) through 60(3C) are included in all Contacted types.

		55(37) RU1BT0 Network services X'01'	
56(38) RU1BT1 Physical configuration services X'02'	57(39) RU1RC2 Request code (CONTACTED) X'80'	58(3A) RU1NA Element address of the adjacent link station in the node being contacted	
60(3C) RU1LDS Load status			

Note: If the load status at location 60(3C) is X'01', X'02', or X'03', the Contacted RU ends here. Also indicates a byte expansion follows.

If the load status at location 60(3C) is X'04' or X'09', the following parameters are included.

61(3D) Resolved transmission group number (TGN)	62(3E) - 65(41)
Adjacent node subarea address	
66(42) - 73(49)	
IPL load module ID received from the adjacent node	
72(4A) - 81(51) Network ID of the subnetwork that contains the contacted station (only for load status X'09')	
82(51) - n Control vectors. (Possible control vectors are X'57' and X'0E'.)**	

** See "Control Vectors and Control Lists" on page 5-138.

If the load status at location 60(3C) is X'05', X'07', X'08', X'0A' (with XIDs appended), or X'0B', the following parameters are included.

	61(3D) Length of received XID data	62(3E) - m	
XID data received from the adjacent node			
m+1 Length of the send XID data	(m+2) - n		
XID data sent to the adjacent node			
n+1 CONTACTED flags*	n+2 - p Control vectors. (Possible control vector for X'0A' is X'57'.)**		

* Indicates a byte expansion follows.

** See “Control Vectors and Control Lists” on page 5-138.

If the load status at location 60(3C) is X'0A' (without XIDs appended), the following Contacted RU format is sent to the the SSCP.

	61(3D) Length of the received XID data X'00'	62(3E) Length of the sent XID data X'00'	63(3F) CONTACTED flags*
64(40) - n Control vectors. (Possible control vector is X'57')**			

* Indicates a byte expansion follows.

** See “Control Vectors and Control Lists” on page 5-138.

Byte Expansions

Offset/Field Name	Bit Pattern/Hex Value	Contents
60(3C) RU1LDS		Load status
	X'01'	Loaded
	X'02'	Load is required.
	X'03'	Error on CONTACT
	X'04'	Loaded status for SNA 4.2 host. Parameters follow byte 60(3C).
	X'05'	Exchanged XID parameters; not compatible. Parameters follow byte 60(3C).
	X'07'	No routing capability to the adjacent subarea. Parameters follow byte 60(3C).
	X'08'	Incompatible parameters for addition of link station to the currently active transmission group. Parameters follow byte 60(3C).
	X'09'	Loaded status for gateway SSCP-loaded in another network
	X'0A'	Contacted PU-T2.1 node. XID fields are present if the station supports XIDs; otherwise, XID fields are not present.
	X'0B'	CONTACT error for PU-T2.1 node. XID fields are present.
n+1 or 63(3F)		CONTACTED flags
	x... ..	DLC activation sequence: 1 = Executed; initial CONTACT 0 = Not executed; network service available or takeover CONTACT.
	.x... ..	BFSESSINFO PIU follows: 1 = BFSESSINFO PIU follows this CONTACTED PIU; then the adjacent link station (ALS) takeover is not complete. 0 = No BFSESSINFO PIU follows this CONTACTED PIU; then the ALS takeover is complete.
	..x.	PU-T2.1 station: 1 = PU-T2.1 station 0 = Non PU-T2.1 station.
	...x	1 = CONTACTED is unsolicited. 0 = CONTACTED is solicited.
	.... x...	1 = DLC XID exchange has been executed. 0 = DLC XID exchange has not been executed.
	.... .x..	1 = Station is in Limbo 0 = Station is not in Limbo
	.... ...x.	Non-native NETID usage indicator 1 = The native NETID will be used as the NETID for all LUs on the connection 0 = The adjacent node's non-native NETID will be used as the NETID for all LUs on the connection
	.... ...x	Reserved

Deactivate Connect In (DACTCONNIN) RU

Request Format

		55(37) Network services X'01'
56(38) Physical configuration services X'02'	57(39) Request code X'17'	58(3A) Element address of the link

Positive Response Format

		55(37) Network services X'01'
56(38) Physical configuration services X'02'	57(39) Request code X'17'	

Deactivate Cross-Domain Resource Manager (DACTCDRM) RU

Type 1 DACTCDRM RU

	55(37) RUIDARQC DACTCDRM request code field X'15'
56(38) RUIDAFTP* Format code and DEACT type	

* Indicates a byte expansion follows.

Type 2 DACTCDRM RU

		55(37) RUIDARQC DACTCDRM request code field X'15'
56(38) RUIDAFTP* Format code and DEACT type	57(39) RUISENS1 Sense data halfword 1 (HW1), DEACT type=invalid parameter	59(3B) RUISENS2 Sense data halfword 2 (HW2), DEACT type=invalid parameter
60(3C) RUISENS2 Sense data HW2, DEACT type=invalid parameter		

* Indicates a byte expansion follows.

Type 3 DACTCDRM RU

			55(37) RUIDARQC DACTCDRM request code field X'15'
56(38) RUIDAFTP* Format code and DEACT type	57(39) RUISON* Cause of session outage notification (SON), DEACT type=SON	58(3A) Reserved	

* Indicates a byte expansion follows.

Byte Expansions

Offset/Field Name	Bit Pattern/ Hex Value	Contents
56(38) RU1DAFTP		Format code and DEACT type
	xxxx xxxx	Format code DEACT type: 0001 = Normal session end. 0010 = Invalid parameter. (Response to ACTCDRM is invalid.) 0011 = SON.
57(39) RU1SON		Cause of SON (type 3 DACTCDRM)
	X'07'	Virtual route is inoperative.
	X'0B'	Virtual route is deactivated.
	X'0C'	SSCP failure, unrecoverable
	X'0D'	SSCP session override
	X'0E'	SSCP failure, recoverable
	X'0F'	SSCP has failed—clean up session.
	X'10'	SSCP contention
	X'11'	SSCP cleanup—gateway node

Deactivate Link (DACTLINK) RU

Request Format

		55(37) Network services X'01'	
56(38) Physical configuration services X'02'	57(39) Request code X'0B'	58(3A) Element address of the link to be deactivated	
60(3C) Type of DACTLINK*			

* Indicates a byte expansion follows.

Byte Expansion

Offset/Field Name	Hex Value	Contents
60(3C)	X'00'	Type of DACTLINK
	X'01'	Normal DACTLINK
	X'02'	Forced DACTLINK
	X'02'	Giveback DACTLINK

Deactivate Logical (DACTLU) RU

Request Format

		55(37) Request code X'0E'
56(38) Type of deactivation requested**	57(39) Cause**	

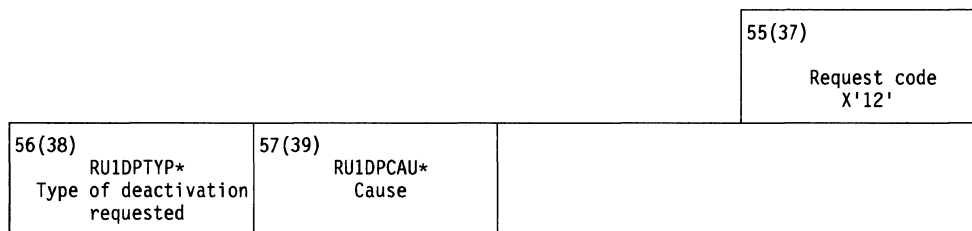
** If present, these RU fields are not used by NCP.

Positive Response Format

55(37) Request code X'0E'

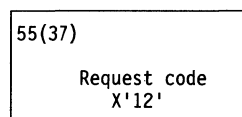
Deactivate Physical (DACTPU) RU

Request Format



* Indicates a byte expansion follows.

Positive Response Format



Byte Expansions

Offset/Field Name	Hex Value	Contents
56(38) RUIDPTYP		Type of deactivation requested
	X'01'	Final use. Physical connection may be broken.
	X'02'	Not final use. Physical connection should not be broken.
	X'03'	Session outage notification (SON)
57(39) RUIDPCAU		Cause
	X'07'	Virtual route is inoperative.
	X'08'	Route extension is inoperative.
	X'09'	Hierarchical reset
	X'0B'	Virtual route is deactivated
	X'0C'	SSCP or PU failure—unrecoverable
	X'0D'	Session override
	X'0E'	SSCP or PU failure—recoverable
	X'0F'	Cleanup
	X'10'	Adjacent link station (ALS) reset
	X'11'	Giveback

Note: RUIDPCAU is present only if RUIDPTYP = X'03'.

Deactivate Trace (DACTTRACE) RU

Request Format

		55(37) Network services X'01'
56(38) Physical maintenance services X'03'	57(39) Request code X'03'	58(3A) Element address of the link on which the line trace (LT) is active ----- Element address of the NCP PU when type=GPT
60(3C) Trace type*	61(3D) Option* (type=GPT only)	62(3E) Element address of the specific hierarchy (type=GPT only)

* Indicates a byte expansion follows.

Byte Expansions

Offset/Field Name	Bit Pattern/Hex Value	Contents
60(3C)	x.xx .xx. 0000 0001 0000 1000 0000 1001 0100 0000	Trace type Reserved bits (0, 2, 3, 5, and 6) LT, transmission group trace, or both Scanner interface trace (SIT) alone* LT or transmission group, and SIT Generalized PIU trace (GPT)—never combined
61(3D)	X'01' X'00'	Option (type=GPT only) Specific hierarchy. Bytes 7 and 8 contain the hierarchy address. All eligible resources

Note: For lines attached to an NCP/token-ring interconnection (NTRI), note the following:

- When LT is specified, NCP deactivates both the LT and the IOH trace.
- When SIT is specified, NCP deactivates the token-ring interconnection coupler (TIC) internal trace being run in place of the SIT.

Deactivate Virtual Route (NC.DACTVR) RU

Request Format

		55(37) RU4DVRRC Request code field X'0E'
56(38) Reserved	58(3A) RU4DVRF Format code (DACTVR) X'01'	59(3B) RU4DVRT* DACTVR type

* Indicates a byte expansion follows.

Positive Response Format

55(37) RU4DVRRC Request code field X'0E'

Byte Expansion

Offset/Field Name	Hex Value	Contents
59(3B) RU4DVRT		DACTVR type
	X'01'	Orderly
	X'02'	Forced
Note: NCP makes no distinction between these two types.		

Discontact RU

Request Format

			55(37) Network services X'01'
56(38) Physical configuration services X'02'	57(39) Request code X'02'	58(3A) Local link station element address of the resource to discontact	

Display Storage (DISPSTOR) RU

Request Format

		55(37) RU1BT0 Network services X'01'	
56(38) RU1BT1 Physical configuration services X'03'	57(39) RU1RC2 Request code X'31'	58(3A) RU1STNA Element address of the resource to be displayed	
60(3C) RU1STYPE* Display type	61(3D) RU1CORR Correlation ID (NCP non-static storage transfer only)	63(3E) RU1SLENG Number of bytes to be displayed (Restricted by VTAM to be in the range of 1 through 256)	
64(40) RU1STRTA Location of the beginning of the display			

* Indicates a byte expansion follows.

Byte Expansions

Offset/Field Name	Bit Pattern/Hex Value	Contents
60(3C) RU1STYPE		Display type
	X'01'	NCP non-static storage transfer
	X'12'	MOSS dump transfer
	X'14'	MOSS dump purge
	X'18'	NCP load module names from disk
	X'22'	Communication scanner processor (CSP) dump transfer
	X'24'	CSP dump purge
	X'32'	NCP dump header from MOSS disk
	X'42'	NCP dump text from MOSS disk
	X'44'	NCP dump purge from MOSS disk

Dump Final RU

Request Format

			55(37) Network services X'01'
56(38) Physical configuration services X'02'	57(39) Request code X'08'	58(3A) Element address of adjacent link station of the node to be dumped or zero when the request is to force a dump of the PU_T4 node to the local disk	

Dump Initial (DUMPINIT) RU

Request Format

		55(37) Network services X'01'
56(38) Physical configuration services X'02'	57(39) Request code X'06'	58(3A) Element address of adjacent link station of the node to be dumped or zero when the request is to initiate the sequence to force a dump to the local disk
60(3C) Dump type*		

* Indicates a byte expansion follows.

Positive Response Format

		55(37) Network services X'01'
56(38) Physical configuration services X'02'	57(39) Request code X'06'	58(3A) - 460(1CC) 400 bytes.* (See note.)

* Indicates a byte expansion follows.

Note: Dump data is present only when the corresponding DUMPINIT request identified an adjacent link station address.

Byte Expansions

Offset/Field Name	Bit Pattern	Contents
60(3C)		Dump type
	x... ..	1=Force dump to local disk storage
	.xxx xxxx	Reserved
58(3A)–460(1CC)		
(1)	4 bytes*	Storage size of the controller to be dumped
(2)	32 4-byte fields	Local store registers of the controller to be dumped
(3)	256 bytes	Storage keys of the controller to be dumped
(4)	8 bytes	Protect keys
	Byte 399	IPL Indicators
	1... ..	Dump
	.1... ..	NCP invoked IPL
	...1 ..	SIM received
	Byte 400	Utility status
	1... ..	Monitor IPL state
	.1... ..	Load state
	..1.	Dump state
	...1	Entry point received or dump final received
	.... 1...	I-type in hold
	.... ..1.	High 8K storage in from diskette
	.... ...1	Character mode
	Bytes 401–402	Reserved
(5)	4 bytes	
	Byte 1	
	x... ..	1 = Initial test was not run during the last sequence; storage is still valid.
		0 = Initial test was run; most of storage was overlaid.
	...1 ..	Host Initiated IPL while NCP was sending SIM SDLC command over the link.
	Byte 1	
	.... ..1.	High 8K of storage was already retrieved from previous dump. Storage locations X'0000'–X'FFF' are no longer valid.
		Note:
		* Bit 7 = 1 in the fourth byte indicates that the dump was created by the load dump program.

Dump Text (DUMPTXT) RU

Request Format

		55(37) Network services X'01'
56(38) Physical configuration services X'02'	57(39) Request code X'07'	58(3A) Local link station element address of the resource being dumped
60(3C) Storage address of the beginning of the dump		
64(40) Number of bytes of dump data to be sent to the SSCP (defaults to 512) (2 bytes)		

Positive Response Format

		55(37) Network services X'01'
56(38) Physical configuration services X'02'	57(39) Request code X'07'	58(3A) - n Dump data

Entering Slowdown (ESLOW) RU

Request Format

			55(37) Network services X'01'
56(38) Physical configuration services X'02'	57(39) Request code X'14'	58(3A) Element address of NCP physical services	

Execute Test (EXECTEST) RU

See Appendix F, "Online Tests," in *NCP and EP Reference*.

Exiting Slowdown (EXSLOW) RU

Request Format

			55(37) Network services X'01'
56(38) Physical configuration services X'02'	57(39) Request code X'15'	58(3A) Element address of NCP physical services	

Explicit Route Inoperative (NC.ER.INOP) RU

Request Format

		55(37) RU4ERCMD Request code X'06'
56(38) Reserved	58(3A) RU4RUF Format code X'01'	59(3B) RU4RSNCD* Reason code
60(3C) RU4ORGSA Originating subarea (right-justified)		
64(40) RU4ADJSA Adjacent subarea address on the other end of the transmission group (right-justified)		
68(44) RU4TGN Transmission group number (TGN) of the affected transmission group	69(45) RU4CNTSA Number of subareas affected	70(46) RU4ASA
Affected subarea (right-justified)		
		74(4A) RU4ERNM Mask of affected explicit route numbers (ERNs)
75(4C) - n Groups of 6 bytes with each group having information similar to that in bytes 70(46) through 75(4B)		

* Indicates a byte expansion follows.

Byte Expansion

Offset/Field Name	Hex Value	Contents
59(3B) RU4RSNCD		Reason code
	X'01'	Unexpected
	X'02'	Controlled

Explicit Route Operative (NC.ER.OP) RU

Request Format

		55(37) RU4ERCMD Request code X'0F'
56(38) Reserved	58(3A) RU4RUF Format code X'01'	59(3B) Reserved
60(3C) RU4ORGSA Originating subarea (right-justified)		
64(40) RU4ADJSA Adjacent subarea address on the other end of the transmission group (right-justified)		
68(44) RU4TGN Transmission group number (TGN) of the affected transmission group	69(45) RU4CNTSA Number of subareas affected	70(46) - 73(49) RU4ASA
Affected subarea (right-justified)		
		74(4A) RU4ERNM Mask of affected explicit route numbers (ERs)
76(4C) - n Groups of 6 bytes with each group having information similar to that in bytes 70(46) through 75(4B)		

Explicit Route Test (NC.ER.TEST) RU

Request Format

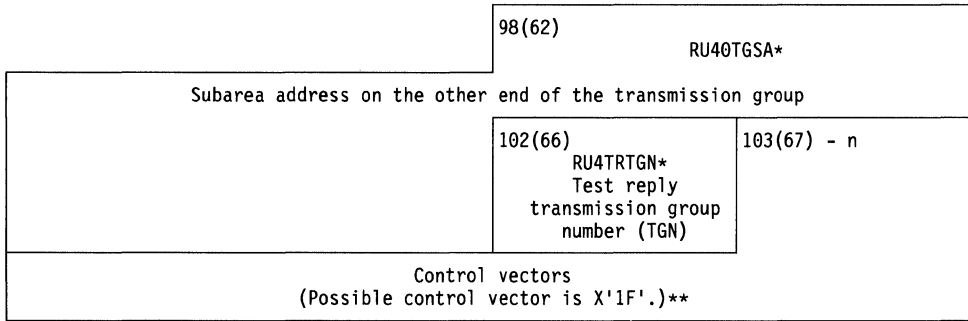
		55(37) RU4ERCMD Request code X'09'	
56(38) Reserved		58(3A) RU4RUF Format code X'01'	59(3B) Reserved
60(3C) RU4ERL Explicit route length	61(3D) RU4MERL Maximum explicit route length	62(3E) - 65(41) RU4RQDSA	
Destination subarea (right-justified)			
		66(42) Reserved	67(43) RU4DERN Destination explicit route number (ERN) (...xxxx)
68(44) RU4RQOSA Request origination subarea (right-justified)			
72(48) RU4RERNM Reverse ERN mask		74(4A) RU4MPS X'0000'	
76(4C) Reserved		78(4E) - 81(51) RU4SCPSA	
Subarea portion of the originating SSCP network address			
		82(52) RU4SCPEA Element address portion of the originating SSCP network address	
84(54) - 93(5D) RU4RCF Time-of-day stamp (correlates request with reply)			

Explicit Route Test Reply(NC.ER.TEST.REPLY) RU

Request Format

		55(37) RU4ERCMD Request code X'0A'	
56(38) Reserved		58(3A) RU4RUFC Format code X'01'	59(3B) RU4TRTF* Type field
60(3C) RU4ERL Explicit route length	61(3D) RU4MERL Maximum explicit route length	62(3E) RU4RQDSA	
Destination subarea (right-justified)			
		66(42) Reserved	67(43) RU4DERN Destination explicit route number (ERN) (....xxxx)
68(44) RU4RQOSA Request origination subarea (right-justified)			
72(48) RU4RERNM Reverse ERN mask		74(4A) RU4MPS X'0000'	
76(4C) X'0000'		78(4E) RU4SCPSA	
Subarea portion of the originating SSCP network address			
		82(52) RU4SCPEA Element address portion of the originating SSCP network address	
84(54) - 93(5D) RU4RCF Time-of-day stamp (correlates request with reply)			
		94(5E) RU4RBSA	
Subarea address of the reply builder			

* Indicates a byte expansion follows.



* Indicates a byte expansion follows.

** See "Control Vectors and Control Lists" on page 5-138.

Byte Expansions

Offset/Field Name	Hex Value	Contents
59(3B) RU4TRTF		Type field
	X'00'	Test is valid; destination subarea is reached.
	X'02'	Route is not reversible.
	X'03'	Encountered a node that did not support the explicit route
	X'04'	Maximum explicit route length is exceeded.
	X'05'	Transmission group is not active.
	X'06'	Explicit route is not defined in the NC.ER.TEST.REPLY originating node.
98(62) RU40TGSA		Subarea address on the other end of the transmission group (depends on the Type field in RU byte 4)
	Type	Subarea address defined
	X'00'	Reserved
	X'02'	Subarea on the explicit route prior to that with no reverse explicit route defined
	X'03'	Subarea that does not support the explicit route
	X'04'	Subarea on the explicit route preceding the subarea where explicit route length (NC-ER-TEST byte 5) is incremented beyond maximum explicit route length (byte 6)
	X'05'	Subarea on the other end of the inactive transmission group
	X'06'	Subarea on the explicit route from which the PU (ER not defined) received a corresponding NC.ER.TEST.
102(66) RU4TRTGN		Test reply TGN
	X'00'	Reserved
	X'MM'	TGN of the transmission group between the subarea address of the reply builder (RU4RBSA) and the subarea address on the other end of the transmission group (RU40TGSA)

Explicit Route Tested (ER.TESTED) RU

Request Format

			55(37) RU4BT0 Network services X'41'
56(38) RU4BT1 Maintenance services X'03'	57(39) RU4RC2 Request code (explicit route tested) X'86'	58(3A) Format code X'01'	59(3B) Type field*
60(3C) Explicit route length	61(3D) Maximum explicit route length	62(3E) Destination subarea (right-justified)	
		66(42) Reserved	67(43) Destination explicit route number (ERN) (...xxxx)
68(44) Explicit route test origination subarea (right-justified)			
72(48) Reverse ERN mask		74(4A) X'0000'	
76(4C) X'0000'		78(4E) Subarea portion of the network address of the SSCP originating the explicit route test request	
		82(52) Element address portion of the network address of the SSCP originating the explicit route test request	

* Indicates a byte expansion follows.

84(54) - 93(5D)	
Time of day as specified on NS.ER.TEST (correlates request with reply)	94(5E)
Subarea address of the node that built NC.ER.TEST.REPLY	98(62)
Subarea address on the other end of the transmission group*	102(65)
	Transmission group number (TNG) of the transmission group between the preceding two subareas*

* Indicates a byte expansion follows.

Request Format 2

			55(37) RU4BT0 Network services X'41'
56(38) RU4BT1 Maintenance services X'03'	57(39) RU4RC2 Request code (explicit route tested) X'86'	58(3A) Format code X'02'	59(3B) Type field*
60(3C) Explicit route length	61(3D) Maximum explicit route length	62(3E)	
Destination subarea (right-justified)			
		66(42) Reserved	67(43) Destination explicit route number (ERN) (....xxxx)
68(44) Explicit route test origination subarea (right-justified)			
72(48) Reverse ERN mask		74(4A) X'0000'	
76(4C) X'0000'		78(4E)	
Subarea portion of the network address of the SSCP originating the explicit route test request			
		82(52) Element address portion of the network address of the SSCP originating the explicit route test request	
84(54) - 93(5D) Time of day as specified on NS.ER.TEST (correlates request with reply)			
		94(5E)	
Subarea address of the node that built NC.ER.TEST.REPLY			
		98(62)	
Subarea address on the other end of the transmission group*			

* Indicates a byte expansion follows.

	102(66) TGN of the transmission group between the preceding two subareas*	103(67)
Subarea address of the adjacent node		107(6B) TGN
108(6C) Network ID of the subnetwork containing the explicit route		
116(74) Bit mask of the virtual routes that use the explicit route	118(76) - n	
Control vectors. (Possible control vector is X'1F'.)**		

* Indicates a byte expansion follows.

** See "Control Vectors and Control Lists" on page 5-138.

Byte Expansions

Offset/Field Name	Hex Value	Contents
59(3B)	X'00'	Type field
	X'02'	Test is valid; destination subarea is reached.
	X'03'	Route is not reversible.
	X'04'	Encountered a node that does not support the explicit route
	X'05'	Maximum explicit route length is exceeded.
	X'06'	Transmission group is not active. Explicit route is not defined in the NC.ER.TEST.REPLY originating node.
98(62)		Subarea on the other end of the transmission group (depends on the Type field in byte 4)
	Type	Subarea address defined
	X'00'	Reserved
	X'02'	Subarea previous to the NC.ER.TEST.REPLY building node
	X'03'	Subarea after the NC.ER.TEST.REPLY building node
	X'04'	Subarea previous to the NC.ER.TEST.REPLY building node
	X'05'	Subarea after the NC.ER.TEST.REPLY building node
X'06'	Subarea previous to the NC.ER.TEST.REPLY building node	
102(66)	X'00'	TGN of the transmission group
	X'MM'	Reserved TGN of the transmission group between the subarea address of the reply builder and the subarea address on the other end of the transmission group

Free Network Address (FNA) RU

Request Format

			55(37) RU1BT0 Network services X'01'
56(38) RU1BT1 Physical configuration services X'02'	57(39) RU1RC2 Request code (FNA) X'1A'	58(3A) RU1NA Element address of the link, the LU, or the PU	
60(3C) RU1DRNUM Number of element addresses freed	61(3D) RU1FIND* FNA miscellaneous indicators	62(3E) - n Element addresses to be freed (2 bytes each)	

* Indicates a byte expansion follows.

Positive Response Format

			55(37) RU1BT0 Network services X'01'
56(38) RU1BT1 Physical configuration services X'02'	57(39) RU1RC2 Request code (FNA) X'1A'		

Negative Response Format

			55(37) First byte of exception response.
56(38) Second byte of exception response	57(39) First byte of user sense	58(3A) Second byte of user sense	59(3B) RU1BT0 Network services X'01'
60(3C) RU1BT1 Physical configuration services X'02'	61(3D) RU1RC2 Request code (FNA) X'1A'		

Byte Expansions

Offset/Field Name	Bit Pattern/ Hex Value	Contents
61(3D) RU1FIND		Miscellaneous indicators
	1...	Retired
	.x..	1 = Sender supports enhanced address management 0 = Sender does not support enhanced address management
	..x.	1 = Sender considers address to be dynamic 0 = Sender considers address to be static
	...x xxxx	Reserved

Initialization Complete RU

Request Format

			55(37) Request code X'50'
56(38) X'09'	57(39) Scanner enable error	58(3A) Buffer size	59(3B) Initial free buffer count (byte 1)
60(3C) Initial free buffer count (byte 2)	61(3D) Slowdown buffer threshold		

Inoperative (INOP) RU

Request Format

		55(37) Network services X'01'
56(38) Physical configuration services X'02'	57(39) Request code X'81'	58(3A) Element address of the local link for the failing resource
60(3C) RU1IOT* Inoperative type	61(3D) X.21 call progress signals (CPSs)**	

* Indicates a byte expansion follows.

** Included only when inoperative type is X'0F'.

Byte Expansion

Offset/Field Name	Hex Value	Contents
60(3C) RU1IOT		Inoperative type
	X'01'	Resource failed.
	X'02'	Link failed.
	X'03'	Disconnect (DISC)
	X'04'	Request Disconnect (RD)
	X'05'	Disconnect Mode (DM)
	X'06	IPI/Dump attempt
	X'07'	Remote Power-Off attempt
	X'08'	Link forced deactivation.
	X'0A'	X.21 negative CPS is received but not stored.
	X'0B'	X.21 DCE clear in call-establish phase
	X'0C'	X.21 time-out in call-establish phase
	X'0D'	X.21 DCE clear in data phase
	X'0E'	X.21 DCE is not in ready state.
	X'0F'	X.21 CPS is received

IPL Final (IPLFINAL) RU

Request Format

		55(37) Network services X'01'
56(38) Physical configuration services X'02'	57(39) Request code X'05'	58(3A) Element address of the adjacent link station associated with the node being loaded if ENA supported. Otherwise, it is network address. Nodes own address (0) when adding or replacing a load module on its own disk.
60(3C) 4-byte NCP address to be given control (last 20 bits of the 4-byte field)		
64(40) Disk control byte 2*		

* Indicates a byte expansion follows.

Byte Expansion

Offset/Field Name	Bit Pattern	Contents
64(40)		Disk control byte 2
	1...	Save load module to disk.
	.x..	1 = Ignore IPL/dump indicators (bits 2-3). 0 = Use IPL/dump indicators (bits 2-3).
	..x.	1 = Set the automatic disk re-IPL switch. 0 = Reset the automatic disk re-IPL switch.
	...x	1 = Set the automatic disk dump switch. 0 = Reset the automatic disk dump switch.

IPL Initial (IPLINIT) RU

Request Format

		55(37) Network services X'01'
56(38) Physical configuration services X'02'	57(39) Request code X'03'	58(3A) Element address of the adjacent link station associated with the node being loaded if ENA supported. Otherwise, it is network address. Nodes own address (0) when adding, replacing, or purging a load module on its own disk.
60(3C) Disk control byte 1*	61(3D) - 68(44) Load module name	
		69(45) Local disk indicators*

* Indicates a byte expansion follows.

Byte Expansions

Offset/Field Name	Bit Pattern	Contents
60(3C)	x...	Disk control byte 1 1 = IPL using the load module from the MOSS disk. 0 = IPL using the load module from the host.
	.xxx xxxx	Reserved
69(45)	xx..	Local disk indicators 00 = Add the load module to the MOSS disk. 01 = Replace the load module on the MOSS disk. 10 = Purge the load module from the MOSS disk.

IPL Text (IPLTEXT) RU

Request Format

			55(37) Network services X'01'
56(38) Physical configuration services X'02'	57(39) Request code X'04'	58(3A) Element address of the adjacent link station associated with the node being loaded if ENA supported. Otherwise, it is network address. Nodes own address (0) when adding or replacing a load module on its own disk.	
60(3C) - n Load module text			

Lost Control Point (LCP) RU

Request Format

			55(37) Network services X'41'
56(38) Physical configuration services X'02'	57(39) Request code X'87'	58(3A) Reason code*	59(3B) Reserved
60(3C) Network address of the lost control point (SSCP)			

* Indicates a byte expansion follows.

Byte Expansion

Offset/Field Name	Hex Value	Contents
58(3A)	X'07'	Reason code for NS.LCP generation
	X'0A'	Inoperative virtual route (VR.INOP) used by the SSCP-PU session
	X'0B'	Forced deactivation of the SSCP-PU session
	X'0B'	Forced deactivation of the virtual route

Lost Subarea (NC.LSA) RU

Request Format

		55(37) RU1NCLSA Request code X'05'
56(38) Reserved	58(3A) RU1LSRSN* Lost subarea reason code	59(3B) RU1LSFMT Format X'01'
60(3C) Reserved	62(3E) RU1ONA NCP physical services network address	
64(40) Reserved	66(42) RU1SAL Subarea lost	67(43) Reserved
68(44) - n Additional 4-byte fields in the format of bytes 64(40) through 67(43) for the remaining lost subareas		

* Indicates a byte expansion follows "Lost Subarea (NS.LSA) RU" on page 5-89.

Lost Subarea (NS.LSA) RU

Request Format

		55(37) RU1BT0 Network services X'01'	
56(38) RU1BT1 Physical configuration services X'02'	RU1RC2 Request code X'85'	58(3A) RU1LSRSN* Lost subarea reason code	59(3B) RU1LSFMT Format X'01'
60(3C) Reserved		62(3E) RU10NA NCP physical services network address	
64(40) Reserved		66(42) RU1SAL Subarea lost	67(43) Reserved
68(44) - n Additional 4-byte fields in the format of bytes 64(40) through 67(43) for the remaining lost subareas			

* Indicates a byte expansion follows.

Byte Expansion

Offset/Field Name	Hex Value	Contents
58(3A) RU1LSRSN		Lost subarea reason code
	X'01'	Physical outage
	X'02'	Node disconnected

Network Management Vector Transport (NMVT) RU

Request Format

See Section 16, "Network Management Vector Transport (NMVT) Request/Response Unit (RU) Formats."

Notify (NOTIFY) RU (SSCP-PU)

Request Format for Cross-Network Session Synchronism Notify (X'05') Vector

		55(37) RU1SPNRC Notify request code X'41'	
56(38) RU1FMCMA Notify format code X'02'	57(39) RU1SPFMP Notify function manager (FM) profile X'20'	58(3A) RU1PUSNA PU element address	
60(3C) RU1SPNVK Notify vector key X'05'	61(3D) RU1NVDCA* Notify vector data/cause	62(3E) - 65(41) RU1NRSCB	
BIND negative response sense code			
		66(42) RU1SPCID* Correlation indicators	67(43)
Control vectors. (Possible control vectors are X'15', X'18', and X'1E'.)**			

* Indicates a byte expansion follows.

** See "Control Vectors and Control Lists" on page 5-138.

Byte Expansions

Offset/Field Name	Bit Pattern/ Hex Value	Contents
61(3D) RU1NVDCA		Notify vector data/cause
	X'00'	Virtual route activation failure
	X'01'	Normal session end
	X'02'	Negative response to a session activation request
	X'03'	Positive response to a session activation response
	X'04'	Forced deactivation by SSCP
	X'05'	Session setup failure
	X'06'	Session takedown failure
66(42) RU1SPCID		Correlation indicators
	x...	0 = Do not retain the address pair for future use. 1 = Retain the address pair for potential further use.

Notify (NOTIFY) RU (SSCP-PU)

Request Format for Dynamic Network Notification (X'11') Vector

			55(37) RUISPNRC Notify request code X'41'
56(38) RUIFMCMA Notify format code X'02'	57(39) RUISPFMP Notify function manager (FM) profile X'20'	58(3A) RUIPUSNA PU element address	
60(3C) RUIDN011 Notify vector key X'11'	61(3D) RUIDN0LN Length of data after action code	62(3E) RUIDNACT* Action code	63(3F) - 67(43)
Control vectors. (Possible control vector is X'12'.)**			

* Indicates a byte expansion follows.

** See "Control Vectors and Control Lists" on page 5-138.

Byte Expansion

Offset/Field Name	Bit Pattern/ Hex Value	Contents
62(3E) RUIDNACT		Action code
	X'01'	Add dynamic network.
	X'02'	Delete dynamic network.

Notify (NOTIFY) RU (LU-SSCP)

Request Format

			55(37) RU1NOTD1 Notify request code X'81'
56(38) RU1NOTD2 Notify format code X'06'	57(39) RU1NOTD3 Notify function manager (FM) profile X'20'	58(3A) RU110KY Notify vector key X'10'	59(3B) RU11OVS* Notify delayed
60(3C) - 81(51)			
Session key X'15'.***			
			82(52) - n
Control vector key X'29'.**			

- * Indicates a byte expansion follows.
- ** See "Control Vectors and Control Lists" on page 5-138.
- *** See "Network-Qualified Address Pair Session Key" on page 5-194.

Byte Expansion

Offset/Field Name	Bit Pattern	Contents
59(3B) RU11OVS		Notify delayed
	1... ..	Notify was delayed due to a buffer shortage.

Record Formatted Maintenance Statistics (RECFMS) RU

Request Format

See Section 15, "Record Formatted Maintenance Statistic (RECFMS) Request/Response Unit (RU) Formats."

Record Maintenance Statistics (RECMS) RU

Request Format

See Section 14, "Record Maintenance Statistic (RECMS) Request/Response Unit (RU) Formats."

Record Storage (RECSTOR) RU

Request Format

		55(37) RU1BT0 Network services X'01'
56(38) RU1BT1 Physical configuration services X'03'	57(39) RU1RC2 Request code X'34'	58(3A) RU1STNA Element address of the resource to be displayed
60(3C) RU1STYPE* Display source and type	61(3D) RU1CORR Correlation ID (NCP non-static storage transfer only)	62(3E) RU1SLENG Number of bytes of program storage following in this record
64(40) Location of the beginning of the display		
68(44) - n Storage display		

* Indicates a byte expansion follows.

Byte Expansions

Offset/Field Name	Bit Pattern/ Hex Value	Contents
60(3C) RU1STYPE		Display source and type
	X'01'	NCP non-static storage transfer
	X'12'	MOSS dump transfer
	X'14'	MOSS dump purge
	X'18'	NCP load module names from disk
	X'22'	Communication scanner processor (CSP) dump transfer
	X'24'	CSP dump purge
	X'32'	NCP dump header from the MOSS disk
	X'42'	NCP dump text from the MOSS disk
	X'44'	NCP dump purge from the MOSS disk

Record Test Data (RECTD) RU

Request Format

		55(37) RU1BT0 Network services X'01'	
56(38) RU1BT1 Physical configuration services X'03'	57(39) RU1RC2 Request code X'82' (Record test data)	58(3A) RU1NA Element address of the resource under test	
60(3C) RU1CMD Command (See note)	61(3D) RU1MOD Command modifier (See note)	62(3E) RU1SYSSR System response (See note)	63(3F) RU1LINR Line response (See note)
64(40) - n Test status and results			

Note: See “Basic Transmission Unit (BSC/SS)” in Volume 1 Section 1, “Data Area Layouts,” for a list of the applicable commands. See Volume 2 Section 3, “BTU Commands and Modifiers, and Responses,” for a description of the BTU commands and modifiers, and for the system responses and line responses. The line responses are also referred to as extended responses.

Record Test Results (RECTR) RU

Request Format

		55(37) RU1BT0 Network services X'41'
56(38) RU1BT1 Maintenance services X'03'	57(39) RU1RC2 Request code (record test results) X'85'	58(3A) RU1NA Local link station identifier. Element address if 60(3C)=X'1xxx'. Local address in 59(3B) if 60(3C)=X'0xxx'.
60(3C) RU1PRID Procedure identification	62(3E) RU1I Link-test record indicator X'8100'	
64(40) RU1TFT Test frames transmitted counter	66(42) RU1TFR Test frames received with or without errors counter	
68(44) RU1TFR Test frames received without errors counter	70(46) RU1STAT* Test termination status	

* Indicates a byte expansion follows.

Byte Expansion

Offset/Field Name	Hex Value	Contents
70(46) RU1STAT		Test termination status
	X'0000'	Ended without errors
	X'0001'	Ended with errors
	X'0002'	Ended by Link Inoperative
	X'0003'	Test initialization failure

Record Trace Data (RECTRD) RU

Request Format

		55(37) RU1BT0 Network services X'01'	
56(38) RU1BT1 Physical maintenance services X'03'	57(39) RU1RC2 Request code (record trace data) X'83'	58(3A) RU1NA Local link element address of the link on which the line trace (LT) is active ----- Element address of the NCP PU when type=GPT	
60(3C) RU1WT* Trace type	61(3D) RU1TM Time stamp for an active trace	62(3E) RU1SCA Indicates NPSI X'D7'	63(3F) RU1RTT* Type of record trace data requested
	Reserved if type=GPT	Count byte from ACTTRACE	RU1TRPT* Trace point for ODLC SIT trace
		Reserved if type=GPT	
		Character indicator*	
64(40) RU1ECNT* Length of each status entry		66(42) - n RU1RTD	
Trace entries: Each is either a status entry or a data entry. NCP/token-ring interconnection (NTRI) trace entries: Each is either a line, or an IOH or token-ring interface coupler (TIC) internal element.			

* Indicates a byte expansion follows.

Byte Expansions

Offset/Field Name	Bit Pattern/ Hex Value	Contents
60(3C) RU1WT		Trace type
	00.. 0101	Communication scanner processor (CSP) character/burst mode line trace
	00.. 1101	Scanner interface trace (SIT)
	..xx	Reserved
	01..	Generalized PIU trace (GPT)
	1000 1001	Transmission group trace, normal mode line trace, NTRI trace, NTO trace, NRF trace

Offset/Field Name	Bit Pattern/ Hex Value	Contents
62(3E) RU1SCA		Character indicator
	X'C1'=A	Frame relay trace
	X'C5'=E	Ethernet line or SIT trace
	X'C6'=F	TIC internal trace
	X'C9'=I	NTRI line/IOH trace
	X'D5'=N	NTO trace
	X'D7'=P	NPSI/XI trace
	X'D9'=R	NRF trace
	X'E3'=T	Transmission group trace
	X'E4'=U	Undefined trace for user line control
	X'E7'=X	SDLC line trace
	X'E8'=Y	BSC line trace
	X'E9'=Z	SS line trace
63(3F) RU1RTT		Type of record trace data requested
	x...	Line type: 1 = Duplex 0 = Half-duplex
	.x..	If bit 0=1 (duplex): 1 = Transmit leg 0 = Receive leg
	..xx	Reserved
	.... .x..	SDLC line trace (duplex only): 1 = Secondary link 0 = Primary link
	.... 0.01	This is not the last Record Trace Data request
	.... 0.10	This is the last Record Trace Data request because a Deactivate Trace has been received
	.... 0.11	This is the last Record Trace Data request because the line trace has been terminated due to slowdown, or because the line has run out of free level-2 line trace buffers
	.... 1.10	This is the last Record Trace Data request because a CSP resource is unavailable for a SIT
	.... 1.11	This is the last Record Trace Data request because of a CSP hardware error for a SIT
63(3F) RU1TRPT		Trace point for ODLIC SIT trace
	.x..	Trace point: 1 = Processor trace point 0 = CBC trace point
64(40) RU1ECNT		Length of each status entry
	X'00XX'	Line is not attached to an IBM 3745 Communications Controller
	X'80XX'	Non-HPTSS line is attached to an IBM 3745 Communications Controller
	X'90XX'	HPTSS line is attached to an IBM 3745 Communications Controller
	x...	1 = Attached to 3745 0 = Not attached to 3745
	..x.	1 = CSS attached line 0 = Not CSS attached line

Remote Power Off (RPO) RU

Request Format

			55(37) Network services X'01'
56(38) Physical configuration services X'02'	57(39) Request code X'09'	58(3A) Local link station element address of the link-attached communication controller	

Request Activation of a Cross-Domain Resource Manager (REQACTCDRM) RU

Request Format

		55(37) RU1RQARC Request code X'41'	
56(38) RU1RQ AFC Format code X'02'	57(39) RU1RQ AFM Function manager (FM) profile X'8A'	58(3A) Reserved	
60(3C) RU1RQ FOR Format byte X'01'	61(3D) RU1RQ ASF* Activation subfunction indicator	62(3E) - n RU1RQ RAC	
This field contains the ACTCDRM PIU that failed, which may be preceded by a control vector.			

* Indicates a byte expansion follows.

Byte Expansion

Offset/Field Name	Bit Pattern	Contents
61(3D) RU1RQ ASF		Activation subfunction indicator
	1...	RNAA is required to set up transform.
	.1..	SETCV is required with at least one virtual route ID list.

Request Contact (REQCONT) RU

Request Format

		55(37) Network services X'01'
56(38) Physical configuration services X'02'	57(39) Request code X'84'	58(3A) Element address of the link for switched OR Element address of the PU for non-switched
60(3C) - n Station ID (acquired with the XID SDLC command)		
(n+1) - p Control vectors. (Possible control vectors are X'56', X'57', and X'80'）**		

** See "Control Vectors and Control Lists" on page 5-138.

Request Maintenance Statistics (REQMS) RU

Request Format

			55(37) RU1BT0 Network services X'41'
56(38) RU1BT1 Maintenance services X'03'	57(39) RU1RC2 Request code (REQMS) X'04'	58(3A) RU1NA Resource ID for the device to be tested	
60(3C) RU1REMS* REQMS description RU1REMS1	61(3D) RU1REMS2	62(3E) RU1RMTYP* REQMS type	63(3F) RU1LSS* Request type (LPDA)
			ST1OPT Request type (session trace)
			Plant ID (types 02 and 05)
64(40) Box serial number (types 02 and 05)			

* Indicates a byte expansion follows.

Positive Response Format

			55(37) RU1BT0 Network services X'41'
56(38) RU1BT1 Maintenance services X'03'	57(39) RU1RC2 Request code (REQMS) X'04'		

Negative Response Format

			55(37) First byte of exception response.
56(38) Second byte of exception response	57(39) First byte of user sense X'00'	58(3A) Second byte of user sense X'00'	59(3B) RU1BT0 Network services X'41'
60(3C) RU1BT1 Maintenance services X'03'	61(3D) RU1RC2 Request code (REQMS) X'04'		

Byte Expansions

Offset/Field Name	Bit Pattern/Hex Value	Contents
60(3C) RU1REMS		REQMS description
	Byte 0	
	xx..	Reserved
	..xx	Resource ID description
	.... xxxx	Procedure-related identifier
	Byte 1	
	xxxx xxxx	Procedure-related identifier
Note: RU1NA contains an element address. RU1NA byte 1 contains a local address or an LSID.		
62(3E) RU1RMTYP		REQMS type
	1...	Solicitation indicator
	.1..	Not last request indicator
	..00 0010	Summary error data
	..00 0100	Session trace
	..00 0101	Engineering change (EC) level
	..00 0110	Link problem determination aid 1 (LPDA1)
63(3F) RU1LSS		LPDA1 request type
	X'02'	Request link status
	X'03'	Request remote DTE interface status
	X'04'	Remote self-test
ST1OPT		Session trace request type
	X'01'	Trace data request
	X'02'	Enable Trace request for a specific resource
	X'03'	Inhibit Trace request for a specific resource
	X'04'	Enable Trace request for all resources
	X'05'	Inhibit Trace request for all resources
	X'06'	Request station status

Request Network Address Assignment (RNAA) RU

Request Format

(Assignment types X'00', X'01', X'03', and X'11')

			55(37) RU1BT0 Network services X'41'
56(38) RU1BT1 Physical configuration services X'02'	57(39) RU1RC2 Request code (RNAA) X'10'	58(3A) RU1NA Element address of the resource to which element addresses are to be assigned	
60(3C) RU1IND* Assignment type	61(3D) RU1DRNRQ Number of element addresses being requested	62(3E) Session characteristics* (type X'03')	63(3F) RU1DRVI* SDLC address (addressing character) of the PU being requested (type X'00') or the local address of the LU being requested (type X'01'/X'11')
		Reserved	Reserved
64(40) - n For types X'00',X'01',and X'11': remaining SDLC or local addresses, if any (2 bytes for each address in the same format as RU1DRVI) For type X'03': see the GRW in Volume 1 of the Reference Summary and Data Areas for a more complete description of the remaining RNAA fields.			

* Indicates a byte expansion follows.

Positive Response Format

(Assignment types X'00', X'01', and X'11')

			55(37) RU1BT0 Network services X'41'
56(38) RU1BT1 Physical configuration services X'02'	57(39) RU1RC2 Request code (RNAA) X'10'	58(3A) RU1NA Element address of the resource to which element addresses are to be assigned	
60(3C) RU1IND* Assignment type	61(3D) RU1DRNRQ Number of element addresses assigned	62(3E) - n RU1DRVI*	
Assigned element addresses (adjacent link station addresses for assignment type X'00,' and BF.LU network addresses for assignment types X'01' and X'11')			

* Indicates a byte expansion follows.

Positive Response Format
 (Assignment type X'03')

		55(37) RU1BT0 Network services X'41'	
56(38) RU1BT1 Physical configuration services X'02'	57(39) RU1RC2 Request code (RNAA) X'10'	58(3A) RU1NA Element address of the resource to which element addresses are to be assigned	
60(3C) RU1RATYP Address and assignment type (cross-network address transform)	61(3D) RU1NUMAD Number of element addresses assigned	62(3E) RU1DNAUA	
Destination network addressable unit (NAU) alias address			
68(44) RU10NAUA Origin NAU alias address			

Request Format
(Assignment types X'04' and X'14')

			55(37) RU1BT0 Network services X'41'	
56(38) RU1BT1 Physical configuration services X'02'	57(39) RU1RC2 Request code (RNAA) X'10'	58(3A) RU1NA Element address of the resource to which element addresses are to be assigned		
60(3C) RU1IND* Assignment type X'04' or X'14'	61(3D) Reserved	62(3E) RU1AINFO* Address information	63(3F) RU1LELAD LU element address field	
64(40) RU1LELAD (continued)	65(41) RU1LCADL Length of the local address field	66(42) - m RU1LOCAD		
Local address				
m+1 RU1LUNML Length of the LU name field	(m+2) - n RU1LUNAM			
LU name				
(n+1) - p Control vector. (Possible control vector is X'30'.)**				

* Indicates a byte expansion follows.

** See "Control Vectors and Control Lists" on page 5-138.

Positive Response
(Assignment types X'04' and X'14')

			55(37) RU1BT0 Network services X'41'	
56(38) RU1BT1 Physical configuration services X'02'	57(39) RU1RC2 Request code (RNAA) X'10'	58(3A) RU1NA Element address of the resource to which element addresses are to be assigned		
60(3C) RU1IND* Assignment type X'04' or X'14'	61(3D) Reserved	62(3E) RU1ELMAD Assigned LU element address		

* Indicates a byte expansion follows.

Request Format

(Assignment types X'05' and X'15' for Adding an adjacent link station)

		55(37) RU1BT0 First prefix byte (network services) X'41'	
56(38) RU1BT1 Second prefix byte (physical configuration services) X'02'	57(39) RU1RC2 Request code (RNAA) X'10'	58(3A) RU1NA Element address of the resource to which element addresses are to be assigned	
60(3C) RU1IND* Assignment type X'05' or X'15'	61(3D) Reserved	62(3E) RU1DRIND* Dynamic reconfiguration (DR) indicator	63(3F) Reserved
64(40) Reserved	65(41) RU1LDHLS Length of the data link control (DLC) header link station address	66(42) - m RUIDHLSA	
DLC header link station address			
m+1 RU1LALSN Length of the adjacent link station name field	(m+2) - n RU1LUNAM		
Adjacent link station name			
(n+1) - p Control vector X'43'.**			

* Indicates a byte expansion follows.

** See "Control Vectors and Control Lists" on page 5-138.

Request Format
(Assignment type X'05' for Moving an adjacent link station)

			55(37) RU1BT0 Network services X'41'	
56(38) RU1BT1 Physical configuration services X'02'	57(39) RU1RC2 Request code (RNAA) X'10'	58(3A) RU1NA Element address of the resource to which element addresses are to be assigned		
60(3C) RU1IND* Assignment type X'05'	61(3D) Reserved	62(3E) RU1DRIND* DR indicator	63(3F) RU1PELAD Adjacent link station element address field	
64(40) RU1PELAD (continued)	65(41) RU1LDHLS Length of the DLC header link station address	66(42) - m RU1DHLSA		
DLC header link station address				
m+1 RU1LALSN Length of the adjacent link station name field	(m+2) - n RU1LALSNM			
Adjacent link station name				

* Indicates a byte expansion follows.

Positive Response Format
(Assignment types X'04', X'14', and X'05' for Adding or Moving an adjacent link station)

			55(37) RU1BT0 Network services X'41'	
56(38) RU1BT1 Physical configuration services X'02'	57(39) RU1RC2 Request code (RNAA) X'10'	58(3A) RU1NA Element address of the resource to which element addresses are to be assigned (X'04', X'14', X'05' ADDING)		
		RU10LNKA Element address of the link from which the PU was moved (X'05' MOVING)		
60(3C) RU1IND* Assignment type	61(3D) Reserved	62(3E) RU1ELMAD Assigned LU element address (type X'04' or X'14')		
		RU1ALSAD Assigned PU element address (type X'05')		

* Indicates a byte expansion follows.

Negative Response Format

			55(37) First byte of exception response
56(38) Second byte of exception response	57(39) First byte of user sense	58(3A) Second byte of user sense	59(3B) RU1BT0 Network services X'41'
60(3C) RU1BT1 Physical configuration services X'02'	61(3D) RU1RC2 Request code (RNAA) X'10'		

Byte Expansions

Offset/Field Name	Bit Pattern/ Hex Value	Contents
60(3C) RU1IND		Address and assignment type
	xxxx	Address type:
		0000 = Address is required that is compatible with pre-extended network addressing (ENA)
		0001 = Address is required that is compatible with ENA
	.... xxxx	Assignment type:
		0000 = PU pool (pre-Advanced Program-to-Program Networking (APPN) host)
		0001 = LU pool (pre-APPN host)
		0011 = Cross-network address transform
		0100 = LU pool (APPN host)
		0101 = PU pool (APPN host)

Offset/Field Name	Bit Pattern/Hex Value	Contents
62(3E) RU1DRVI		Session characteristics for assignment type X'03'
	1...	Parallel session capability of the adjacent SSCP on the origin NAU side of the PU
	.1..	Parallel session capability of the adjacent SSCP on the destination NAU side of the PU
	...x.	Primary/secondary nature of the peripheral LU (OLU): 1 OLU = Secondary LU (SLU) 0 OLU = Primary LU (PLU)
	...1	Retain address transform after session termination
	.... x...	1 = SSCP-SSCP session 0 = LU-LU session
	.... .x..	ENA capability of the adjacent SSCP on the origin NAU side of the PU: 1 = May be ENA capable 0 = Must be pre-ENA capable
	.... ..x.	ENA capability of the adjacent SSCP on the destination side of the PU: 1 = May be ENA capable 0 = Must be pre-ENA capable
RU1AINFO		Address information for assignment types X'04' and X'14'
	x..x xxxx	Reserved
	.x..	Request address indicator: 1 = Request is for a PLU 0 = Request is for an SLU
	..x.	Authorized LU indicator
RU1DRIND		DR indicator for assignment type X'05' and X'15'
	xxxx	Reserved
	.... xxxx	Extended DR indicator: 0000 = ADD request 0001 = MOVE request

Route Inoperative (ROUTE.INOP) RU

Request Format

			55(37) RU1BT0 Network services X'41'
56(38) RU1BT1 Physical configuration services X'02'	57(39) RU1RC2 Request code X'89'	58(3A) RU1RUF RU format code X'01'	59(3B) RU1REASN* Reason code
60(3C) RU1ORGSA Subarea address of the PU that originated NC.ER.INOP (right-justified, unshifted)			
64(40) RU1ORGSA Subarea address on the other end of the interrupted transmission group (right-justified, unshifted)			
68(44) RU1ORGSA Subarea address of the route origin (right-justified, unshifted)			
72(48) RU1RITG Number of the transmission group that had routing failure	73(49) RU1RINID ID of the network in which the failure occurred		
			81(51) RU1NUMRF Number of route fields in this RU

* Indicates a byte expansion follows.

Route Field for the ROUTE.INOP RU

82(52) Subarea address for which routing has been interrupted	
86(56) Explicit route mask	88(58) Virtual route mask
90(5A) VR-to-ER mapping list (sixteen 4-bit fields)	

Byte Expansion

Offset/Field Name	Hex Value	Contents
59(3B) RU1REASN		Reason code
	X'01'	Unexpected route interruption
	X'02'	Controlled route interruption

Route Test (ROUTE.TEST) RU

Request Format

		55(37) RU1BT0 First prefix byte X'41'	
56(38) RU1BT1 Second prefix byte X'03'	57(39) RU1RC2 Request code X'07'	58(3A) RU1NA Element address of the PU originating the test	
60(3C) RU1RUCF1 RU format code X'01'	61(3D) RU1TESTC* Test code	62(3E) RU1ROUTC* Route code	63(3F) RU1TPF Transmission priority field
64(40) RU1OPTNS* Options	65(41) RU1MXERL Maximum explicit route length	66(42) - 69(45) RU1DSTSA	
Address of the subarea destination of NC.ER.TEST (right-justified, unshifted)			
		70(46) RU1ERVRM Explicit route or virtual route mask (depending on the value of the route code)	
68(44) RU1DSTS2			
72(48) RU1RQCF Request correlation field (10 bytes)			
		82(52) RU1RTNID	
ID of the network of the route to be tested (8 bytes)			

* Indicates a byte expansion follows.

Response Format 1

				55(37) RU1BT0 First prefix byte X'41'
56(38) RU1BT1 Second prefix byte X'03'	57(39) RU1RC2 Request code X'07'	58(3A) RU1RUF2 RU format code X'01'	59(3B) RU1NRDF Number of route data fields in this RU	
60(3C) Variable-length field extended by 10(A) bytes per entry. (See Route Data Field Entry for the format.)				
n Subarea address of route origin (4 bytes long)				
n+4 Network ID (8 bytes long)				

Route Data Field Entry

0(0) Virtual route identifier	1(1) Virtual route status*	2(2) Explicit route number	3(3) Explicit route status*
4(4) Adjacent node subarea address (4 bytes long)			
8(8) Transmission group number	9(9) Reserved		

* Indicates a byte expansion follows.

Response Format 2

				55(37) RU1BT0 First prefix byte X'41'
56(38) RU1BT1 Second prefix byte X'03'	57(39) RU1RC2 Request code X'07'	58(3A) RU1RUF2 RU format code X'02'	59(3B) Reserved	
60(3C) RU1RURSA Subarea address of the route origin				
64(40) RU1RURNI Network ID of the tested route				
72(48) - n Control vectors. (Possible keys are X'20', X'3A', X'3B', and X'6A'.)**				

** See "Control Vectors and Control Lists" on page 5-138.

Byte Expansions

Offset/Field Name	Bit Pattern/ Hex Value	Contents
1(1)	X'00'	Virtual route status
	X'01'	Virtual route is not defined
	X'02'	Virtual route is in reset state
	X'03'	Explicit route activation is pending
	X'05'	NC.ACTVR was sent, but no response was received
	X'09'	NC.DACTVR was sent but no response was received Virtual route is active
3(3)	X'00'	Explicit route status
	X'01'	Explicit route is undefined
	X'02'	Explicit route is defined but not operative
	X'03'	Explicit route is defined and operative but not active
	X'05'	NC.ER.ACT was sent, but no NC.ER.ACT.REPLY was received
	X'07'	NC.ER.ACT was received, and NC.ER.ACT.REPLY was sent, but no NC.ER.ACT.REPLY was received
	X'08'	NC.ER.ACT was received, and NC.ER.ACT.REPLY was sent, but no NC.ER.ACT has been sent
	X'09'	Explicit route is active, and each node on the explicit route supports ER/VR protocols
	X'0A'	Explicit route is operative but not defined Explicit route is active and traverses a node that does not support ER/VR protocols
61(3D) RU1TESTC		Test code
	X'01'	Test all identified routes regardless of state
	X'02'	Test only operative routes
	X'03'	Test only inoperative routes
	X'04'	Do not test routes; only report status
62(3E) RU1ROUTC		Route code
	X'01'	Test explicit routes
	X'02'	Test virtual routes
	X'03'	Test explicit routes corresponding to a defined transmission group
64(40) RU1OPTNS		Options
	.1..	Collect congestion data
	..x.	Format of Route Test response:
		1 = Format 2 0 = Format 1
	x..x xxxx	Reserved

Session End (SESSEND) RU

Request Format

			55(37) RU1BT0 Network services X'81'
56(38) RU1BT1 Session services X'06'	57(39) RU1SER Request code X'88'	58(3A) RU1FMT Format code X'20'	59(3B) RU1CS Cause for deactivation.***
60(3C) RU1ACT X'01'	61(3D) - n RU1SECV		
Session key X'15'.** Control vectors X'35' and X'60' are conditionally present.*			

- * See "Control Vectors and Control Lists" on page 5-138.
- ** See "Session Keys" on page 5-194.
- ** See "UNBIND RU" on page 5-136 for values.

Session Started (SESSST) RU

Request Format

			55(37) RU1SSH1 Network services X'81'
56(38) RU1SSH2 Session services X'06'	57(39) RU1SSH3 Request code X'86'	58(3A) RU1SESTF Session started format code X'01'	59(3B) -m RU1SESTE
Session key X'15'. Control vectors X'1E' and X'23' are always present. Control vectors X'28' and X'60' are conditionally present.			

Notes:

1. See "Control Vectors and Control Lists" on page 5-138.
2. See "Session Keys" on page 5-194.

Set Control Vector (SETCV)—Channel Attention Delay

Request Format

		55(37) Network services X'01'
56(38) Physical configuration services X'02'	57(39) Request code X'11'	58(3A) Element address of NCP physical services
60(3C) Control vector key X'05'.		

Note: See "Control Vectors and Control Lists" on page 5-138.

Set Control Vector (SETCV)—Dynamic Path Update RU

Request Format

		55(37) Network services X'01'
56(38) Physical configuration services X'02'	57(39) Request code X'11'	58(3A) Element address of NCP physical services
60(3C) - n Control vector key X'42'.		

Positive Response Format

		55(37) Network services X'01'
56(38) Physical configuration services X'02'	57(39) Request code X'11'	58(3A) - n
Control vector key X'42'.* (This control vector is present only if one or more subfields cannot be successfully processed. Only those subfields in error appear in this control vector on the response.)		

Note: See "Control Vectors and Control Lists" on page 5-138.

Set Control Vector (SETCV)—Frame-Relay Switching Equipment RU

Request Format

		55(37) RU1BT0 Network services X'01'	
56(38) RU1BT1 Physical configuration services X'02'	57(39) RU1RC2 Request code X'11'	58(3A) RU1NA Element address of NCP physical services	
60(3C) - n Control vector key X'80'.			

Positive Response Format

		55(37) RU1BT0 Network services X'01'	
56(38) RU1BT1 Physical configuration services X'02'	57(39) RU1RC2 Request code X'11'		

Note: See "Control Vectors and Control Lists" on page 5-138.

Set Control Vector (SETCV)—Intensive Mode RU

Request Format

		55(37) RU1BT0 Network services X'01' or X'41'
56(38) RU1BT1 Maintenance services X'03'	57(39) RU1RC2 Request code (SETCV) X'11'	58(3A) RU1NA Local link station element address of the link station
60(3C) Control vector key X'08'.**		

** See “Control Vectors and Control Lists” on page 5-138.

Positive Response Format

		55(37) RU1BT0 Network services X'01' or X'41'
56(38) RU1BT1 Maintenance services X'03'	57(39) RU1RC2 Request code (SETCV) X'11'	

Set Control Vector (SETCV)—Link Backup RU

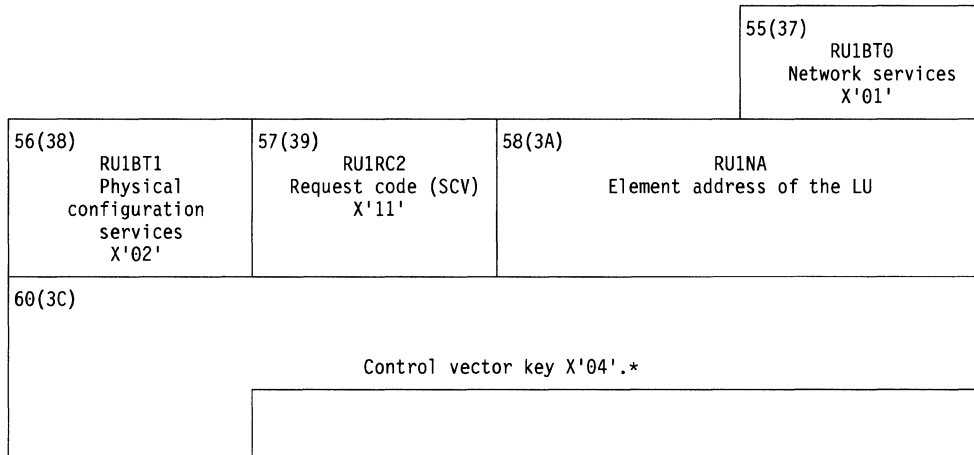
Request Format

		55(37) Network services X'01'
56(38) Physical configuration services X'02'	57(39) Request code X'11'	58(3A) Element address of the alternate link
60(3C) Control vector key X'02'.	61(3D) Subarea address of the controller	

Note: See "Control Vectors and Control Lists" on page 5-138.

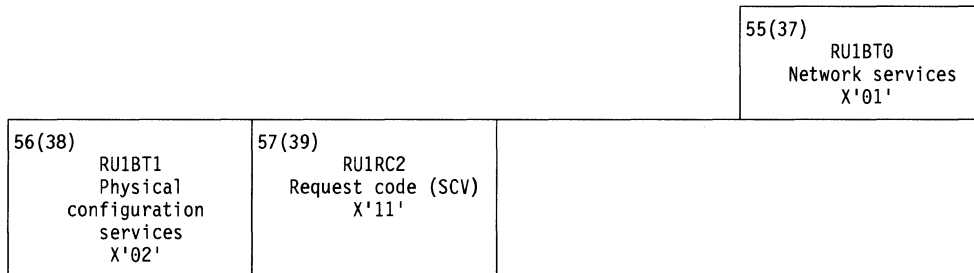
Set Control Vector (SETCV)—Logical Unit RU

Request Format



* See "Control Vectors and Control Lists" on page 5-138.

Positive Response Format



Set Control Vector (SETCV)—Network Qualified Address Pair RU

Request Format

		55(37) RU1BT0 Network services X'01'	
56(38) RU1BT1 Physical configuration services X'02'	57(39) RU1RC2 Request code (SETCV) X'11'	58(3A) RU1NA Element address of NCP physical services	
60(3C) RU1SSVT Control vector key X'15'.*			
		82(52) + n	
Control vectors. (Possible control vectors are X'16', X'60', X'1A', X'1B', and X'60'.)*			

* See "Control Vectors and Control Lists" on page 5-138.

Set Control Vector (SETCV)—Physical Unit RU

Request Format

		55(37) RU1BT0 Network services X'01'
56(38) RU1BT1 Physical configuration services X'02'	57(39) RU1RC2 Request code (SETCV) X'11'	58(3A) RU1NA Element address of the local link station
60(3C) Control vectors. (Possible control vectors are X'03', X'38', X'43', or X'56'. X'38' is used by NPSI for short hold mode. X'56' is used for subarea dial security.)		

** See "Control Vectors and Control Lists" on page 5-138.

Positive Response Format

		55(37) RU1BT0 Network services X'01'
56(38) RU1BT1 Physical configuration services X'02'	57(39) RU1RC2 Request code (SETCV) X'11'	

Set Control Vector (SETCV) REQUEST—Query RU

Request Format

		55(37) RU1BT0 Network services X'01'	
56(38) RU1BT1 Physical configuration services X'02'	57(39) RU1RC2 Request code X'11'	58(3A) RU1NA Element address of NCP physical services	
60(3C) - n RU1PFE Control vector X'81' (RU1QSCVK)			

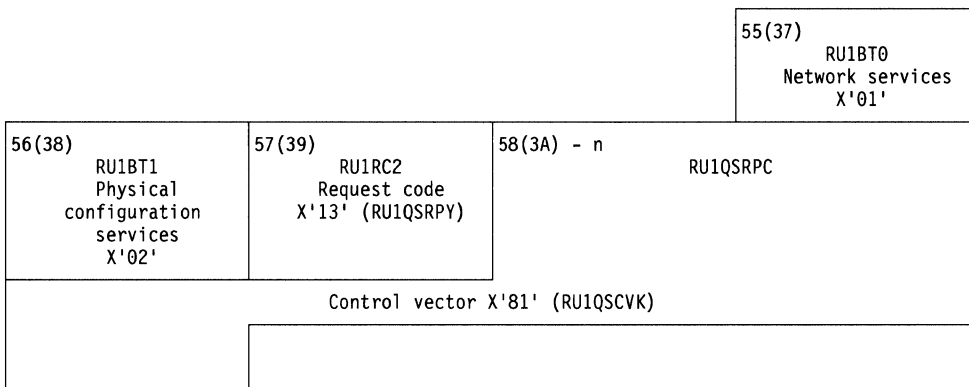
Positive Response Format

		55(37) RU1BT0 Network services X'01'	
56(38) RU1BT1 Physical configuration services X'02'	57(39) RU1RC2 Request code X'11'		

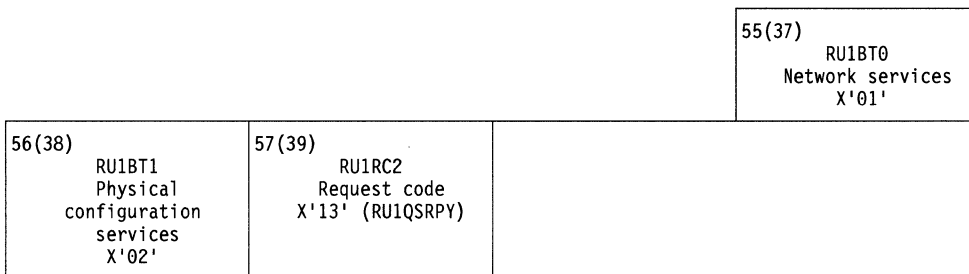
Note: See "Control Vectors and Control Lists" on page 5-138.

Set Control Vector (SETCV) REPLY—Query RU

Request Format



Positive Response Format



Note: See "Control Vectors and Control Lists" on page 5-138.

Set Control Vector (SETCV)—Time and Date RU

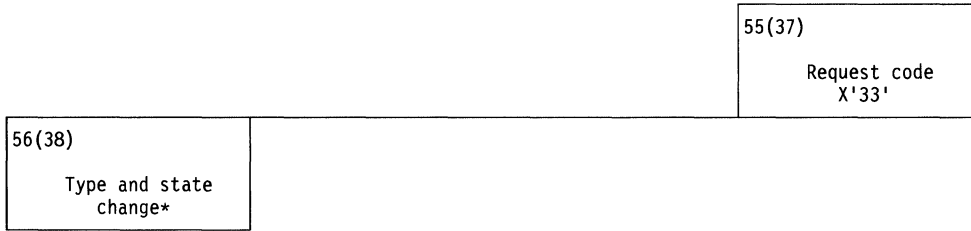
Request Format

			55(37) Network services X'01'
56(38) Physical configuration services X'02'	57(39) Request code X'11'	58(3A) Element address of NCP physical services	
60(3C) Control vector key X'01'.			

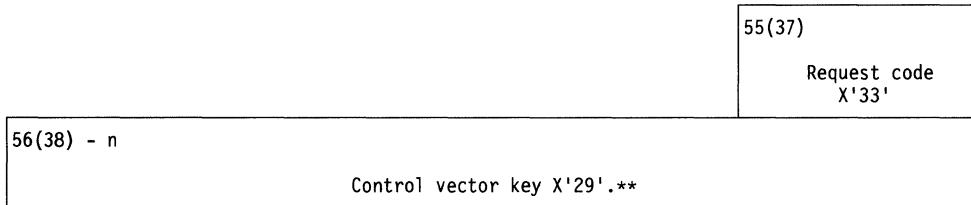
** See "Control Vectors and Control Lists" on page 5-138.

Switch Data Traffic (SWITCH) RU

Request Format



Request Format



* Indicates a byte expansion follows.

** See "Control Vectors and Control Lists" on page 5-138.

Byte Expansion

Offset/Field Name	Bit Pattern	Contents
56(38)	xxxx	Type and state change Type: X'00' Reserved. X'01' Conditional. X'02' Forced. The state change is immediate.
	.... xxxx	State change: X'00' Reserved. X'01' Backup for extended recovery facility (XRF). Switch session from primary to backup. X'02' Primary to XRF. Switch session from backup to primary.

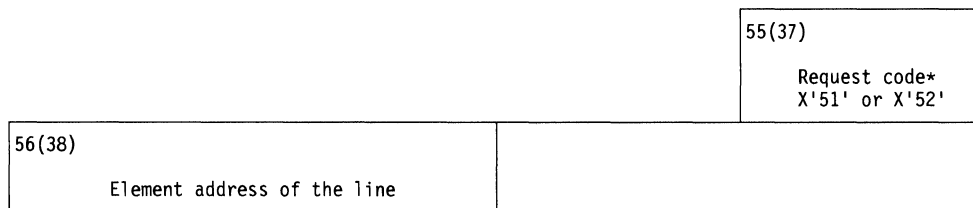
Start Data Traffic (SDT) RU

Request/Response Format

55(37) Request code X'A0'

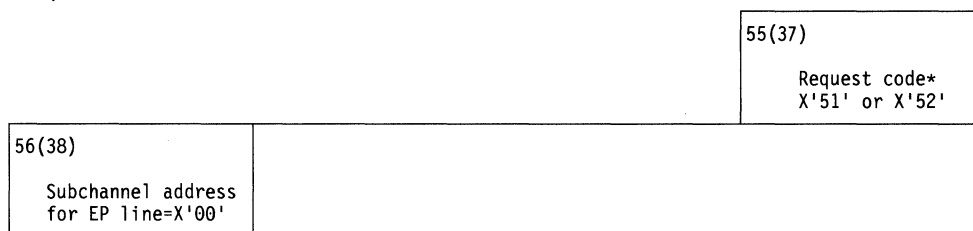
Switch Line Mode to NCP/EP RU (BSC/SS only)

Request Format



- * X'51' EP to NCP mode
- X'52' NCP to EP mode

Response Format



- * X'51' EP to NCP mode
- X'52' NCP to EP mode

Test Mode (TM) RU

Request Format

		55(37) RU1BT0 Network services X'41'	
56(38) RU1BT1 Maintenance services X'03'	57(39) RU1RC2 Request code (test mode) X'05'	58(3A) RU1NA Element address of the resources to be tested when 56(38)=X'1xxx'	
		----- Local address or an LSID when 56(38)=X'0xxx'	
60(3C) RU1PRID Procedure identification		62(3E) RU1L* Link-test request indicator	
64(40) RU1TFRQ Number of test frame transmissions requested		66(42) RU1TFMR Number of test frame transmissions requested each time the receiving station is serviced (multipoint lines only)	
68(44) - n RU1DATA Test data sent in the information field of the test frame (default = data support in the access method)			

* Indicates a byte expansion follows.

Positive Response Format

		55(37) RU1BT0 Network services X'41'	
56(38) RU1BT1 Maintenance services X'03'	57(39) RU1RC2 Request code (test mode) X'05'		

Negative Response Format

		55(37) First byte of exception response	
56(38) Second byte of exception response	57(39) First byte of user sense X'00'	58(3A) Second byte of user sense X'00'	59(3B) RUB1BT0 Network services X'41'
60(3C) RU1BT1 Maintenance services X'03'	61(3D) RU1RC2 Request code (test mode) X'05'		

Byte Expansions

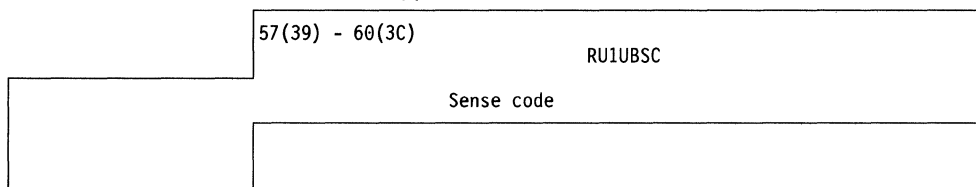
Offset/Field Name	Bit Pattern/ Hex Value	Contents
62(3E) RU1L		Link test request indicator
	Byte 0	
	1...	Enhanced address management
	.x...	Static/dynamic resource
		0 = Static 1 = Dynamic
	..xx xxx.	Reserved
	.... ...1	Link test request

UNBIND RU

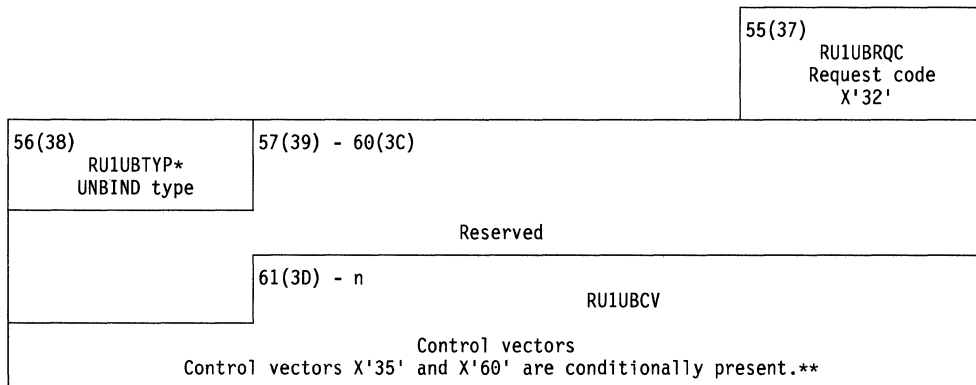
Request Format
 (Sense established with a non-extended BIND)



Sense code included if UNBIND type=X'FE'



Request Format
 (Session established with an extended BIND)



* Indicates a byte expansion follows.

** See "Control Vectors and Control Lists" on page 5-138.

Byte Expansion

Offset/Field Name	Hex Value	Contents
56(38) RU1UBTYP		UNBIND type
	X'01'	Normal end session
	X'02'	Bind forthcoming
	X'06'	Invalid session parameters
	X'07'	Virtual route inoperative (VR.INOP)
	X'08'	Route extension inoperative (REX.INOP)
	X'09'	Hierarchical reset because of + RSP ((ACTPU ACTLU), Cold)
	X'0A'	SSCP deactivated (DACTPU, DACTLU, or DISCONTACT)
	X'0B'	Virtual route deactivated
	X'0C'	LU failure—recoverable
	X'0E'	LU failure—nonrecoverable
	X'0F'	Cleanup
	X'11'	Gateway node cleanup
	X'12'	Extended recovery facility (XRF) backup hierarchical reset
	X'13'	XRF primary hierarchical reset
	X'FE'	Session failure-reason in associated sense code

Control Vectors and Control Lists

The following table shows, by key value, the requests and responses that carry the specific control vector. Formats for the control vector keys follow this table.

Control Vector Key	Requests or Responses Carrying the Vector
X'00'	Used in RSP (ACTLU)
X'01'	Used in SETCV
X'02'	Used in SETCV
X'03'	Used in SETCV
X'04'	Used in SETCV
X'05'	Used in SETCV
X'06'	Used in ACTCDRM, RSP (ACTCDRM)
X'08'	Used in SETCV
X'09'	Used in ACTCDRM, ACTPU, RSP (ACTCDRM) (ACTPU)
X'0A'	Used in BFCINIT, BFCLEANUP, BFINIT, and BFTERM
X'0B'	Used in ACTPU, RSP (ACTPU)
X'0C'	Used in RSP (ACTLU)
X'0D'	Used in BFCINIT
X'0E'	Used in ACTPU, RSP (ACTPU), BFCINIT, BIND, XID, and CONTACT (ACTLU)
X'0F'	Used in RSP (ACTLINK)
X'11'	Used in RSP(ACTPU)
X'12'	Used in CONNOUT, NOTIFY, XID
X'13'	Used in ACTCDRM, RSP (ACTCDRM)
X'15'	Used in BFCINIT, NOTIFY, and SETCV
X'16'	Used in BFCINIT and SETCV
X'18'	Used in ACTCDRM, ACTPU, RSP (ACTCDRM)
X'1A'	Used in SETCV
X'1B'	Used in NOTIFY and SETCV
X'1E'	Used in BFSESSST, NOTIFY, and SESSST
X'1F'	Used in NC.ER.TEST.REPLY and ER.TESTED
X'20'	Used in RSP (ROUTE.TEST)
X'22'	Used in XID
X'23'	Used in BFINIT, BFSESSST, and SESSST
X'27'	Used in BIND
X'28'	Used in SESSST and RSP (ACTLU)
X'29'	Used in NOTIFY and RSP (SWITCH)
X'2A'	Used in RSP (ACTLU) and BFSESSINFO
X'2B'	Used in BFSESSST and BIND
X'2C'	Used in BFCINIT and BIND

Control Vector Key	Requests or Responses Carrying the Vector
X'2D'	Used in BFCINIT and BIND
X'31'	Used in BFSESSST
X'35'	Used in BFCLEANUP, BFSESEND, BFTERM, SESEND, and UNBIND
X'3A'	Used in RSP (ROUTE.TEST)
X'3B'	Used in RSP (ROUTE.TEST)
X'42'	Used in SETCV
X'43'	Used in RNAA and SETCV
X'46'	Used in ACTCONNIN, BFSESSST, BIND (within CV X'2B'), CONNOUT, and CONTACT
X'52'	Used in BFCINIT
X'56'	Used in SETCV, REQCONT, and in XID2s
X'57'	Used in CONTACTED, and REQCONT
X'60'	Used in BFCINIT, BFSESEND, BFSESSST, BFTERM, BIND, RSP (BIND), SESEND, SETCV, and UNBIND
X'68'	Used in RSP(ACTLU), BIND, and SESST
X'69'	Used in CONNOUT
X'6A'	Used in RSP(ROUTE.TEST)
X'80'	Used in REQCONT and SETCV
X'81'	Used in SETCV
X'FE'	Used in RSP (ACTPU), (ACTCDRM). Also used in negative RSP (ACTLU).

Control vector formats are displayed with zero-indexing of the vector bytes. See the individual RU description for the actual displacement within the RU.

Control Vector Formats**SSCP-LU Session Capabilities Control Vector**

0(0) Control vector key X'00'	1(1) Maximum RU size	2(2) LU capabilities*
4(4) Reserved		

* Indicates a byte expansion follows.

Byte Expansion

Offset/Field Name	Bit Pattern/ Hex Value	Contents
2(2)		LU capabilities
	Byte 0	
	1... ..	SSCP may send unsolicited character-coded requests.
	.1.. ..	SSCP may send unsolicited field-formatted requests.
	..1. ..	Bind cannot be received.
	...X xxxx	Reserved
	Byte 1	
	xxxx xxxx	Reserved

Date-Time Control Vector

0(0)	1(1)	Date in EBCDIC. Form=MM/DD/YY.ddd where MM=month, DD=day, YY=year, and ddd=the nth day of the year (1 through 366).
Control vector key X'01'		
	13(D)	Time in EBCDIC. Form=HH.MM.SS. where HH=hours, MM=minutes, and SS=seconds.

Subarea Routing Control Vector

0(0)	1(1)	Subarea address of the controller (left-justified)
Control vector key X'02'		

SDLC Secondary Station Control Vector

0(0) RU1SSVT Control vector key X'03'	1(1) Reserved	2(2) RU1PUT* PU type	3(3) RU1PTM* PU type modifier
4(4) RU1MAX MAXOUT Maximum number of PIUs sent before a response is required	5(5) RU1PASS PASSLIM Maximum number of contiguous PIUs sent at one time	6(6) RU1ERR Error recovery modifier (X'10'=immediate error recovery)	7(7) - 8(8)
Reserved			
		9(9) RU1SEG Maximum data segment size	

* Indicates a byte expansion follows.

Byte Expansions

Offset/Field Name	Bit Pattern/ Hex Value	Contents
2(2) RU1PUT		PU type
	X'02'	PU type 2
	X'04'	PU type 1
3(3) RU1PTM		PU type modifier
	x... ..	If RU1PUT = X'04' (PU type 1): 1 = Transmission subsystem (TSS) profile 2 (SDLC 3270) 0 = Not TSS profile 2. If RU1PUT = X'02' (PU type 2): X = Reserved.
	.x.. ..	1 = Continue poll after auto network shutdown (ANS). 0 = Stop poll after ANS.
	..x.	1 = Use exchange identification (XID) polling (null) for the secondary PU. 0 = Use Set Normal Response Mode (SNRM) polling for the secondary PU.
	...x	1 = Prevent link problem determination aid (LPDA) tests. 0 = Allow LPDA test if line is capable.

LU Control Vector

0(0) RU1SSVT Control vector key X'04'	1(1) RU1LALU Local address of the LU	2(2) RU1NPC N pacing count	3(3) - 4(4)
Reserved			

Channel Control Vector

0(0) Control vector key X'05'	1(1) New attention delay value in tenths of a second
-------------------------------------	--

CDRM Control Vector

0(0) Control vector key X'06'	1(1) Vector data field length in binary	2(2) ACTDRM profile X'00'	3(3) - 4(4)
ACTCDRM usage*			

* Indicates a byte expansion follows.

Byte Expansions

Offset/Field Name	Bit Pattern	Contents
3(3)		ACTCDRM usage
	Byte 0	
	1...	Name pair session key (X'06') is not supported.
	.1..	Address pair session key (X'07') is supported. (See note.)
	..1.	Parallel sessions are supported.
	...1	A user request correlation (URC) is supported by SSCP.
	.... 1...	CDINIT (TYPE = DQ) (format 1 or 4) with type field bits specifying "leave on queue if dequeue retry is unsuccessful" is supported.
	.... .1..	Procedure correlation ID (PCID) session key is supported.
	.... ..1.	CDESSEND from SSCP (secondary LU) and CDINIT (format 2) are supported.
	.... ...x	Reserved

Note: If the control vector is omitted or the length is 0, the corresponding request or response implicitly specifies that the name pair session key (X'06') is supported and the others are not.

4(4)		ACTCDRM usage (continued)
	Byte 1	
	1...	SSCP supports the primary LU capability indicator in LU Status Control List (X'01').
	.1..	Network-qualified address pair session key is supported.
	..1.	INIT.OTHER.CD format 2 is supported.
	...1	INIT.OTHER.CD format 3 is supported.
	.... 1...	Format 3 and 4 CDINIT are supported. Includes network addressable unit (NAU) address control vector (X'1A'). (See note.)
	.... .1..	Format 1 CDCINIT is supported.
	.... ..1.	NOTIFY key X'06' is supported.
	.... ...1	Notification of lost session (LU-LU) awareness is supported.

Note: If control vector X'13' is also included in this ACTCDRM request or response, CDINIT format 3 or 4 may include additional control vectors for cross-network session setup.

Intensive Mode Control Vector

0(0) RUISCV Control vector key X'08'	1(1) RUIACT* SETCV action	2(2) RUISIMC Maximum number of intensive mode records
---	---------------------------------	---

* Indicates a byte expansion follows.

Byte Expansion

Offset/Field Name	Hex Value	Contents
1(1) RUIACT		SETCV action
	X'00'	Deactivate intensive mode.
	X'80'	Activate intensive mode.

Activation Request/Response Sequence Identifier Control Vector

0(0) Control vector key X'09'	1(1) Vector data field length in binary	2(2)
Activation request/response sequence identifier. (See note.)		

Note: The activation request/response sequence identifier is an 8-byte binary value, generated by the sender of ACTCDRM, RSP (ACTCDRM), ACTPU, and echoed in RSP (ACTPU), and used by the receiver to determine whether the current RU supercedes a previously received RU from the same sender. If the current RU has an activation request/response sequence identifier value greater than the corresponding activation request/response sequence identifier value of the earlier ACTPU, ACTCDRM, or RSP (ACTCDRM), the current RU is accepted and processed while the earlier RU is superseded. The 8-byte field has the following characteristics: If n2 was generated at time t2, n3 was generated at time t3, and t2 is less than t3, then n2 is less than n3.

User Request Correlation (URC) Control Vector

0(0) RUI0AKY Control vector key X'0A'	1(1) RUI0ALN Length of vector data X'04'	2(2) RUI0ACT Correlation counter	3(3) RUI0ACBP
Address of the BSB or HRS			

SSCP-PU Session Capabilities Control Vector

Note: This control vector is sent on ACTPU and RSP(ACTPU) for PU_T4|5. It defines the capabilities of the SSCP or PU_T4|5 building the request or response. The network addressable unit (NAU) reports all of its capabilities; if an NAU does not report support for a particular function, its session partner is responsible for not invoking that function. The receiving NAU ignores bits that it does not understand.

0(0) RU1SCKEY Control vector key X'0B'	1(1) RU1SCLN Vector data field length in binary	2(2) RU1SCVB1* NCP capabilities byte 1	3(3) RU1SCVB2* NCP capabilities byte 2
4(4) RU1SCVB3* NCP capabilities byte 3	5(5) RU1SCVB4* NCP capabilities byte 4		

* Indicates a byte expansion follows.

Byte Expansions

Offset/Field Name	Bit Pattern/ Hex Value	Contents
2(2) RU1SCVB1		NCP capabilities byte 1
	1... ..	Lost subarea requirement (LSA) is not required
	.1.. ..	Adjacent link station network address is supported
	..1. ..	Gateway function is supported
	...1 ..	SSCP is notified of other inoperative subnetwork routes
	.... 1...	Send ROUTE.INOP if a virtual route or explicit route is lost in this SSCP subnetwork. Send ER.TESTED format 2 (See note 1)
	.... .x..	1 = Send CONTACTED format (X'09')
		0 = Send CONTACTED format (X'04')
	.... ..1.	Extended network address (ENA) is supported
	.... ...1	Extended BIND support indicator (See note 2)
3(3) RU1SCVB2		NCP capabilities byte 2
	1... ..	NCP and MOSS support multiple load modules
	.1.. ..	Extended control vector X'43' support
	..1. ..	Move PU is supported
	...x x...	Reserved
	.... .1..	Non-native network attachment is supported
	.... ..1.	Non-disruptive takeover of sessions on switched links is supported
	.... ...1	Dynamic path update is supported
4(4) RU1SCVB3		NCP capabilities byte 3
	x... ..	1 = Extended subarea addressing (ESA) is supported
		0 = ESA is not supported
	.1.. ..	APPN enhancements are supported
	..x.	Reserved
	...1 ..	BFSESSST and BFSESEND may be eliminated (RU1NOSE)
	.... xxxx	ESA support level (valid only if ESA is supported)
	.... 0000	ENA 8/15 (SALIMIT=255)
	.... 0001	ENA 9/15 (SALIMIT=511)
	.... 0010	ENA 10/15 (SALIMIT=1023)
	.... 0011	ENA 11/15 (SALIMIT=2047)
	.... 0100	ENA 12/15 (SALIMIT=4095)
	.... 0101	ENA 13/15 (SALIMIT=8191)
	.... 0110	ENA 14/15 (SALIMIT=16383)
	.... 0111	ENA 15/15 (SALIMIT=32767)
	.... 1000	ENA 16/15 (SALIMIT=65535)

Notes:

1. An SSCP always receives ER.TESTED for routes in its own subnetwork. This bit also indicates whether ROUTE.INOP may flow for lost explicit routes or virtual routes in this SSCP subnetwork.
2. The sending SSCP supports receipt of BFINIT, BFTERM, BFSESSINFO, RSP (ACTLU) with the Session Information control vector, BFSESSST, BFSESEND, CONTACTED X'0A', and CONTACTED X'0B'; and the sending PU_T4|5 supports receipt of extended BINDs, stand-alone BINDs from T2.1 nodes, non-activation CONTACT, RNAA assignment types 4 and 5, control vector X'43', and BFCLEANUP from its SSCP.

Offset/Field Name	Bit Pattern/ Hex Value	Contents
5(5) RU1SCVB4		NCP capabilities byte 4
	1...	Extended request contact is supported
	.1..	Forced NCP dump is supported
	..1.	Gateway session accounting is included
	...1	Dynamic network ID notification is supported
	.... 1...	APPN networking functions are supported
	.... .1..	XRF cryptography is supported
	.... ..1.	XRF data compression is supported
	.... ...1	Send route-INOP only for active VR

LU Session Services Capabilities Control Vector

0(0) RU10CKY Control vector key X'0C'	1(1) RU10CL Length of vector data X'06'	2(2) RU10CPSC* Primary and secondary LU capability X'03'	3(3) RU10CSL LU-LU session limit X'00'
4(4) LU-LU session limit (continued) X'01'	5(5) RU10CSC LU-LU session X'0000'	7(7) RU10CSS* Session capability	

* Indicates a byte expansion follows.

Byte Expansions

Offset/Field Name	Bit Pattern/ Hex Value	Contents
2(2) RU10CPSC		LU capability
	0000	Primary LU (PLU) capability. The PLU is inhibited; sessions cannot be started or queued
	.... 0011	Secondary LU (SLU) capability. The SLU is enabled; sessions can be queued or started
7(7) RU10CSS		Session capability
	1...	Parallel sessions are supported
	.x..	Retired
	..1.	SESSST RU is if secondary LU
	...1	Extended recovery facility (XRF) session activation control vector X'27' support on BIND
	.... 1...	LU can accept extended BINDS
	.... .1..	Network-qualified name support on BIND. Extended BIND is supported
	.... ..1.	Boundary function supports session key X'15'
	.... ...x	Reserved

Mode/Class of Service/VRID List Control Vector

0(0) RU10DKY Control vector key X'0D'	1(1) RU10DLN Length of vector data	2(2) - 9(9) RU10MDN
Mode name		10(A) - 17(11) RU10DCSN
Class of service		
18(12) RU10DVIL Virtual route information length through the virtual route ID (VRID) list		19(13) RU10DFMT VRID list format X'00'
20(14) RU10DVRT* Type of virtual route required	21(15) RU10DNVR Number of entries in the VRID list	22(16) - n RU10DVID Virtual route list (2-byte entries--VRN, TPF)

* Indicates a byte expansion follows.

Byte Expansion

Offset/Field Name	Hex Value	Contents
20(14) RU10DVRT		Type of virtual route required
	X'00'	Only virtual routes mapped to explicit route 0 from the subarea of the secondary LU to the subarea of the primary LU may be used.
	X'01'	Virtual routes mapping to any explicit route number may be used.

Network Name Control Vector

0(0) RU10EKY Control vector key for KL parsing X'0E'	1(1) RU10ETP Control vector key for LT parsing X'0E'	2(2) RU10ENQT* Network-qualified name type	3(3) - n RU10ENQN
RU10ELN Length of data field LT parsing	RU10EL Length of data field for KL parsing		
Network-qualified name (1 through 17 bytes)			

* Indicates a byte expansion follows.

Byte Expansions

Offset/Field Name	Bit Pattern/ Hex Value	Contents
2(2) RU10ENQT		Network-qualified name type
	X'F1'	PU name
	X'F3'	LU name
	X'F4'	Control point name
	X'F7'	Link station name
	X'F8'	Network name type PLU CPNAME
	X'F9'	Network name type SLU CPNAME

Link Capabilities and Status Control Vector

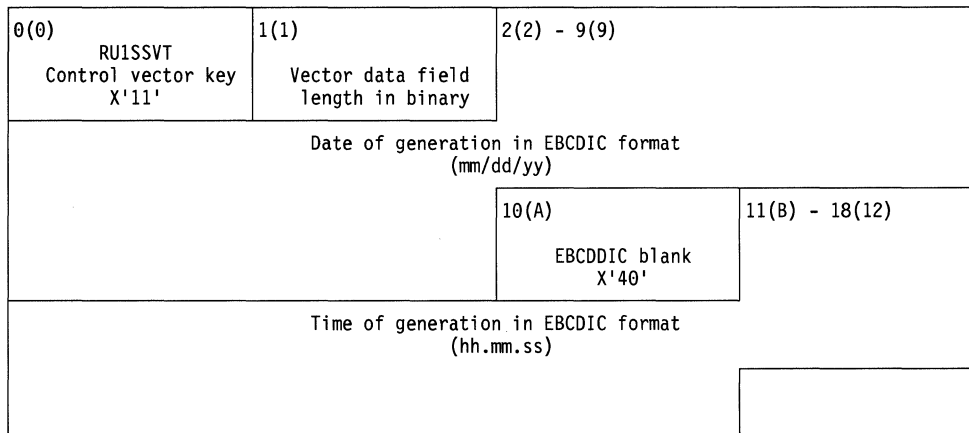
0(0) RU10FKY Control vector key X'0F'	1(1) RU10FLN Length of data field X'01'	2(2) RU10FLST* Capabilities and status of the link
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* Indicates a byte expansion follows.

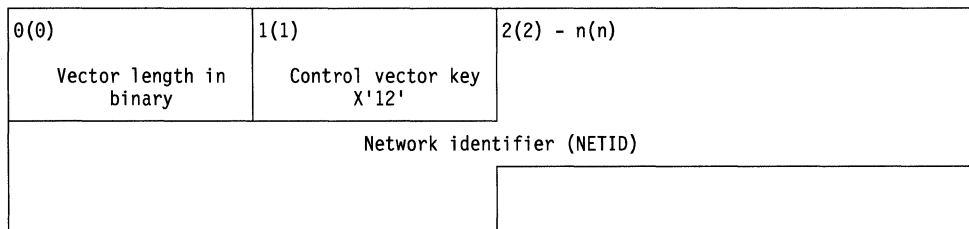
Byte Expansion

Offset/Field Name	Bit Pattern	Contents
2(2) RU10FLST		Capabilities and status of the link
	1... ..	Control vector X'43' support
	.1.. ..	DACTLINK (giveback) is supported.
	..1.	Link has a switched connection.
	...1	Direct dump to host is not supported.
	.... xx..	Reserved
	.... ..1.	Resource is a physical resource
	.... ...x	Reserved

Load Module Correlation Control Vector



Network ID Control Vector



Gateway Support Capabilities Control Vector

0(0) Control vector key X'13'	1(1) Vector data field length in binary	2(2) Session keys. (See note.)
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Note: The session keys appear in the following order:

X'15' network-qualified address pair (NAU1 and NAU2) define the sender's address and the destination address, respectively, as known of the sender.

X'15' network-qualified address pair (NAU1 and NAU2) define the origin address and the destination address, respectively, as known in the network adjacent to the sender.

Network-Qualified Address Pair Control Vector

0(0) Control vector key X'15'	1(1) Vector data field length X'14'	2(2)
NAU1 network address*		
8(8) NAU2 network address*		
		14(E) - 21(15)
Network ID of the subnetwork in which the above addresses are valid. (See note.)		

* See the SNA Reference Summary for the particular RUs that carry this control vector.

Note: The length byte is set to 12 when the network ID is not included and to 20 when the network ID is included. If the network ID contains all space (X'40....40') characters, the network addresses are in the sender's network.

Names Substitution Control Vector

0(0) RUINSKY Control vector key X'16'. (See note.)	1(1) RUINSLN Vector data field length in binary	2(2) RU1PLULN Length of the primary LU (PLU) alias name	3(3) - m RU1PLUNM
PLU alias name			
m+1 Length of the secondary LU (SLU) real name	m+2		
SLU real name			

Note: The network-qualified address pair control vector always accompanies this vector in SETCV.

SSCP Name Control Vector

0(0) Control vector key X'18'	1(1) Vector data field length in binary	2(2)
Name of the SSCP (in EBCDIC characters)		
		10(A) - 17(11)
Network ID of the subnetwork containing the SSCP		

Network Addressable Unit (NAU) Address Control Vector

0(0) Control vector key X'1A'	1(1) Vector data field length in binary	2(2)
Destination LU's real/alias network address		
8(8) Extended network addressing (ENA) support*		

* Indicates a byte expansion follows.

Byte Expansion

Offset/Field Name	Bit Pattern	Contents
8(8)	1...	Extended network addressing (ENA) support NAU supports ENA.

Virtual Route ID (VRID) List Control Vector

0(0) Control vector key X'1B'	1(1) Vector data length in binary	2(2)	
Network ID of network that the virtual routes will be activated in			
		10(A) Format of the virtual route list (X'00'=format 0)	11(B) Type of virtual route required*
12(C) Number of entries in the virtual route information field	13(D) - n		
Virtual route list (2-byte entries where the VRN and the TPF are 1 byte each)			

* Indicates a byte expansion follows.

Byte Expansion

Offset/Field Name	Hex Value	Contents
11(B)	X'00'	Type of virtual route required Only virtual routes mapping to explicit route 0 from the subarea of the secondary LU to the subarea of the primary LU may be used.
	X'01'	Virtual routes mapping to any explicit route number may be used.

VR-ER Mapping Data Control Vector

0(0) Control vector key X'1E'	1(1) Vector data length in binary	2(2) Virtual route number (VRN) and transmission priority field (TPF) data*	3(3) Explicit route data*
4(4) Reverse explicit route data*			

* Indicates a byte expansion follows.

Byte Expansions

Offset/Field Name	Bit Pattern	Contents
2(2)	xxxx xx.. .... ..xx	VRN and TPF data VRN assigned to the session indicated in the containing RU Reserved TPF assigned to the session indicated in the containing RU
3(3)	xxxx xxxx	Explicit route data Reserved Outgoing explicit route number (ERN) for the specified VRN specified in byte 2, bits 0–3
4(4)	xxxx xxxx	Reverse explicit route data Reserved Reverse explicit route number (RERN) corresponding to the ERN in byte 3

Explicit Route (ER) Configuration Control Vector

0(0) Control vector key 'X'1F'	1(1) Vector data field length in binary	2(2) Outgoing transmission group number (TGN) (reserved in the last vector)	3(3) Incoming TGN (reserved in the first vector)
4(4) Subarea address of the PU that appended this control vector			
8(8) Number of SSCP address fields in bytes 9(9) through n	9(9) - n SSCP address fields (variable-length field extended by 8(8) bytes per entry, one for each SSCP that currently controls at least one active link in any transmission group underlying the tested explicit route). See the SSCP address field format.		
m+1 Length of the network ID. (See note.)	(m+2) - n Network ID of the network in which the SSCP addresses are known		
n+1 4-byte subarea address of the PU that appended this control vector, as known in the network defined in bytes m+2 through n			

SSCP Address Field Format

0(0) Reserved	1(1) Active link of the SSCP*	2(2) Address of the SSCP
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* Indicates a byte expansion follows.

Note: When the length is 0, the network ID is the same as that of the subnetwork containing the explicit route, and the fields defined in bytes m+2 through n+4 are not included.

Byte Expansion

Offset/Field Name	Bit Pattern	Contents
1(1)		Active link of the SSCP
	xxxx xx..	Reserved
	.... ..1.	This SSCP has at least one link active in the transmission group over which the explicit route test will be sent as specified in the outgoing TGN field (byte 2 of this control vector).
	.... ....1	This SSCP has at least one link active in the transmission group over which the explicit route test will be sent as specified in the incoming TGN field (byte 3 of this control vector).

Explicit Route (ER) Congestion Data Control Vector

0(0) RU120KEY Control vector key X'20'	1(1) RU120LEN Vector data field length key X'11'	2(2) - 5(5) RU120SA
Subarea address of the PU that appended this control vector		
		6(6) RU120IFB Initial free-buffer count
8(8) RU120CMB Number of committed buffers	10(A) RU120CFB Current free-buffer count	
12(C) RU120SET Slowdown entry threshold	14(E) RU120SXT Slowdown exit threshold	
16(10) RU120CET CWALL entry threshold	18(12) RU120SDN* Slowdown indicators	

* Indicates a byte expansion follows.

Note: If "format 2" and "collect congestion data" are specified in the route test options byte [bits 1 and 2=1 in 64(40)], NCP includes one X'20' control vector.

Byte Expansion

Offset/Field Name	Bit Pattern	Contents
18(12) RU120SDN		Slowdown indicators
	1...	This NCP is in pseudo slowdown.
	.1..	This NCP is in slowdown.
	..xx xxxx	Reserved

Exchange Identification (XID) Negotiation Error Control Vector

0(0) RU122KEY Control vector key X'22'	1(1) RU122L Length of data field X'07'	2(2) RU122EB0
Error byte offset		
5(5) Sense code (optional)		
8(8) Sense code		

Local Form Session Identifier Control Vector

0(0) RU1IDKEY Control vector key X'23'	1(1) RU1IDLTH Length of data field	2(2) RU1IDFMT* Format
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* Indicates a byte expansion follows.

Format 2—FID 2

4(4) RU1IDDAF Local address of the secondary LU (SLU) (destination address field of the BIND request)	5(5) RU1ID0D* Flags	3(3) RU1ID0AF Local address of the primary LU (PLU) (origin address field of the BIND request)
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* Indicates a byte expansion follows.

Format 3—FID 3

3(3) RU1IDSID Local session ID as in the transmission header of the BIND request

Byte Expansions

Offset/Field Name	Bit Pattern/Hex Value	Contents
2(2) RU1IDFMT		Format
	X'02'	Format 2—FID2 session identifier
	X'03'	Format 3—FID3 session identifier
5(5) RU1IDDOD		Flags (FID2)
	xxxx xx.x	Reserved
	.... ..1.	ODAI field from the transmission header of the BIND request

Extended Recovery Facility (XRF) Session Activation Control Vector

0(0) Control vector key X'27'	1(1) Vector data field length in binary	2(2) Usage indicators*	3(3) Length of the session in the correlation in binary
4(4) - n Session correlator (unique value used as a related session identifier)			

* Indicates a byte expansion follows.

Byte Expansions

Offset/Field Name	Bit Pattern/ Hex Value	Contents
2(2)	x... ..	Usage indicators Session type for a BIND request:
		1 = XRF backup session 0 = XRF primary session.
	.1... ..	Length-checked compression support indicator
	..xx xxxx	Reserved

Related Session Identifier Control Vector

0(0) Control vector key X'28'	1(1) Vector data field length in binary	2(2) Session status*	3(3) - n
Session key X'15'** of this section.			

* Indicates a byte expansion follows.

** See "Network-Qualified Address Pair Session Key" on page 5-194.

Note: If more than one related session is being reported, a session status byte and a session key X'15' are included as above (bytes 2—n) for each additional extended recovery facility (XRF) related session.

Byte Expansion

Offset/Field Name	Bit Pattern	Contents
2(2)	1... .. .x... ..	Session status This session has XRF capabilities. XRF session status (if bit 0 = 1): 1 = XRF backup session 0 = XRF primary session.
	..xx xxxx	Reserved

Session State Data Control Vector

0(0) Control vector key X'29'	1(1) Vector data field length in binary	2(2) Switch type*	3(3) Data flow indicators*
4(4) Flags*			

* Indicates a byte expansion follows.

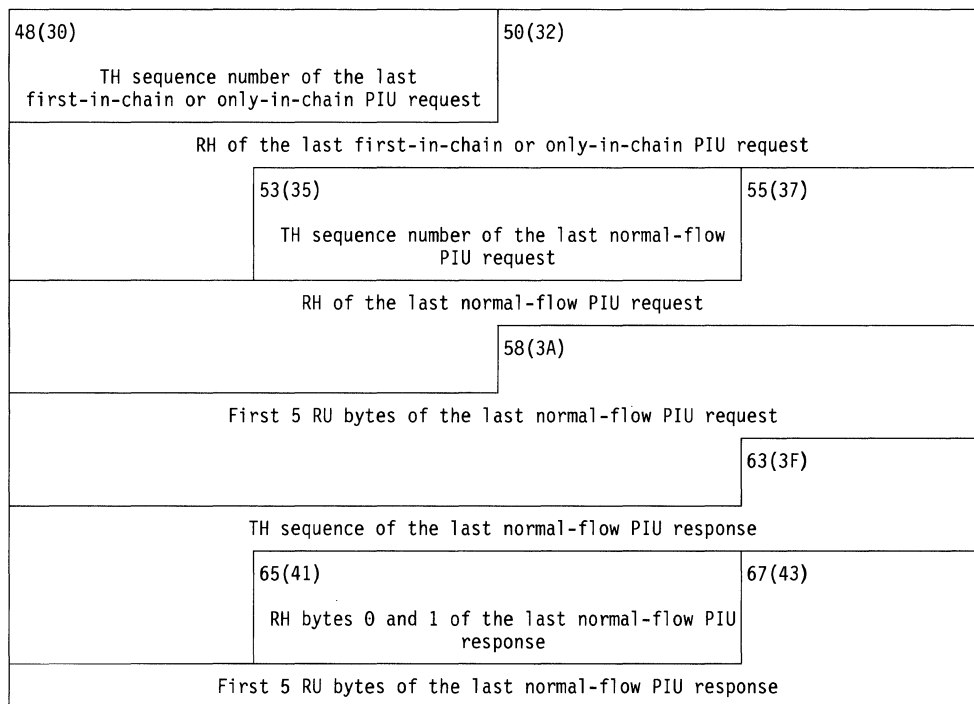
Information about PLU-to-SLU Normal Flow

	5(5) Transmission header (TH) sequence number of the last first-in-chain or only-in-chain request PIU	7(7)
Request/response header (RH) of the last first-in-chain or only-in-chain request PIU		
	10(A) TH sequence number of the last normal-flow PIU request	
12(C) RH of the last normal-flow PIU request		15(F)
First 5 RU bytes of the last normal-flow PIU request		
20(14) TH sequence of the last normal-flow PIU response		22(16) RH bytes 0 and 1 of the last normal-flow PIU response
24(18) First 5 RU bytes of the last normal-flow PIU response		

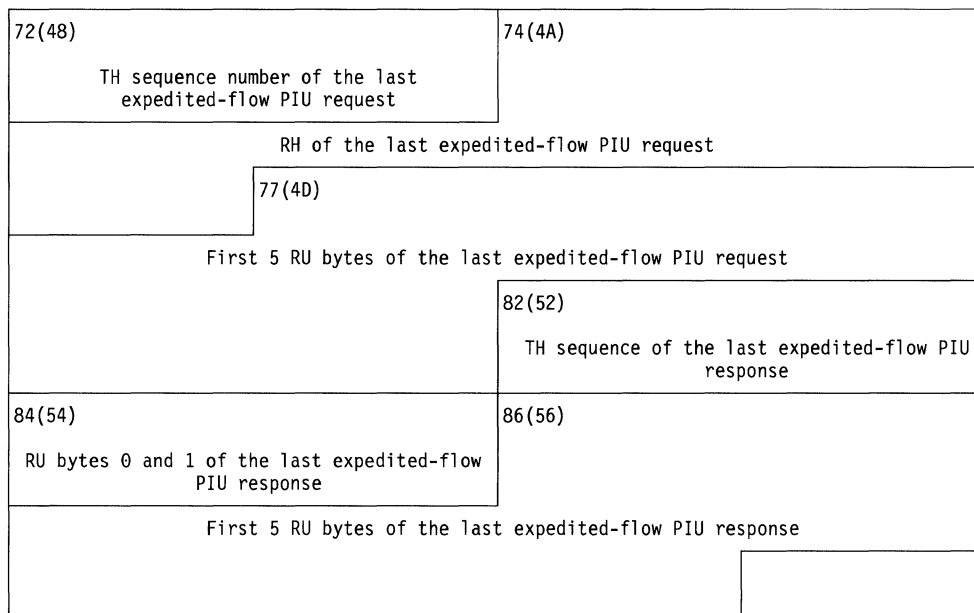
Information about PLU-to-SLU Expedited Flow

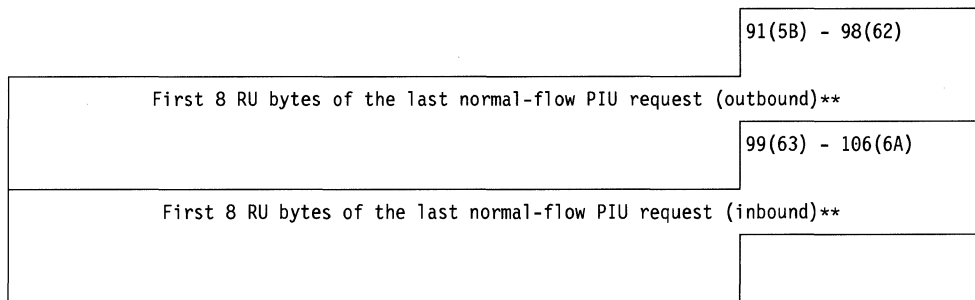
	29(1D) TH sequence number of the last expedited-flow PIU request	31(1F) - 33(21)
RH of the last expedited-flow PIU request		
	34(22) - 38(26)	
First 5 RU bytes of the last expedited-flow PIU request		
		39(27) - 43(2B)
TH sequence of the last expedited-flow PIU response		
41(29) RH bytes 0 and 1 of the last expedited-flow PIU response		39(27)
First 5 RU bytes of the last expedited-flow PIU response		

Information about SLU-to-PLU Normal Flow



Information about SLU-to-PLU Expedited Flow





** Included only if data encryption is used.

Byte Expansions

Offset/Field Name	Bit Pattern	Contents
2(2)		Switch type
		Type
	0000	Reserved
	0001	Conditional
	0010	Forced
	0011	Conditional promoted to forced
		State of change of the primary LU (PLU)
	.... 0000	Reserved
	.... 0001	Extended recovery facility (XRF) primary ready to be backup
	.... 0010	XRF backup ready to be primary
3(3)		Data flow indicators
	x...	Last PIU direction: 1 = SLU-to-PLU 0 = PLU-to-SLU.
	.x..	Last PIU flow: 1 = Expedited 0 = Normal.
	..x.	Last PIU type: 1 = Response 0 = Request.
	...1	Expedited response required from the secondary LU (SLU)
	.... 1...	Expedited response required from the PLU
4(4)		Flags
	x...	Extended last normal request flow indicator 1 = Extended PLU-to-SLU and SLU-to-PLU last normal request flow fields are present 0 = Extended fields are not present.

Session Information Control Vector

0(0) RU12AKY Control vector key X'2A'	1(1) RU12AL Length of data field	2(2) RU12ALUR* LU role	3(3) - n RU12ACV
Control vectors X'0E', X'15', and X'1E'. (Possible control vectors are X'23' or X'60'.**)			

- * Indicates a byte expansion follows.
- ** See "Control Vectors and Control Lists" on page 5-138.

Byte Expansion

Offset/Field Name	Bit Pattern	Contents
2(2) RU12ALUR	x... ..	LU role 1 = The subject LU is a primary LU in session. 0 = The subject LU is an secondary LU in session.

Route Selection Control Vector

0(0) RU12BKY Control vector key X'2B'	1(1) RU12BL Length of data field	2(2) RU12BMH Maximum hop count. (See note 1.)	3(3) RU12BCH Current hop count. (See note 2.)
4(4) - n Count vectors X'0E' (one for each control point on the path) and X'46' (one for each transmission group on the path).*			

- * See "Control Vectors and Control Lists" on page 5-138.

Notes:

1. The maximum hop count is the number, in binary, of the transmission group descriptor control vectors (X'46') in the Route Selection control vector.
2. The current hop count is the number, in binary, of the last transmission group descriptor control vectors (X'46') that was processed.

Class of Service/Transmission Priority Field (COS/TPF) Control Vector

0(0) Control vector key X'2C'	1(1) Length of data field	2(2) Transmission priority field*	3(3) Length of the COS name field
4(4) - m COS name			

* Indicates a byte expansion follows.

Byte Expansion

Offset/Field Name	Bit Pattern	Contents
2(2)	xxxx xx.. .... ..xx	Transmission priority field (TPF) Reserved TPF: 00 = Low priority 01 = Medium priority 10 = High priority 11 = Reserved.

Mode Control Vector

0(0) Control vector key X'2D'	1(1) Length of data field	2(2) Length of the mode name field	3(3) - m
Mode name			

Assign LU Characteristics Control Vector

0(0) RU1CVLU Control vector key X'30'	1(1) RU1LUCVL Length of data field	2(2) RU1NRSR Number of session resources to reserve for the LU identified in the RNAA
4(4) RU1PACE* PACING keyword value	5(5) RU1VPCE* VPACING keyword value	6(6) RU1SMAXS*** LU Maximum Number Of Sessions

* Indicates a byte expansion follows.

*** The RU1PACE, RU1VPCE and RU1SMAXS fields may be included in the CV30 (This depends on the level of the SSCP).

Byte Expansions

Offset/Field Name	Bit Pattern	Contents
4(4) RU1PACE		PACING keyword value
	x... ..	1 = Fixed pacing 0 = Adaptive pacing.
	.x.. ..	Reserved
	..xx xxxx	PACING window size
5(5) RU1VPCE		VPACING keyword value
	x... ..	1 = Fixed pacing 0 = Adaptive pacing.
	.x.. ..	Reserved
	..xx xxxx	VPACING window size

BIND Image Control Vector

0(0) RU131KY Control vector key X'31'	1(1) RU131L Length of data field	2(2) - n RU131BIA
Contains an image of the BIND RU for the session activated. The image extends from the request code X'31' 55(37) through the secondary LU name. See the BIND RU in this section for the format of the BIND image data field.		

Extended Sense Data Control Vector

0(0) RU135KY Control vector key X'35'	1(1) RU135L Length of data field	2(2) RU135ESD	
Extended sense data			
		6(6) RU135SFG* Extended sense data flag	7(7) RU135NRL* Length of the RU identifier. (Zero means an RU identifier is not present.)

* Indicates a byte expansion follows.

Format without RU Information

8(8) RU135SNL Length of the sense origin name field	9(9) - n RU135NQN		
Network-qualified control point name (sense origin name or adjacent link station when byte 6, bit 5 is on)			
			n RU135RNL Length of the related resource name field (always 0)

Format with RU Information—Normal Format

8(8) RU135NR* RU identifier	9(9) RU135SNZ Length of the sense origin name field	10(A) - n RU135NQZ	
Network-qualified control point name (sense origin name or adjacent link station when byte 6, bit 5 is on)			
			n RU135RNL Length of the related resource name field (always 0)

* Indicates a byte expansion follows.

Format With RU Information—Abbreviated

8(8) RU135NR RU identifier

Byte Expansions

Offset/Field Name	Bit Pattern/Hex Value	Contents
6(6) RU135SFG		Extended sense data flag
	1... .. .xx.	RU information is included (RU135RI). RU category (RU135CT): 00 = RU information is not included. 11 = Session control.
	...x x...	Reserved Extended Sense Data control vector generated by (RU135SG): 1 = A node other than the sense origin 0 = Sense origin.
	.... .x..	Sense origin name field contains (RU135ON): 1 = A local name for an adjacent link station along the path the RU was received on 0 = The network name of the sense origin.
7(7) RU135NRL		Length of the RU identifier
	X'00' X'01'	No RU information is present. RU information is present.
8(8) RU135NR (if present)		RU identifier
	X'31'	BIND rejection

Route Status Data Control Vector

0(0) RU13AKEY Control vector key X'3A'	1(1) RU13ALEN Vector data field length X'0D'	2(2) RU13AVRI* Virtual route identifier
4(4) RU13AVRS* Virtual route status	5(5) Reserved	
8(8) RU13AERN* Explicit route number (ERN)	9(9) RU13AERS* Explicit route status	10(A) RU13ASA
Subarea address of the adjacent node through which the explicit route flows		
		14(E) RU13ATGN Transmission group number (TGN) over which the explicit route flows from this node

* Indicates a byte expansion follows.

Note: If “format 2” is specified in the route test options byte [bit 2=1 in 64(40)], NCP includes multiple X'3A' control vectors.

Byte Expansions

Offset/Field Name	Bit Pattern/ Hex Value	Contents
2(2) RU13AVRI		Virtual route identifier
	xxxx xxxx xx..	Reserved
	.... xxxx	Virtual route number (VRN) of the virtual route tested
	.... .... .... ..xx	Transmission priority field (TPF) of the virtual route tested

Offset/Field Name	Bit Pattern/ Hex Value	Contents
4(4) RU13AVRS		Virtual route status
	X'00'	Virtual route is not defined.
	X'01'	Virtual route is in reset state.
	X'02'	Explicit route activation pending
	X'03'	NC.ACTVR was sent, but no response was received.
	X'05'	NC.DACTVR was sent, but no response was received.
	X'09'	Virtual route is active.
8(8) RU13AERN		ERN
	.... xxxx	ERN of the explicit route tested

Offset/Field Name	Bit Pattern/ Hex Value	Contents
9(9) RU13AERS		Explicit route status
	X'00'	Explicit route is undefined.
	X'01'	Explicit route is defined, but not operative.
	X'02'	Explicit route is defined and operative, but active.
	X'03'	NC.ER.ACT was sent, but no NC.ER.ACT.REPLY was received.
	X'05'	NC.ER.ACT was received and NC.ER.ACT.REPLY was sent, but no NC.ER.ACT.REPLY was received.
	X'07'	NC.ER.ACT was received and NC.ER.ACT.REPLY was sent, but no NC.ER.ACT has been sent.
	X'08'	Explicit route is active and each node on the explicit route supports ER-VR protocols.
	X'09'	Explicit route is operative but not currently defined.
	X'0A'	Explicit route is active and traverses a node that does not support ER-VR protocols.

Virtual Route (VR) Congestion Data Control Vector

0(0) RU13BKY Control vector key X'3B'	1(1) RU13BLEN Vector data field length X'13'	2(2) RU13BVRI* Virtual route identifier	
4(4) Reserved	5(5) RU13BXPW Maximum pacing window size	6(6) Reserved	7(7) RU13BMPW Minimum pacing window size
8(8) Reserved	9(9) RU13BCPW Current pacing window size	10(A) RU13BNSS* Next virtual route sequence number to be sent	
12(C) RU13BNSR* Next virtual route sequence number to be received		14(E) RU13BBVR* Virtual route blocked indicators	15(F) RU13BVRS* Virtual route status flags (byte 0)
16(10) RU13BVR2* Virtual route status flags (byte 1)	17(11) RU13BIPT Incoming virtual route PIU pool threshold		19(13) RU13BIPC
Incoming virtual route PIU pool count			

* Indicates a byte expansion follows.

Note: If "format 2" and "collect congestion data" are specified in the route test options byte [bits 1 and 2=1 in 64(40)], NCP includes multiple X'3B' control vectors.

Byte Expansions

Offset/Field Name	Bit Pattern/ Hex Value	Contents
2(2) RU13BVRI		Virtual route identifier
	xxxx xxxx xx..	Reserved
	.... xxxx	Virtual route number (VRN) of the virtual route tested
	.... .... .... ..xx	Transmission priority field (TPF) of the virtual route tested
10(A) RU13BNSS		Next virtual route sequence number to be sent
	xxxx	Reserved
	.... xxxx xxxx xxxx	Next virtual route sequence number to be sent
12(C) RU13BNSR		Next virtual route sequence number to be received
	xxxx	Reserved
	.... xxxx xxxx xxxx	Next virtual route sequence number to be received

Offset/Field Name	Bit Pattern/Hex Value	Contents
14(E) RU13BBVR		Virtual route blocked indicators
	1... ..	Virtual route blocked
	.1.. ..	Extended data*
	..1. ..	Withholding VRPRS
	...1 ..	Virtual route out of sequence, discarding PIUs
* If the extended data bit is set on, then set the “withholding VRPRS bit” and the “virtual route out of sequence, discarding PIUs” bit to match the bits in the virtual route status field of this RU. Also include the inbound virtual route PIU pool threshold and count field if the extended data bit is set on.		
15(F) RU13BVRS (External VRs)		Virtual route status flags
	Byte 0	
	1... ..	Send virtual route pacing response.
	.1.. ..	Virtual route pacing response received
	..1. ..	Virtual route pacing request received
	...1 ..	Virtual route in hold state
	.... 1..	Notify blocked task
	.... .1..	Change window indicator (CWI) found on in the last window
	.... ..1.	Withholding pacing response
	.... ...1	Set reset window indicator (RWI) on in the next PIU sent.
16(10) RU13BVR2		Virtual route status flags
	Byte 1	
	1... ..	Virtual route is inoperative
	.x.. ..	Save notify bit:
		1 = Notify remembrance bit is on 0 = Notify remembrance bit is off
	..1 ..	Session outage notification (SON) is triggered
	...1 ..	Internal virtual route
	.... 1..	Virtual route deactivation responsibility
	.... ..1.	Virtual route is out of sequence (discarding PIUs)
	.... .x.x	Reserved

Dynamic Path Update Control Vector

0(0) RU142KY Control vector key X'42'	1(1) RU142LN Control vector length**
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** The control vector length equals the sum of the subfield lengths.

Subfield Key X'80' (Node Identifier)
 (One always present)

0(0) RU142NLN Subfield length	1(1) RU142NKY Subfield key X'80'	2(2) RU142NTY* Type code	3(3) RU142NSA
Destination subarea to which routing is to change			7(7) RU142NNL Length of the network identifier
8(8) - n RU142NID Network identifier of the network in which the destination subarea exists			

* Indicates a byte expansion follows.

Subfield Key X'81' (Explicit Route Data)
 (One for each explicit route to be added or modified-0-ER limit)

0(0) RU142ELN Subfield length	1(1) RU142EKY Subfield key X'81'	2(2) RU142ETY* Type code	3(3) RU142ERN* Explicit route number (ERN)
4(4) RU142ELF* Length of the following transmission group fields	5(5) RU142ETG Transmission group number (TGN)	6(6) RU142ESA Adjacent subarea	
8(8) Adjacent subarea (continued)		10(A) RU142ELO Transmission group low-priority threshold	
12(C) Transmission group low-priority threshold (continued)	13(D) RU142EME Transmission group medium-priority threshold		
16(10) RU142EH1 Transmission group high-priority threshold			19(13) RU142ETO Total transmission group threshold
20(14) Total transmission group threshold (continued)			

* Indicates a byte expansion follows.

Subfield Key X'82' (Virtual Route Data)
 (Present if the VRN-to-ERN mapping is to be changed. One for each virtual route to be modified-0-ER limit)

0(0) RU142VLN Subfield length	1(1) RU142VKY Subfield key X'82'	2(2) RU142VTY* Type code	3(3) RU142VEN* Virtual route number (VRN) and ERN
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* Indicates a byte expansion follows.

Subfield Key X'83' (Virtual Route Window Size Data)

(Present if the window size for the virtual route with a particular VRN/TPF is to be changed. One for each unique VRN/TPF pair—0–24)

0(0) RU142TLN Subfield length	1(1) RU142TKY Subfield key X'83'	2(2) RU142TTY* Type code	3(3) RU142TVN* VRN/TPF
4(4) RU142TMN Minimum window size	5(5) RU142TMX Maximum window size		

* Indicates a byte expansion follows.

Note: If all the subfields will not fit into one control vector X'42', that vector is immediately followed by a second control vector X'42' that contains only those subvectors that would not fit into the first one.

Byte Expansions

Offset/Field Name	Bit Pattern/ Hex Value	Contents
2(2) RU142NTY X'80'		Type code
		Control vector flows on a request
	X'00'	Request
		Control vector flows on a response
	X'20'	Invalid network ID specified
	X'21'	Control block allocation failed. No transit routing table (TRT) row was available.
	X'22'	Invalid explicit route data subfield, virtual route data subfield, or virtual route window size data subfield was included in the Routing Data control vector.
	X'23'	The destination subarea in the Node Identifier Data Subfield is greater than the SALIMIT.
RU142ETY X'81'		Type code
		Control vector flows on a request
	X'00'	Add or replace the explicit route definition.
	X'01'	Delete the explicit route definition.
		Control vector flows on a response
	X'20'	The explicit route cannot be changed because it is operative.
	X'21'	Control block allocation failed. No transmission group control block (TGB) was available.
	X'22'	The adjacent subarea in the explicit route data subfield is greater than SALIMIT.
	X'23'	The ERN in the explicit route data subfield is greater than (ERLIMIT-1).

Offset/Field Name	Bit Pattern/ Hex Value	Contents
RU142VTY X'82'		Type code
	X'00'	Control vector flows on a request Add or replace the ER-to-VR mapping for this VRN.
	X'20'	Control vector flows on a response No corresponding explicit route subfield (type add/replace) was successfully processed.
	X'21'	Virtual route is already active on a different explicit route.
RU142TTY X'83'		Type code
	X'00'	Control vector flows on a request Add or replace the virtual route TPF window sizes.
	X'20'	Control vector flows on a response No corresponding virtual route subfield was successfully processed.
	X'21'	The VRN/TPF is already active.
	X'22'	Control block allocation failed. No PCT entry was available.
3(3) RU142ERN X'81'		Explicit route number (ERN)
	xxxx xxxx	Reserved ERN
RU142VEN X'82'		Virtual route number (VRN) and ERN
	xxxx xxxx	VRN ERN
RU142TVN X'83'		VRN/Transmission priority field (TPF)
	xxxx xxxx	VRN TPF
4(4) RU142ELF X'81'		Length of the following transmission group fields
	X'00'	No transmission group information is present (valid only when type code = X'01' deleted the explicit route definition).
	X'05'	Transmission group thresholds not specified
	X'11'	Transmission group thresholds specified

Extended SDLC Secondary Station Control Vector

0(0) RUISSVT Control vector key X'43'	1(1) RUIVDL Control vector length	2(2) RUIPUT* PU type	3(3) RUIPTM* PU type modifier
4(4) RUIMAX MAXOUT Maximum number of PIUs sent before a response is required	5(5) RUIPASS PASSLIM Maximum number of contiguous PIUs sent at one time	6(6) RUIERR Error recovery modifier (X'10'=immediate error recovery)	7(7) RUIERPT Length of pause between retry sequences
8(8) RUISTRLR Maximum number of retry sequences	9(9) RUISEG Maximum data segment size		11(B) - 16(10)
Reserved			
	17(11) RUILSEG Link segment number of PU	18(12) RUILMA Local modem addresses	19(13) RUIGPADD 3174 group poll

* Indicates a byte expansion follows.

Byte Expansions

Offset/Field Name	Bit Pattern/ Hex Value	Contents
2(2) RUIPUT		PU type
	X'01'	PU type 4 or 5
	X'02'	PU type 2
	X'04'	PU type 1
3(3) RUIPTM		PU type modifier
	x... ..	If RUIPUT=X'04' (PU type 1): 1 = Transmission subsystem (TSS) profile 2 (SDLC 3270) 0 = Not TSS profile 2.
		If RUIPUT=X'02' (PU type 2): X = Reserved.
	.x.. ..	1 = Continue poll after auto network shutdown (ANS). 0 = Stop poll after ANS.
	..x.	1 = Use exchange identification (XID) (Null) polling for the secondary PU. 0 = Use Set Normal Response Mode (SNRM) polling for the secondary PU.
	...x	1 = Prevent link problem determination aid (LPDA) test. 0 = Allow LPDA test if the line is capable.
	.... x...	1 = Full-duplex data mode 0 = Half-duplex data mode
	.... .x..	1 = Ignore LPDA2 data 0 = Use LPDA2 data
	.... ..x.	1 = Retry CV valid 0 = Retry CV not valid

Transmission Group (TG) Descriptor Control Vector

For KL format:

0(0) Control vector key X'46'	1(1) Length of the control vector**
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** Control vector length equals the sum of the subfield lengths.

For LT format:

0(0) Length of the control vector**	1(1) Control vector key X'46'
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** Control vector length equals the sum of the subfield lengths plus two.

Subfield Key X'80' (Transmission Group Identifier)
 (Always Present)

0(0) Subfield length	1(1) Subfield key X'80'	2(2) Transmission group number (TGN)	3(3) Length of the network-qualified partner node name
4(4)-n Network-qualified partner node name			
n+1 Flags*	(n+2) - (n+5) Subarea number		

* Indicates a byte expansion follows

Subfield Key X'81' (Partner Address) (Optional)

0(0) Subfield length X'6'	1(1) Subfield key X'81'	2(2) - 5(5) Subarea address of the partner PU
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Subfield Key X'82' (DLC Signaling Information) (Optional)

0(0) Subfield length	1(1) Subfield key X'82'	2(2) - n
Data link control signaling information (specific data)		

Byte Expansions

Offset/Field Name	Bit Pattern	Contents
n+1	.... .1..	Flags for SF X'80' Intercluster link connection
	.... ..1.	Release 2 Border Node supported

Primary Send Pacing Window Size Control Vector

0(0) Control vector key X'52'	1(1) Control vector length	2(2) Pacing window size*
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* Indicates a byte expansion follows.

Byte Expansions

Offset/Field Name	Bit Pattern	Contents
2(2)	xx..	Pacing window size
	..xx xxxx	Reserved
		Primary send window size for session level pacing.

Call Security Verification Control Vector

0(0) RU156K0 Control vector X'56'**	1(1) RU156L1 Length for 'KL' parsing	2(2) Reserved	3(3) RU156LEN Length of the security ID
4(4) - 11(B) RU156RN1 Random data or encrypted random data			
12(C) - 19(13) RU156RN2 Random data or encrypted random data			

Or

0(0) RU156L0 Length for 'LT' parsing	1(1) RU156L1 Control vector key X'56'**	2(2) Reserved	3(3) RU156LEN Length of the security ID
4(4) - 11(B) RU156RN1 Random data or encrypted random data			
12(C) - 19(13) RU156RN2 Random data or encrypted random data			

** Control vector X'56' may have a KL or LT format depending upon the application.

DLC Connection Data Control Vector

0(0) RU157LN Length of the control vector**	1(1) RU157KY Control vector key X'57'	2(2) RU157DT* DLC type
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** Control vector length equals the sum of the subfield lengths plus three.

RU157DT

X'01' = Token-ring

X'07' = Frame-relay

Subfield Key X'01' (LAN MAC and SAP Data - token-ring stations only)

0(0) RU101LN Subfield length	1(1) RU101KY Subfield key X'01'	2(2) RU101FL* Flag byte	3(3) - 8(8) RU101LMC
Local MAC			
9(9) RU101LSP Local SAP		10(A) - 15(F) RU101RMC	
Remote MAC			
16(10) RU101RSP Remote SAP			

RU101FL

x... 1 = Local and remote MAC and SAP present

0 = Local SAP and MAC only present

Subfield Key X'02' (Related Resource Network Name) (Always present - logical station only)

0(0) RU102LN Subfield length X'0B'	1(1) RU102KY Subfield key X'02'	2(2) RU102FLG Flag byte X'00'	3(3) - 10(A) RU102PLN
Name of physical line			

Subfield Key X'03' (LAN Routing Information) (Optional - logical token-ring station only)

0(0) RU103LN Subfield length X'nn'	1(1) RU103KY Subfield key X'03'	2(2) RU103FLG Flag byte X'00'	3(3) RU103RIL Length of routing information
4(4) - nn-1 RU103RI Routing information			

Subfield Key X'07' (Frame-Relay DLCI - logical frame-relay stations only)

0(0) RU107LN Subfield length X'08'	1(1) RU107KY Subfield key X'07'	2(2) RU107RSV Flag byte X'00'	3(3) RU107LSP Local SAP
4(4) RU107RSP Remote SAP	5(5) RU107DLN Length of DLCI	6(6) RU107DLC DLCI	

Fully Qualified Procedure Correlation Identifier (PCID) Control Vector

0(0) RU160KY Control vector key for 'KL' parsing X'60'	1(1) RU160L Length of data field for 'KL' parsing	2(2) - 9(9) RU160PCD	
RU160L0 Length of data field for 'LT' parsing	RU160K1 Control vector key for 'LT' parsing X'60'		
Procedure correlation identifier			
		10(A) RU160CPL Length of the control point name	11(B) - n RU160CP
Network-qualified control point name			

Extended Recovery Facility (XRF) Cryptography Control Vector

0(0) RU168KEY Control vector key X'68'	1(1) RU168LEN Length of vector data X'13'	2(2) RU168INB* Session/Seed indicators	3(3) RU168CP1 Cryptography options 1
4(4) RU168CP2 Cryptography options 2	5(5) - 12(C) RU168SKY Cryptography session key		
	13(D) - 20(14) RU168SED Cryptography seed value		

* Indicates a byte expansion follows.

Byte Expansions

Offset/Field Name	Bit Pattern/ Hex Value	Contents
2(2) RU168INB		Session/seed indicators
	x... ..	Session key is present
	.x.. ..	Seed value is present

DLC Addressing Control Vector

0(0) RU169LN Length of the control vector**	1(1) RU169KY Control vector key X'69'	2(2) RU157FL Flag byte X'00'
--	--	---------------------------------------

** Control vector length equals the sum of the subfield lengths plus three.

Subfield Key X'91' (DLC Type identifier)

0(0) RU169SFL Subfield length	1(1) RU169SFK Subfield key X'91'	2(2) DLC type "TR" or "FR"
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Subfield Key X'92' (Port Address)

0(0) RU169SFL Subfield length X'03'	1(1) RU169SFK Subfield key X'92'	2(2) Port address
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Subfield Key X'93' (Destination Service Access Point)

0(0) RU169SFL Subfield length X'03'	1(1) RU169SFK Subfield key X'93'	2(2) DSAP
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Subfield Key X'94' (Frame-relay DLCI)

0(0) RU169SFL Subfield length X'04'	1(1) RU169SFK Subfield key X'94'	2(2) DLCI
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Subfield Key X'94' (Token-Ring MAC Address)

0(0) RU169SFL Subfield length X'08'	1(1) RU169SFK Subfield key X'94'	2(2) - 7(7)
MAC address		

ER Congestion Data Control Vector

0(0) RU16AKEY Control vector key X'6A'	1(1) RU16ALEN Length of vector data X'1D'	2(2) - 5(5) RU16ASA
Subarea of the PU that appended this control vector		
		6(6) RU16ASDN* Slowdown indicators
Initial free-buffer count		7(7) - 10(A) RU16AIFB
Number of committed buffers		11(B) - 14(E) RU16ACMB
Current free-buffer count		15(F) - 18(12) RU16ACFB
Slowdown entry threshold		19(13) - 22(16) RU16ASET
Slowdown exit threshold		23(17) - 26(1A) RU16ASXT
CWall entry threshold		27(1B) - 30(1E) RU16ACET

* Indicates a byte expansion follows.

Byte Expansions

Offset/Field Name	Bit Pattern/ Hex Value	Contents
6(6) RU16ASDN		Slowdown indicators
	1... ..	NCP is in pseudo-slowdown
	.1.. ..	NCP is in slowdown

Frame Relay Switching Equipment (X'80') SETCV Control Vector

0(0) Control vector key X'80'	1(1) Length of data field X'08'	2(2) Element address of first subport in FRSE segment set
4(4) Element address of second subport in FRSE segment set		6(6) Element address of substitute subport for the first subport in FRSE segment set or X'0000'
8(8) Element address of substitute subport for the second subport in FRSE segment set or X'0000'		

Request Contact Extension (X'80') REQCONT Control Vector

0(0) Length of data field	1(1) Control vector key X'80'	2(2) Flags*
------------------------------	-------------------------------------	----------------

* Indicates a byte expansion follows.

Byte Expansions

Offset/Field Name	Bit Pattern/ Hex Value	Contents
2(2)		Flags for REQCONT CV X'80'
	1... ..	REQCONT was sent for an active APPN TG
	.1.. ..	Original SSCP supported release 2 border node (R2BN)
	..1.	Original SSCP treated connection as an intercluster link (ICL)

QUERY Command Control Vector

Note: The QUERY command control vector is a context-sensitive control vector that is architected to flow only on SETCVs and SETCV-REPLYs

0(0) QS81KEY Control vector key X'81' (RU1QSCVK)	1(1) QS81LEN** Control vector length	3(3) QS81FLGS* Flags byte
4(4) QS81POAL Length of program operator application (POA) identifier	5(5) - n QS81POAI Program operator application (POA) identifier	
		(n+1) - p
Subfields***		

* Indicates a byte expansion follows.

** The control vector length does not include the three byte control vector header (i.e., the control vector key and length fields).

*** In a Query SETCV request, these subfields correspond in sequence to the *subfield_id*, *subfield_string* pairs coded on the VTAM MODIFY QUERY command.

In a Query SETCV-REPLY, these subfields are in response to the *subfield_id*, *subfield_string* pairs coded on the VTAM MODIFY QUERY command.

Byte Expansions

Offset/Field Name	Bit Pattern/Hex Value	Contents
2(2) QS81FLGS		Flags byte
	1... .. .xxx xxxx	Program operation application (POA) no longer active (QS81POD) Reserved

Generic layout of a subfield:

0(0) QSFLN* Subfield length	1(1) QSFKEY** Subfield key X'nn'	2(2) - n QSFDATA
Subfield data (always at least one byte)		

* Includes the length and key fields.

** Where X'nn' is between X'80' to X'FD'.

Control Vector Keys Not Recognized Control Vector

0(0)	1(1)	2(2) - n
Control vector key. X'FE'. (See note.)	Vector data field length in binary	One or more 1-byte control vector key values that were not recognized in the corresponding request

Note: The control vector X'FE' is used to report the receipt of one or more unrecognized control vectors, provided that each unrecognized control vector has a length field. Control vectors X'00' through X'05', X'07', and X'08' have no length fields; all others do. A negative response of X'0835'=invalid parameter (with pointer only) is returned if a request is received with an unrecognized control vector with a key less than or equal to X'08'. When all unrecognized control vectors have keys greater than X'08', the receiver responds using a X'FE' control vector that identifies each unrecognized control vector by key. This allows the response sender to indicate that some control vectors have been processed, while others have not.

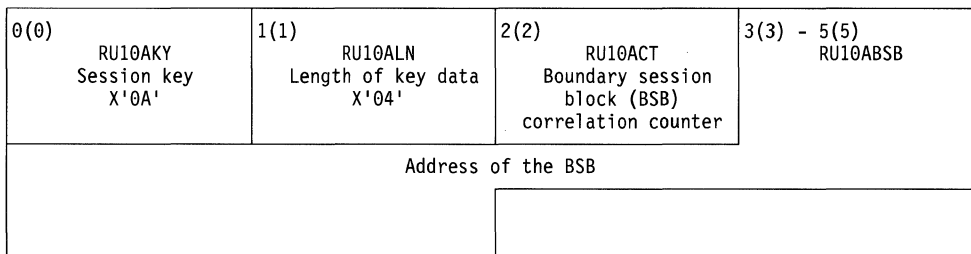
Session Keys

The following table shows, by session key value, the requests that carry the specific session key. Formats for the session keys follow this table.

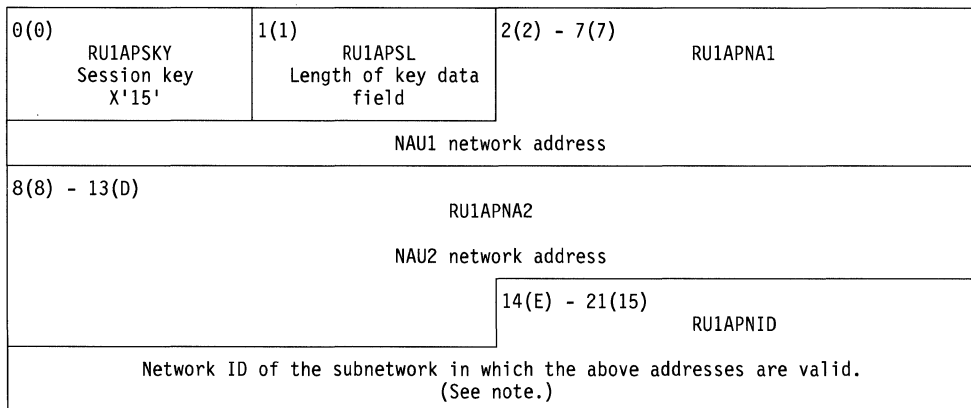
Session Key	Requests Carrying the Session Key
X'0A'	Used in BFCINIT, BFCLEANUP, BFINIT, and BFTERM
X'15'	Used in BFCLEANUP, BFSESEND, BFSESSST, BFTERM, Notify (LU-SSCP), SESSST, and SESEND

Session key formats are displayed with zero-indexing of the key bytes. See the individual RU description for the actual displacement within the RU.

User Request Correlation (URC) Session Key



Network-Qualified Address Pair Session Key



Note: The length byte is set to 12 when the network ID is not included and to 20 when the network ID is included. If the network ID is not present, the network addresses are in the sender's network.

Isolated Pacing Message (IPM) Formats

IPM

52(34) RH1B0** Request/response header (RH) byte 0 X'83'	53(35) RH1B1** RH byte 1 X'01'	54(36) RH1B2** RH byte 2 X'00'	55(37) IPM10PTN* IPM options
56(38) IPM1NWSZ* Next window size			

* Indicates a byte expansion follows.

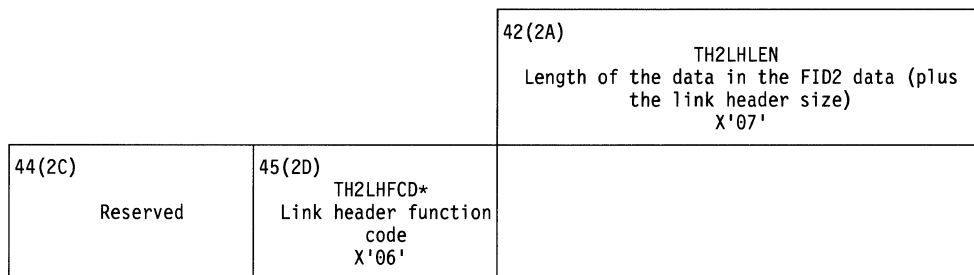
** For the byte expansion, see "Path Information Unit (FID1)" in Volume 1 Section 1, "Data Area Layouts."

Byte Expansions

Offset/Field Name	Bit Pattern/ Hex Value	Contents
55(37) IPM10PTN		IPM options
	xx..	IPM type: 00 = Normal pace response 01 = Reset window pace response 10 = Reset acknowledgement 11 = Reserved
	..1.	Reset the current pace window
	...x xxxx	Reserved
56(38) IPM1NWSZ		Next window size
	Byte 0	
	0...	Format indicator
	.xxx xxxx	Size of the next window
	Byte 1	
	xxxx xxxx	Size of the next window (continued)

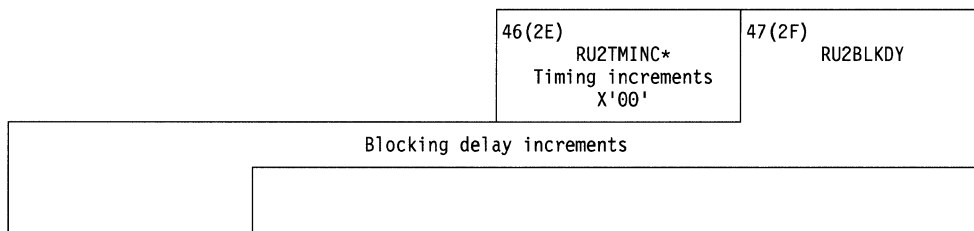
Set Blocking Delay Format Link Header PIU

FID2 Link Header



* Indicates a byte expansion follows.

Set Blocking Delay Data



* Indicates a byte expansion follows.

Note: No transmission header or request/response header is associated with the Set Blocking Delay PIU.

Byte Expansions

Offset/Field Name	Hex Value	Contents
45(2D) TH2LHFC* X'06'		Link header function code. (Link header precedes FID2 data over a channel.) Set blocking delay (host T2.1 sends).
46(2E) RU2TMINC X'00'		Timing increments 100 milliseconds

SDLC Commands and Responses

Section 6. SDLC Commands and Responses	6-1
1-Byte Control Field (Modulo 8)	6-1
Unnumbered Format: (Bits 6,7=11)	6-1
Supervisory Format: (Bits 6,7=01)	6-2
Information Format: (Bit 7=0)	6-3
2-Byte Control Field (Modulo 128)	6-3
Unnumbered Format	6-3
Supervisory Format	6-3
Information Format	6-4

Section 6. SDLC Commands and Responses

Following is a list of SDLC commands, with each command's control field and function.

1-Byte Control Field (Modulo 8)

Unnumbered Format: (Bits 6,7=11)

Requests

Command Requests	Control Field (Binary)	Control Field (Hex)	Function
Set Initialization Mode (SIM)	0001 0111	17	Command initiates system-specified procedures at the receiving secondary station for the purpose of initializing link-level functions.
Unnumbered Poll (UNP)	0011 0011	33	Command is used with a group address to perform a poll of a group of secondary stations.
Disconnect (DISC)	0101 0011	53	Command terminates other modes and places the receiving secondary station effectively offline.
Set Normal Response Mode (SNRM)	1001 0011	93	Command subordinates the receiving secondary station to the transmitting primary station (modulo 8).
LPDA Test	0001 1011	1B	Link problem determination aid (LPDA) test command
Exchange Identification (XID)	1011 1111	BF	Command is used by NCP to solicit the station identification from a secondary station.
Set Normal Response Mode Extended (SNRME)	1101 1111	DF	Command subordinates the receiving secondary station to the transmitting primary station (modulo 128).
Test	1111 0011	F3	SDLC test command

Responses

Command Requests	Binary	Hex	Function
Request Initialization Mode (RIM)	0001 0111	17	Command notifies the primary station that the secondary station has a need for an SIM command.
Disconnect Mode (DM)	0001 1111	1F	Command indicates that the transmitting secondary station is disconnected or that the reset configurable station has received an XID.
Unnumbered Poll Response (UNP)	0011 0011	33	Command is a response to an unnumbered poll indicating no data queued for transmission for the group.
Request Disconnect (RD)	0101 0011	53	Command notifies the primary station that the secondary station has a need for a DISC command.
Unnumbered Acknowledgement (UA)	0111 0011	73	Command affirms a response to an SNRM or SIM command.

Command Requests	Binary	Hex	Function
Frame Reject (FRMR)	1001 0111	97	Command rejects an invalid command.

Supervisory Format: (Bits 6,7=01)

Commands	Control Field	Function
Receive Ready (RR)	RRRP 0001	Command indicates the originating station is ready to receive.
Receive Not Ready (RNR)	RRRP 0101	Command indicates a temporary busy condition in which no frames requiring buffer space can be accepted.
Reject (REJ)	RRRP 1001	Command requests the transmission or re-transmission of sequenced information.

SSS or *N(S)* Transmit station send sequenced number.

P Poll (command/request from primary) or
Final (response from secondary)

RRR or *N(R)* Transmit station receive sequenced number.

Information Format: (Bit 7=0)

Commands	Control Field	Function
	RRRP SSS0	

SSS or *N(S)* Transmit station send sequenced number.

P Poll (command/request from primary) or
 Final (response from secondary)

RRR or *N(R)* Transmit station receive sequenced number.

2-Byte Control Field (Modulo 128)

Unnumbered Format

All unnumbered frames are 1 byte in length.

Supervisory Format

Commands	Control Field Byte 0	Control Field Byte 1
Receive Ready (RR)	0000 0001	RRRR RRRP
Receive Not Ready (RNR)	0000 0101	RRRR RRRP
Reject (REJ)	0000 1001	RRRR RRRP

Information Format

Control Field Byte 0	Control Field Byte 1
SSSS SSS0	RRRR RRRP

SSS or *N(S)* Transmit station send sequenced number.

P Poll (command/request from primary) or
Final (response from secondary)

RRR or *N(R)* Transmit station receive sequenced number.

EP Information

Section 7. EP Information	7-1
Summary of EP Command Codes	7-1
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Flags Used after Initial Command Execution (ICE)	7-2
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Section 7. EP Information

Summary of EP Command Codes

EP Operation Code ¹	S/370 Operation Code	Command
0000 0...	00	Test I/O
0000 1...	01	Write
0001 0...	02	Read
0001 1...	03	I/O No-op
0001 1...	12	Diagnostic Read ²
0001 1...	05	Diagnostic Write ²
0001 1...	13	Set Address Zero ²
0001 1...	17	Set Address One ²
0001 1...	1B	Set Address Two ²
0001 1...	1F	Set Address Three ²
0001 1...	1D	Diagnostic Poll ²
0010 0...	04	Sense
0010 1...	15	Wrap
0011 0...	06	Prepare
0100 0...	41	Write Break
0100 1...	09	Poll
0101 0...	0A	Inhibit
0101 1...	19	Poll SOH
0110 0...	42	Read Clear
0110 1...	0D	Break
0111 0...	0E	Search
0111 1...	2F	Disable
1000 0...	27	Enable
1000 1...	29	Dial
1001 0...	1E	Address Prepare
1001 1...	23	Set Mode

¹ The EP command is located in the CCBCMD field of the EP character control block (CCB).

² Treated by EP as a No-op. (May be used as a Dynamic Dump command on a dynamic subchannel.)

Flags Used during Initial Command Execution (ICE)

Bit Pattern	Contents
.... .1..	End with intervention is required instead of command reject.
.... ..1.	Sense command
.... ...1	Line must be enabled before this is accepted.

Flags Used after Initial Command Execution (ICE)

Bit Pattern	Contents
.... .1..	Command end
.... ..1.	Pseudo read
.... ...1	Pseudo read end

EP Timeout Routine Descriptions

Table 7-1 (Page 1 of 2). EP Timeout Routine Descriptions

Offset ¹	Type of Timeout
x'00'	No active timer
x'04'	"FROM" interface Setmode
x'08'	Setmode command continue
x'0C'	"TO" interface Setmode
x'10'	Emulate mode Write
x'14'	SS lost transmit clock
x'18'	Emulate BSC Read
x'1C'	Autocall
x'20'	Emulate BSC Adprep
x'24'	TTY EOT
x'28'	Emulate mode DSR
x'2C'	Unit Check
x'30'	Emulate Poll
x'34'	Transparent Write
x'38'	SS Read/Inhibit
x'3C'	Reply timeout
x'40'	Text timeout
x'44'	Addl. 25.6 repeat T/O
x'48'	Emulate Xparent Wait

Table 7-1 (Page 2 of 2). EP Timeout Routine Descriptions

Offset ¹	Type of Timeout
x'4C'	BSC Transmit timeout
x'50'	SS Line Quiet
x'54'	Equipment Check
x'58'	SS Transmit
x'5C'	Timefactor extra time loop
x'60'	BSC transparent wait
x'64'	F5 error recovery
x'68'	Scanner Setmode
x'6C'	Reset-N/Reset-D
x'70'	SS Initial Select
x'74'	SS lost transmit clock
x'78'	Postponed processing resume
x'7C'	Scanner trace (SIT)
x'80'	Wrap Reset-D
x'84'	Wrap Initial
x'88'	Wrap loop control
x'8C'	Wrap final Reset-X
x'90'	Wrap control leads
x'94'	Wrap Receive
x'98'	Wrap Transmit
x'9C'	Wrap Flush command
x'A0'	Emulate CTS
x'A4'	Channel adapter
x'A8'	Prepare (nohalt)
x'AC'	Auto baud detect
x'B0'	V.25 Bis Call Request
x'B4'	Channel status
x'B8'	Enable command

¹ The timeout routine offset appears in the CCBTMADR field of the EP character control block (CCB) and in byte 3 of X'41' entries of the EP line trace.

3745 Instruction Set for the 3745

Section 8. Instruction Set for the 3745	8-1
Extended Mnemonic Codes	8-2
Instruction Decode	8-3

Section 8. Instruction Set for the 3745

Instruction	Format Code	Mnemonic	Operand Field Format
Adapter Input/Output	RR	IOH	R1, R2
Adapter Input/Output Immediate	RI	IOHI	R1, I
Add Character Register	RR	ACR	R1(N1), R2(N2)
Add Halfword Register	RR	AHR	R1, R2
Add Register	RR	AR	R1, R2
Add Register Immediate	RI	ARI	R(N),I
And Character Register	RR	NCR	R1(N), R2(N2)
And Halfword Register	RR	NHR	R1, R2
And Register	RR	NR	R1, R2
And Register Immediate	RI	NRI	R(N), I
Branch	RT	B	T
Branch and Link	RA	BAL	R, A
Branch and Link Register	RR	BALR	R1, R2
Branch on Bit	RT	BB	R(N,M), T
Branch on Count	RT	BCT	R(N), T
Branch on C Latch	RT	BCL	T
Branch on Z Latch	RT	BZL	T
Compare Character Register	RR	CCR	R1(N1), R2(N2)
Compare Halfword Register	RR	CR	R1, R2
Compare Register	RR	CR	R1, R2
Compare Register Immediate	RI	CRI	R(N), I
Exclusive Or Character Register	RR	XCR	R1(N1), R2(N2)
Exclusive Or Halfword Register	RR	XHR	R1, R2
Exclusive Or Register	RR	XR	R1, R2
Exclusive Or Register Immediate	RI	XRI	R(N), I
Exit	EXIT	EXIT	
Input (CCU Register)	RE	IN	R, E
Insert Character	RS	IC	R(N), D(B)
Insert Character and Count	RSA	ICT	R(N), B
Load	RS	L	R, D(B)
Load Address	RA	LA	R, A
Load Character Register	RR	LCR	R1(N1), R2(N2)
Load Character with Offset Register	RR	LCOR	R1(N1), R2(N2)
Load Halfword	RS	LH	R, D(B)
Load Halfword Register	RR	LHR	R1, R2
Load Halfword with Offset Register	RR		R1, R2

Instruction	Format Code	Mnemonic	Operand Field Format
Load Register	RR	LR	R1, R2
Load Register Immediate	RI	LRI	R(N), I
Load with Offset Register	RR	LOR	R1, R2
Or Character Register	RR	OCR	R1(N1), R2(N2)
Or Halfword Register	RR	OHR	R1, R2
Or Register	RR	OR	R1, R2
Or Register Immediate	RI	ORI	R(N), I
Output (CCU Register)	RE	OUT	R, E
Store	RS	ST	R, D(B)
Store Character	RS	STC	R(N), D(B)
Store Character and Count	RSA	STCT	R(N), B
Store Halfword	RS	STH	R,D(B)
Subtract Character Register	RR	SCR	R1(N1), R2(N2)
Subtract Halfword Register	RR	SHR	R1, R2
Subtract Register	RR	SR	R1, R2
Subtract Register Immediate	RI	SRI	R(N), I
Test Register Under Mask	RI	TRM	R(N), I

Extended Mnemonic Codes

Extended Code	Meaning	Equivalent Machine Instruction
BR R2	Branch Register	LR 0,R2
NOP	No Operation	B *+2
BND D(B)	Branch Indirect	L 0,D(B)
BND S	Branch Indirect	L 0,S
BLG A	Branch Long	BAL 0,A
BBE R(P),T	Branch on Bit Extended	For P<8: BB R(0,P),T For P≥8: BB R(1,P-8),T
STZ D(B)	Store Zeros	ST 0,D(B)
STZ S	Store Zeros	ST 0,S
STHZ D(B)	Store Halfword Zeros	STH 0,D(B)
STHZ S	Store Halfword Zeros	STH 0,S
Used after Compare Instructions		
BE T	Branch on Equal	BZL T
BL T	Branch on Low	BCL T

Used After Add Instructions

Extended Code	Meaning	Equivalent Machine Instruction
BO T	Branch on Overflow	BCL T

Note: In the BBE extended code, P represents an absolute expression that specifies a bit in byte 0 or 1 of a register. The value of the expression must be between 0 and 15. All other keyword values have the same meaning as in the standard machine instruction format.

Instruction Decode

These charts can be used to decode the 4-digit hexadecimal representation of a 3745 machine instruction.

Use the chart as follows:

1. Locate the first digit (D_1) of the instruction in hexadecimal in the column of numbers on the left side of Table I.
2. Locate the second digit of the instruction in the row of numbers at the top of Table I.
3. Go to the intersection of the column and row represented by the two numbers. You will find either the mnemonic or a reference to Table II, Table III, or Table IV.

Tables II and IV require that you locate digit 3 (D_3) only of the instruction in the row of digits at the top of each chart. Follow the instructions for Table I to use Table III, substituting digit 3 (D_3) and digit 4 (D_4). Table V is entered from Table III only when $D_3=7$ and $D_4=0$.

Table I

		(D ₂)															
		0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
(D ₁)	0	Table III								Table II							
	1																
	2																
	3																
	4																
	5																
	6																
	7																
	8	LRI								BZL							
	9	ARI								BCL							
	A	SRI								B							
	B	CRI								Table IV							
	C	XRI								BB							
	D	ORI															
	E	NRI															
	F	TRM															

Table II

(D ₃)															
0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
IC								STC							

Table III

(D ₄)															
(D ₃)															
0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	*							LCR							
1	ICT							ACR							
2	*							SCR							
3	STCT	LH	L	LH		LH	L	CCR	LH	L	LH		LH	L	LH
4	BALR							XCR							
5	IOH							OCR							
6	*							NCR							
7	Table V				Out			LCOR					In		
8	LHR							LR							
9	AHR							AR							
A	SHR	S T H	S T	S T H	S T H	S T	S T H	SR	S T H	S T	S T H		S T H	S T	S T H
B	CHR							CR							
C	XHR							XR							
D	OHR							OR							
E	NHR							NR							
F	LHOR							LOR							

Table IV

(D ₃)															
0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	
LA			BAL											BCT	

Table V

(D ₂)					
(D ₁)					
0	1	2	3	4	5
0	EXIT	IOHI			
1 - 7	*				

* Denotes an invalid operation.

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Name	Instruction	C.Z	Number of Machine Cycles			Format																			
			No Branch	Branch	Notes	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15				
LRI	Load Register Immediate	*	1	--		1	0	0	0	0															
ARI	Add Register Immediate	*	1	--		1	0	0	1	0															
SRI	Subtract Register Immediate	*	1	--		1	0	1	0	0															
CRI	Compare Register Immediate	*	1	--		1	0	1	1	0															
XRI	Exclusive Or Register Immediate	*	1	--		1	1	0	0	0															
DRI	OR Register Immediate	*	1	--		1	1	0	1	0															
NRI	AND Register Immediate	*	1	--		1	1	1	0	0															
TRM	Test Register Under Mask	*	1	--		1	1	1	1	0															
BALR	Branch & Link Register		--	3		0		R ₂	0				R ₁	0	1	0	0	0	0	0	0				
LHR	Load Halfword Register	*	1	3	Note 3	0			0					1	0	0	0	0	0	0	0				
LR	Load Register	*	1	3	Note 3	0			0					1	0	0	0	1	0	0	0				
AHR	Add Halfword Register	*	1	3	Note 3	0			0					1	0	0	1	0	0	0	0				
AR	Add Register	*	1	3	Note 3	0			0					1	0	0	1	1	0	0	0				
SHR	Subtract Halfword Register	*	1	3	Note 3	0			0					1	0	1	0	0	0	0	0				
SR	Subtract Register	*	1	3	Note 3	0			0					1	0	1	0	1	0	0	0				
CHR	Compare Halfword Register	*	1	--	Note 3	0			0					1	0	1	1	0	0	0	0				
CR	Compare Register	*	1	--	Note 3	0			0					1	0	1	1	1	0	0	0				
XHR	Exclusive OR Halfword Register	*	1	3	Note 3	0			0					1	1	0	0	0	0	0	0				
XR	Exclusive OR Register	*	1	3	Note 3	0			0					1	1	0	0	1	0	0	0				
OHR	OR Halfword Register	*	1	3	Note 3	0			0					1	1	0	1	0	0	0	0				
OR	OR Register	*	1	3	Note 3	0			0					1	1	0	1	1	0	0	0				
NHR	AND Halfword Register	*	1	3	Note 3	0			0					1	1	1	0	0	0	0	0				
NR	AND Register	*	1	3	Note 3	0			0					1	1	1	0	1	0	0	0				
LHOR	Load Halfword with Offset Register	*	1	3	Note 3	0			0					1	1	1	1	0	0	0	0				
LOR	Load with Offset Register	*	1	3	Note 3	0			0					1	1	1	1	1	0	0	0				
LCR	Load Character Register	*	1			0			0					0	0	0	0	1	0	0	0				
ACR	Add Character Register	*	1			0			0					0	0	0	1	1	0	0	0				
SCR	Subtract Character Register	*	1			0			0					0	0	1	0	1	0	0	0				
CCR	Compare Character Register	*	1			0			0					0	0	1	1	1	0	0	0				
XCR	Exclusive Or Character Register	*	1			0			0					0	1	0	0	1	0	0	0				
OCR	OR Character Register	*	1			0			0					0	1	0	1	1	0	0	0				
NCR	AND Character Register	*	1			0			0					0	1	1	0	1	0	0	0				
LCOR	Load Character with Offset Register	*	1			0			0					0	1	1	1	1	0	0	0				
LST	Load Store	*	3/Note 8 2/Notes 4	7/Note 8 --	Note 1 Note 2	0		Base Reg	0				R	0						1	0				
LHSTH	Load Halfword Store Halfword	*	2/Note 8 1/Note 4	6/Note 8 --		0		Base Reg	0				R	0							1				
ICSTC	Insert Character Store Character	*	2/Note 8 1/Notes 4	--		0		Base Reg	1				R	N	0										
ICTSTCT	Insert Character and Count Store Character and Count		3 3/Note 4	--		0		Base Reg	0				R	N	0					0	0				
BZL	Branch on Z latch		2	4		1	0	0	0	1	Displacement (T field)										±				
BCL	Branch on C latch		2	4		1	0	0	1	1	Displacement (T field)										■				
B	Branch		--	3		1	0	1	0	1	Displacement (T field)										■				
BCT	Branch on Count		3	4		1	0	1	1	1		R	N	1	Displacement (T field)					±					
BB	Branch on Bit		2	4		1	1	M	M	1		R	N	M	Displacement (T field)					■					
BAL	Branch & Link		--	3		1	0	1	1	1		R		0	1	Address									
LA	Load Address		2	3		1	0	1	1	1		R		0	0	Address									
EXIT	Exit		--	2 if L5, else 9		0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0			
OUTIN	Output (CCU Reg) Input (CCU Reg)				Note 6 Note 7	0		E	0				R		E			0	1	0	0				
IOH	Adapter I/O	*	Note 5	--		0		R ₂	0				R ₁	0	1	0	1	0	0	0	0				
IOHI	Adapter I/O Immediate	*	Note 5	--		0	0	0	0	0				R	0	1	1	1	0	0	0	0			

Legend: * = Instructions that can alter condition latches. ■ 1 = Negative displacement
 0 = Positive displacement

Notes:

1. Add two cycles if the data is not on a fullword boundary.
2. Add two cycles if the data is not on a fullword boundary.
3. If register 0 (IAR) is specified as R1, a branch occurs to the address formed in register 0 and the condition latches remain unchanged.
4. If the next instruction executed does not reference storage, the number of cycles required is as follows: ST=1, STH=2, STC=2, and STCT=2. Add one cycle if the base register=0.
5. The total time required for IOH/IOHI is as follows:
 - IOH/IOHI for the channel adapter=4.57 microseconds
 - IOH/IOHI for the communications scanner processor=10.40 microseconds.
6. One cycle with the following exceptions:
 - Two cycles for OUT X'78'
 - Three cycles for OUT X'70', X'73', X'7B', X'7C', X'7D', X'7E', or X'7F'
 - Three cycles for the output using the IAR as an external register
 - Five cycles for OUT X'74'.
7. Two cycles with the following exceptions:
 - One cycle for IN X'74' and the input using the IAR as an external register.
 - Four cycles for IN X'70'.
 - Add three cycles if the general register addressed is the IAR.
 - Two cycles for OUT X'78'.
8. Add one cycle if the base register=0.

IOH/IOHI Registers

Section 9. IOH/IOHI Registers	9-1
Channel Adapter IOH/IOHI Registers	9-1
R2 Register for IOH or Second Halfword for IOHI for the 3745	9-1
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Get Adapter Status (OP 4—In)	9-5

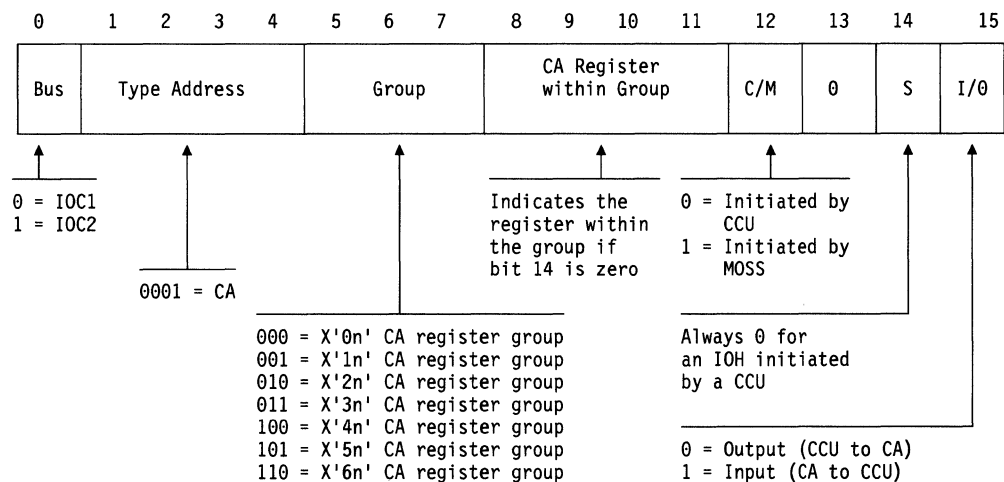
Section 9. IOH/IOHI Registers

Following are byte expansions for IOH/IOHI registers.

Channel Adapter IOH/IOHI Registers

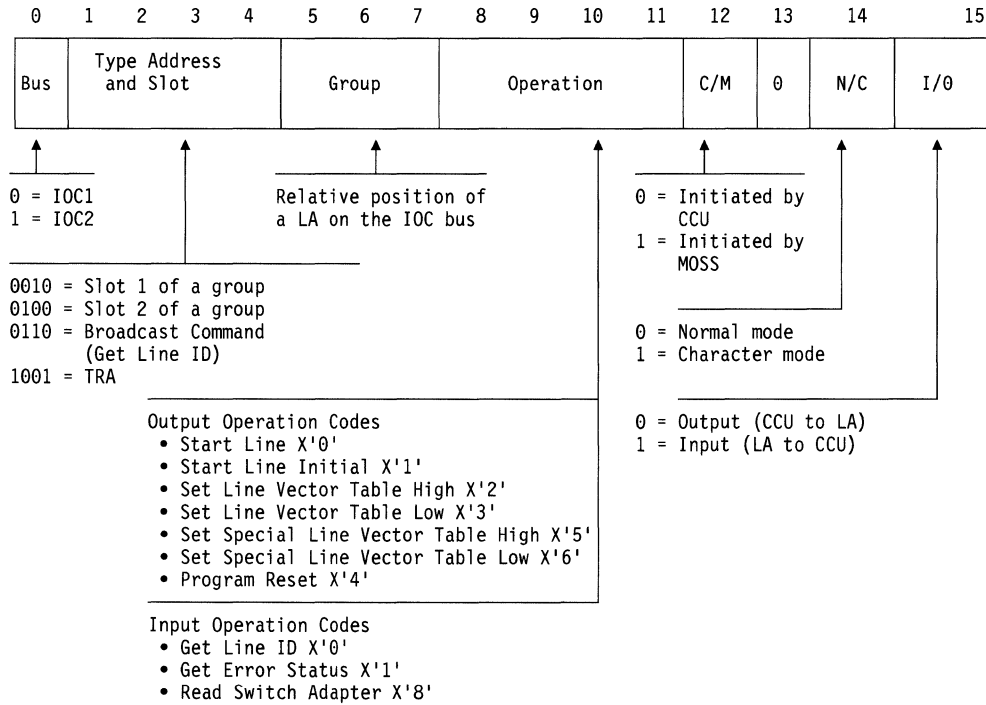
R2 Register for IOH or Second Halfword for IOHI for the 3745

(R2 contents at TA time)

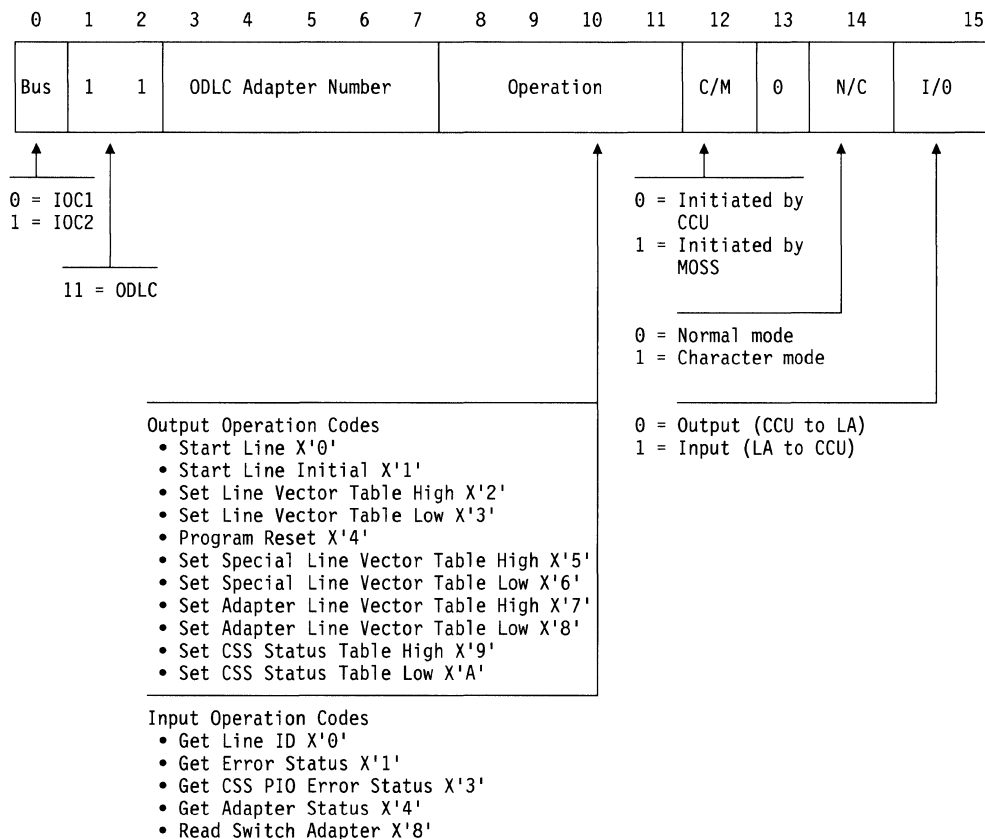


Line Adapter IOH/IOHI Registers for the 3745

(TA field)



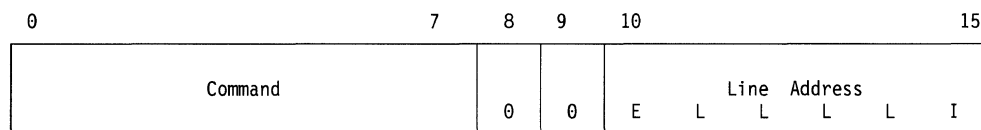
R1 register for IOH by operation code or
 R register for IOHI by operation code



R1 register for IOH by operation code or
 R register for IOHI by operation code

Start Line (OP 0—Out) or Start Line Initial (OP 1—Out)

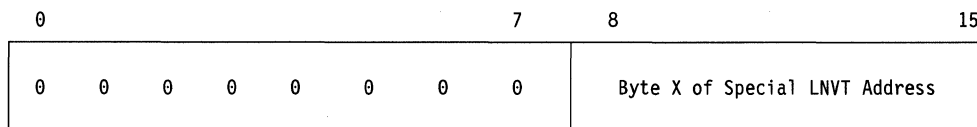
(TD field)



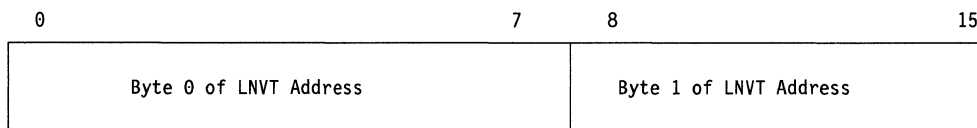
See the PSACMD field in the PSA control block.

E = Expansion of MUX
 0 = First 16 Lines
 1 = Second 16 Lines
 LLLL = Line Number
 I = Interface Duplex
 0 = Transmit Line
 1 = Receive Line
 Half-Duplex
 Must be 0

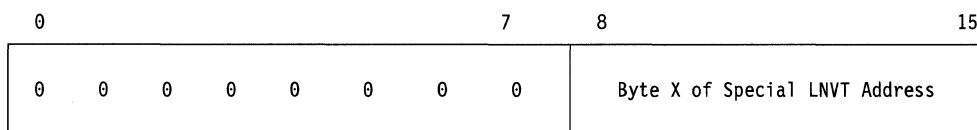
Set Line Vector Table High (OP 2—Out)



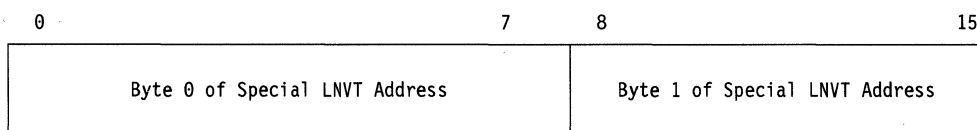
Set Line Vector Table Low (OP 3—Out)



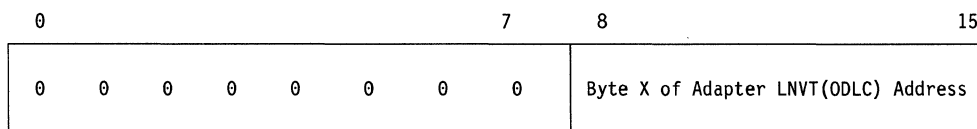
Set Special Line Vector Table High (OP 5—Out)



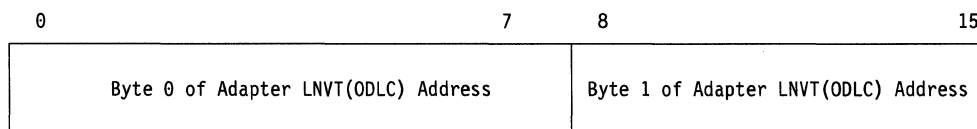
Set Special Line Vector Table Low (OP 6—Out)



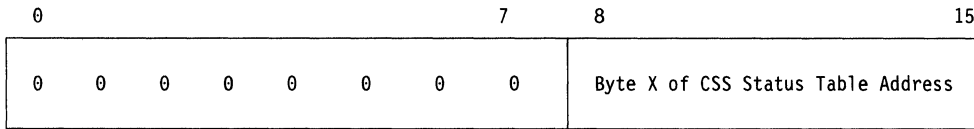
Set Adapter Line Vector Table High (OP 7—Out)



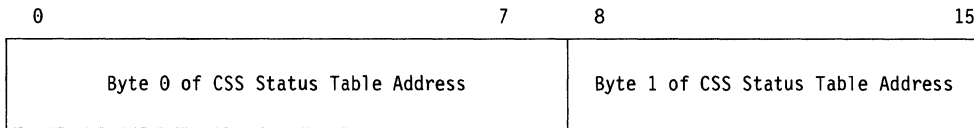
Set Adapter Line Vector Table Low (OP 8—Out)



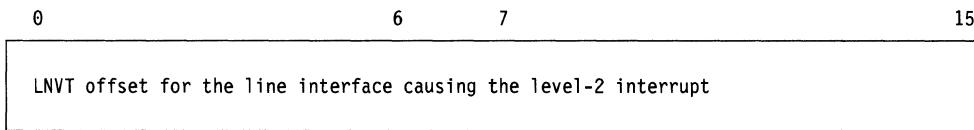
Set CSS Status Table High (OP 9—Out)



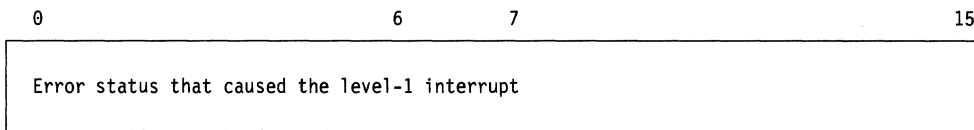
Set CSS Status Table Low (OP A—Out)



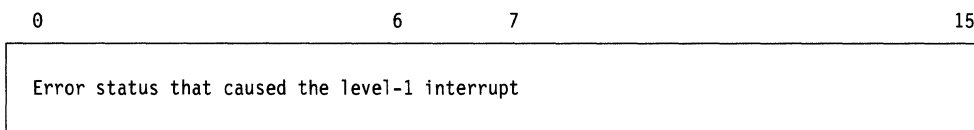
Get Line ID (OP 0—In)



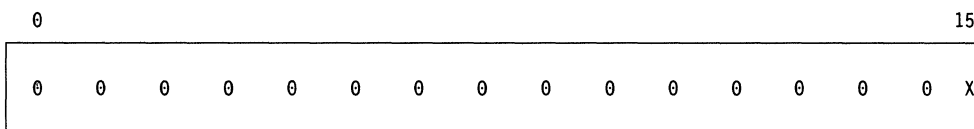
Get Error Status (OP 1—In)



Get CSS PIO Error Status (OP 3—In)



Get Adapter Status (OP 4—In)



↑

0 = Not Ready
 1 = Ready

Macro Supervisor Call (SVC) Codes

Section 10. Macro Supervisor Call (SVC) Codes 10-1

Section 10. Macro Supervisor Call (SVC) Codes

An SVC code is generated whenever level 5 uses the supervisor. The SVC linkage between levels 5 and 4 consists of an EXIT instruction (X'0070'), the SVC code, flags, communication bits, parameters, and space for output variables. Bits 0–6 of the SVC code field contain the SVC identifier and bit 7 contains the one-parameter flag. For a layout of the linkage generated by the RNSVC macro, refer to *NCP Customization Guide*.

To determine the macro from a dump, enter the following table with the SVC code field value.

Example: Dump contains X'0070 21xx xxx'
 EXIT _____] [_____ Enter table, find CALL

SVC Code Field (Hex) (Bit 7=0)	SVC Code Field (Hex) (Bit 7=1)	Identifier	Macro
02	03	SVC01	LEASE
04	05	SVC02	RELEASE
06	07	SVC03	CHAIN
08	09	SVC04	UNCHAIN
0A	0B	SVC05	SCAN
0C	0D	SVC06	POINT
0E	0F	SVC07	DEQUE
10	11	SVC08	ENQUE
12	13	SVC09	ADVAN
14	15	SVC10	INSERT
16	17	SVC11	EXTRACT
18	19	SVC12	RETURN
1A	1B	SVC13	CHAP
1C	1D	SVC14	TRIGGER
1E	1F	SVC15	QPOST
20	21	SVC16	CALL
22	23	SVC17	XIO (BSC/SS line)
24	25	SVC18	XIO (channel)
26	27	SVC19	RSLVSNP
28	29	SVC20	XIO (set mode)
2A	2B	SVC21	XIO (immediate)
2C	2D	SVC22	SETIME
2E	2F	SVC23	TPPOST
30	31	SVC24	RSLVRID (SUPV=NO)
32	33	SVC25	COPYBCU
34	35	SVC26	SYSXIT

SVC Code Field (Hex) (Bit 7=0)	SVC Code Field (Hex) (Bit 7=1)	Identifier	Macro
36	37	SVC27	FLIPPS
38	39	SVC28	IPROUTE
3A	3B	SVC29	GETBYTE
3C	3D	SVC30	PUTBYTE
3E	3F	SVC31	GETIME
40	41	SVC32	EXECBHR
42	43	SVC33	ABORT, CC=0
44	45	SVC34	ABORT, CC≠0, RELEASE
46	47	SVC35	ABORT, CC≠0, PASS
48	49	SVC36	ABORT, CC≠0, SYSOPT
4A	4B	SVC37	RSLVNAD
4C	4D	SVC38	XIO SDLC (Link)
4E	4F	SVC39	XPORTVR
50	51	SVC40	COPYPIU (LEASE=NO)
52	53	SVC41	SNAINT
54	55	SVC42	COPYPIU (LEASE=YES)
56	57	SVC43	RSLVSSCP
58	59	SVC44	XIO (CHANANS)
5A	5B	SVC45	XIO (Channel, CAB=)
5C	5D	SVC46	HTSEARCH
5E	5F	SVC47	NCHNG
60	61	SVC48	COMMIT
62	63	SVC49	DECOMMIT
7A	7B	SVC61	BFREVENT
7C	7D	SVC62	ABORT VR
7E	7F	SVC63	HTINSERT
80	81	SVC64	PRELEASE
84	85	SVC66	ATTACHVR
86	87	SVC67	DETACHVR
88	89	SVC68	RSLVNET
8A	8B	SVC69	HTDELETE
8C	8D	SVC70	ALLOCATE
8E	8F	SVC71	PIUDEALL
90	91	SVC72	ACTVRIT
92	93	SVC73	DACTVRIT
94	95	SVC74	LINKTGB
96	97	SVC75	RSLVTGB
98	99	SVC76	SETTGB

SVC Code Field (Hex) (Bit 7=0)	SVC Code Field (Hex) (Bit 7=1)	Identifier	Macro
9A	9B	SVC77	XIO (TG)
9C	9D	SVC78	ROUTE
9E	9F	SVC79	TRACEPIU
A0	A1	SVC80	QMOSS
A2	A3	SVC81	NVRID
A4	A5	SVC82	VRACT
A6	A7	SVC83	UACTRTN, URETURN
A8	A9	SVC84	FETRACE
AA	AB	SVC85	NPA QUEUE COUNTER
AC	AD	SVC86	CBT
	FF		All parameter list SVCs

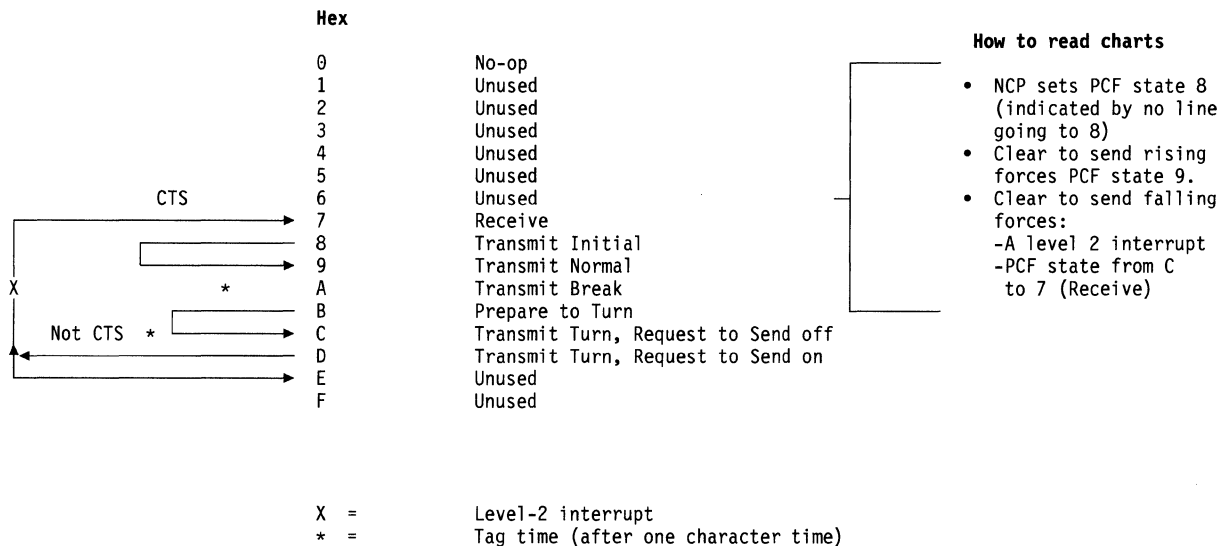
Character Mode Primary Control Field (PCF) State Diagrams

Section 11. Character Mode Primary Control Field (PCF) State Diagrams	11-1
PCF Start-Stop Line Interface	11-1
Line Control Definition (LCD)	11-1
PCF BSC Line Interface	11-2

Section 11. Character Mode Primary Control Field (PCF) State Diagrams

Following are Character Mode Primary Control Field (PCF) state diagrams.

PCF Start-Stop Line Interface

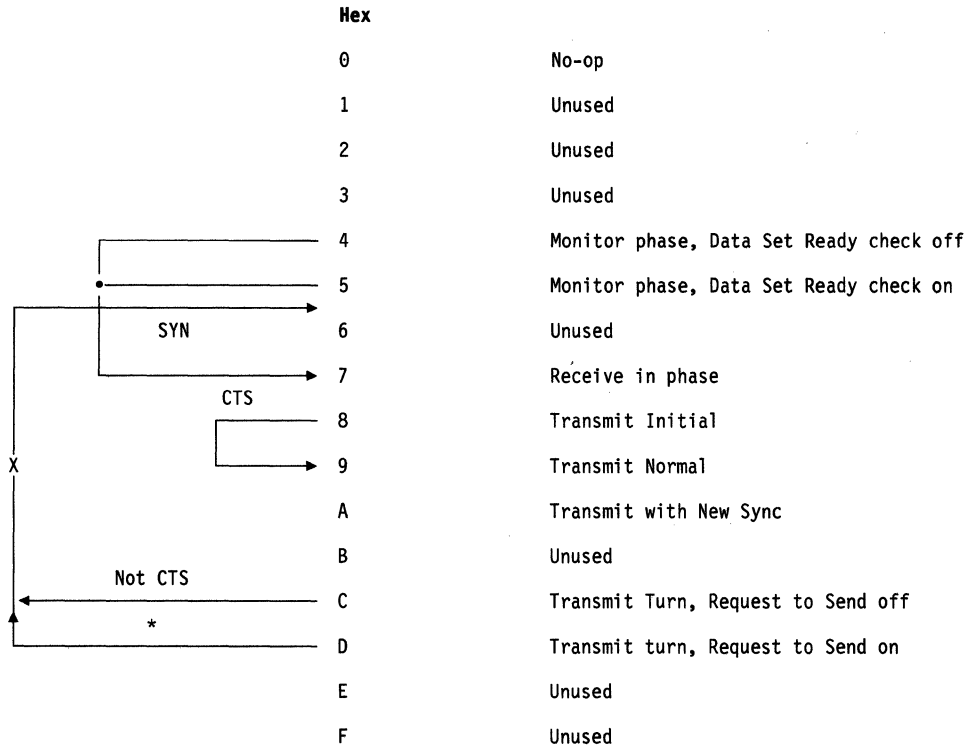


Line Control Definition (LCD)

Hex	Definition
0	SS 9/6
1	
2	SS 8/5
3	Auto call
4	SS 9/7
5	SS 10/7
6	SS 10/8
7	SS 11/8, 2848
8	Unused
9	SDLC 8-bit byte length
A	Reserved
B	Reserved
C	BSC EBCDIC
D	BSC ASCII
E	Reserved
F	Unused

PCF BSC Line Interface

EP BSC code uses the character mode interface but the NCP code does not.



X = Level-2 interrupt
 * = Tag time (after one character time)

Line Character Codes

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ASCII Character Code for TWX with Space Parity	12-36
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ZSC3 Character Code	12-39

Section 12. Line Character Codes

Following are line character codes for ASCII and Data Interchange Code (DIC).

ASCII Character Code (Even Parity, 2848/2660) for Binary Synchronous Communication

PDF Code	EBCDIC S/370 Code	ASCII			PDF Code	EBCDIC S/370 Code	ASCII		
		Code	Control Character	Graphics Character			Code	Control Character	Graphics Character
03	03	60	EXT		81	01	C0	SOH	
06	2E	30	ACK		82	02	A0	STX	
0A	37	21	LF	(Note 1)	84	37	90	EOT	
18	18	0C	CAN		95	3D	D4	NAK	
21	18	42		(Note 2)	A0	40	82	SP	
22	18	22		(Note 3)	A3	7B	E2		#
24	5B	12		\$	A5	6C	D2		%
27	7D	72		'	A6	50	B2		&
28	4D	0A		(	A9	5D	CA)
2B	4E	6A		+	AA	5C	AA		*
2D	60	5A		-	AC	6B	9A		,
2E	4B	3A		.	AF	61	FA		/
30	F0	06		0	B1	F1	C6		1
33	F3	66		3	B2	F2	A6		2
35	F5	56		5	B4	F4	96		4
36	F6	36		6	B7	F7	F6		7
39	F9	4E		9	B8	F8	8E		8
3A	5E	2E		:	BB	5E	EE		:
3C	4C	1E		<	BD	7E	DE		=
3F	6F	7E		?	BE	6E	BE		>
41	C1	41		A	C3	83	E1		c
42	C2	21		B	C5	85	D1		e
44	C4	11		D	C6	86	B1		f
47	C7	71		G	C9	89	C9		i
48	C8	09		H	CA	91	A9		j
4B	D2	69		K	CC	93	99		l
4D	D4	59		M	CF	96	F9		o
4E	D5	39		N	D1	98	C5		q
50	D7	05		P	D2	99	A5		r
53	E2	65		S	D4	A3	95		t
55	E4	55		U	D7	A6	F5		w
56	E5	35		V	D8	A7	8D		x
59	E8	4D		Y	DD	A7	DD		(Note 4)
5A	E9	2D		Z	E1	81	C3		a
5F	6D	7D		---	E2	82	A3		b
60	7C	03		@	E4	84	93		d
63	C3	63		C	E7	87	F3		g
65	C5	56		E	E8	88	8B		h
66	C6	33		F	EB	92	EB		k
69	C9	4B		I	ED	94	D8		m
6A	D1	2B		J	EE	95	BB		n
6C	D3	1B		L	F0	97	87		p
6F	D6	7B		O	F3	A2	E7		s
71	D8	47		Q	F5	A4	D7		u
72	D9	27		R	F6	A5	B7		v
74	E3	17		T	F9	A8	CF		y
77	E6	77		W	FA	A9	AF		z
78	E7	0F		X	FC	5F	9F		-
7E	4E	3E		|					

PDF Code	EBCDIC S/370 Code	ASCII			PDF Code	EBCDIC S/370 Code	ASCII		
		Code	Control Character	Graphics Character			Code	Control Character	Graphics Character
<p>Notes:</p> <ol style="list-style-type: none"> 1. Displayed on the 2260 as the New Line (<) symbol. Causes a carriage return and line feed on the 1050 Model 4 Printer. 2. Displayed on the 2260 as the EOM (—) symbol. Prints on the 1050 Model 4 Printer as the exclamation mark (!). 3. Displayed on the 2260 as the Check (■) symbol. Prints on the 1050 Model 4 Printer as the quote sign("). 4. Displayed on the 2260 as the Start MI (>) symbol. Prints on the 1050 Model 4 Printer as the cent sign (¢). 									

ASCII Character Code (Odd Parity) for Binary Synchronous Communication

PDF Code	EBCDIC S/370 Code	ASCII			PDF Code	EBCDIC S/370 Code	ASCII		
		Code	Control Character	Graphics Character			Code	Control Character	Graphics Character
00*	00	00*	NUL		2F	61	2F	/	
00*	17	(00)*	NUL		B0	F0	B0	0	
01	01	01	SOH		31	F1	31	1	
02	02	02	STX		32	F2	32	2	
03*	03	03*	ETX		B3	F3	B3	3	
04	37	04	EOT		34	F4	34	4	
05*	2D	05*	ENQ		B5	F5	B5	5	
86	2E	86	ACK		B6	F6	B6	6	
07	2F	07	BEL		37	F7	37	7	
08	16	08	BS		38	F8	38	8	
89	05	89	HT		B9	F9	B9	9	
8A	15	(8A)	LF		BA	7A	BA	:	
8A	25	8A	LF		3B	5E	3B	:	
0B	0B	0B	VT		BC	4C	BC	<	
8C	0C	8C	FF		3D	7E	3D	=	
0D	0D	0D	CR		3E	6E	3E	>	
0E	0E	0E	SO		BF	6F	BF	?	
8F	0F	8F	SI		40	7C	40	@	
10	10	10	DLE		C1	C1	C1	A	
91	11	91	DC1		C2	C2	C2	B	
92	12	92	DC2		43	C3	43	C	
13	13	13	DC3		C4	C4	C4	D	
94	3C	94	DC4		45	C5	45	E	
15	3D	15	NAK		46	C6	46	F	
16	32	16	SYN		C7	C7	C7	G	
17*	26	17*	ETB		C8	C8	C8	H	
98	18	98	CAN		49	C9	49	I	
19	19	19	EM		4A	D1	4A	J	
1A	3F	1A	SUB		CB	D2	CB	K	
1A	CF	1A	SUB		4C	D3	4C	L	
1A	E0	(1A)	SUB		CD	D4	CD	M	
9B	27	9B	ESC		CE	D5	CE	N	
1C	1C	1C	FS		4F	D6	4F	O	
9D	1D	9D	GS		D0	D7	D0	P	
9E	1E	9E	RS		51	D8	51	Q	
1F	1F	1F	US		52	D9	52	R	
20	40	20	SP		D3	E2	D3	S	
A1	4F	A1		!	54	E3	54	T	
A2	7F	A2		"	D5	E4	D5	U	
23	7B	23			D6	E5	D6	V	
A4	5B	A4	\$		57	E6	57	W	
25	6C	25	%		58	E7	58	X	
26	50	26	&		D9	E8	D9	Y	
A7	7D	A7	'		DA	E9	DA	Z	
A8	4D	A8	(		5B	4A	5B	|	
29	5D	29	)		DC	E1	DC	\
2A	5C	2A	*		5D	5A	5D]	
AB	4E	AB	+		5E	5F	5E	~	
2C	6B	2C	,		DF	6D	DF	—	
AD	60	AD	-		E0	79	E0		
AE	4B	AE	.		61	81	61	a	

Note:
 () = Out only
 * Control characters without parity bit

PDF Code	EBCDIC S/370 Code	ASCII			PDF Code	EBCDIC S/370 Code	ASCII		
		Code	Control Character	Graphics Character			Code	Control Character	Graphics Character
62	82	62		b	F1	98	F1		q
E3	83	E3		c	F2	99	F2		r
64	84	64		d	73	A2	73		s
E5	85	E5		e	F4	A3	F4		t
E6	86	E6		f	75	A4	75		u
67	87	67		g	76	A5	76		v
68	88	68		h	F7	A6	F7		w
E9	89	E9		i	F8	A7	F8		x
EA	91	EA		j	79	A8	79		y
68	92	6B		k	7A	A9	7A		z
EC	93	EC		l	FB	C0	FB		|
6D	94	6D		m	7C	6A	7C		|
6E	95	6E		n	FD	D0	FD		|
EF	96	EF		o	FE	A1	FE		~
70	97	70		p	7F	07	7F	DEL	

Baudot Character Code

PDF Code	S/370 Code	Baudot			PDF Code	S/360 S/370 Code	Baudot		
		Line Code	Control Character	Graphics Character			Line Code	Control Character	Graphics Character
01	C5	10		E	18	96	(03)		Q
01	85	(10)		E	18	D6	03		Q
02	15	08	LF		19	82	(13)		B
02	15	(88)	LF		19	C2	13		B
02	25	(08)	LF		1A	87	(0B)		G
03	81	(18)		A	1A	C7	0B		G
03	C1	18		A	1B	36	1B	FIGS	
04	40	04	SP		1C	94	(07)		M
05	A2	(14)		S	1C	D4	07		M
05	E2	14		S	1D	A7	(17)		X
06	89	(0C)		I	1D	E7	17		X
06	C9	0C		I	1E	A5	(0F)		V
07	A4	(1C)		U	1E	E5	0F		V
07	E4	1C		U	1F	06	1F	LTRS	
08	03	(02)	CR		1F	07	(1F)	LTRS	
08	0D	(82)	CR		1F	17	(1F)	LTRS	
08	26	(62)	CR		1F	32	(1F)	LTRS	
09	84	(12)		D	1F	37	(1F)	LTRS	
09	C4	12		D	1F	38	(1F)	LTRS	
0A	99	(0A)		R	81	F3	90		
0A	D9	0A		R	83	60	98		3
0B	2F	9A	BELL		84	40	[84]	SP	-
0B	79	94	BELL		85	7A	8E	'	1/8
0B	91	(1A)		J	86	F8	8C		8
0B	D1	1A		J	87	F7	9C		7
0C	95	(06)		N	89	5B	92		\$
0C	D5	06		N	89	64	(8B)		\$
0D	86	(16)		F	8A	F4	8A		4
0D	C6	16		F	8C	6B	86	'	7/8
0E	83	(0E)		C	8F	4D	9E	(	1/2
0E	C3	0E		C	90	F5	81		5
0F	92	(1E)		K	91	7F	91		"
0F	D2	1E		K	92	5D	89	)	3/4
10	A3	(01)		T	93	5A	96	2	1/4
10	E3	01		T	93	F2	99		2
11	A9	(11)		Z	94	7B	85		#
11	E9	11		Z	95	F6	95		6
12	93	(09)		L	96	F0	8D		0
12	D3	09		L	97	F1	9D		1
13	A6	(19)		W	98	F9	83		9
13	E6	19		W	99	6F	93	,	5/8
14	88	(05)		H	9A	50	8B		&
14	C8	05		H	9B	36	[9B]	FIGS	
15	A8	(15)		Y	9C	4B	87	SP	
15	E8	15		Y	9D	3F	(97)	LTRS	
16	97	(0D)		P	9D	61	97		/
16	D7	0D		P	9D	E1	(97)		/
17	98	(1D)		Q	9E	5E	8F		3/8
17	D8	1D		Q	9F	06	[9F]	LTRS	

Note:

[] = In only.
 () = Out only.

BCD Character Code 1

PDF Code	S/370 Code	BCD			PDF Code	S/370 Code	BCD		
		Line Code	Control Character	Graphics Character			Line Code	Control Character	Graphics Character
01	60	40	{N}	-	67	89	73		i
02	7C	20		@	68	F5	0B		5
04	F8	10		8	6B	85	6B		e
07	88	70		h	6D	OD	5B	LF CR	
08	F4	08		4	6D	15	5B	LF CR	
0B	84	68		d	6E	25	3B	Index	
0D	0F	(58)	RES		70	F3	07		3
0D	14	(58)	RES		73	83	67		c
0E	0E	(38)	BYP		75	5B	57		\$
0E	24	38	BYP		76	6B	37	{S}	
10	F2	04		2	79	97	4F		p
13	82	64		b	7A	A7	2F		x
15	D0	54	MZ		7C	37	1F	EOT{C}	
16	E0	34	RM	‡	7F	07	[7F]	DEL	
19	96	4C		o	81	6D	C0	{N}	
1A	A6	2C		w	82	4A	A0		¢
1C	36	1C	UC		84	5C	90		*
1F	06	7C	LC		87	C8	F0		H
20	F1	02		1	88	3F	(88)		:
23	81	62		d	88	7A	88		:
25	99	52		r	8B	C4	E8		D
26	A9	32		z	8D	14	[D8]	RES	
29	95	4A		n	8E	24	[B8]	BYP	
2A	A5	2A		v	90	5F	84		
2C	35	[1A]	RS		93	C2	E4		B
2F	05	7A	HT		99	D6	CC		O
31	93	46		|	9A	E6	AC		W
32	A3	26		t	9C	36	9C	UC	
34	02	16	EOA{D}		9F	06	[FC]	LC	
34	7B	16	EOA{D}	#	A0	7E	82		=
37	4B	76	{Y}	.	A3	C1	E2		A
38	F7	0E		,	A5	D9	D2		R
3B	87	6E		g	A6	E9	B2		Z
3D	17	5E	IL		A9	D5	CA		N
3D	32	(5E)	IL		AA	E5	AA		V
3E	27	3E	PRE		AC	35	[9A]	RS	
40	40	01	SP		AF	05	[FA]	HT	
43	50	61		&	B1	D3	C6		L
45	98	51		q	B2	E3	A6		T
46	A8	31		y	B4	4F	96	EOA{D}	
49	94	49		m	B7	4B	[F6]	{Y}	.
4A	A4	29		u	B8	7F	8E		"
4C	34	19	PN		BB	C7	EE		G
4F	04	79	PF		BD	17	[DE]	IL	
51	92	45		k	BE	27	[BE]	PRE	
52	A2	25		s	C0	40	[81]	SP	
54	F0	15		0	C3	4E	E1	SP	+
57	C0	75	PZ		C5	D8	D1		Q
58	F6	0D		6	C6	E8	B1		Y
5B	86	6D		f	C9	D4	C9		M
5D	16	5D	BS		CA	E4	A9		U
5E	03	[3D]	EOB{B}		CC	34	[99]	PN	
5E	26	[3D]	EOB{B}		CF	04	[F9]	PF	
61	91	43		j	D1	D2	C5		K
62	61	23		/	D2	E2	A5		S
64	F9	13		9	D4	5D	95)

Note:
 [] = In only
 () = Out only

PDF Code	S/370 Code	BCD			PDF Code	S/370 Code	BCD		
		Line Code	Control Character	Graphics Character			Line Code	Control Character	Graphics Character
D8	7D	8D			ED	15	[DB]	LF CR	
D8	C6	ED		F	EE	25	[BB]	Attn	
DD	16	[DD]	BS		F0	5E	87		;
DE	26	[BD]	EOB{B}		F3	C3	E7		C
E1	D1	C3		J	F5	5A	D7		!
E2	6F	A3		?	F6	68	[B7]	{S}	.
E4	4D	93		(	F9	D7	CF		P
E7	C9	F3		|	FA	E7	AF		X
E8	C6	8B		%	EC	37	9F	EOT{C}	
EB	C5	EB		E	FF	07	[FF]	DEL	

Note: [] = In only

BCD Character Code 2

PDF Code	S/370 Code	BCD			PDF Code	S/370 Code	BCD		
		Line Code	Control Character	Graphics Character			Line Code	Control Character	Graphics Character
01	60	40	{N}	-	67	89	73		i
02	7C	20		@	68	F5	0B		5
04	F8	10		8	6B	85	6B		e
07	88	70		h	6D	0D	(5B)	LF CR	
08	F4	08		4	6D	15	5B	LF CR	
0B	84	68		d	6E	25	38	Index	
0D	0F	(58)	RES		70	F3	07		3
0D	14	(58)	RES		73	83	67		c
0E	0E	(38)	BYP		75	5B	57		\$
0E	24	38	BYP		76	6B	37	{S}	,
10	F2	04		2	79	97	4F		P
13	82	64		b	7A	A7	2F		x
15	D0	54	MZ		7C	37	1F	EOT{C}	
16	E0	34	RM	‡	7F	07	[7F]	DEL	
19	96	4C		o	81	6D	C0	{N}	
1A	A6	2C		w	82	4A	A0		¢
1C	36	1C	UC		84	5C	90		.
1F	06	7C	LC		87	C8	F0		H
20	F1	02		1	88	3F	(88)		:
23	81	62		a	88	7A	88		:
25	99	52		r	8B	C4	E8		D
26	A9	32		z	8D	14	[D8]	RES	
29	95	4A		n	8E	24	[B8]	BYP	
2A	A5	2A		v	90	5F	84		°
2C	35	[1A]	RS		93	C2	E4		B
2F	05	7A	HT		99	D6	CC		O
31	93	46		|	9A	E6	AC		W
32	A3	26		t	9C	36	9C	UC	
34	02	16	EOA{D}		9F	06	{FC}	LC	
34	7B	16	EOA{D}	#	A0	7E	82		=
37	4B	76	{Y}	.	A3	C1	E2		A
38	F7	0F		7	A5	D9	D2		R
3B	87	6E		g	A6	E9	B2		Z
3D	17	5E	IL		A9	D5	CA		N
3D	32	[5E]	IL		AA	E5	AA		V
3E	27	3E	PRE		AC	35	[9A]	RS	
40	40	01	SP		AF	05	[FA]	HT	
43	50	61		&	B1	D3	C6		L
45	98	51		q	B2	E3	A6		T
46	A8	31		y	B4	4F	96	EOA{D}	
49	94	49		m	B7	13	F6	{Y}	
4A	A4	29		u	B8	7F	8E		"
4C	34	19	PN		BB	C7	EE		G
4F	04	79	PF		BD	17	[DE]	IL	
51	92	45		k	BE	27	[BE]	PRE	
52	A2	25		s	C0	40	[81]	SP	
54	F0	15		0	C3	4E	E1		+
57	C0	75	PZ		C5	D8	D1		Q
58	F6	0D		6	C6	E8	81		Y
5B	86	6D		f	C9	D4	C9		M
5D	16	5D	BS		CA	E4	A9		U
5E	03	[3D]	EOB{B}		CC	34	[99]	PN	
5E	26	[3D]	EOB{B}		CF	04	[F9]	PF	
61	91	43		j	D1	D2	C5		K
62	61	23		/	D2	E2	A5		S
64	F9	13		9	5D	95)

Note:
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 () = Out only.

PDF Code	S/370 Code	BCD			PDF Code	S/370 Code	BCD		
		Line Code	Control Character	Graphics Character			Line Code	Control Character	Graphics Character
D8	7D	8D	BS EOB ©		ED	15	[DB]	LF CR	; C ! · P X
DB	C6	ED		F	EE	25	[B8]	Attn	
DD	16	[DD]			F0	5E	87		
DE	26	[BD]			F3	C3	E7		
E1	D1	C3		J	F5	5A	D7		
E2	6F	A3		?	F6	12	B7	Ⓢ	
E4	4D	93		(	F9	D7	CF	
E7	C9	F3		|	FA	E7	AF		
E8	C6	8B		%	FC	37	9F	EOT ©	
EB	C5	EB		E	FF	07	[FF]	DEL	

Note: [] = In only.

Correspondence Character Code 1

PDF Code	S/370 Code	Correspondence			PDF Code	S/370 Code	Correspondence		
		Line Code	Control Character	Graphics Character			Line Code	Control Character	Graphics Character
01	5A	40	Ⓝ	!	67	A8	73		v
02	A3	20		t	68	F7	0B		7
04	F4	10		4	6B	5E	6B		;
07	61	70		/	6D	0D	(5B)	LF CR	
08	F5	08		5	6D	15	5B	LF CR	
0B	97	68		p	6E	25	3B	Index	
0D	14	58	RES		70	F3	07		3
0E	24	38	BYP		73	86	67		f
10	F2	04		2	75	A6	57		w
13	7E	64		=	76	82	37	Ⓢ	b
19	89	4C		i	79	81	4F		a
1A	92	2C		k	7A	83	2F		c
1C	36	1C	UC		7C	37	1F	EOT Ⓢ	
1F	06	7C	LC		7F	07	[7F]	LC Ⓢ	
20	F1	02		1	81	6E	C0	Ⓝ	°
23	87	62		g	82	E3	A0		T
25	A2	52		s	84	5B	90		\$
26	88	32		h	88	6C	88		%
29	99	4A		r	8B	D7	E8		P
2A	84	2A		d	8E	24	[B8]	BYP	
2C	35	1A	RS		90	7C	84		@
2F	05	7A	Tab		93	4E	E4		+
31	A5	46		v	99	C9	CC		|
32	A4	26		u	9A	D2	AC		K
34	F9	16	EOA Ⓢ	9	9C	36	[9C]	UC	
37	60	76	Ⓢ	-	9F	06	[FC]	LC	
38	F8	0E		8	A0	4F	82		±
3B	6B	6E		,	A3	C7	E2		G
3D	17	5E	IL		A5	E2	D2		S
3D	32	(5E)	PRE		A6	C8	B2		H
3E	27	3E	PRE		A9	D9	CA		R
40	40	01	SP		AA	C4	AA		D
43	91	61		j	AF	05	[FA]	Tab	
45	96	51		o	B1	E5	C6		V
46	93	31		|	B2	E4	A6		U
49	7D	49		'	B4	4D	96	EOA Ⓢ	(
4A	85	29		e	B7	6D	F6		-
4C	34	19	PN		B8	5C	8E		*
4F	04	(79)	PF		BB	6B	[EE]		,
51	4B	45		.	BE	27	[BE]	PRE	
52	95	25		n	C0	40	[81]	SP	
54	A9	15		z	C3	D1	E1		J
58	F6	0D		6	C5	D6	D1		O
5B	98	6D		q	C6	D3	B1		L
5D	16	5D	BS		C9	7F	C9		"
5E	26	[3D]	EOB Ⓢ		CA	C5	A9		E
61	94	43		m	D1	4B	(C5)		.
62	A7	23		x	D2	D5	A5		N
64	F0	13		0	D4	E9	95		Z

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PDF Code	S/370 Code	Correspondence			PDF Code	S/370 Code	Correspondence		
		Line Code	Control Character	Graphics Character			Line Code	Control Character	Graphics Character
D8	4C	8D		¢	ED	15	[DB]	LF CR	
DB	D8	ED		Q	EE	25	[BB]	Attn	
DD	16	[DD]	BS		F0	7B	87		#
E1	D4	C3		M	87	6F	F0		?
E4	5D	93		)	F3	C6	E7		F
E2	E7	A3		X	F5	E6	D7		W
E7	E8	F3		Y	F6	C2	B7		B
E8	50	8B		&	F9	C1	CF		A
EB	3F	(EB)	EOT ©		FA	C3	AF		C
EB	79	EB			FC	37	[9F]	EOT ©	
ED	14	[DB]	RES						

Note:
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Correspondence Character Code 2

PDF Code	S/370 Code	Correspondence			PDF Code	S/370 Code	Correspondence		
		Line Code	Control Character	Graphics Character			Line Code	Control Character	Graphics Character
01	5A	40	Ⓝ	!	67	A8	73		v
02	A3	20		t	68	F7	0B		7
04	F4	10		4	6B	5E	6B		;
07	61	70		/	6D	0D	(5B)	LF CR	
08	F5	08		5	6D	15	5B	LF CR	
0B	97	68		p	6E	25	3B	Index	
0D	14	58	RES		70	F3	07		3
0E	24	38	BYP		73	86	67		f
10	F2	04		2	75	A6	57		w
13	7E	64		=	76	82	37	Ⓢ	b
19	89	4C		i	79	81	4F		a
1A	92	2C		k	7A	83	2F		c
1C	36	1C	UC		7C	37	1F	EOT Ⓞ	
1F	06	7C	LC		7F	07	[7F]	LC	
20	F1	02		1	81	6E	C0	Ⓝ	
23	87	62		g	82	E3	A0		T
25	A2	52		s	84	5B	90		\$
26	88	32		h	88	6C	88		%
29	99	4A		r	8B	D7	E8		P
2A	84	2A		d	8E	24	[B8]	BYP	
2C	35	1A	RS		90	7C	84		@
2F	05	7A	Tab		93	4E	E4		+
31	A5	46		v	99	C9	CC		|
32	A4	26		u	9A	D2	AC		K
34	F9	16	EOA Ⓞ	g	9C	36	[9C]	UC	
37	60	76	Ⓢ	-	9F	06	[FC]	LC	
38	F8	0E		8	A0	4F	82		±
3B	6B	6E		,	A3	C7	E2		G
3D	17	5E	IL		A5	E2	D2		S
3D	32	(5E)	PRE		A6	C8	B2		H
3E	27	3E	PRE		A9	D9	CA		R
40	40	01	SP		AA	C4	AA		D
43	91	61		j	AF	05	[FA]	Tab	
45	96	51		o	B1	E5	C6		V
46	93	31		|	B2	E4	A6		U
49	7D	49		'	B4	4D	96	EOA Ⓞ	(
4A	85	29		e	B7	6D	F6		-
4C	34	19	PN		B8	5C	8E		*
4F	04	(79)	PF		BB	12	EE		,
51	4B	45			BE	27	[BE]	PRE	
52	95	25		n	C0	40	[81]	SP	
54	A9	15		z	C3	D1	E1		J
58	F6	0D		6	C5	D6	D1		O
5B	98	6D		q	C6	D3	B1		L
5D	16	5D	BS		C9	7F	C9		"
5E	26	[3D]	EOB Ⓞ		CA	C5	A9		F
61	94	43		m	D1	4B	(C5)		.
62	A7	23		x	D2	D5	A5		N
64	F0	13		0	D4	E9	95		Z

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PDF Code	S/370 Code	Correspondence			PDF Code	S/370 Code	Correspondence		
		Line Code	Control Character	Graphics Character			Line Code	Control Character	Graphics Character
D8	4C	8D		ø	ED	15	[DB]	LF CR	
DB	D8	ED		O	EE	25	[BB]	Attn	
DD	16	[DD]	BS		F0	7B	87		#
E1	D4	C3		M	87	6F	F0		?
E4	5D	93		)	F3	C6	E7		F
E2	E7	A3		X	F5	E6	D7		W
E7	E8	F3		Y	F6	C2	B7		B
E8	50	8B		&	F9	C1	CF		A
EB	3F	(EB)	EOT ©		FA	C3	AF		C
EB	79	EB			FC	37	[9F]	EOT ©	
ED	14	[DB]	RES						

Note:
 [] = In only.
 () = Out only.

EBCD Character Code

PDF Code	S/370 Code	EBCD			PDF Code	S/370 Code	EBCD		
		Line Code	Control Character	Graphics Character			Line Code	Control Character	Graphics Character
01	60	40	(N)	-	62	61	23	/	
02	7C	20		,	64	F9	13	9	
04	F8	10		8	67	89	73	i	
07	88	70		h	68	F5	0B	5	
08	F4	08		4	6B	85	6B	e	
0B	84	68		d	6D	0D	(5B)		
0D	0F	(58)	RES		6D	15	5B		
0D	14	58	RES		6E	25	38		
0E	0E	(38)	BYP		70	F3	07	3	
0E	24	38	BYP		73	83	67	c	
10	F2	04		2	75	5B	57	\$	
13	82	64		b	76	01	(37)		
15	D0	54	MZ		76	6B	37	.	
16	E0	34	RM	±	79	97	4F	p	
19	96	4C		o	7A	A7	2F	x	
1A	A6	2C		w	7C	37	1F		
1C	36	1C	UC		7F	07	[7F]		
1F	06	7C	LC		81	6D	C0	(N)	
20	F1	02		1	82	4A	A0	ø	
23	81	62		a	84	5C	90	'	
25	99	52		r	87	C8	F0	H	
26	A9	32		z	88	7A	88	:	
29	95	4A		n	8B	C4	E8	D	
2A	A5	2A		v	8D	14	[D8]		
2C	35	[1A]	RS		8E	24	[B8]		
2F	05	7A	HT		90	4C	84	<	
31	93	46		l	93	C2	E4	B	
32	A3	26		t	99	D6	CC	O	
34	02	(16)	EOA (D)	#	9A	E6	AC	W	
34	7B	16	EOA (D)	#	9C	36	[9C]		
37	4B	76	(V)	.	9F	06	[FC]		
38	F7	0E		7	A0	7E	82	=	
3B	87	6E		g	A3	C1	E2	A	
3D	00	(5E)	IL		A5	D9	D2	R	
3D	17	5E	IL		A6	E9	B2	Z	
3D	32	(5E)	IL		A9	D5	CA	N	
3E	27	3E	PRE		AA	E5	AA	V	
40	40	01	SP		AC	35	[9A]		
43	50	61		&	AF	05	[FA]		
45	98	51		q	B1	D3	C6	L	
46	A8	31		y	B2	E3	A6	T	
49	94	49		m	B4	7F	96	"	
4A	A4	29		u	B7	5F	F6	.	
4C	34	[19]	PN		B8	6E	8E	>	
4F	04	79	PF		BB	C7	EE	G	
51	92	45		k	BD	17	[DE]		
52	A2	25		s	BE	27	[BE]		
54	F0	15		0	C0	40	[81]		
57	C0	75	PZ		C3	4E	E1	+	
58	F6	0D		6	C5	D8	D1	O	
5B	86	6D		f	C6	E8	81	Y	
5D	16	5D	BS		C9	D4	C9	M	
5E	03	(3D)	EOB (B)		CA	E4	A9	U	
5E	26	[3D]	EOB (B)		CC	34	[99]		
61	91	43		j	CF	04	[49]		

Note:

[] = In only.
 () = Out only.

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PDF Code	S/370 Code	EBCD			PDF Code	S/370 Code	EBCD		
		Line Code	Control Character	Graphics Character			Line Code	Control Character	Graphics Character
D1	D2	C5		K	EB	C5	EB		E
D2	E2	A5		S	ED	15	[DB]	NL	
D4	5D	95		)	EE	25	[BB]	LF	
D8	7D	8D		'	F0	5E	87		;
DB	C6	ED		F	F3	C3	E7		C
DD	16	[DD]	BS		F5	5A	D7		!
DE	26	[BD]	EOB Ⓟ		F6	4F	B7	Ⓢ	|
E1	D1	C3		J	F9	D7	CF		P
E2	6F	A3		?	FA	E7	AF		X
E4	4D	93		(	FC	37	[9F]	EOT Ⓒ	
E7	C9	F3		|	FF	07	[FF]	DEL	
E8	6C	8B		%					

Note: [] = In only.

EBCDIC Character Code

PDF Code	S/370 Code	EBCDIC			PDF Code	S/370 Code	EBCDIC		
		Line Code	Control Character	Graphics Character			Line Code	Control Character	Graphics Character
00		00	NUL		5A		5A	!	
01		01	SOH		5B		5B	\$	
02		02	STX		5C		5C	*	
03		03	ETX		5D		5D)	
04		04	PF		5E		5E	;	
05		05	HT		5F		5F	-	
06		06	LC		60		60	-	
07		07	DEL		61		61	/	
0A		0A	SMM		6B		6B	.	
0B		0B	VT		6C		6C	%	
0C		0C	FF		6D		6D	-	
0D		0D	CR		6E		6E	>	
0E		0E	SO		6F		6F	?	
0F		0F	SI		7A		7A	:	
10		10	DLE		7B		7B	#	
11		11	DC1		7C		7C	@	
12		12	DC2		7D		7D	'	
13		13	DC3		7E		7E	=	
14		14	RES		7F		7F	"	
15		15	NL		81		81	a	
16		16	BS		82		82	b	
17		17	IL		83		83	c	
18		18	CAN		84		84	d	
19		19	EM		85		85	e	
1A		1A	CC		86		86	f	
1C	S	1C	IFS		87		87	g	
1D	A	1D	IGS		88		88	h	
1E	M	1E	IRS		89		89	i	
1F	E	1F	IUS(ITB)		91		91	j	
20		20	DS		92		92	k	
21	A	21	SOS		93		93	l	
22	S	22	FS		94		94	m	
24		24	BYP		95		95	n	
25	P	25	LF		96		96	o	
26	D	26	EOB/ETB		97		97	p	
27	F	27	PRE/ESC		98		98	q	
2A		2A	SM		99		99	r	
2D	C	2D	ENQ		A2		A2	s	
2F	O	2F	BEL		A3	S	A3	t	
32		32	SYN		A4	A	A4	u	
34	E	34	PN		A5	M	A5	v	
35		35	RS		A6	E	A6	w	
36		36	UC		A7		A7	x	
37		37	EOT		A8	A	A8	y	
3C		3C	DC4		A9	S	A9	z	
3D		3D	NAK		C1		C1	A	
3F		3F	SUB		C2	P	C2	B	
40		40	SP		C3	D	C3	C	
4A		4A		¢	C4	F	C4	D	
4B		4B		.	C5		C5	E	
4C		4C		<	C6	C	C6	F	
4D		4D		(	C7	O	C7	G
4E		4E		+	C8	D	C8	H	
4F		4F		|	C9	E	C9	I	
50		50		&	D1		D1	J	

PDF Code	S/370 Code	EBCDIC			PDF Code	S/370 Code	EBCDIC		
		Line Code	Control Character	Graphics Character			Line Code	Control Character	Graphics Character
D2		D2		K	E7		E7		X
D3		D3		L	E8		E8		Y
D4		D4		M	E9		E9		Z
D5		D5		N	F0		F0		0
D6		D6		O	F1		F1		1
D7		D7		P	F2		F2		2
D8		D8		Q	F3		F3		3
D9		D9		R	F4		F4		4
E2		E2		S	F5		F5		5
E3		E3		T	F6		F6		6
E4		E4		U	F7		F7		7
E5		E5		V	F8		F8		8
E6		E6		W	F9		F9		9

ITA2 Character Code

PDF Code	S/370 Code	ITA2			PDF Code	S/370 Code	ITA2		
		Line Code	Control Character	Graphics Character			Line Code	Control Character	Graphics Character
01	85	(10)		E	18	96	(03)		O
01	C5	10		E	18	D6	03		O
02	25	08	LF		19	82	(13)		B
02	5	[88]	LF		19	C2	13		B
03	81	(18)		A	1A	87	(0B)		G
03	C1	18		A	1A	C7	0B		G
04	40	04	SP		1B	26	(1B)	FIGS	
04	40	[84]	SP		1B	36	1B	FIGS	
05	A2	(14)		S	1C	94	(07)		M
05	E2	14		S	1C	D4	07		M
06	89	(0C)		I	1D	A7	(17)		X
06	C9	0C		I	1D	E7	17		X
07	A4	(1C)		U	1E	A5	(0F)		V
07	E4	1C		U	1E	E5	0F		V
08	03	(02)	CR		1F	00	(1F)	LTRS	
08	0D	02	CR		1F	06	1F	LTRS	
08	0D	(82)	CR		1F	07	(1F)	LTRS	
08	15	(02)	CR		1F	17	(1F)	LTRS	
09	84	(12)		D	1F	32	(1F)	LTRS	
09	C4	12		D	1F	37	(1F)	LTRS	
0A	99	(0A)		R	1F	38	(1F)	LTRS	
0A	D9	0A		R	1F	3F	(1F)	LTRS	
0B	91	(1A)		J	81	F3	90		3
0B	D1	1A		J	83	60	98		-
0C	95	(06)		N	85	7D	94		'
0C	D5	06		N	86	F8	8C		8
0D	86	(16)		F	87	F7	9C		7
0D	C6	16		F	89	2D	92	WRU	
0E	83	(0E)		C	8A	F4	8A		4
0E	C3	0E		C	8B	2A	(1A)	BELL	
0F	92	(1E)		K	8B	2F	(9A)	BELL	
0F	D2	1E		K	8C	6B	86		,
10	A3	(01)		T	8E	7A	8E		:
10	E3	01		T	8F	4D	9E		(
11	A9	(11)		Z	90	F5	81		5
11	E9	11		Z	91	4E	91		+
12	93	(09)		L	92	5D	89)
12	D3	09		L	93	F2	99		2
13	A6	(19)		W	95	F6	95		6
13	E6	19		W	96	F0	8D		0
14	88	(05)		H	97	F1	9D		1
14	C8	05		H	98	F9	83		9
15	A8	(15)		Y	99	6F	93		?
15	E8	15		Y	9B	36	[9B]	FIGS	
16	97	(0D)		P	9C	4B	(87)		.
16	D7	0D		P	9D	61	97		/
17	98	(1D)		Q	9E	7E	8F		=
17	D8	1D		Q	9F	06	[9F]	LTRS	

Note:
 [] = In only.
 () = Out only.

Katakana Character Code

PDF Code	S/370 Code	KATAKANA			PDF Code	S/370 Code	KATAKANA		
		Line Code	Control Character	Graphics Character			Line Code	Control Character	Graphics Character
01	A3	40		ホ	64	AC	13		ヨ
02	BE	20		ッ	67	97	73		ニ
04	AA	10		ィ	68	84	0B		イ
07	88	70		フ	6B	82	6B		イ
08	83	08		ワ	6D	0D	(5B)	CR/LF	
0B	8D	68		ツ	6D	15	5B	CR/LF	
0D	14	58			6E	25	3B	LF	
0E	24	38	RES		70	81	07		
10	9F	04	BYP		73	90	67		ァ
13	8A	64		フ	75	BA	57		ソ
19	AD	4C		コ	76	01	(37)		レ
1A	94	2C		ラ	76	99	37	SOA	
1C	36	1C		テ	79	8F	4F		ネ
1F	06	7C	UC		7A	8C	2F		セ
20	98	02	LC		7C	37	1F		ッ
23	92	62		ヌ	7F	07	7F	EOT	
25	8E	52		チ	7F	DF	(7F)	DEL	
26	93	32		ス	81	60	C0	PAD	
29	A5	4A		ツ	82	BF	A0		.
2A	9E	2A		ミ	84	F8	90		。
2C	35	1A		ミ	87	C8	F0		8
2F	05	7A		ミ	88	F4	88		H
31	AE	46	RSTP		8B	C4	E8		4
32	86	26	HT		8D	14	[D8]		D
34	89	16		リ	8E	24	[B8]	RES	
37	AF	76		カ	90	F2	84	BYP	
38	A9	0E		ケ	93	C2	E4		2
3B	87	6E		ル	99	D6	CC		B
3D	17	5E		キ	9A	E6	AC		O
3D	32	(5E)			9C	36	[9C]		W
3E	0B	(3E)	IDLE		9F	06	[FC]		
3E	27	3E	IDLE		A0	F1	82	UC	
40	0B	(01)	VT*		A3	C1	E2	LC	1
40	40	01	PRE		A5	D9	D2		A
43	A2	61	VT*		A6	E9	B2		R
45	91	51	SP		A9	D5	CA		Z
46	BD	31		ハ	AA	E5	AA		N
49	A8	49		ン	AC	35	[9A]		V
4A	96	29		モ	AF	05	[FA]		
4C	34	(19)			B1	D3	C6		
4F	1A	(79)			B2	E3	A6	RSTP	L
51	9A	45			B4	BB	96	HT	T
52	95	25	PN		B7	4B	F6		
54	BC	15	PF		B8	F7	8E		
58	85	0D		ノ	BA	E7	AE		ウ
5B	9D	6D		ト	BB	C7	EE		X
5D	16	5D		フ	BD	17	[DE]		G
5E	03	(3D)		オ	BD	26	[BD]		
5E	26	3D		ハ	BE	27	[BE]		
61	A4	43	BKSP		C0	40	[81]	IDLE	
62	A7	23	EOB		C3	5C	E1	EOB	*
			EOB					PRE	
				マ				SP	
				メ					

Note:
 [] = In only.
 () = Out only.
 *Two-character sequence.

PDF Code	S/370 Code	KATAKANA			PDF Code	S/370 Code	KATAKANA		
		Line Code	Control Character	Graphics Character			Line Code	Control Character	Graphics Character
C5	D8	D1		Q	E7	C9	F3		|
C6	E8	B1		Y	E8	F5	8B		5
C9	D4	C9		M	EB	C5	EB		E
CA	E4	A9		U	ED	15	[DB]	CR/LF	
D1	D2	C5		K	EE	25	[BB]	LF	
D2	E2	A5		S	F0	F3	87		3
D4	F0	95		0	F3	C3	E7		C
D8	F6	8D		6	F5	A6	D7		∠
DB	C6	ED		F	F6	68	B7		,
DD	16	[DD]	BKSP		F9	D7	CF		P
E1	D1	C3		J	FC	37	[9F]	EOT	
E2	5B	A3		¥	FF	07	[FF]	DEL	
E4	F9	93		9					

Note: [] = In only.

Data Interchange Code (DIC) for TWX with Even Parity

PDF Code	EBCDIC S/370 Code	DIC			PDF Code	EBCDIC S/370 Code	DIC		
		Line Code	Control Character	Graphics Character			Line Code	Control Character	Graphics Character
00	14	(00)	NUL		55	A4	(AA)		U
00	24	(00)	NUL		56	E5	6A		V
03	03	(C0)	ETX		56	A5	(6A)		V
05	2D	A0	WRU		59	E8	9A		Y
06	2E	60	ACK		59	A8	(9A)		Y
09	05	90	HT		5A	E9	5A		Z
0A	15	50	LF	(note 4)	5A	A9	(5A)		Z
0A	25	50	LF	(note 5)	5C	E1	(3A)		\
0C	0C	30	FF		5F	16	FA	(note 8)	← or —
0F	0F	F0	SI		5F	6D	FA	(note 9)	← or —
11	11	88	X-on		84	37	(21)	EOT	
(11/FF)	38				87	2F	E1	BEL	
12	34	48	TP Aux ON		8B	0B	D1	VT	
14	04	28	TP Aux OFF	F	8D	0D	B1	CR	(note 6)
18	18	[18]	CTRL X	(note 7)	8D	26	(B1)	CR	
21	5A	84		!	8E	0E	71	SO	
22	7F	44		"	93	3C	C9	X off	
24	5B	24		\$	A0	40	05	SP	
27	7D	E4		'	A3	7B	C5		#
28	4D	14		(	A5	6C	A5		%
2B	4E	D4		+	A6	50	65		&
2D	60	B4		-	A9	5D	95)
2E	4B	74		.	AA	5C	55		*
30	F0	0C		0	AC	6B	35		.
33	F3	CC		3	AF	61	F5		/
35	F5	AC		5	B1	F1	8D		1
36	F6	6C		6	B2	F2	4D		2
39	F9	9C		9	B4	F4	2D		4
3A	7A	5C		:	B7	F7	ED		7
3C	4C	3C		<	B8	F8	1D		8
3F	6F	FC		?	BB	5E	DD		;
41	C1	82		A	BD	7E	BD		=
41	81	(82)		A	BE	6E	7D		>
42	C2	42		B	C0	7C	03		@
42	82	(42)		B	C3	C3	C3		C
44	C4	22		D	C3	83	(C3)		C
44	84	(22)		D	C5	C5	A3		E
47	C7	E2		G	C5	85	(A3)		E
47	87	(E2)		G	C6	C6	63		F
48	C8	12		H	C6	86	(63)		F
48	88	(12)		H	C9	C9	93		I
4B	D2	D2		K	C9	89	(93)		I
4B	92	(D2)		K	CA	D1	53		J
4D	D4	B2		M	CA	91	(53)		J
4D	94	(B2)		M	CC	D3	33		L
4E	D5	72		N	CC	93	(33)		L
4E	95	(72)		N	CF	D6	F3		O
50	D7	0A		P	CF	96	(F3)		O
50	97	(0A)		P	D1	D8	8B		Q
53	E2	CA		S	D1	98	(8B)		Q
53	A2	(CA)		S	D2	D9	4B		R
55	E4	AA		U	D2	99	(4B)		R

Note:
 [] = In only.
 () = Out only.
 See page 12-29 for all notes.

PDF Code	EBCDIC S/370 Code	DIC			PDF Code	EBCDIC S/370 Code	DIC		
		Code	Control Character	Graphics Character			Code	Control Character	Graphics Character
D4	E3	2B		T	FF	00	(FF)		DEL
D4	A3	(2B)		T	FF	07	(FF)		DEL
D7	E6	EB		W	FF	17	(FF)		DEL
D7	A6	(EB)		W	FF	32	(FF)		DEL
D8	E7	1B		X	FF	***	(FF)		DEL
D8	A7	(1B)		X	(FF)	37**			
DB	79	DB		{	(FF/11)	38*			
DD	49	BB		}	(FF)	DF**			
DE	4F	7B		|					

Notes:

() = Out only.

* During transmit, NCP uses the EBCDIC X'38' character for internal control to signal the end-of-data condition (count exhausted). If NCP is currently sending "answer back" or "prompt," it transmits an X-On character (EBCDIC X'11'); otherwise, NCP sets the pad flag to transmit one character time of all mark bits (X'FF').

** NCP sets the pad flag to transmit one character time of all mark bits.

*** Character is not stored.

Data Interchange Code (DIC) for TWX Odd Parity

PDF Code	EBCDIC S/370 Code	DIC			PDF Code	EBCDIC S/370 Code	DIC		
		Code	Control Character	Graphics Character			Code	Control Character	Graphics Character
04	37	{20}	EOT		5E	4F	7A		|
07	2F	E0	BEL		7F	00	(FE)		DEL
0B	0B	D0	VT		7F	07	(FE)		DEL
0D	0D	B0	CR	(note 6)	7F	17	(FE)		DEL
0D	26	{B0}	CR		7F	32	(FE)		DEL
0E	0E	70	SO		7F	***	(FE)		DEL
(11/FF)	38				80	14	(01)	NUL	
13	3C	C8	X-off		80	24	(01)	NUL	
20	40	04	SP		83	03	(C1)	ETX	
23	7B	C4		#	85	2D	A1	WRU	
25	6C	A4		%	86	2E	61	ACK	
26	50	64		&	89	05	91	HT	
29	5D	94		)	8A	15	51	LF	(note 4)
2A	5C	54		*	8A	25	51	LF	(note 5)
2C	6B	34		,	8C	0C	31	FF	
2F	61	F4		/	8F	0F	F1	SI	
31	F1	8C		1	91	11	89	X on	
32	F2	4C		2	92	34	49	TP Aux On	
34	F4	2C		4	94	04	29	TP Aux Off	
37	F7	EC		7	98	18	{19}	CTRL X	(note 7)
38	F8	1C		8	A1	5A	85	!	
3B	5E	DC		;	A2	7F	45	"	
3D	7E	BC		=	A4	5B	25	\$	
3E	6E	7C		>	A7	7D	E5	'	
40	7C	02		@	A8	4D	15	(
43	C3	C2		C	AB	4E	D5	+	
43	83	(C2)		C	AD	60	B5	-	
45	C5	A2		E	AE	4B	75	.	
45	85	(A2)		E	B0	F0	0D	0	
46	C6	62		F	B3	F3	CD	3	
46	86	(62)		F	B5	F5	AD	5	
49	C9	92		I	B6	F6	6D	6	
49	89	(92)		I	B9	F9	9D	9	
4A	D1	52		J	BA	7A	5D	:	
4A	91	(52)		J	BC	4C	3D	<	
4C	D3	32		L	BF	6F	FD	?	
4C	93	(32)		L	C1	C1	83	A	
4F	D6	F2		O	C1	81	(83)	A	
4F	96	(F2)		O	C2	C2	43	B	
51	D8	8A		Q	C2	82	(43)	B	
51	98	(8A)		Q	C4	C4	23	D	
52	D9	4A		R	C4	84	(23)	D	
52	99	(4A)		R	C7	C7	E3	G	
54	E3	2A		T	C7	87	(E3)	G	
54	A3	(2A)		T	C8	C8	13	H	
57	E6	EA		W	C8	88	(13)	H	
57	A6	(EA)		W	CB	D2	D3	K	
58	E7	1A		X	CB	92	(D3)	K	
58	A7	(1A)		X	CD	D4	B3	M	
5B	79	DA		{	CD	94	(B3)	M	
5D	49	BA		}	CE	D5	73	N	

Note:
 [] = In only.
 () = Out only.
 See page 12-29 for all notes.

PDF Code	EBCDIC S/370 Code	DIC			PDF Code	EBCDIC S/370 Code	DIC		
		Code	Control Character	Graphics Character			Code	Control Character	Graphics Character
CE	95	(73)		N	D9	A8	(98)		Y
D0	D7	0B		P	DA	E9	5B		Z
D0	97	(0B)		P	DA	A9	(5B)		Z
D3	E2	CB		S	DC	E1	{3B}		\
D3	A2	(CB)		S	DF	16	FB	(note 8)	← or -
D5	E4	AB		U	DF	6D	FB	(note 9)	← or -
D5	A4	(AB)		U	(FF)	37**			
D6	E5	6B		V	(FF/11)	38*			
D6	A5	(6B)		V	(FF)	DF**			
D9	E8	9B		Y					

Notes:

[] = In only.
() = Out only.

See page 12-29 for all notes.

* During transmit, NCP uses the EBCDIC X'38' character for internal control to signal the end-of-data condition (count exhausted). If NCP is currently sending "answer back" or "prompt," it transmits an X-On character (EBCDIC X'11'); otherwise, NCP sets the pad flag to transmit one character time of all mark bits (X'FF').

** NCP sets the pad flag to transmit one character time of all mark bits.

*** Character is not stored.

Data Interchange Code (DIC) for TWX with Mark Parity

PDF Code	EBCDIC S/370 Code	DIC			PDF Code	EBCDIC S/370 Code	DIC		
		Code	Control Character	Graphics Character			Code	Control Character	Graphics Character
80	14	(01)	NUL		BB	5E	DD		:
80	24	(01)	NUL		BC	4C	3D		<
83	03	(C1)	ETX		BD	7E	BD		=
84	37	{21}	EOT		BE	6E	7D		>
85	2D	A1	WRU		BF	6F	FD		?
86	2E	61	ACK		C0	7C	03		@
87	2F	E1	BEL		C1	C1	83		A
89	05	91	HT		C1	81	(83)		A
8A	15	51	LF	(note 4)	C2	C2	43		B
8A	25	51	LF	(note 5)	C2	82	(43)		B
8B	0B	D1	VT		C3	C3	C3		C
8C	0C	31	FF		C3	83	(C3)		C
8D	0D	B1	CR	(note 6)	C4	C4	23		D
8D	26	{B1}	CR		C4	84	(23)		D
8E	0E	71	SO		C5	C5	A3		E
8F	0F	F1	SI		C5	85	(A3)		E
91	11	89	X on		C6	C6	63		F
(11/FF)	38*				C6	86	(63)		F
92	34	49	TP Aux On		C7	C7	E3		G
93	3C	C9	X off		C7	87	(E3)		G
94	04	29	TP Aux Off		C8	C8	13		H
98	18	{19}	CTRL X	(note 7)	C8	88	(13)		H
A0	40	05	SP		C9	C9	93		I
A1	5A	85		!	C9	89	(93)		I
A2	7F	45		"	CA	D1	53		J
A3	7B	C5		=	CA	91	(53)		J
A4	5B	25		\$	CB	D2	D3		K
A5	6C	A5		%	CB	92	(D3)		K
A6	50	65		&	CC	D3	33		L
A7	7D	E5			CC	93	(33)		L
A8	4D	15		(	CD	D4	B3		M
A9	5D	95		)	CD	94	(B3)		M
AA	5C	55		*	CE	D5	73		N
AB	4E	D5		+	CE	95	(73)		N
AC	6B	35		'	CF	D6	F3		O
AD	60	B5		-	CF	96	(F3)		O
AE	4B	75		.	D0	D7	0B		P
AF	61	F5		/	D0	97	(0B)		P
B0	F0	0D		0	D1	D8	8B		Q
B1	F1	8D		1	D1	98	(8B)		Q
B2	F2	4D		2	D2	D9	48		R
B3	F3	CD		3	D2	99	(48)		R
B4	F4	2D		4	D3	E2	CB		S
B5	F5	AD		5	D3	A2	(CB)		S
B6	F6	6D		6	D4	E3	2B		T
B7	F7	ED		7	D4	A3	(2B)		T
B8	F8	1D		8	D5	E4	AB		U
B9	F9	9D		9	D5	A4	(AB)		U
BA	7A	5D		:	D6	E5	6B		V

Note:
 [] = In only.
 () = Out only.
 See page 12-29 for all notes.

PDF Code	EBCDIC S/370 Code	DIC			PDF Code	EBCDIC S/370 Code	DIC		
		Code	Control Character	Graphics Character			Code	Control Character	Graphics Character
D6	A5	(6B)		V	DE	4F	7B]
D7	E6	EB		W	DF	16	FB		← or -
D7	A6	(EB)		W	DF	6D	FB	(note 8)	← or -
D8	E7	1B		X	FF	00	(FF)	(note 9)	DEL
D8	A7	(1B)		X	FF	07	(FF)		DEL
D9	E8	9B		Y	FF	17	(FF)		DEL
D9	A8	(9B)		Y	FF	32	(FF)		DEL
DA	E9	5B		Z	FF	***	[FF]		DEL
DA	A9	(5B)		Z	(FF)	37**			
DB	79	DB		{	(FF/11)	38*			
DC	E1	(3B)		\	(FF)	DF**			
DD	49	BB		}					

Notes:

[] = In only.
() = Out only.

See page 12-29 for all notes..

* During transmit, NCP uses the EBCDIC X'38' character for internal control to signal the end-of-data condition (count exhausted). If NCP is currently sending "answer back" or "prompt," it transmits an X-On character (EBCDIC X'11'); otherwise, NCP sets the pad flag to transmit one character time of all mark bits (X'FF').

** NCP sets the pad flag to transmit one character time of all mark bits.

*** Character is not stored.

Data Interchange Code (DIC) for TWX with Space Parity

PDF Code	EBCDIC S/370 Code	DIC			PDF Code	EBCDIC S/370 Code	DIC		
		Code	Control Character	Graphics Character			Code	Control Character	Graphics Character
00	14	(01)	NUL		3A	7A	5D	:	
00	24	(01)	NUL		3B	5E	DD	:	
03	03	(C1)	ETX		3C	4C	3D	<	
04	37	[21]	EOT		3D	7E	BD	=	
05	2D	A1	WRU		3E	6E	7D	>	
06	2E	61	ACK		3F	6F	FD	?	
07	2F	E1	BEL		40	7C	03	@	
09	05	91	HT		41	C1	83	A	
0A	15	51	LF	(note 4)	41	81	(83)	A	
0A	25	51	LF	(note 5)	42	C2	43	B	
0B	0B	D1	VT		42	82	(43)	B	
0C	0C	31	FF		43	C3	C3	C	
0D	0D	B1	CR	(note 6)	43	83	(C3)	C	
0D	26	(B1)	CR		44	C4	23	D	
0E	0E	71	SO		44	84	(23)	D	
0F	0F	F1	SI		45	C5	A3	E	
11	11	89	X on		45	85	(A3)	E	
11/7F	38*				46	C6	63	F	
12	34	49	TP Aux On		46	86	(63)	F	
13	3C	C9	X off		47	C7	E3	G	
14	04	29	TP Aux Off		47	87	(E3)	G	
18	18	[19]	CTRL X	(note 7)	48	C8	13	H	
20	40	05	SP		48	88	(13)	H	
21	5A	85		!	49	C9	93	I	
22	7F	45		"	49	89	(93)	I	
23	7B	C5		=	4A	D1	53	J	
24	5B	25		\$	4A	91	(53)	J	
25	6C	A5		%	4B	D2	D3	K	
26	50	65		&	4B	92	(D3)	K	
27	7D	E5			4C	D3	33	L	
28	4D	15		(	4C	93	(33)	L
29	5D	95		)	4D	D4	B3	M
2A	5C	55		*	4D	94	(B3)	M	
2B	4E	D5		+	4E	D5	73	N	
2C	6B	35		'	4E	95	(73)	N	
2D	60	B5		-	4F	D6	F3	O	
2E	48	75		.	4F	96	(F3)	O	
2F	61	F5		/	50	D7	0B	P	
30	F0	0D		0	50	97	(0B)	P	
31	F1	8D		1	51	D8	8B	Q	
32	F2	4D		2	51	98	(8B)	Q	
33	F3	CD		3	52	D9	4B	R	
34	F4	2D		4	52	99	(4B)	R	
35	F5	AD		5	53	E2	CB	S	
36	F6	6D		6	53	A2	(CB)	S	
37	F7	ED		7	54	E3	2B	T	
38	F8	1D		8	54	A3	(2B)	T	
39	F9	9D		9	55	E4	AB	U	

Note:

[] = In only.
 () = Out only.

See page 12-29 for all notes.

PDF Code	EBCDIC S/370 Code	DIC			PDF Code	EBCDIC S/370 Code	DIC		
		Code	Control Character	Graphics Character			Code	Control Character	Graphics Character
55	A4	(AB)		U	5D	49	BB]
56	E5	6B		V	5E	4F	7B		|
56	A5	(6B)		V	5F	16	FB	(note 8)	← or -
57	E6	EB		W	5F	6D	FB	(note 9)	← or -
57	A6	(EB)		W	7F	00	(FF)		DEL
58	E7	1B		X	7F	07	(FF)		DEL
58	A7	(1B)		X	7F	17	(FF)		DEL
59	E8	9B		Y	7F	32	(FF)		DEL
59	A8	(9B)		Y	7F	***	[FF]		DEL
5A	E9	5B		Z	7F	37**			
5A	A9	(5B)		Z	7F/11	38*			
5B	79	DB		[	7F	DF**			
5C	E1	[3B]		\					

Notes:

[] = In only.
() = Out only.

See page 12-29 for all notes.

* During transmit, NCP uses the EBCDIC X'38' character for internal control to signal the end-of-data condition (count exhausted). If NCP is currently sending "answer back" or "prompt," it transmits an X-On character (EBCDIC X'11'); otherwise, NCP sets the pad flag to transmit one character time of all mark bits (X'FF').

** NCP sets the pad flag to transmit one character time of all mark bits.

*** Character is not stored.

Notes for All Data Interchange Code Tables

Notes:

1. The user specifies the parity of the transmitted data as (1) even parity, (2) odd parity, (3) mark parity (parity bit always a 1), or (4) space parity (parity bit always a 0) by coding the PARGEN keyword of the GROUP definition statement. A table is provided for each type of parity specified. Normally TWX parity is even.
2. The three DIC translate tables apply to both DIC1 and DIC3 character sets except where noted. The DIC1 translate tables are associated with all TWX lines for which CODE=DIC1 is specified on the LINE definition statement or corresponding GROUP or MTALCST definition statement. The DIC3 translate tables are associated with all TWX lines for which CODE=DIC3 is specified on the MTALCST definition statement, LINE definition statement, or corresponding GROUP statement. The receive and transmit tables are shown on the same DIC table. Receive only (IN) entries are enclosed by [] while transmit only (OUT) entries are enclosed by (). Entries that apply to both receive and transmit are not enclosed.
3. The transmit DIC1 and DIC3 tables translate all EBCDIC code values between X'00' and X'FF' that are not shown, or noted, to a TWX colon, the same as the translation of the EBCDIC colon (X'7A'). The receive DIC1 and DIC3 tables translate all TWX code values not shown in the PDF code, or noted, to an EBCDIC semicolon (X'5F'), the same as the translation of a TWX semicolon.
4. The DIC3 receive translate table translates the TWX linefeed character to an EBCDIC newline character (X'15'). The DIC1 and DIC3 transmit translate tables translate the EBCDIC newline character to a TWX linefeed character.
5. The DIC1 receive translate table translates the TWX linefeed character to an EBCDIC linefeed character (X'25'). The DIC1 and DIC3 transmit translate tables translate the EBCDIC linefeed character to a TWX linefeed character.
6. The receive DIC1 and DIC3 translate tables translate the TWX carriage return (CR) character to an EBCDIC CR character (X'0D'). In addition, the DIC3 table treats the CR the same as X-Off (see note 7).
7. The receive DIC1 translate table translates the TWX CTRL-X character to an EBCDIC semicolon (X'5E'). The receive DIC3 translate table translates the TWX CTRL-X character to an EBCDIC Cancel (X'18') and treats the CTRL-X the same as X-Off. (If the CHAREC keyword of the GROUP definition statement specifies CTRL-X as an end control character, the CTRL-X ends the receive type command with EOT received status. If CHAREC specifies CTRL-X is not to be recognized as an end-control character, CTRL-X is treated as data.)
8. The DIC3 receive translate table translates the TWX backarrow character (underscore on some TWX terminals) to an EBCDIC backspace character (X'16').
9. The DIC1 receive translate table translates the TWX backarrow character (underscore on some TWX terminals) to an EBCDIC underscore character (X'6D').

ASCII Character Code for TWX with Even Parity

See notes 1 and 2 on page 12-38.

PDF Code	EBCDIC Code (NCP only)	ASCII		PDF Code	EBCDIC Code (NCP only)	ASCII	
		Control Character	Graphics Character			Control Character	Graphics Character
00	00	NUL		6C	93		|
03	03	ETX		6F	96		o
05	2D	ENQ		71	98		q
06	2E	ACK		72	99		r
09	05	HT		74	A3		t
0A	15	LF		77	A6		w
0A	25	LF		78	A7		x
0C	0C	FF		7B	C0		{
0F	0F	SI		7D	D0		}
11	11	DC1		7E	A1		~
(11/FF)	38*			81	01	SOH	
12	12	DC2		82	02	STX	
14	3C	DC4		84	37†††	EOT	
17	26	ETB		87	2F	BEL	
18	18	CAN		88	16	BS	
1B	27	ESC		8B	0B	VT	
1D	1D	GS		8D	0D	CR	
1E	1E	RS		8E	0E	SO	
21	4F		!	90	10	DLE	
22	7F		"	93	13	DC3	
24	5B		\$	95	3D	NAK	
27	7D		'	96	32	SYN	
28	4D		(	99	19	EM	
2B	4E		+	9A	3F	SUB	
2D	60		-	9C	1C	FS	
2E	4B		.	9F	1F	US	
30	F0		0	A0	40	SP	
33	F3		3	A3	7B		#
35	F5		5	A5	6C		%
36	F6		6	A6	50		&
39	F9		9	A9	5D)
3A	7A		:	AA	5C		*
3C	4C		<	AC	6B		,
3F	6F		?	AF	61		/
41	C1		A	B1	F1		1
42	C2		B	B2	F2		2
44	C4		D	B4	F4		4
47	C7		G	B7	F7		7
48	C8		H	B8	F8		8
4B	D2		K	BB	5E		;
4D	D4		M	BD	7E		=
4E	D5		N	BE	6E		>
50	D7		P	C0	7C		@
53	E2		S	C3	C3		C
55	E4		U	C5	C5		E
56	E5		V	C6	C6		F
59	E8		Y	C9	C9		I
5A	E9		Z	CA	D1		J
5C	E0		\	CC	D3		L
5F	6D†		←	CF	D6		O
60	79		'	D1	D8		Q
63	83		c	D2	D9		R
65	85		e	D4	E3		T
66	86		f	D7	E6		W
69	89		i	D8	E7		X
6A	91		j	DB	4A		[

Note: () = Out only.

See notes 1 and 2 on page 12-38.

PDF Code	EBCDIC Code (NCP only)	ASCII		PDF Code	EBCDIC Code (NCP only)	ASCII	
		Control Character	Graphics Character			Control Character	Graphics Character
DD	5A		␣ ^{†††}	F3	A2		s
DE	5F			F5	A4		u
E1	81		a	F6	A5		v
E2	82		b	F9	A8		y
E4	84		d	FA	A9		z
E7	87		g	FC	6A		:
E8	88		h	FF	07††	DEL	
EB	92		k	FF	17	DEL	
ED	94		m	(FF)	00**	NUL	
EE	95		n	(FF)	DF**		
F0	97		p	(FF/11)	38*		

Notes:

() = Out only.

See page 12-38 for all notes.

* During transmit, NCP uses the EBCDIC X'38' character for internal control to signal the end-of-data condition (count exhausted). If NCP is currently sending "answer back" or "prompt," a DC1 character is sent; otherwise, NCP sets the pad flag to transmit one character time of all mark bits (X'FF').

** NCP sets the pad flag to transmit one character time of all mark bits (X'FF').

* This character appears on terminal keyboards as ^ or ~ or ↑.

† EBCDIC underscore.

†† Character is not stored.

††† For the EBCDIC character X'37' (EOT), a X'84' (EOT) is transmitted. If this character is sent, the TWX (33/35) will physically disconnect.

ASCII Character Code for TWX with Odd Parity

See notes 1 and 2 on page 12-38.

PDF Code	EBCDIC Code (NCP only)	ASCII		PDF Code	EBCDIC Code (NCP only)	ASCII	
		Control Character	Graphics Character			Control Character	Graphics Character
01	01	SOH		6E	95		n
02	02	STX		70	97		p
04	37	EOT		73	A2		s
07	2F	BEL		75	A4		u
08	16	BS		76	A5		v
0B	0B	VT		79	A8		y
0D	0D	CR		7A	A9		z
0E	0E	SO		7C	6A		|
10	10	DLE		7F	07††	DEL	
13	13	DC3		7F	17	DEL	
15	3D	NAK		80	00	NUL	
16	32	SYN		83	03	ETX	
19	19	EM		85	2D	ENQ	
1A	3F	SUB		86	2E	ACK	
1C	1C	FS		89	05	HT	
1F	1F	US		8A	15	LF	
20	40	SP		8A	25	LF	
23	7B		#	8C	0C	FF	
25	6C		%	8F	0F	SI	
26	50		&	91	11	DC1	
29	5D		)	(91/FF)	38*		
2A	5C		*	92	12	DC2	
2C	6B		,	94	3C	DC4	
2F	61		/	97	26	ETB	
31	F1		1	98	18	CAN	
32	F2		2	9B	27	ESC	
34	F4		4	9D	1D	GS	
37	F7		7	9E	1E	RS	
38	F8		8	A1	4F		!
3B	5E		:	A2	7F		"
3D	7E		=	A4	5B		\$
3E	6E		>	A7	7D		'
40	7C		@	A8	4D		(
43	C3		C	AB	4E		+
45	C5		E	AD	60		-
46	C6		F	AE	4B		.
49	C9		I	B0	F0		0
4A	D1		J	B3	F3		3
4C	D3		L	B5	F5		5
4F	D6		O	B6	F6		6
51	D8		Q	B9	F9		9
52	D9		R	BA	7A		:
54	E3		T	BC	4C		<
57	E6		W	BF	6F		?
58	E7		X	C1	C1		A
5B	4A		[	C2	C2		B
5D	5A		]	C4	C4		D
5E	5F		^***	C7	C7		G
61	81		a	C8	C8		H
62	82		b	CB	D2		K
64	84		d	CD	D4		M
67	87		q	CE	D5		N
68	88		h	D0	D7		P
6B	92		k	D3	E2		S
6D	94		m	D5	E4		U

Note: () = Out only.

See notes 1 and 2 on page 12-38.

PDF Code	EBCDIC Code (NCP only)	ASCII		PDF Code	EBCDIC Code (NCP only)	ASCII	
		Control Character	Graphics Character			Control Character	Graphics Character
D6	E5		V	EF	96		o
D9	E8		Y	F1	98		q
DA	E9		Z	F2	99		r
DC	E0		\	F4	A3		t
DF	6D†		←	F7	A6		w
E0	79		'	F8	A7		x
E3	83		c	FB	C0		{
E5	85		e	FD	D0		}
E6	86		f	FE	A1		~
E9	89		i	(FF)	00**	NUL	
EA	91		j	(FF)	DF**		
EC	93		l	(FF/91)	38*		

Notes:

() = Out only.

See page 12-38 for all notes.

* During transmit, NCP uses the EBCDIC X'38' character for internal control to signal the end-of-data condition (count exhausted). If NCP is currently sending "answer back" or "prompt," a DC1 character is sent; otherwise, NCP sets the pad flag to transmit one character time of all mark bits (X'FF').

** NCP sets the pad flag to transmit one character time of all mark bits (X'FF').

* This character appears on terminal keyboards as ^ or ~ or †.

† EBCDIC underscore.

†† Character is not stored.

††† For the EBCDIC character X'37' (EOT), a X'84' (EOT) is transmitted. If this character is sent, the TWX (33/35) will physically disconnect.

ASCII Character Code for TWX with Mark Parity

See notes 1 and 2 on page 12-38.

PDF Code	EBCDIC Code (NCP only)	ASCII		PDF Code	EBCDIC Code (NCP only)	ASCII	
		Control Character	Graphics Character			Control Character	Graphics Character
80	00	NUL		B0	F0		0
81	01	SOH		B1	F1		1
82	02	STX		B2	F2		2
83	03	ETX		B3	F3		3
84	37†††	EOT		B4	F4		4
85	2D	ENQ		B5	F5		5
86	2E	ACK		B6	F6		6
87	2F	BEL		B7	F7		7
88	16	BS		B8	F8		8
89	05	HT		B9	F9		9
8A	15	LF		BA	7A		:
8A	25	LF		BB	5E		;
8B	0B	VT		BC	4C		<
8C	0C	FF		BD	7E		=
8D	0D	CR		BE	6E		>
8E	0E	SO		BF	6F		?
8F	0F	SI		C0	7C		@
90	10	DLE		C1	C1		A
91	11	DC1		C2	C2		B
(91/FF)	38*			C3	C3		C
92	12	DC2		C4	C4		D
93	13	DC3		C5	C5		E
94	3C	DC4		C6	C6		F
95	3D	NAK		C7	C7		G
96	32	SYN		C8	C8		H
97	26	ETB		C9	C9		I
98	18	CAN		CA	D1		J
99	19	EM		CB	D2		K
9A	3F	SUB		CC	D3		L
9B	27	ESC		CD	D4		M
9C	1C	FS		CE	D5		N
9D	1D	GS		CF	D6		O
9E	1E	RS		D0	D7		P
9F	1F	US		D1	D8		Q
A0	40	SP		D2	D9		R
A1	4F		!	D3	E2		S
A2	7F		"	D4	E3		T
A3	7B		#	D5	E4		U
A4	5B		\$	D6	E5		V
A5	6C		%	D7	E6		W
A6	50		&	D8	E7		X
A7	7D		'	D9	E8		Y
A8	4D		(	DA	E9		Z
A9	5D		)	DB	4A		[
AA	5C		*	DC	E0		\
AB	4E		+	DD	5A] ^***
AC	6B		,	DE	5F		←
AD	60		-	DF	6D†		'
AE	4B		.	E0	79		a
AF	61		/	E1	81		

Note: () = Out only.

See notes 1 and 2 on page 12-38.

PDF Code	EBCDIC Code (NCP only)	ASCII		PDF Code	EBCDIC Code (NCP only)	ASCII	
		Control Character	Graphics Character			Control Character	Graphics Character
E2	82		b	F3	A2		s
E3	83		c	F4	A3		t
E4	84		d	F5	A4		u
E5	85		e	F6	A5		v
E6	86		f	F7	A6		w
E7	87		g	F8	A7		x
E8	88		h	F9	A8		y
E9	89		i	FA	A9		z
EA	91		j	FB	C0		}
EB	92		k	FC	6A		|
EC	93		l	FD	D0		{
ED	94		m	FE	A1		~
EE	95		n	FF	07††	DEL	
EF	96		o	FF	17	DEL	
F0	97		p	(FF)	00**	NUL	
F1	98		q	(FF)	DF**		
F2	99		r	(FF/91)	38*		

Notes:

() = Out only.
 See page 12-38 for all notes.

* During transmit, NCP uses the EBCDIC X'38' character for internal control to signal the end-of-data condition (count exhausted). If NCP is currently sending "answer back" or "prompt," a DC1 character is sent; otherwise, NCP sets the pad flag to transmit one character time of all mark bits (X'FF').

** NCP sets the pad flag to transmit one character time of all mark bits (X'FF').

* This character appears on terminal keyboards as ^ or ~ or ↑.

† EBCDIC underscore.

†† Character is not stored.

††† For the EBCDIC character X'37' (EOT), a X'84' (EOT) is transmitted. If this character is sent, the TWX (33/35) will physically disconnect.

ASCII Character Code for TWX with Space Parity

See notes 1 and 2 on page 12-38.

PDF Code	EBCDIC Code (NCP only)	ASCII		PDF Code	EBCDIC Code (NCP only)	ASCII	
		Control Character	Graphics Character			Control Character	Graphics Character
00	00	NUL		30	F0		0
01	01	SOH		31	F1		1
02	02	STX		32	F2		2
03	03	ETX		33	F3		3
04	37†††	EOT		34	F4		4
05	2D	ENQ		35	F5		5
06	2E	ACK		36	F6		6
07	2F	BEL		37	F7		7
08	16	BS		38	F8		8
09	05	HT		39	F9		9
0A	15	LF		3A	7A		:
0A	25	LF		3B	5E		;
0B	0B	VT		3C	4C		<
0C	0C	FF		3D	7E		=
0D	0D	CR		3E	6E		>
0E	0E	SO		3F	6F		?
0F	0F	SI		40	7C		@
10	10	DLE		41	C1		A
11	11	DC1		42	C2		B
(11/7F)	38*			43	C3		C
12	12	DC2		44	C4		D
13	13	DC3		45	C5		E
14	3C	DC4		46	C6		F
15	3D	NAK		47	C7		G
16	32	SYN		48	C8		H
17	26	ETB		49	C9		I
18	18	CAN		4A	D1		J
19	19	EM		4B	D2		K
1A	3F	SUB		4C	D3		L
1B	27	ESC		4D	D4		M
1C	1C	FS		4E	D5		N
1D	1D	GS		4F	D6		O
1E	1E	RS		50	D7		P
1F	1F	US		51	D8		Q
20	40	SP		52	D9		R
21	4F		!	53	E2		S
22	7F		"	54	E3		T
23	7B		#	55	E4		U
24	5B		\$	56	E5		V
25	6C		%	57	E6		W
26	50		&	58	E7		X
27	7D		'	59	E8		Y
28	4D		(	5A	E9		Z
29	5D		)	5B	4A		[
2A	5C		*	5C	E0		\
2B	4E		+	5D	5A]
2C	6B		,	5E	5F		^***
2D	60		-	5F	6D†		←
2E	4B		.	60	79		'
2F	61		/	61	81		a

Note: () = Out only.

See notes 1 and 2 on page 12-38.

PDF Code	EBCDIC Code (NCP only)	ASCII		PDF Code	EBCDIC Code (NCP only)	ASCII	
		Control Character	Graphics Character			Control Character	Graphics Character
62	82		b	73	A2		s
63	83		c	74	A3		t
64	84		d	75	A4		u
65	85		e	76	A5		v
66	86		f	77	A6		w
67	87		g	78	A7		x
68	88		h	79	A8		y
69	89		i	7A	A9		z
6A	91		j	7B	C0		{
6B	92		k	7C	6A		|
6C	93		l	7D	D0		}
6D	94		m	7E	A1		~
6E	95		n	7F	07††	DEL	
6F	96		o	7F	17	DEL	
70	97		p	(7F)	00**	NUL	
71	98		q	(7F)	DF**		
72	99		r	(7F/11)	38*		

Notes:

() = Out only.

See page 12-38 for all notes.

* During transmit, NCP uses the EBCDIC X'38' character for internal control to signal the end-of-data condition (count exhausted). If NCP is currently sending "answer back" or "prompt," a DC1 character is sent; otherwise, NCP sets the pad flag to transmit one character time of all mark bits (X'FF').

** NCP sets the pad flag to transmit one character time of all mark bits (X'FF').

* This character appears on terminal keyboards as ^ or ~ or ↑.

† EBCDIC underscore.

†† Character is not stored.

††† For the EBCDIC character X'37' (EOT), a X'84' (EOT) is transmitted. If this character is sent, the TWX (33/35) will physically disconnect.

Notes for All ASCII Character Code Tables for TWX

Notes:

1. The user specifies the parity of the transmitted data as (1) even parity, (2) odd parity, (3) mark parity (parity bit always a 1), or (4) space parity (parity bit is always a 0) by coding the PARGEN keyword of the GROUP definition statement. A table is provided for each type of parity specified.
2. The three ASCII translate tables are associated with all TWX lines for which CODE=ASCII is specified in the MTALCST definition statement, LINE definition statement, or corresponding GROUP definition statement.
3. For transmit, all EBCDIC code values between X'00' and X'FF' not shown are translated to an EBCDIC colon (X'7A').
4. For receive, all ASCII code values not shown in the PDF column are translated to an EBCDIC semi-colon (X'5E'), the same as the translation of an ASCII semicolon. The ASCII parity bit in PDF bit 0 is ignored for translation.

ZSC3 Character Code

PDF Code	S/370 Code	ZSC3			PDF Code	S/360 S/370 Code	ZSC3		
		Line Code	Control Character	Graphics Character			Line Code	Control Character	Graphics Character
01	85	(10)		E	18	96	(03)		O
01	C5	10		E	18	D6	03		O
02	25	(08)	LF		19	82	(13)		B
02	25	[88]	LF		19	C2	13		B
02	37	(1F)	LF		1A	87	(0B)		G
03	81	(18)		A	1A	C7	0B		G
03	C1	18		A	1B	26	1B	FIGS	
04	40	04	SP		1B	36	1B	FIGS	
05	A2	(14)		S	1C	94	(07)		M
05	E2	14		S	1C	D4	07		M
06	89	(0C)		I	1D	A7	(17)		X
06	C9	0C		I	1D	E7	17		X
07	A4	(1C)		U	1E	A5	(0F)		V
07	E4	1C		U	1E	E5	0F		V
08	03	(02)	CR		1F	00	(1F)	LTRS	
08	0D	02	CR		1F	06	1F	LTRS	
08	0D	[82]	CR		1F	07	(1F)	LTRS	
08	15	(02)	CR		1F	17	(1F)	LTRS	
09	84	(12)		D	1F	32	(1F)	LTRS	
09	C4	12		D	1F	38	(1F)	LTRS	
0A	99	(0A)		R	1F	3F	(1F)	LTRS	
0A	D9	0A		R	81	60	90		-
0B	91	(1A)		J	83	4E	98		+
0B	D1	1A		J	84	40	[84]	SP	
0C	95	(06)		N	85	7D	94		,
0C	D5	06		N	86	2A	(86)	BELL	
0D	86	(16)		F	86	2F	8C	BELL	
0D	C6	16		F	87	F1	9C		1
0E	83	(0E)		C	89	2D	92	WRU	
0E	C3	0E		C	8A	61	8A		/
0F	92	(1E)		K	8B	F2	9A		2
0F	D2	1E		K	8C	6B	86		,
10	A3	(01)		T	8D	F4	96		4
10	E3	01		T	8E	F8	8E		8
11	A9	(11)		Z	8F	4D	9E		(
11	E9	11		Z	90	4B	81		.
12	93	(09)		L	92	5D	89)
12	D3	09		L	93	F3	99		3
13	A6	(19)		W	94	6F	85		>
13	E6	19		W	95	F5	95		5
14	88	(05)		H	96	F9	8D		9
14	C8	05		H	98	7A	83		:
15	A8	(15)		Y	99	F6	93		6
15	E8	15		Y	9A	F0	8B		0
16	97	(0D)		P	9B	36	[9B]	FIGS	
16	D7	0D		P	9C	F7	87		7
17	98	(1D)		Q	9E	7E	8F		=
17	D8	1D		Q	9F	06	[9F]	LTRS	

Note:
 [] = In only.
 () = Out only.

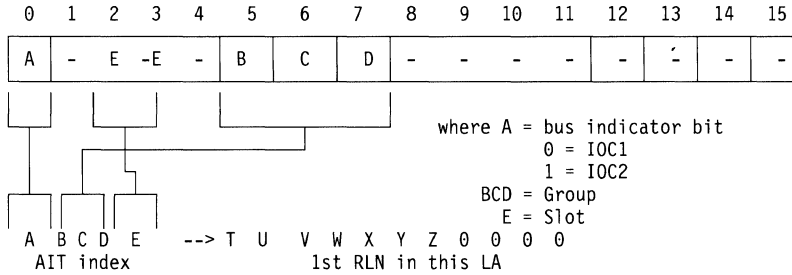
Interface Addressing

Section 13. Interface Addressing	13-1
Conversions between the RLN and LNVT Entry Address for Non-ODLC	13-3
Conversions between the RLN and LNVT Entry Address for ODLC	13-5

Section 13. Interface Addressing

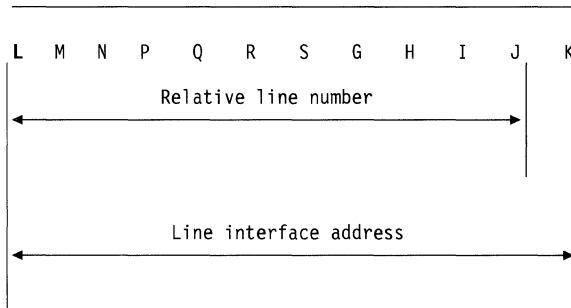
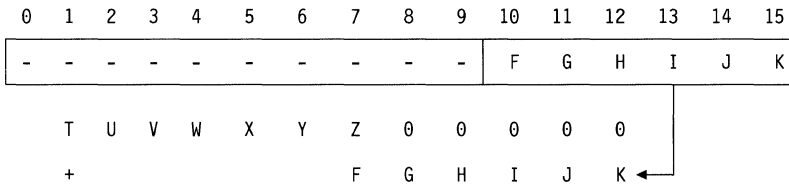
Non-ODLC:

R2 register for IOH or Second halfword for IOHI (TA)

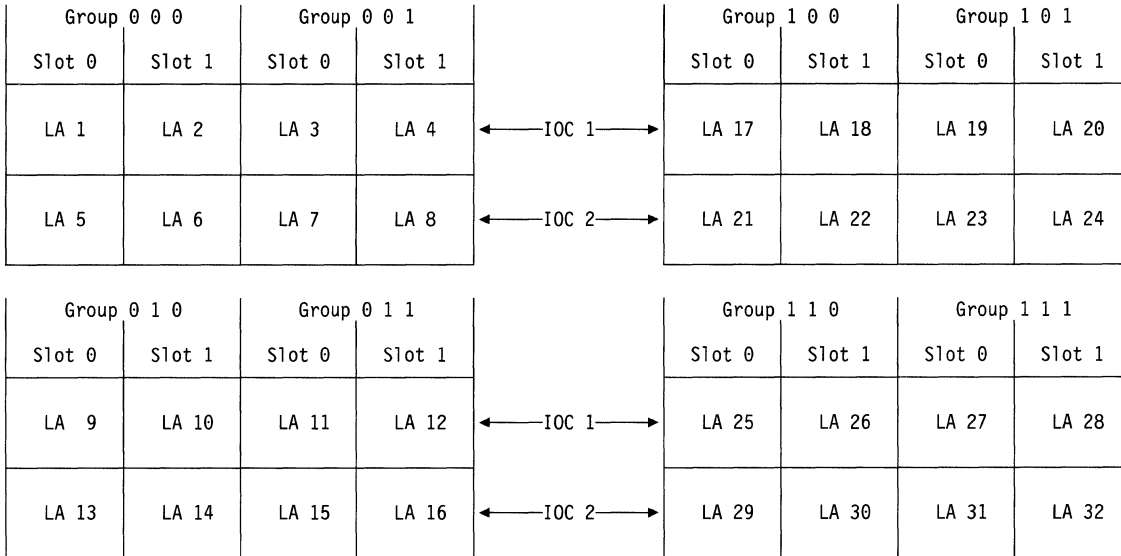


The number represented by the bits ABCDE is an index into the adapter information table control block (AIT). This number is multiplied by the length of an AIT entry (X'20') and added to the beginning address of the LA segment of the AIT (CXTB1LA). The first relative line number on this LA, B'TUVWXYZ0000', can be attained from the AIT entry.

R1 register for IOH or R register for IOHI (TD)



The 32 line adapters (LAs) are arranged in groups and slots within those groups. The tag address (TA) templates may be formed using the following information. Bit 0 is the bus indicator bit and is set to 0 if the LA is on bus 1 (IOC1) or 1 if the LA is on bus 2 (IOC2). Bit 2 is the slot bit. Bit 3 is set to be the opposite of bit 2. Bits 5–7 are the group bits. Bits 1, 4, and 8–15 are set up according to the IOH command desired.



Conversions between the RLN and LNVT Entry Address for Non-ODLC

Conversion from relative line number (RLN) to line vector table (LNVT) entry address:

$$\text{LNVT entry}_{16} = (\text{RLN} \times 8)_{16} + (\text{beginning of LNVT}_{16})$$

- Half duplex (HDX) line's interface address = LNVT entry
- Full duplex transmit (FDX XMT) leg's interface address = LNVT entry
- Full duplex receive (FDX RCV) leg's interface address = LNVT entry + 4

Conversion from LNVT entry address to RLN:

$$\text{RLN}_{16} = (\text{LNVT entry}_{16} - \text{beginning of LNVT}_{16}) \div 8$$

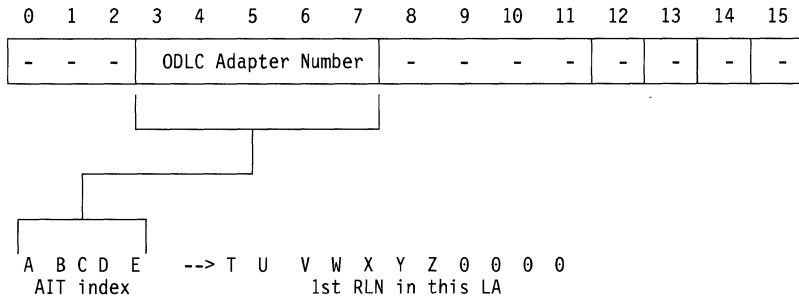
The value of the RLN may need to be truncated.

Notes:

1. The beginning of the LNVT for the 3745 is X'1000'.
2. The starting address may be changed by the Set Line Vector Table High/Low commands.

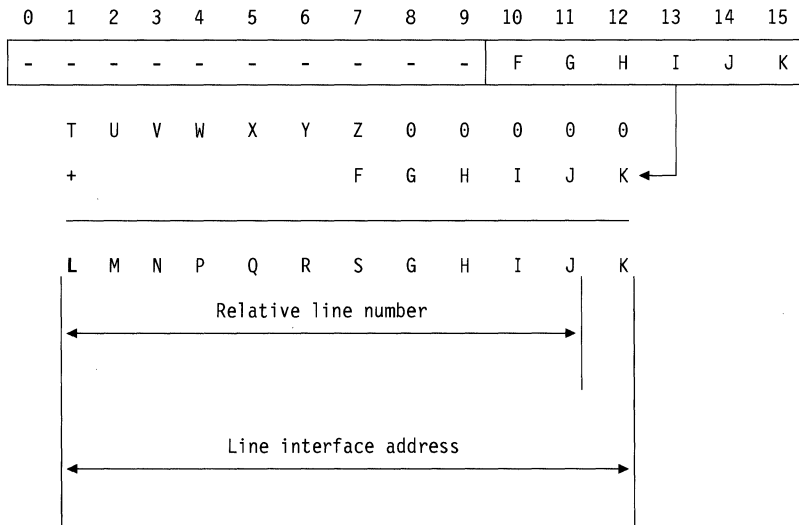
ODLC:

R2 register for IOH or Second halfword for IOHI (TA)



The number represented by the bits ABCDE is an index into the adapter information table control block (AIT). This number is multiplied by the length of an AIT entry (X'20') and added to the beginning address of the ODLC adapters segment of the AIT (CXTLIME). The first relative line number on this ODLC adapter, B'TUVWXYZ0000', can be attained from the AIT entry.

R1 register for IOH or R register for IOHI (TD)



Conversions between the RLN and LNVT Entry Address for ODLC

Conversion from relative line number (RLN) to the ODLC line vector table (LNVT) entry address:

$$\text{LNVT (ODLC) entry}_{16} = ((\text{RLN} - 780) \times 8)_{16} + (\text{beginning of LNVT(ODLC)})_{16}$$

- Full duplex transmit (FDX XMT) leg's interface address = LNVT (ODLC) entry
- Full duplex receive (FDX RCV) leg's interface address = LNVT (ODLC) entry + 4

Conversion from LNVT (ODLC) entry address to RLN:

$$\text{RLN}_{16} = ((\text{LNVT (ODLC) entry}_{16} - \text{beginning of LNVT (ODLC)})_{16} \div 8) + 780_{16}$$

The value of the RLN may need to be truncated.

Note: The beginning of the LNVT (ODLC) is pointed to by the SYSOLNVT field in the FAX.

Record Maintenance Statistic (RECMS) Request/Response Unit (RU) Formats

Section 14. Record Maintenance Statistic (RECMS) Request/Response Unit (RU) Formats 14-1
Permanent BSC and Start Stop 14-2
BSC/SS Station Statistics 14-5
SNA Link Permanent Errors 14-8
SNA Station Permanent Errors 14-12
SNA Statistics 14-16
Intensive Mode Record for SNA Recoverable Errors 14-20
Pseudo Last Intensive Mode Record 14-23

Section 14. Record Maintenance Statistic (RECMS) Request/Response Unit (RU) Formats

The network control program sends unsolicited RECMS PIUs to the access method to record the following conditions:

- BSC and Start Stop device or line errors
- BSC and Start Stop station statistics
- SNA link permanent errors
- SNA station permanent errors
- SNA statistics
- Intensive-mode record for SNA recoverable errors
- Pseudo last intensive-mode record.

The access method records the RECMS record on SYS1.LOGREC. The IBM service representative or customer can use IFCERP0 to edit and print SYS1.LOGREC to obtain the desired records.

NCP RECMS records are identified by the second 2 bytes of the RU in the FID1 PIU. For RECMS records, RU byte 1=X'03' and RU byte 2=X'81'. Bytes 3 and 4 of the RU contain the network address of the failing unit, and byte 5 is the beginning of the RECMS record.

The text portion of the RECMS records consists of a field of up to 101(65) bytes. The third byte of the field is the recording mode byte, which is used to differentiate among the types of NCP RECMS records. The fourth byte, the record ID byte, indicates the type of the communication controller.

NCP issues the BDCRP macro for the following reasons:

- To obtain a check record pool (CRP) unit to insert information pertaining to the error that occurred.
- To cause a box event record (BER) to be built.
- To send the BER to MOSS where the information is stored on a diskette.

The BER is not sent to the host. The operator or IBM service representative may obtain the event information by executing console procedures. See "Box Event Record" in Volume 1 Section 1 for the formats of the event records when they are in the CRP.

Note: The miscellaneous data recorder (MDR) record is a subset of the RECMS record. NCP code may refer to a RECMS record by the term MDR record.

Permanent BSC and Start Stop

The line error recorder routine (CXDILER) and link problem determination aid (LPDA) terminator (CXDKCET) build this RECMS RU.

			RECMS PIU offset 55(37)
			0(0) Network services X'01'
1(1) Physical maintenance services X'03'	2(2) Request code (RECMS) X'81'	3(3) Element address of the BSC/SS device or line	
5(5) Relative line number (in hexadecimal) of the line interface address** (CCBBAR)***		7(7) Recording mode=X'80'	8(8) Record ID*
9(9) Level of information changes X'02'	10(A) Hex zeros		
13(D) BTU command (BCHCMD)***	14(E) BTU modifier (BCHMOD)***	15(F) BTU flags (BCHSFLAG)***	
17(11) Input/output block (IOB) command (IOBCMAND)***	18(12) IOB modifiers (IOBCMODS)***		20(14) IOB immediate control flags (IOBIMCTL)***
21(15) IOB status (IOBSTAT)***		23(17) IOB extended status (IOBEXTST)***	24(18) IOB initial error status byte 0 (IOBERST)***

* Indicates a byte expansion follows.

** See Section 13, "Interface Addressing."

*** Indicates the control block field from which this RECMS-RU field is loaded. (See Volume 1 Section 1, "Data Area Layouts," for field definitions.)

25(19) IOB initial error status byte 1 (IOBERST)*	26(1A) IOB initial error extended status (IOBERST)*	27(1B) Transmission counter (DVBSDRT)*	
29(1D) Hex zeros		31(1F) Temporary error counter (DVBSDRE)*	
33(21) 2740 graphic response byte**	34(22) Device features (DVBFEAT1)*	(DVBFEAT2)*	36(24) Device type (DVBTYP)*
37(25) Network Problem Determination Aid (NPDA) alarm parameter	38(26) Link subsystem type***	39(27) LPDA control (first byte)†	40(28) LPDA remote status (first byte)
41(29) LPDA remote status (second byte)	42(2A) LPDA local status	44(2C) LPDA local and remote self-test results	
45(2D) LPDA local and remote self-test results		47(2F) Channelization and tailing flag (LCBCANDT/LKBCANDT)*	48(30) Channelization and tailing correlation number (first byte) (LCCCORN/LKCCORN)*

* Indicates the control block field from which this RECMS-RU field is loaded. (See Volume 1 Section 1, "Data Area Layouts," for field definitions.)

** 2740 graphic response byte is zeroed if not applicable.

*** Link subsystem type:

X'00' No link subsystem data

X'01' IBM modems supported in LPDA1 mode.

X'02' 3867 modem supported in LPDA1 mode.

† The byte expansion for the first LPDA control byte (RU1LCB1) on page 15-29 applies to this field as well.

49(31) Channelization and tailing correl- ation number (second byte) (LCCORN/ LKCCORN)*	50(32) Local receive DB information	51(33) Hex zeros
Hex zeros		
57(39) Hex zeros	58(3A) Remote receive DB information	59(3B) Hex zeros
Hex zeros		
65(41) Hex zeros	66(42) Remote SDLC LPDA address	67(43) Hex zeros
Hex zeros		
73(49) Hex zeros		

* Indicates the control block field from which this RECMS-RU field is loaded. (See Volume 1 Section 1, "Data Area Layouts," for field definitions.)

Byte Expansions

Offset/Field Name	Bit Pattern/ Hex Value	Contents
8(8)		Record ID
	X'2F'	3745

BSC/SS Station Statistics

The line error recorder routine (CXDILER) and link problem determination aid (LPDA) terminator (CXDKCET) build this RECMS RU.

		RECMS PIU offset 55(37)	
		0(0) Network services X'01'	
1(1) Physical maintenance services X'03'	2(2) Request code (RECMS) X'81'	3(3) Element address of the BSC/SS station	
5(5) Relative line number (in hexadecimal) of the line interface address** (CCBBAR)***		7(7) Recording mode X'81'	8(8) Record ID*
9(9) Level of information changes X'03'	10(A) Hex zeros		
13(D) Hex zeros			
Hex zeros			
Hex zeros			

* Indicates a byte expansion follows.

** See Section 13, "Interface Addressing."

*** Indicates the control block field from which this RECMS-RU field is loaded. (See Volume 1 Section 1, "Data Area Layouts," for field definitions.)

Hex Zeros		27(1B) Transmission counter (DVBSDRT)*	
29(1D) Show cause indicator**** (DVBSDRT)*	30(1E) Hex zeros	31(1F) Temporary error counter (DVBSDRE)*	
Hex zeros	34(22) Device features (DVBFEAT1)*	(DVBFEAT1)*	36(24) Device type (DVBTYPTE)*
37(25) Network Problem Determination Aid (NPDA) alarm parameter	38(26) Link subsystem type**	39(27) LPDA control (first byte)***	40(28) LPDA remote status (first byte)***
41(29) LPDA remote status (second byte)***	42(2A) LPDA local status	44(2C) Hex zeros	
Hex zeros		47(2F) Channelization and tailing flag (LCBCANDT/LKBACANDT)*	48(30) Channelization and tailing correlation number (first byte) (LCCCORN/LKCCORN)*

* Indicates the control block field from which this RECMS-RU field is loaded. (See Volume 1 Section 1, “Data Area Layouts,” for field definitions.)

** Link subsystem type:
 X'00' No link subsystem data
 X'01' IBM modems supported in LPDA1 mode.
 X'02' 3867 modem supported in LPDA1 mode.

*** The byte expansion for the first LPDA control byte (RU1LCB1) on page 15-29 applies to this field as well.

**** If the high order bit (bit 0) is on, a threshold has been dynamically altered.

49(31) Channelization and tailing correlation number (second byte) (LCCCORN/LKCCORN)*	50(32) Local receive DB information	51(33) Hex zeros
Hex zeros		
57(34) Hex zeros	58(3A) Remote receive DB information	59(3B) Hex zeros
Hex zeros		
65(41) Hex zeros	66(42) Remote SDLC LPDA address	67(43) Hex zeros
Hex zeros		
73(49) Hex zeros		

* Indicates the control block field from which this RECMS-RU field is loaded. (See Volume 1 Section 1, "Data Area Layouts," for field definitions.)

Byte Expansions

Offset/Field Name	Bit Pattern/ Hex Value	Contents
8(8)		Record ID
	X'2F'	3745

SNA Link Permanent Errors

The line error recorder routine (CXDILER) and link problem determination aid (LPDA) terminator (CXDKCET) or LPDA buffer formatter (CXDKLBF) build this RECMS RU.

		RECMS PIU offset 55(37)	
		0(0) Network services X'01'	
1(1) Physical maintenance services X'03'	2(2) Request code (RECMS) X'81'	3(3) Element address of the SNA link	
5(5) Relative line number (in hexadecimal) of the line interface address** (CCBBAR)***		7(7) Recording mode X'82'	8(8) Record ID*
9(9) Level of information changes X'04'	10(A) Hex zeros	11(B) Special Line type*	Hex zeros
Hex zeros			
17(11) Input/output command (LXBCMAM)***	18(12) Command modifier field (LXBCMODS)***		20(14) Immediate control command field (LXBIMCTL)***
21(15) Current error status (LXBSTAT)***		23(17) Extended error status (LXBEXTST)***	24(18) First error status (first byte) (LXBERST)***
25(19) Hold SDLC status (second byte) (LXBHSTAT)***	26(1A) First error extended status (LXBEREST)***	27(1B) Hex zeros	
	30(1E) Received basic link unit (BLU) command field for modulo 8; zero for modulo 128. (CCBRBLUC)***	31(1F) Hex zeros	

* Indicates a byte expansion follows.

** See Section 13, "Interface Addressing" for channel links; this field contains the channel adapter position associated with the link.

*** Indicates the control block field from which this RECMS-RU field is loaded. (See Volume 1 Section 1, "Data Area Layouts," for field definitions.)

33(21) Hex zeros		
Hex zeros	39(27) Control flags (CCBRSPON)*	40(28) Line type (CCBTYP)* (CCBCTL)*
Hex zeros	43(2B)** Command reject reason	44(2C)††† Dial control flags (CCBTYP)*
Hex zeros		
49(31) Hex zeros		
Hex zeros		
57(39) ††† X.21 call progress signals (LXBCPS)*	59(3B)** Network Problem Determination Aid alarm parameter (LKBALARM)*	60(3C) Link subsystem type † (LKBSST)*
61(3D) LPDA control (first byte)††	62(3E) LPDA remote status	64(40) LPDA local status (first byte)
65(41) LPDA local status (second byte)	66(42) LPDA local and remote self-test results	
69(45) Channelization and tailing flag (LCBCANDT/LKBCANDT)*	70(46) Channelization and tailing correlation number (LCCORN/LKCCORN)*	72(48) Local receive DB information

* Indicates the control block field from which this RECMS-RU field is loaded. (See Volume 1 Section 1, "Data Area Layouts," for field definitions.)

** This field contains the indicated data only if a command reject caused the RECMS; otherwise it contains X'00'. This field is transmitted by the device in the FRMR. See the byte expansion for GCBDESC the meaning of this field for channel links. See the *SNA Network Architecture Network Product Formats* for the FRMR response frame format.

† Link subsystem type:

- X'00' No link subsystem data
- X'01' IBM modems supported in LPDA1 mode.
- X'02' 3867 modem supported in LPDA1 mode.

†† The byte expansion for the first LPDA control byte (RU1LCB1) on page 15-29 applies to this field as well.

††† These fields will be zero for non-X.21 switched lines.

73(49) Reserved			
Reserved		80(50) Remote receive DB information	
81(51) Reserved			
Reserved		88(58) Remote SDLC LPDA address	
89(59) Reserved			
Reserved		96(60) Hex zeros	
97(61) Received BLU command field (CCBRBLUC)*		99(63)** Transmit BLU command field (CCBCFLD)*	
101(65)*** Command received from the secondary station (modulo 128)		103(67)*** N(S) received from the secondary station (modulo 128)	104(68)*** N(S) received from the secondary station (modulo 128)
Command received from the secondary station (modulo 8)	102(66) Hex zeros (modulo 8)	N(R) and N(S) received from the secondary station (modulo 8)	Hex zeros (modulo 8)
105(69) Mode control flags (CCBFLAG2)*			

- * Indicates the control block field from which this RECMS-RU field is loaded. (See Volume 1 Section 1, "Data Area Layouts," for field definitions.)
- ** This field contains the transmit BLU command for a duplex link; contains X'00' for a half-duplex link.
- *** This field contains the indicated data only if a command reject caused the RECMS; otherwise, it contains X'00'.

Byte Expansions

Offset/Field Name	Bit Pattern/ Hex Value	Contents
8(8)	X'2F'	Record ID 3745
11(B)	x	1 = Line is Frame Relay 0 = Line is not Frame Relay

SNA Station Permanent Errors

The line error recorder routine (CXDILER) and link problem determination aid (LPDA) terminator (CXDKCET) or LPDA buffer formatter (CXDKLBF) build this RECMS RU.

			RECMS PIU offset 55(37)
			0(0) Network services X'01'
1(1) Physical maintenance services X'03'	2(2) Request code (RECMS) X'81'	3(3) Element address of the SDLC station	
5(5) Relative line number (in hexadecimal) of the line interface address** (CCBBAR)***		7(7) Recording mode X'83'	8(8) Record ID*
9(9) Level of information changes X'04'	10(A) Hex zeros		
13(D) Service-seeking control flags (SCBSSCF)***		15(F) Output control flag (SCBOCF)***	16(10) Configurable station control flags (SCBCSCF)***
17(11) Input/output command (LXBCMANT)***	18(12) Command modifier field (LXBMODS)***		20(14) Immediate control command field (LXBIMCTL)***
21(15) Current error status (LXBSTAT)***		23(17) Extended error status (LXBEXTST)***	24(18) First error status (first byte) (LXBERST)***
25(19) Hold SDLC status (second byte) (LXBHSTAT)***	26(1A) First error extended status (LXBEREST)***	27(1B) Total I-format transmission counter (SCBTCNT)***	
29(1D) Hex zeros	30(1E) Received basic link unit (BLU) command field for modulo 8; zero for modulo 128. (CCBRBLUC)***	31(1F) Total retry counter (SCBTRTCT)***	

* Indicates a byte expansion follows.

** See Section 13, "Interface Addressing."

*** Indicates the control block field from which this RECMS-RU field is loaded. (See Volume 1 Section 1, "Data Area Layouts," for field definitions.)

33(21) Station type (SCBTYPE)*	34(22) Transmit BLU command field for modulo 8; zero for modulo 128 (CCBCFLD)*	35(23) Current outstanding count (SCBCOC)*	36(24) Pass limit (SCBPCNT)*
37(25) Receive count (bits 4,5,6 for modulo 8; bit 0-6 for modulo 128) (SCBNR)*	38(26) Send count (bits 4,5,6 for modulo 8; bits 0-6 for modulo 128) (SCBNS)*	39(27) Control flags (CCBRSPON)*	40(28) Line type (CCBTYPE)* (CCBCTL)*
41(29) Hex zeros		43(2B)** Command reject reason	44(2C) Dial control flag (CCBTYPPEC)*
45(2D) Receive I-format error counter (SCBRECNT)*		47(2F) Total transmission counter (SCBTPCNT)*	
49(31) I-format received counter (error-free) (SCBBRCNT)*		51(33) S-format received counter (error-free) (SCBRPCNT)*	
53(35) Total ACK'd I-format counter (SCBTIACT)*		55(37) Total I-format retransmissions counter (SCBTINCT)*	
57(39) X.21 call progress signal (LXBCPS)*		59(3B) Network Problem Determination Aid (NPDA) alarm parameter (LKBALARM)*	60(3C) Link subsystem type † (LKBSSST)*
61(3D) LPDA control †† (first byte)	62(3E) LPDA remote status		64(40) LPDA local status (first byte)

* Indicates the control block field from which this RECMS-RU field is loaded. (See Volume 1 Section 1, "Data Area Layouts," for field definitions.)

** This field contains the indicated data only if a command reject caused the RECMS.

† Link subsystem type:

X'00' No link subsystem data.

X'01' IBM modems supported in LPDA1 mode.

X'02' 3867 modem supported in LPDA1 mode.

†† The byte expansion for the first LPDA control byte (RU1LCB1) on page 15-29 applies to this field as well.

65(41) LPDA local status (second byte)	66(42) LPDA local and remote self-test results	
69(45) Channelization and tailing flag (LCBCANDT/LKBCANDT)*	70(46) Channelization and tailing correlation number (LCCCORN/LKCCORN)*	72(48) Local receive DB information
73(49) Reserved		
Reserved		80(50) Remote receive DB information
81(51) Reserved		
Reserved		88(58) Remote SDLC LPDA address
89(59) Reserved		
Reserved		96(60) Hex zeros

* Indicates the control block field from which this RECMS-RU field is loaded. (See Volume 1 Section 1, "Data Area Layouts," for field definitions.)

97(61) Received BLU command field (CCBRBLUC)*		99(63)** Transmit BLU command field (CCBCFLD)*	
101(65)*** Command received from the secondary station (modulo 128)		103(67)*** N(S) received from the secondary station (modulo 128)	104(68)*** N(R) received from the secondary station (modulo 128)
Command received from the secondary station (modulo 8)	102(66) Hex zeros (modulo 8)	N(R) and N(S) received from the secondary station (modulo 8)	Hex zeros (modulo 8)
105(69) Mode control flags (SCBDCF)*			

- * Indicates the control block field from which this RECMS-RU field is loaded. (See Volume 1 Section 1, "Data Area Layouts," for field definitions.)
- ** This field contains the transmit BLU command for a duplex link; it contains X'00' for a half-duplex link.
- *** This field contains the indicated data only if a command reject caused the RECMS; otherwise, it contains X'00'.

Byte Expansions

Offset/Field Name	Bit Pattern/ Hex Value	Contents
8(8)		Record ID
	X'2F'	3745

SNA Statistics

The line error recorder routine (CXDILER) and link problem determination aid (LPDA) terminator (CXDKCET) build this RECMS RU.

RECMS PIU offset
 55(37)

		0(0) Network service X'01'	
1(1) Physical maintenance services X'03'	2(2) Request code (RECMS) X'81'	3(3) Element address of the SDLC station	
5(5) Relative line number (in hexadecimal) of the line interface address**** (CCBBAR)***		7(7) Recording mode X'86'	8(8) Record ID*
9(9) Level of information changes X'04'	10(A) Hex zeros	11(B) Special Line type *	Hex Zero
13(D) Hex zeros			
17(11) Hex zeros			
Hex zeros			
25(19) Hex zeros		27(1B) I-format transmission counter (SCBTCNT)***	
29(1D) Show cause indicator*** (SCBSHWCS or CUBSHWCS)***	30(1E) Hex zeros	31(1F) Total retry counter (SCBTRTCT)***	

- * Indicates a byte expansion follows.
- ** If the high-order bit (bit 0) is on, a threshold has been dynamically altered.
- *** Indicates the control block field from which this RECMS-RU field is loaded. (See Volume 1 Section 1, "Data Area Layouts," for field definitions.)
- **** See Section 13, "Interface Addressing," for channel links. This field contains the channel adapter position associated with the link.

33(21) Station type** (SCBTYPE)*	Hex zeros	
Hex zeros		
41(29) Hex zeros		
45(2D) Receive I-format error counter (SCBRECNT)*	47(2F) Total transmission counter (SCBTPCNT)*	

* Indicates the control block field from which this RECMS-RU field is loaded. (See Volume 1 Section 1, "Data Area Layouts," for field definitions.)

** If this RECMS is channel-link originated, bits 5 and 6 of this field are turned on to indicate this in the RECMS only.

49(31) I-format received counter (error-free) (SCBRCNT)*		51(33) S-format received counter (error-free) (SCBRPCNT)*	
53(35) Total ACK'd I-format counter (SCBTIACT)*		55(37) Total I-format retransmissions counter (SCBTINCT)*	
57(39) Hex zeros		59(3B) Network Problem Determination Aid alarm parameter (LKBALARM)*	60(3C) Link subsystem type**
61(3D) LPDA control (first byte)†	62(3E) LPDA remote status		64(40) LPDA local status (first byte)
65(41) LPDA local status (second byte)	66(42) Hex zeros		
69(45) Channelization and tailing flag (LCBCANDT/LKBCANDT)*	70(46) Channelization and tailing correlation number (LCCCORN/LKCCORN)*		72(48) Local receive DB information

* Indicates the control block field from which this RECMS-RU field is loaded. (See Volume 1 Section 1, "Data Area Layouts," for field definitions.)

** Link subsystem type:

- X'00' No link subsystem data
- X'01' IBM modems supported in LPDA1 mode.
- X'02' 3867 modem supported in LPDA1 mode.

† The byte expansion for the first LPDA control byte (RU1LCB1) on page 15-29 applies to this field as well.

73(49)	
Hex zeros	
Hex zeros	80(50) Remote receive DB information
81(51)	
Hex zeros	
Hex zeros	88(58) Remote SDLC LPDA Address
89(59)	
Hex zeros	
Hex zeros	

Byte Expansions

Offset/Field Name	Bit Pattern/Hex Value	Contents
8(8)	X'2F'	Record ID 3745
11(B)	x	1 = Line is Frame Relay 0 = Line is not Frame Relay

Intensive Mode Record for SNA Recoverable Errors

The SDLC error and exception handler (CXEREXC) and the intensive mode record processor (CXDKIM1) build this RECMS RU.

			RECMS PIU offset 55(37)
			0(0) Network services X'01'
1(1) Physical maintenance services X'03'	2(2) Request code (RECMS) X'81'	3(3) Element address of the SDLC station	
5(5) Relative line number (in hexadecimal) of the line interface address (CCBBAR)		7(7) Recording mode X'A3'	8(8) Record ID*
9(9) Level of information changes X'03'	10(A) Hex zeros	11(B) Special Line type *	12(C) Hex Zeros
13(D) Service seeking control flags (SCBSSCF)***		15(F) Output control flag (SCBOCF)***	16(10) Hex Zeros
17(11) Input/output command (LXBCMAMD)***	18(12) Command modifier field (LXBMODS)***		20(14) Immediate control command field (LXBIMCTL)***
21(15) Current error status (LXBSTAT)***		23(17) Extended error status (LXBEXTST)***	24(18) First error status (first byte) (SCBERS)***
25(19) Hold SDLC status (second byte) (SCBERS + 1)***	26(1A) First error extended (SCBEERS)***	27(1B) I-format transmission counter (SCBTCNT)***	
29(1D) Link problem determination aid flags (AXBLPDA)***	30(1E) Received basic link unit (BLU) command field for modulo 8; zero for modulo 128 (CCBRBLUC)***	31(1F) Total retry counter (SCBTRTCT)***	

* Indicates a byte expansion follows.

** See Section 13, "Interface Addressing."

*** Indicates the control block field from which this RECMS-RU field is loaded. (See Volume 1 Section 1, "Data Area Layouts," for field definitions.)

33(21) Station type (SCBTYP)*	34(22)** Transmit BLU command field for modulo 8; zero for modulo 128 (CCBCFLD)*	35(23) Current outstanding count (SCBCOC)*	36(24) Pass limit (SCBPCNT)*
37(25) Receive count (bits 4, 5, 6 for modulo 8; bits 0-6 for modulo 128) (SCBNR)*	38(26) Send count (bits 4, 5, 6 for modulo 8; bits 0-6 for modulo 128) (SCBNS)*	39(27) Control flags (CCBRSPON)*	40(28) Line type (CCBTYP)* (CCBCTL)*
41(29) Hex zeros			44(2C) Dial control flag (CCBTYP)*
45(2D) Receive I-format error counter (SCBRECN)*		47(2F) Total transmission counter (SCBTPCN)*	
49(31) I-format received counter (error-free) (SCBRCN)* ----- I-frames received counter (error-free plus in-error) (586X lines)		51(33) S-format received counter (error-free) (SCBRPCN)*	
53(35) Total ACK'd I-format counter (SCBTIAC)*		55(37) Total I-format retransmissions counter (SCBTINCT)*	
57(39) X.21 call progress signals (LXBCPS)*	59(3B) Network Problem Determination Aid alarm parameter (LKBALARM)*	60(3C) Link subsystem type (LKBSST)*	
61(3D) Received BLU command field (CCBRBLUC)*	63(3F) Data link control flags (SCBDCF)*	64(40)*** Intensive mode flags	

- * Indicates the control block field from which this RECMS-RU field is loaded. (See Volume 1 Section 1, "Data Area Layouts," for field definitions.)
- ** This field contains the transmit BLU command for a duplex link and X'00' for a half-duplex link.
- *** Intensive mode flags:
 X'00' Normal intensive mode record (not the last IMR)
 X'01' Last IMR when the last counter has reached the specified recording limit.

Byte Expansions

Offset/Field Name	Bit Pattern/ Hex Value	Contents
8(8)	X'2F'	Record ID 3745
11(B)	x	1 = Line is Frame Relay 0 = Line is not Frame Relay

Pseudo Last Intensive Mode Record

The intensive mode terminator (CXDKIM2) builds this RECMS RU.

		RECMS PIU offset 55(37)	
		0(0) Network services X'01'	
1(1) Physical maintenance services	2(2) Request code (RECMS)	3(3) Element address of the SDLC station	
5(5) Relative line number (in hexadecimal) of the line interface address*** (CCBBAR)****		7(7) Recording mode**	8(8) Record ID*
9(9) Level of information changes X'01'	10(A) Hex zeros	11(B) Special Line type*	Hex zeros

* Indicates a byte expansion follows.

** Recording mode:

X'A7' Intensive mode stopped by a Set Control Vector (IM) command

X'AB' Intensive mode stopped by a slowdown.

*** See Section 13, "Interface Addressing."

**** Indicates the control block field from which this RECMS-RU field is loaded. (See Volume 1 Section 1, "Data Area Layouts," for field definitions.)

Byte Expansions

Offset/Field Name	Bit Pattern/ Hex Value	Contents
8(8)	X'2F'	Record ID 3745
11(B)	x	1 = Line is Frame Relay 0 = Line is not Frame Relay

Record Formatted Maintenance Statistic (RECFMS) Request/Response Unit (RU) Formats

Section 15. Record Formatted Maintenance Statistic (RECFMS) Request/Response Unit (RU)

Formats	15-1
Alert Message	15-2
Summary Error Data	15-4
Session Trace Data (PU Type 1 or Type 2)	15-5
Session Trace Data (PU Type 4—NCP)	15-12
Session Trace Data (LU)	15-14
Session Trace Data (BSC/SS)	15-17
Enable Session Trace or Inhibit Session Trace Request Type	15-23
Engineering Change (EC) Level Data	15-24
Link Problem Determination Aid (LPDA)	15-26

Section 15. Record Formatted Maintenance Statistic (RECFMS) Request/Response Unit (RU) Formats

The network control program sends either an unsolicited request RECFMS PIU or a positive reply RECFMS PIU to an REQMS (solicited request) to the access method to record one or more of the following:

- Alert message
- Summary error data
- Session trace data (request or reply)
 - Resource type=PU type 1 or 2
 - Resource type=NCP (PU type 4)
 - Resource type=LU
 - Resource type=Pre-SNA (BSC/SS)
- Reply to an enable or inhibit session trace REQMS
- Engineering change (EC) change level data
- Link problem determination aid (LPDA) data.

NCP RECFMS records are identified by RU bytes 1 and 2. For RECFMS records, RU byte 1=X'03' and RU byte 2=X'84'. Bytes 3 and 4 of the RU contain the resource identification, and byte 5 is the beginning of the RECFMS record. RU byte 7 is the RECFMS type that is used to differentiate between the types of NCP RECFMS records.

Alert Message

- NCP or PEP only.
- An unsolicited request.
- The MOSS-down or -offline module, CXAMDNOF, builds the MOSS-down alert RECFMS PIU and sends it to all owning SSCPs (user action code X'01').
- All other alert RECFMS PIUs (user action codes other than X'01') are built by MOSS and sent to all owning SSCPs using or through NCP (CXAMPIUI).

				RECFMS offset 55(37)
				0(0) RU1BTO Network services X'41'
1(1) RU1BT1 Physical maintenance services X'03'	2(2) RU1RC2 Request code (RECFMS) X'84	3(3) RU1NA Alert originator PU element address		
5(5) RU1REMS X'1000'=bytes 3 and 4 (contains a PU.T4 address)		7(7) RU1RMTYP RECFMS type X'00'	8(8) RU1RFB1 Block ID (PSBMIS1)*	
9(9) RU1RFB2 RU1RFB3 RU1RFB4 Box serial number (PSBMIS1)* (PSBMIS2)*			12(C) Reserved	
13(D) Reserved	14(E) Alert format X'40'	15(F) Alert type (major probable cause)	16(10) Minor probable cause	
17(11) Reserved	18(12) User action code**	19(13) Reserved	20(14) User action qualifier (first) vector length	
21(15) UAQID	22(16) - n First user action qualifier (UAQ) First UAQ message			
n	n+1 Vector length	n+2 UAQ ID	(n+3) - m Last UAQ message	
End of appended vectors X'00'				

* Indicates the control block field from which this RECFMS-RU field is loaded. (See Volume 1 Section 1, "Data Area Layouts," for field definitions.)

** See Table 15-1 on page 15-3 for these values.

Table 15-1. Alert Message Table for RECFMS Type 00

Offset 18(12) User action code	15(F) Alert type major	16(10) Minor cause
01	11	02
02	21	02
03	11	02
04	11	50
05	11	49
06	41	42
07	11	01
08	12	30
09	11	14
0A	12	30
0B	11	11
0C	11	11
0D	12	11
0E	12	11
0F	11	12
10	12	12

Note: Values within the table are in hexadecimal.

Summary Error Data

MOSS requests buffers from NCP, then builds and sends this RECFMS PIU, using NCP (CXAMPIUI), to the originator of the requesting REQMS type X'02'.

			RECFS offset 55(37)
			0(0) RU1BTO Network services X'41'
1(1) RU1BT1 Physical maintenance services X'03'	2(2) RU1RC2 Request code (RECFMS) X'84'	3(3) RU1NA Controller PU element address	
5(5) RU1REMS X'1000'=element address in RU1NA is PU.T4		7(7) RU1RMTYP** RECFMS type 02 X'82'	8(8) RU1RFB1 Plant ID (PSBMIS1)*
9(9) RU1RFB2 (PSBMIS1)*			12(C) Reserved
		RU1RFB3 Box serial number	RU1RFB4 (PSBMIS2)*
13(D) Reserved	14(E)** Summary counter validity mask	15(F) Reserved	
17(11) Machine check counter (count of nonflagged BERs in the controller incident log file)		19(13) Communication check counter	
21(15) SNA negative responses at this PU			

* Indicates the control block field from which this RECFMS-RU field is loaded. (See Volume 1 Section 1, "Data Area Layouts," for field definitions.)

** Indicates a byte expansion follows at the end of this section.

Session Trace Data (PU Type 1 or Type 2)

Resource Type (ST1RETYT)=X'01' (PU Type 1) or X'02' (PU Type 2)

- An unsolicited request or a reply to a REQMS request type (RU1RMTYP)=X'04' (session trace) and request type (ST10PT)=X'01' (request data).
- The session trace reporter (CXDKSTR) and CXDISTC build this RECFMS.

		RECFMS offset 55(37)	
		0(0) RU1BT0 Network services X'41'	
1(1) RU1BT1 Physical maintenance services X'03'	2(2) RU1RC2 Request code (RECFMS) X'84'	3(3) RU1NA Resource ID	
5(5) RU1REMS** RECFMS description RU1REMS	RU1REMS	7(7) RU1RMTYP** RECFMS type	8(8) RU1RFD2** RECFMSID description 2 (first byte)
9(9) RU1RFD2** (continued) RECFMS description 2 (second, third, and fourth bytes)		12(C) Hex zeros	
Hex zeros	14(E) ST1KOPT** Request type X'01' (data)	15(F) ST1LVLID Level ID. (See note.)	16(10) ST1RETYT** Resource type ID
17(11) Hex zeros	18(12) ST2STRC (CUBSTRC)*	19(13) ST2OUTB1 (CXBOUTB1)*	
21(15) ST2OUTB2 (CXBOUTB2)*		23(17) ST2INB1 (CXBINB1)*	
25(19) ST2INB2 (CXBINB2)*		27(1B) Hex zeros	
29(1D)			
ST2MCBD (CUBMCBD)*	ST21ECB (CUB1ECB)*		

* Indicates the control block field from which this RECFMS-RU field is loaded. (See Volume 1 Section 1, "Data Area Layouts," for field definitions.)

** Indicates a byte expansion follows at the end of this section.

Note:

X'03' Modulo 128 is not included.

X'05' Modulo 128 is included.

33(21)			
ST2LECB (CUBLECB)*			
37(25)	38(26)	39(27)	40(28)
ST2STAT (CUBSTAT)*	ST2SCHD (CUBSCHD)*	ST2STSTP (CUBSTATP)*	ST2PREL (CUBPREL)*
41(29)			
ST2LOBH (CUBLOBH)*			
45(2D)			
ST2LOBT (CUBLOBT)*			
49(31)			
ST2LOSH (CUBLOSH)*			
53(35)			
ST2LOST (CUBLOST)*			
57(39)	58(3A)	59(3B)	
ST2ADRC (CUBADRC)*	Hex zeros	ST2SSCF (CUBSSCF)*	
61(3D)	62(3E)	63(3F)	
ST2STATS (CUBSTATS)*	ST2OCF (CUBOCF)*	ST2TCNT (CUBTCNT)*	
65(41)			
ST2APIU (CUBAPIU)*			
69(45)	70(46)	17(47)	
ST2NR (CUBNR)*	ST2NS (CUBNS)*	ST2ERS (CUBERS)*	

* Indicates the control block field from which this RECFMS-RU field is loaded. (See Volume 1 Section 1, "Data Area Layouts," for field definitions.)

73(49) ST20CL (CUBOCL)*		75(4B) ST2RCMD (CUBRCMD)*	76(4C) ST2TERR (CUBTERR)*	
77(4D) ST2TRTCT (CUBTRTCT)*		79(4F) ST2RECNT (CUBRECNT)*		
81(51) ST2TPCNT (CUBTPCNT)*		83(53) ST2IMRC (CUBIMRC)*		
85(55) ST2RCNT (CUBRCNT)*		87(57) ST2RPCNT (CUBRPCNT)*		
89(59) ST31ECB (LKWIECB)*				
93(5D) ST3LECB (LKWLECB)*				
97(61) ST3SKEP (LKWTSKEP)*				
101(65) ST3SCHED (LKWSCHED)*	102(66) Hex zeros	103(67) ST3NWADR (LKBNWADR)*		
105(69) ST3KSTAT (LKBSTAT)*	106(6A) ST3TYPE (LKBTYPE)*	107(6B) ST3SNPM (LKBSNPM)*	108(6C) ST3SWST (LKBSWST)*	
109(6D) ST3DRST (LKBDRST)*	110(6E) ST3LPDA (LKBLPDA)*	111(6F) ST3ALARM (LKBALARM)*	112(70) ST3SST (LKBSST)*	

* Indicates the control block field from which this RECFMS-RU field is loaded. (See Volume 1 Section 1, "Data Area Layouts," for field definitions.)

113(71) ST3TCTL (AXBCTTL)*	114(72) ST3CMD1 (AXBCMD1)*	115(73) ST3CMD2 (AXBCMD2)*	116(74) ST3CMD3 (AXBCMD3)*
117(75) ST3STAT1 (AXBSTAT1)*		119(77) ST3STAT2 (AXBSTAT2)*	
121(79) ST3STAT3 (AXBSTAT3)*		123(7B) ST3IMCTL (LXBIMCTL)*	124(7C) ST3CMAND (LXBCMAND)*
125(7D) ST3CMODS (LXBCMODS)*		127(7F) ST3XSTAT (LXBSTAT)*	
129(81) ST3ERST (LXBERST)*	130(82) ST3HSTAT (LXBHSTAT)*	131(83) ST3EREST (LXBEREST)*	132(84) ST3RTYCT (LXBRTYCT)*
133(85) ST3BKSIZ (LXBKSIZ)*		135(87) ST3EXTST (LXBEXTST)*	136(88) Hex zeros
137(89) ST3L2 (CCBL2)* (See note.)		139(8B) ST3STATE (CCBSTATE)* (See note.)	
141(8D) ST3TIME (CCBTIME)* (See note.)		143(8F) ST3BAR (CCBBAR)* (See note.)	
145(91) ST3BCC (CCBBCC)* (See note.)		147(93) ST3CNTS (CCBCNTS)* (See note.)	
149(95) ST3STAT1 (CCBSTAT1)* (See note.)		151(97) ST3END1 (CCBEND1)* (See note.)	

* Indicates the control block field from which this RECFMS-RU field is loaded. (See Volume 1 Section 1, “Data Area Layouts,” for field definitions.)

Note: Contains data for half-duplex lines. For duplex lines, the data is for the receive leg.

153(99) ST3DATA (CCBDATA)*	ST3DATA (CCBDATA)* (See note 1.)		
157(9D)	ST3START (CCBSTART)* (See note 1.)		
161(A1) ST4HDBUF (CCBHDBUF)*	ST4HDBUF (CCBHDBUF)* (See note 1.)		
165(A5)	ST4L3 (CCBL3)* (See note 1.)	167(A7) Hex zeros	168(A8) Hex zeros
169(A9)	ST4CTL (CCBCTL)* (See note 1.)	171(AB)	ST4ESTAT (CCBESTAT)* (See note 1.)
173(AD) ST4FLD (CCBAFLD)*	174(AE) Hex zeros	175(AF) Hex zeros	
177(B1) ST4LATO (CCBLATO)* (See note 1.)	179(B3) ST4NCFL (CCBNCFL)* (See note 1.)	180(B4) ST4OFSET (CCBOFSET)* (See note 1.)	
181(B5)	ST4POLL (CCBPOLL)* (See note 1.)		
185(B9)	ST4SEL (CCBSEL)* (See note 1.)		
189(BD)	ST4L2 (CCBL2--transmit)* (See note 2.)	191(BF)	ST4TIME (CCBTIME--transmit)* (See note 2.)

* Indicates the control block field from which this RECFMS-RU field is loaded. (See Volume 1 Section 1, “Data Area Layouts,” for field definitions.)

Notes:

1. Contains data for half-duplex lines. For duplex lines, the data is for the receive leg.
2. Contains zeros for half-duplex lines. For duplex lines, the data is for the transmit leg.

193(C1) ST4BAR (CCBBAR--transmit)* (See note.)		195(C3) ST4BCC (CCBBCC--transmit)* (See note.)	
197(C5) ST4STAT1 (CCBSTAT1--transmit)* (See note.)		199(C7) ST4END1 (CCBEND1)* (See note.)	
201(C9) ST4XDATA (CCBDATA--transmit)*			
205(CD) ST4XSTAR (CCBSTART--transmit)*			
209(D1) ST4XL3 (CCBL3--transmit)* (See note.)		211(D3) ST4XESTA (CCBESTAT--transmit)* (See note.)	
213(D5) ST4XCTL (CCBCTL--transmit)* (See note.)		215(D7) ST4XAFLD (CCBAFLD)	216(D8) Hex zeros
217(D9) ST4XSEL (CCBSEL)* (See note.)			
221(DD) ST4PPCMD (PSAPCMOD)*	222(DE) ST4PPSCF (PSAPSCF)*	223(DF) ST4PPDF (PSAPDF)*	224(E0) ST4PPCPC (PSAPCPC)*
225(E1) ST4PXMIT (PSAXMITC)*	226(E2) ST4PSSCF (PSASSCF)*	227(E3) ST4PCMD (PSACMD)*	228(E4) ST4PSES (PSASES)*
229(E5) ST4PLSTA (PSALSTAT)*	230(E6) ST4PSLCP (PSASLCP)*	231(E7) ST4PINLD (PSAINLD)*	232(E8) ST4PCPS1 (PSASCPS1)*
233(E9) ST5PRCS2 (PSASCPS2)*	234(EA) Hex zeros	235(EB) ST5PPCMD (PSAPCMOD)*	236(EC) ST5PPSCF (PSAPSCF)*
237(ED) ST5PPDF (PSAPDF)*	238(EE) ST5PPCPC (PSAPCPC)*	239(EF) ST5PXMIT (PSAXMITC)*	ST5PSSCF (PSASSCF)*

* Indicates the control block field from which this RECFMS-RU field is loaded. (See Volume 1 Section 1, "Data Area Layouts," for field definitions.)

Note: Contains zeros for half-duplex lines; the data is for the transmit leg.

24(F1) ST5PCMD (PSACMD)*	242(F2) ST5PSES (PSASES)*	243(F3) ST5PLSTA (PSALSTAT)	244(F4) ST5PSLCP (PSASLPC)*
245(F5) ST5PINLD (PSAINLD)*	246(F6) ST5PCPS1 (PSASCPS1)*	247(F7) ST5PCPS2 (PSASCPS2)*	248(F8) Hex zeros
249(F9) ST5LVID Release level ID			
ST5LVID Release level ID			
257(101) CCBRBLUC (See note 1.)		259(103) CCBCFLD--receive (See note 1.)	
261(105) CCBCFLD--transmit (See note 1.)		263(107) Mode control flags (CCBFLAG2)*	264(108) AXBFSTSV (See note 2.)

* Indicates the control block field from which this RECFMS-RU field is loaded. (See Volume 1 Section 1, "Data Area Layouts," for field definitions.)

Notes:

1. Expanded to a halfword (2 bytes) and moved from another location.
2. Correct SNA name.

Session Trace Data (PU Type 4—NCP)

Resource Type (ST1RETYP)=X'03' (PU Type 4—NCP)

- An unsolicited request or a reply to a REQMS request type (RU1RMTYP)=X'04' (session trace) and request type (ST10PT)=X'01' (request data).
- The session trace reporter (CXDKSTR) builds this RECFMS.

		RECFMS offset 55(37)	
		0(0) RU1BT0 Network services X'41'	
1(1) RU1BT1 Physical maintenance services X'03'	2(2) RU1RC2 Request code (RECFMS) X'84'	3(3) RU1NA Resource ID	
5(5) RU1REMS** RECFMS description RU1REMS1	RU1REMS2	7(7) RU1RMTYP** RECFMS type	8(8) RU1RFD2** RECFMS description 2 (first byte)
9(9) RU1RFD2** RECFMS description 2 (continued) (second, third, and fourth bytes)			12(C) Reserved
13(D) Reserved	14(E) ST1KOPT** Request type X'01' (data)	15(F) ST1LVID Level ID X'03' (Version 3)	16(10) ST1RETYP** Resource type ID
17(11) ST81ECB (PSB1ECB)*			
21(15) ST8LECB (PSBLECB)*			
25(19) ST8STAT (PSBSTAT)*	26(1A) ST8SCHED (PSBSCHED)*	27(1B) ST8ADRPS (PSBADRPS)*	
29(1D) ST8SSNPM (PSBSSNPM)*	30(1E) ST8PSTAT (PSBPSTAT)*	31(1F) ST8LDID (PSBLDID)*	

* Indicates the control block field from which this RECFMS-RU field is loaded. (See Volume 1 Section 1, “Data Area Layouts,” for field definitions.)

** Indicates a byte expansion follows at the end of this section.

33(21) ST8LDID (continued) (PSBLDID)*			
ST8LDID (continued) (PSBLDID)*		39(37) ST8LVID (PSBLVID)*	
41(29) ST8LVID (continued) (PSBLVID)*			
ST8LVID (continued) (PSBLVID)*		47(2F) ST8SSBT (PSBCRBP)*	48(30) ST8CSBEB (PSBCRBP)*
49(31) ST8SVTD (PSBCRBP)*	50(32) Hex zeros	51(33) ST8ADRPC (SNPADRPC)* (See note.)	
53(35) ST8PPSTA (SNPPSTAT)*	54(36) ST8SSTAT (SNPSTAT)*	55(37) ST8SNPM (SNPSNPM)*	56(38) ST8SNSC (SNPANSC)*
57(39) ST8SEQI (SNPSEQI)*		59(3B) ST8SEQ0 (SNPSEQ0)*	
61(3D) ST8STFLG (SNPSTFLG)*	62(3E) Reserved		

* Indicates the control block field from which this RECFMS-RU field is loaded. (See Volume 1 Section 1, "Data Area Layouts," for field definitions.)

Note: The SNP data is for the SSCP-to-NCP session on which the session-trace REQMS was received.

Session Trace Data (LU)

Resource Type (ST1RETYP)=X'04' (LU)

- An unsolicited request or a reply to a REQMS request type (RU1RMTYP)=X'04' (session trace) and request type (ST10PT)=X'01' (request data).
- The session trace reporter (CXDKSTR) builds this RECFMS.

RECFMS offset
55(37)

0(0)
RU1BT0
Network
services
X'41'

1(1) RU1BT1 Physical maintenance services X'03'	2(2) RU1RC2 Request code (RECFMS) X'84'	3(3) RU1NA Resource ID	
5(5) RU1REMS** RECFMS description RU1REMS1	RU1REMS1	7(7) RU1RMTYP** RECFMS type	8(8) RU1RFD2** RECFMS description 2 (first byte)
9(9) RU1RFD2** RECFMS description 2 (continued) (second, third, and fourth bytes)			12(C) Reserved
13(D) Reserved	14(E) ST1KOPT** Request type X'01' (data)	15(F) ST1LVID Level ID X'03' (Version 3)	16(10) ST1RETYP** Resource type ID
17(11) Reserved	18(12) ST6STRC (LUBSTRC)*	19(13) ST6OUTB1 (LUBOUTB1)*	
21(15) ST6OUTB2 (LUBOUTB2)*		23(17) ST6INB1 (LUBINB1)*	
25(19) ST6INB2 (LUBINB2)*	27(1B) Reserved		
29(1D) ST6L1ECB (LUL1ECB)*			

* Indicates the control block field from which this RECFMS-RU field is loaded. (See Volume 1 Section 1, "Data Area Layouts," for field definitions.)

** Indicates a byte expansion follows at the end of this section.

33(21) ST6LLECB (LULLECB)*			
37(25) ST6LSTAT (LULSTAT)*	38(26) ST6LCHED (LULSCHEd)*	39(27) ST6LTATP (LULSTATP)*	40(28) ST6LPREL (LULPREL)*
41(29) ST6NETAD (LULNETAD)*		43(2B) Reserved	
45(2D) ST6A1ECB (LUA1ECB)*			
49(31) ST6ALECB (LUALECB)*			
53(35) ST6ASTAT (LUASTAT)*	54(36) ST6ACHED (LUASCHED)*	55(37) ST6ATATP (LUASTATP)*	56(38) ST6APREL (LUAPREL)*
57(39) ST6SPART (LUASPART)*		59(3B) ST6CSTAT (LUBCSTAT)*	60(3C) ST6CPSET (LUBCPSET)*
61(3D) ST6CSSET (LUBCSSET)*	62(3E) ST6APSET (LUBAPSET)*	63(3F) ST6ASSET (LUBASSET)*	64(40) ST6M (LUBM)*
65(41) ST6N (LUBN)*	66(42) ST6MG (LUBMG)*	67(43) ST6NG (LUBNG)*	68(44) ST6PC (LUBPC)*
69(45) ST6LALU (LUBLALU)*	70(46) ST6PS (LUBPS)*	71(47) ST6UNBTP (LUBUNBTP)*	72(48) ST6PRADR (LUBPRADR)* (byte X)

* Indicates the control block field from which this RECFMS-RU field is loaded. (See Volume 1 Section 1, “Data Area Layouts,” for field definitions.)

73(49) ST6PRADR (continued) (LUBPRADR)* (byte 0 and byte 1) (See note.)	75(4B) ST6AOSLU (LUBAOSLU)* (See note.)
77(4D) ST6SOSLU (LUBSOSLU)* (See note.)	79(4F) ST6AOLLU (LUBAOLLU)* (See note.)
81(51) ST6SILLU (LUBSILLU)* (See note.)	83(53) ST6SOLLU (LUBSOLLC)* (See note.)
85(55) ST6SOLLS (LUBSOLLS)* (See note.)	87(57) ST61DGN (LUB1DGN)* (See note.)
89(59) ST7LVID (PSBLVID)*	
ST7LVID (PSBLVID)*	

* Indicates the control block field from which this RECFMS-RU field is loaded. (See Volume 1 Section 1, “Data Area Layouts,” for field definitions.)

Note: These fields are set to zero for non-PU type 1 LUs.

Session Trace Data (BSC/SS)

Resource Type (ST1RETYP)=X'05' Pre-SNA (BSC/SS)

- An unsolicited request or a reply to a REQMS request type (RU1RMTYP)=X'04' (session trace) and request type (ST10PT)=X'01' (request data).
- The session trace reporter (CXDKSTR) and CXDISTC build this RECFMS.

RECFMS offset
55(37)

0(0)
RU1BT0
Network
services
X'41'

1(1) RU1BT1 Physical maintenance services X'03'	2(2) RU1RC2 Request code (RECFMS) X'84'	3(3) RU1NA Resource ID	
5(5) RU1REMS** RECFMS description RU1REMS1	RU1REMS2	7(7) RU1RMTYP** RECFMS type	8(8) RU1RFD2** RECFMS description 2 (first byte)
9(9) RU1RFD2** RECFMS description 2 (continued) (second, third, fourth bytes)			12(C) Reserved
13(D) Reserved	14(E) ST1KOPT** Request type X'01' (data)	15(F) ST1LVID Level ID. (See note.)	16(10) ST1RETYP** Resource type ID
17(11) Reserved	18(12) ST9OUTB1 (DVBOUTB1)*	19(13) ST6OUTB2 (LUBOUTB2)*	20(14) ST9OUTB3 (DVBOUTB3)*
21(15) ST9INB1 (DVBINB1)*	22(16) ST9STAT (DVISTAT)*	23(17) ST9RID (DVBRID)*	
25(19) ST9Q1ECB (DVQ1ECB)*			
29(1D) ST9QLECB (DVQLECB)*			

* Indicates the control block field from which this RECFMS-RU field is loaded. (See Volume 1 Section 1, "Data Area Layouts," for field definitions.)

** Indicates a byte expansion follows at the end of this section.

33(21) ST9I1ECB (DVI1ECB)*			
37(25) ST9ILECB (DVI1ECB)*			
41(29) ST9SCHED (DVISCHED)*	42(24) ST9FEAT1 (DVBFEAT1)*	43(2B) ST9FEAT2 (DVBFEAT2)*	44(2C) ST9TYPE (DVBTYP)*
45(2D) ST9SDRT (DVBSDRT)*			
49(31) ST9ABNM (DVBABNM)*	50(32) ST9SDRE (DVBSDRE)*	51(33) ST9SESSC (DVSESSC)*	52(34) ST9SRTR (DVBSRTR)*
53(35) ST9OLDSP (DVBOLDSP)*		55(37) ST9SRTT (DVBSRTT)*	
57(39) ST9BSTAT (DVBSTAT)*	58(3A) ST9STAT2 (DVBSTAT2)*	59(3B) ST9DMF (DVBDMF)*	
61(3D) ST9PCC (DVBPC)*	62(3E) ST9STAT3 (DVBSTAT3)*	63(3F) ST9SP (DVBSP)	
65(41) ST9TLIM (DVBTLM)* (See note.)	66(42) ST9TCNT (DVBCNT)* (See note.)	67(43) ST9ISTAT (LCISTAT)*	68(44) ST9WSTAT (LCWSTAT)*
69(45) ST9CI1EC (LCI1EC)*			

* Indicates the control block field from which this RECFMS-RU field is loaded. (See Volume 1 Section 1, "Data Area Layouts," for field definitions.)

Note: These fields are zero if the polling or addressing extension does not exist.

73(49)			
ST9CILEC (LCILECB)*			
77(4D)			
ST9BHSET (LCIBHSET)*			
81(51)			
ST9W1ECB (LCW1ECB)*			
85(55)			
ST9WLECB (LCWLECB)*			
89(59)			
STALSTAT (LCBLSTAT)*	STALTCTP (LCBLTCTP)*		
93(5D)			
STADVBP (LCBDVBP)*			
97(61) STAMFLAG (LCBMFLAG)*	98(62) STASNPM (LCBSNPM)*	99(63) STASST (LCBSST)*	100(64) STAALARM (LCBALARM)*
101(65) STASSP (LCBSSP)*		103(67) STAFEAT1 (LCBFAT1)*	104(68) STALST2 (LCBLST2)*
105(69) STAACTNS (LCBACTNS)*	106(6A) STAERPC (LCBERPC)*	107(6B) STACOFFC (LCBCOFFC)*	108(6C) STAIOCOM (LCBIOCOM)*
109(6D) STACSCNT (LCBCSCNT)*		111(6F) STARID (LCBRID)*	

* Indicates the control block field from which this RECFMS-RU field is loaded. (See Volume 1 Section 1, "Data Area Layouts," for field definitions.)

113(71) STAENAKL (LCBENAKL)* (See note.)	114(72) STAESERL (LCBESERL)* (See note.)	115(73) STAMS (LCBMS)* (See note.)	116(74) STAAS (LCBAS)* (See note.)
117(75) STACS (LCBCS)* (See note.)	118(76) STAWS (LCBWS)* (See note.)	119(77) STAENOD (LCBENOD)* (See note.)	120(78) STAEDIG (LCBEDIG)* (See note.)
121(79) STASOTCT (LCBSOTCT)* (See note.)	122(7A) Reserved		
125(7D) STATCTL (AXBCTL)*	126(7E) STACMD1 (AXBCMD1)*	127(7F) STACMD2 (AXBCMD2)*	128(80) STACMD3 (AXBCMD3)*
129(81) STASTAT1 (AXBSTAT1)*		131(83) STASTAT2 (AXBSTAT2)*	
133(85) STASTAT3 (AXBSTAT3)*		135(87) STAIMCTL (IOBIMCTL)*	136(88) STACMAND (IOBCMAND)*
137(89) STACMODS (IOBCMODS)*		139(8B) STASTAT (IOBSTAT)*	
141(8D) STAERST (IOBERST)*		143(8F) STAEREST (IOBEREST)*	144(90) STARTYCT (IOBRTYCT)*
145(91) STABKSIZ (IOBKSIZ)*		147(93) STAEXTST (IOBEXTST)*	148(94) Reserved
149(95) STAL2 (CCBL2)*		151(97) STASTATE (CCBSTATE)*	

* Indicates the control block field from which this RECFMS-RU field is loaded. (See Volume 1 Section 1, “Data Area Layouts,” for field definitions.)

Note: These fields are zero if the multipoint extension does not exist.

153(99) STATIME (CCBTIME)*		155(9B) STABAR (CCBBAR)*	
157(9D) STABCC (CCBBCC)*		159(9F) STACNTS (CCBCNTS)*	
161(A1) STBSTAT1 (CCBSTAT1)*		163(A3) STBEND1 (CCBEND1)*	
165(A5) STBDATA (CCBDATA)*			
169(A9) STBSTART (CCBSTART)*			
173(AD) STBHDBUF (CCBHDBUF)*			
177(B1) STBL3 (CCBL3)*		179(B3) STBSTAT2 (CCBSTAT2)*	180(B4) STBERCNT (CCBERCNT)*
181(B5) STBCTL (CCBCTL)*		183(B7) STBESTAT (CCBESTAT)*	
185(B9) STBCRTN (CCBCRTN)*	185(BA) STBLCNT (CCBLCNT)*	187(BB) STBLCTRP (CCBLCTRP)*	188(BC) Reserved
189(BD) STBLAT0 (CCBLAT0)*		191(BF) STBNCFL (CCBNCFL)*	192(C0) STBOFSET (CCBOFSET)*

* Indicates the control block field from which this RECFMS-RU field is loaded. (See Volume 1 Section 1, "Data Area Layouts," for field definitions.)

Network Management
 Vector Transport
 (NMVT) offset
 55(37)

0(0) RU1BT0 Network services X'41'
--

1(1) RU1BT1 Physical maintenance services X'03'	2(2) RU1BT3 Request code (NMVT) X'8D'	3(3) Reserved
5(5) PRID value	7(7) MSUFLAGS* Sequence and control flags for NMVT	

* Indicates a byte expansion follows at the end of this section.

Enable Session Trace or Inhibit Session Trace Request Type

- A reply to record formatted maintenance statistics (REQMS) request types X'02', X'03', X'04', or X'05'
- Built by the session trace reporter (CXDKSTR).

RECFSM offset 55(37)			
0(0)			
RUIBT0 Network services X'41'			
1(1) RUIBT1 Physical maintenance services X'03'	2(2) RUIRC2 Request code (RECFSM) X'84'	3(3) RUIINA Resource ID	
5(5) RUIREMS* RECFSM description RUIREMS1	RUIREMS1	7(7) RUIRMTYP* RECFSM type	8(8) RUIRFD2* RECFSM description 2 (first byte)
9(9) RUIRFD2* RECFSM description 2 (continued) (second, third, fourth bytes)			12(C) Reserved
13(D) Reserved	14(E) STIKOPT* Request type	15(F) ST1LVLID Level ID X'03' (Version 3)	16(10) STIRETYP* Resource type ID

* Indicates a byte expansion follows at the end of this section.

Engineering Change (EC) Level Data

MOSS requests buffers from NCP, then builds and sends this RECFMS PIU, using NCP (CXAMPIUI), to the originator of the requesting REQMS type X'05'.

			RECFS offset 55(37)
			0(0) RU1BT0 Network services X'41'
1(1) RU1BT1 Physical maintenance services X'03'	2(2) RU1RC2 Request code (RECFMS) X'84'	3(3) RU1NA Controller PU element address	
5(5) RU1REMS X'1000'=element address in RU1NA is PU.T4		7(7) RU1RMTYP RECFMS type 05 X'85'	8(8) RU1RFB1 Plant ID (PSBMIS1)**
9(9) RU1RFB2 Box serial number (PSBMIS1)**		RU1RFB3 (PSBMIS1)**	RU1RFB4 Reserved
13(D) Reserved	14(E) Microcode level		
Microcode level			
Microcode level			24(18) Control program type
25(19) Customer ID		71(47) Machine type	

** Indicates the control block from which this RECFMS-RU field is loaded. (See Volume 1 Section 1, “Data Area Layouts,” for field definitions.)

73(49) Machine type (continued)	75(4B) Model ID
77(4D) Machine serial number	
81(51) Machine serial number (continued)	
85(55) Number of entries in the ZAP historical data field	86(56) - 255(FF) ZAP historical data. Up to 10 entries of the most recently applied MOSS microcode patches. Each entry contains the ZAP ID (12 bytes), status (1 byte), and applications date (3 bytes). Zeros pad the storage locations between the last entry and offset 255(FF).

Link Problem Determination Aid (LPDA)

- An unsolicited LPDA request or a reply to a REQMS (solicited LPDA request).
- The LPDA terminator (CXDKCET) builds this RECFMS.

		RECFS offset 55(37)	
		0(0) RU1BT0 Network services X'41'	
1(1) RU1BT1 Physical maintenance services X'03'	2(2) RU1RC2 Request code (RECFMS) X'84'	3(3) RU1NA Resource ID for the device to be tested	
5(5) RU1REMS* RECFMS description RU1REMS1	RU1REMS2	7(7) RU1RMTYP* RECFMS type	8(8) RU1RFD2* RECFMS description 2 (first byte)
9(9) RU1RFD2* RECFMS description 2 (continued) (second, third, fourth bytes)		12(C) Hex zeros	
13(D) Hex zeros	14(E) RU1LKSS* Request type	15(F) RU1LST** Link subsystem type	16(10) RU1LCB1** or LPDCB LPDA control (first byte)
17(11) RU1LCB2* or LPDCB2 LPDA control (second byte)	18(12) LPDRS LPDA remote status		20(14) LPDLS LPDA local status
LPDLS LPDA local status	22(16) LPDLRT LPDA local and remote test results		

* Indicates a byte expansion follows at the end of this section.

** Link subsystem supported:

X'01' IBM modems supported

X'02' 3867 modem supported in LPDA1 mode.

25(19) LPDDTES LPDA DTE interface status		27(1B) LPDFCHTB Channelization and tailing information. (See note.)	28(1C) LPDFCRN Channelization and tailing correlation number
LPDFCRN Channelization and tailing correlation number	30(1E) LPDFLSX0 Local receive DB information	31(1F) Hex zeros	
33(21) Hex zeros			
Hex zeros	38(26) LPDFRSX0 Remote receive DB information	39(27) Hex zeros	
41(29) Hex zeros			
Hex zeros	46(2E) LPDFRTX0 Remote SDLC LPDA address	47(2F) Hex zeros	
49(31) Hex zeros			
Hex zeros			

Note: See LCBCANDT in "Line Control Block (BSC/SS)" or LKBCANDT in "Line Control Block (SDLC)" in Volume 1 Section 1 for the byte expansion.

Byte Expansions

Offset/Field Name	Bit Pattern/Hex Value	Contents
5(5) RU1REMS		RECFMS description
	Byte 0	
	xx..	Reserved
	..xx	Resource ID description
	.... xxxx	Procedure related identifier (PRID)
	Byte 1	
	xxxx xxxx	PRID
	X'1000'	Element address in RU1NA is a PU type 4.
7(7) RU1RMTYP		RECFMS type
	x...	1 = Solicited request 0 = Unsolicited request
	.1..	Not the last request indicator
	..00 0000	Alert message
	..00 0010	Summary error data
	..00 0100	Session trace
	..00 0101	Engineering change (EC) level data
	..00 0110	Link problem determination aid (LPDA) type code
7(7) MSUFLAGS		Sequence and control flags for Network Management Vector Transport (NMVT)
	x...	1 = Solicited data 0 = Unsolicited data
	.10.	First NMVT of a group
	.11.	Middle NMVT of a group
	.01.	Last NMVT of a group
	.00.	Only NMVT
	...x	1 = Reply to dynamic threshold alteration request or dynamic LPDA request 0 = Reply to a Session Information Retrieval (SIR) request
	.... xxxx	Reserved
8(8) RU1RFD2		RECFMS description 2
	Byte 1	
	xxxx xxxx	Block number
	Byte 2	
	xxxx	Block number
	.... xxxx	Block number
	Byte 3	
	xxxx xxxx	ID number associated with the sending PU
	Byte 4	
	xxxx xxxx	ID number associated with the sending PU
14(E) RU1LKSS		LPDA request type
	X'02'	Request long link status
	X'03'	Request remote DTE interface status
	X'04'	Remote self-test

Offset/Field Name	Bit Pattern/ Hex Value	Contents
14(E) ST1KOPT		Session trace request type
	X'01'	Report-data request
	X'02'	Enable trace request for a specific resource
	X'03'	Inhibit trace request for a specific resource
	X'04'	Enable trace request for all resources
	X'05'	Inhibit trace request for all resources
	X'06'	Request station status
		Summary counter validity mask
	1...	Machine check counter
	.1..	Communication check counter
	..1.	SNA error counter (bits 3 through 7 reserved)
16(10) RU1LCB1		LPDA control byte 1 (validity indicators of test results)
	xx..	Remote modem status
	..xx	Local modem status
	.... xx..	Local and remote modem self test
	.... ..x.	Modem type: 0 = No integrated modem 1 = Integrated modem.
	.... ...x	Reserved
16(10) ST1RETYP		Session trace resource type ID
	X'01'	PU type 1
	X'02'	PU type 2
	X'03'	PU type 4 (NCP)
	X'04'	LU
	X'05'	Non-SNA (BSC/SS)
	X'06'	SNA PU type 4
17(11) RU1LCB2		LPDA control byte 2 (validity indicators of test results)
	xx..	Remote DTE interface status where: 00 = Data valid 01 = Data invalid—no response 10 = Data invalid—bad response 11 = Data invalid—execution not attempted.
	..xx xx..	Reserved
	.... ..xx	RU length indicator where: 00 = RU is 27 bytes long. 01 = RU is 54 bytes long.

Network Management Vector Transport (NMVT) Request/Response Unit (RU) Formats

Section 16. Network Management Vector Transport (NMVT) Request/Response Unit (RU)

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Section 16. Network Management Vector Transport (NMVT) Request/Response Unit (RU) Formats

Summary of NMVT RU Formats

NCP sends unsolicited reply NMVT PIUs to either the NetView program or Network Problem Determination Aid (NPDA) or solicits positive reply NMVT PIUs or error NMVT PIUs and responses. Table 16-1 lists, by major vector key, the NMVT requests that are received and the replies that are sent by NCP. The RU formats for these are located after the table. RU formats for the subvectors and their subfields are located at the end of this section. The number in the second column is the cross reference to the request or reply from the "Network Management Vector Transport (NMVT) Subvector List" on page 16-104. The cross-reference number can be found in the note section preceding each RU format.

Table 16-1 (Page 1 of 4). NMVT Requests and Replies for NCP

Major Vector Key	Cross Reference	NMVT PIU Description	Page
X'0000'	47	Alert due to a Logical Frame-relay Line Failure Caused by a Physical Frame-relay Line Failure	16-6
X'0000'	48	Alert due to a Logical Frame-relay Line Failure Caused by Forced Deactivation of a Physical Frame-relay Line	16-7
X'0000'	52	Alert due to Frame-relay DLCI Mismatch between Adjacent Frame Relay Nodes	16-8
X'0000'	53	Alert due to LMI Configuration Mismatch between Adjacent Frame Relay Nodes	16-9
X'0000'	54	Alert due to Frame-relay Subport Failure Caused by a Deleted DLCI	16-10
X'0000'	55	Alert due to Frame-relay Subport(s) Failure Caused by Inactive DLCI	16-12
X'0000'	56	Alert due to LMI Error Threshold Reached on Frame-relay Physical Line	16-13
X'0000'	57	Alert due to Frame-relay FRSE Subport Failure Caused by the Deletion of its FRSE Subport Partner	16-14
X'0000'	58	Alert due to FRSE Substitute Subport Failure Caused by LMI Configuration Mismatch	16-15
X'0000'	91	Frame-relay Microcode Mismatch Alert	16-16
X'0000'	49	NCP ETSS CSMA/CD LAN No-carrier Generic Alert	16-17
X'0000'	65	Down-Level ESS Adapter Microcode Alert	16-18
X'0000'	66	Owning TCP/IP Host Down Alert	16-19
X'0000'	67	Bad NCPROUTE Datagram Alert	16-20
X'0000'	88	Hello Threshold Reached Alert	16-21
X'0000'	89	NCPROUTE Connection Activation Failed Alert	16-22
X'0000'	51	Alert due to a Blocked Virtual Route	16-23
X'0000'	72	Alert due to a Virtual Route Out-of-Sequence	16-24
X'0000'	70	SNA Protocol Error Alert	16-25

Table 16-1 (Page 2 of 4). NMVT Requests and Replies for NCP

Major Vector Key	Cross Reference	NMVT PIU Description	Page
X'0000'	71	NCST Logic Error Alert	16-26
X'0000'	1	Alert Generated by NTRI (Physical Link)	16-27
X'0000'	3	Alert Generated by NTRI	16-28
X'0000'	4a	Alert due to a Modem Dial-Out Failure (NCP Case)	16-29
X'0000'	4b	Alert due to a Modem Dial-Out Failure (NEO Case)	16-30
X'0000'	73	ODLC Token-ring Logical Resource Failure Caused by Failure of the Physical Link	16-31
X'0000'	74	ODLC Token-ring CONNOUT Failure - Invalid Dial Digits	16-32
X'0000'	75	ODLC Token-ring CONNOUT Failure - Physical Resource Not Operational	16-33
X'0000'	76	ODLC Token-ring Notify Call Indication LDPSA Rejection due to No Logical Resources Available	16-34
X'0000'	77	ODLC Token-ring CONNOUT Failure - Incoming Call Collision	16-35
X'0000'	78	ODLC Permanent Station/Link Error Alert	16-36
X'0000'	79	ODLC Permanent Link Error Alert - ESCA Forced Deactivation	16-37
X'0000'	87	Usage Tier Exceeded Generic Alert	16-38
X'0000'	60	Alert Threshold for Dynamic Control Blocks Reached	16-39
X'0000'	61	Buffers for Dynamic Control Blocks Depleted	16-40
X'0000'	62	Allocation for Dynamic Control Blocks failed: Too Close to Slow-down	16-41
X'0000'	63	First Dynamic Control Block Allocated	16-42
X'0000'	64	Allocation for Control Blocks Failed due to Genned Limit	16-43
X'0001'	5	LK-EVENT Reply due to a Line Permanent Error on a Non-Tailed Line	16-44
X'0001'	6	LK-EVENT Reply due to a Line Permanent Error on a Tailed Line	16-45
X'0001'	7	LK-EVENT Reply due to a Station Permanent Error on a Non-Tailed SDLC Line	16-46
X'0001'	8	LK-EVENT Reply due to a Station Permanent Error on a Tailed SDLC Line	16-48
X'0001'	9	LK-EVENT Reply due to a BSC Terminal Permanent Error on a Non-Tailed BSC Line	16-50
X'0001'	10	LK-EVENT Reply due to a BSC Terminal Permanent Error on a Tailed BSC Line	16-52
X'0001'	68	LK-EVENT Generated for Frame-relay (Logical Line)	16-54
X'0001'	11	Format for a LK-EVENT Generated by NTRI (Logical Link)	16-55
X'0001'	80	LK-EVENT for ODLC Station/Link Error	16-56
X'0010'	12	Error Reply to Modify Session Information Retrieval Data Request or to a Query Data Request	16-72
X'0010'	13	Common Data and Control Block Data for a Session Information Retrieval Query Data Reply for SNI Session	16-74

Table 16-1 (Page 3 of 4). NMVT Requests and Replies for NCP

Major Vector Key	Cross Reference	NMVT PIU Description	Page
X'0010'	14	Common Data and Control Block Data for a Session Information Retrieval Query Data Reply for SSCP-LU or LU-LU Session	16-76
X'0010'	15	Common Data and Control Block Data for a Session Information Retrieval Query Data Reply for SSCP-PUT4 or PUT4-PUT4 Session	16-77
X'0010'	16	Common Data and Control Block Data for a Session Information Retrieval Query Data Reply for an SSCP-PUT2 Session (Duplex Case)	16-78
X'0010'	17	Common Data and Control Block Data for a Session Information Retrieval Query Data Reply for an SSCP-PUT2 Session (Half-Duplex Case)	16-80
X'0010'	18	Common Data and Control Block Data for a Session Information Retrieval Query Data Reply for an SSCP-PUT2 Session (OEM Case)	16-82
X'0010'	19	Reply to a Request to Modify Session Information Retrieval Data for a Specific Resource	16-84
X'0010'	20	Reply to a Request to Modify SIR Data for All SNI Resources, All Boundary Resources, All Boundary and All SNI Resources, and All Resources for a Specific NAU	16-86
X'0010'	81	Query Flow Control Reply	16-88
X'0020'	21	LCSDIAG Modem Positive Reply	16-90
X'0020'	22	LCSDIAG Modem Negative Reply	16-91
X'0025'	23	PDSTATS Reply due to a Statistical Event for a Non-Tailed SDLC Line	16-57
X'0025'	24	PDSTATS Reply due to a Statistical Event for a Tailed SDLC Line	16-59
X'0025'	25	PDSTATS Reply due to a Statistical Event for a Non-Tailed BSC Line	16-61
X'0025'	26	PDSTATS Reply due to a Statistical Event for a Tailed BSC Line	16-62
X'0025'	69	PDSTATS Generated for Frame-relay (Logical Line)	16-63
X'0025'	27	PDSTATS Generated by NTRI (Physical Link)	16-64
X'0025'	28	PDSTATS Generated by NTRI (Logical Link)	16-65
X'0025'	50	PDSTATS for Ethernet Counter	16-66
X'0025'	82	PDSTATS for ODLC Station Statistics	16-67
X'0090'	29	Product Set ID Reply	16-93
X'0091'	30	LCSOPCTL Modem Positive Reply	16-95
X'0091'	31	LCSOPCTL Modem Negative Reply	16-96
X'00A0'	32	Query Link Attributes Reply	16-98
X'00A0'	33	Set Link Attributes Reply	16-100
X'00A0'	34	Query Link Station Attributes Reply	16-102
X'00A0'	35	Alter Link Station Attributes Reply	16-104

Table 16-1 (Page 4 of 4). NMVT Requests and Replies for NCP

Major Vector Key	Cross Reference	NMVT PIU Description	Page
X'00A0'	36	Error Reply to a Set or Query Link Attributes Request or an Alter or Query Link Station Attributes Request	16-71
X'1330'	83	Common Management Information Protocol (CMIP) Link Data	16-68
X'1330'	84	Common Management Information Protocol (CMIP) Station Data	16-69
X'1332'	59	Link Configuration Data	16-70
X'8010'	37	Session Information Retrieval Query Data Request	16-73
X'8010'	38	Modify Request for Session Information Retrieval Data for a Specific Resource	16-83
X'8010'	39	Modify Request for SIR Data for All SNI Resources, All Boundary Resources, All Boundary and All SNI Resources, and All Resources for a Specific NAU	16-85
X'8010'	86	Query Flow Control Request	16-87
X'8020'	40	LCSDIAG Modem Request	16-89
X'8090'	41	Product Set ID Request	16-92
X'8091'	42	LCSOPCTL Modem Request	16-94
X'80A0'	43	Query Link Attributes Request	16-97
X'80A0'	44	Set Link Attributes Request	16-99
X'80A0'	45	Query Link Station Attributes Request	16-101
X'80A0'	46	Alter Link Station Attributes Request	16-103
		NMVT Subvector List	16-104

NCP NMVT PIU records are identified by RU bytes 1 and 2. "NMVT RU Header Format" on page 16-5 is common to all NMVT requests, responses, and replies. RU byte 1=X'03' and RU byte 2=X'8D'. Bytes 3 and 4 are reserved; bytes 5 and 6 contain the procedure related identifier (PRID) information; byte 7 contains NMVT chaining bits and other information. Byte 8 is the beginning of the NMVT record and is the first of a 2-byte major vector length field. Bytes 10 and 11 contain the major vector key, which distinguishes between the types of NMVT records.

All subvectors and subfields begin with 1-byte length and key fields. The subvectors occur in any order, but it is important to understand that a major vector and its set of subvectors uniquely identifies an NMVT. Therefore, if you have a major vector key, go to that vector's section in the following pages and map your group of subvectors (appearing in your NMVT) to the NMVT formats. You will find one NMVT that matches your combination of major vectors and subvectors. Once inside the subvectors, it is essential that you pay close attention to the subfield length and key values because the subfields may appear in any order and some may not be present in all subvectors. The RU formats for the subvectors with their associated subfields follow the RU formats for the NMVT requests and replies.

NMVT RU Header Format

Common to all NMVT requests, responses, and replies

		0(0) RU1BT0 Network services X'41'	
1(1) RU1BT1 Physical maintenance services X'03'	2(2) RU1BT3 Request code (NMVT) X'80'	3(3) Reserved	
5(5) PRID value		7(7) MSUFLAGS* Sequence and control flags for NMVT	

* Indicates a byte expansion follows.

Byte Expansions

Offset/Field Name	Bit Pattern/ Hex Value	Contents
7(7) MSUFLAGS		Sequence and control flags for NMVT
	x... ..	1 = Solicited data 0 = Unsolicited data
	.10.	First NMVT of a group
	.11.	Middle NMVT of a group
	.01.	Last NMVT of a group
	.00.	Only NMVT
	...x	1 = SNA address list (SAL) translation required. The SAL must be present and is the first subvector in the NMVT 0 = SNA address list translation not required. The SAL may or may not be present. It may or may not be first subvector in the NMVT
	.... xxx.	Reserved
	.... ...1	LPDA2 test for secondary circuit of a DMPX non-port A line (unsolicited) (MSUSEC)

Alert Due to a Logical Frame Relay Line Failure Caused by a Physical Frame Relay Line Failure

Note: 47 is the cross reference number of this request or reply from the "Network Management Vector Transport (NMVT) Subvector List" on page 16-104. A list of all cross reference numbers can be found in Table 16-1 on page 16-1.

		8(8) Major vector length (byte 1) X'00'
9(9) Major vector length (byte 2)	10(A) Major vector key X'0000'	12(C)
	See subvector key X'04' (SNA Address List).	
	22(16) - n	
	See subvector key X'05' (Hierarchy Resource List).	
(n+1) - p	See subvector key X'10' (Product Set Identifier).	
	(p+1) - (p+7)	
	See subvector key X'42' (Relative Time).	
	(p+8) - r	
	See subvector key X'52' (LCS Configuration Data)	
	(r+1) - s	
	See subvector key X'53' (SDLC Link Station Counters)	
(s+1) - t	See subvector key X'92' (Generic Alert Data).	(t+1) - u
	See subvector key X'93' (Generic Alert Probable Causes).	(u+1) - v
	See subvector key X'96' (Generic Alert Failure Causes).	

Alert Due to a Logical Frame Relay Line Failure Caused by Forced Deactivation of a Physical Frame Relay Line

Note: 48 is the cross reference number of this request or reply from the “Network Management Vector Transport (NMVT) Subvector List” on page 16-104. A list of all cross reference numbers can be found in Table 16-1 on page 16-1.

		8(8) Major vector length (byte 1) X'00'
9(9) Major vector length (byte 2)	10(A) Major vector key X'0000'	12(C) - 21(15)
	See subvector key X'04' (SNA Address List).	
	22(16) - n	
	See subvector key X'05' (Hierarchy Resource List).	
(n+1) - p	See subvector key X'10' (Product Set Identifier).	
	(p+1) - (p+7)	
	See subvector key X'42' (Relative Time).	
	(p+8) - r	
	See subvector key X'52' (LCS Configuration Data)	
	(r+1) - s	
	See subvector key X'53' (SDLC Link Station Counters)	
(s+1) - t	See subvector key X'92' (Generic Alert Data).	
	(t+1) - u	
	See subvector key X'93' (Generic Alert Probable Causes).	
	(u+1) - v	
	See subvector key X'94' (Generic Alert User Causes).	

Alert Due to Frame Relay DLCI Mismatch between Adjacent Frame Relay Nodes

Note: 52 is the cross reference number of this request or reply from the "Network Management Vector Transport (NMVT) Subvector List" on page 16-104. A list of all cross reference numbers can be found in Table 16-1 on page 16-1.

		8(8) Major vector length (byte 1)
9(9) Major vector length (byte 2)	10(A) Major vector key X'0000'	12(C)
	See subvector key X'04' (SNA Address List--Single Network Address)	
	22(16) - m	
	See subvector key X'10' (Product Set Identifier)	
	(m+1) - (m+7)	
	See subvector key X'42' (Relative Time)	
(m+8) - (m+18)	See subvector key X'92' (Generic Alert Data)	
	(m+19) - (m+22)	
	See subvector key X'93' (Generic Alert Probable Causes)	
	(m+23) - (m+36)	
	See subvector key X'95' (Generic Alert Install Causes)	
	(m+37) - n	
	See subvector key X'52' (Link Connection Subsystem Configuration Data (Frame Relay)) More than one SV X'52' may be included	

Alert Due to LMI Configuration Mismatch between Adjacent Frame Relay Nodes

Note: 53 is the cross reference number of this request or reply from the "Network Management Vector Transport (NMVT) Subvector List" on page 16-104. A list of all cross reference numbers can be found in Table 16-1 on page 16-1.

		8(8) Major vector length (byte 1)
9(9) Major vector length (byte 2)	10(A) Major vector key X'0000'	12(C)
	See subvector key X'04' (SNA Address List--Single Network Address)	
	22(16) - m	
	See subvector key X'10' (Product Set Identifier)	
	(m+1) - (m+7)	
	See subvector key X'42' (Relative Time)	
(m+8) - (m+18)	See subvector key X'92' (Generic Alert Data)	
	(m+19) - (m+24)	
	See subvector key X'93' (Generic Alert Probable Causes)	
	(m+25) - (m+64)	
	See subvector key X'95' (Generic Alert Install Causes)	
	(m+65) - n	
	See subvector key X'52' (Link Connection Subsystem Configuration Data (Frame Relay)) More than one SV X'52' may be included	

Alert due to Frame Relay Support Failure Caused by a Deleted DLCI

Note: 54 is the cross reference number of this request or reply from the "Network Management Vector Transport (NMVT) Subvector List" on page 16-104. A list of all cross reference numbers can be found in Table 16-1 on page 16-1.

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		8(8) Major vector length (byte 1)
9(9) Major vector length (byte 2)	10(A) Major vector key X'0000'	12(C)
	See subvector key X'04' (SNA Address List--Single Network Address)	
	22(16) - m	
	See subvector key X'05' (Hierarchy/Resource List)	
(m+1) - n	See subvector key X'10' (Product Set Identifier)	
(n+1) - (n+7)	See subvector key X'42' (Relative Time)	
		(n+8) - p
	See subvector key X'52' (Link Connection Subsystem Configuration Data (Frame Relay))	
(p+1) - q	See subvector key X'53' (FRTE only) (Link Station Counters)	
(q+1) - (q+11)	See subvector key X'92' (Generic Alert Data)	
		(q+12) - (q+15)
	See subvector key X'93' (Generic Alert Probable Causes)	
		(q+16) - (q+34)
	See subvector key X'94' (Generic Alert User Causes)	
	(q+35) - (q+55)	
	See subvector key X'95' (Generic Alert Install Causes)	

Alert due to Frame Relay Support(s) Failure Caused by Inactive DLCI

Note: 55 is the cross reference number of this request or reply from the "Network Management Vector Transport (NMVT) Subvector List" on page 16-104. A list of all cross reference numbers can be found in Table 16-1 on page 16-1.

		8(8) Major vector length (byte 1)
9(9) Major vector length (byte 2)	10(A) Major vector key X'0000'	12(C)
	See subvector key X'04' (SNA Address List--Single Network Address)	
	22(16) - m	
	See subvector key X'10' (Product Set Identifier)	
	(m+1) - (m+7)	
	See subvector key X'42' (Relative Time)	
(m+8) - (m+18)	See subvector key X'92' (Generic Alert Data)	(m+19) - (m+22)
	See subvector key X'93' (Generic Alert Probable Causes)	(m+23) - n
	See subvector key X'96' (Generic Alert Failure Causes)	(n+1) - p
	See subvector key X'52' (Link Connection Subsystem Configuration Data (Frame Relay)) More than one SV X'52' may be included	

Alert due to LMI Error Threshold Reached on Frame Relay Physical Line

Note: 56 is the cross reference number of this request or reply from the "Network Management Vector Transport (NMVT) Subvector List" on page 16-104. A list of all cross reference numbers can be found in Table 16-1 on page 16-1.

		8(8) Major vector length (byte 1)
9(9) Major vector length (byte 2)	10(A) Major vector key X'0000'	12(C)
	See subvector key X'04' (SNA Address List--Single Network Address)	
	22(16) - m	
	See subvector key X'10' (Product Set Identifier)	
	(m+1) - (m+7)	
	See subvector key X'42' (Relative Time)	
(m+8) - n	See subvector key X'52' (Link Connection Subsystem Configuration Data (Frame Relay))	
(n+1) - (n+11)	See subvector key X'92' (Generic Alert Data)	
	(n+12) - (n+17)	
	See subvector key X'93' (Generic Alert Probable Causes)	
	(n+18) - (n+46)	
	See subvector key X'96' (Generic Alert Failure Causes)	

Alert Due to Frame Relay FRSE Subport Failure Caused by the Deletion of its FRSE Subport Partner

Note: 57 is the cross reference number of this request or reply from the "Network Management Vector Transport (NMVT) Subvector List" on page 16-104. A list of all cross reference numbers can be found in Table 16-1 on page 16-1.

		8(8) Major vector length (byte 1)
9(9) Major vector length (byte 2)	10(A) Major vector key X'0000'	12(C) - 21(15)
	See subvector key X'04' (SNA Address List--Single Network Address)	
	22(16) - m	
	See subvector key X'05' (Hierarchy/Resource List)	
(m+1) - n	See subvector key X'10' (Product Set Identifier)	
(n+1) - (n+7)	See subvector key X'42' (Relative Time)	
		(n+8) - (n+20)
	See subvector key X'52' (Link Connection Subsystem Configuration Data (Frame Relay))	
(n+21) - (n+31)	See subvector key X'92' (Generic Alert Data)	
		(n+32) - (n+35)
	See subvector key X'93' (Generic Alert Probable Causes)	
		(n+36) - p
	See subvector key X'94' (Generic Alert User Causes)	

Alert Due to FRSE Substitute Support Failure Caused by LMI Configuration Mismatch

Note: 58 is the cross reference number of this request or reply from the "Network Management Vector Transport (NMVT) Subvector List" on page 16-104. A list of all cross reference numbers can be found in Table 16-1 on page 16-1.

		8(8) Major vector length (byte 1)
9(9) Major vector length (byte 2)	10(A) Major vector key X'0000'	12(C) - 21(15)
	See subvector key X'04' (SNA Address List--Single Network Address)	
	22(16) - m	
	See subvector key X'05' (Hierarchy/Resource List)	
(m+1) - n	See subvector key X'10' (Product Set Identifier)	
(n+1) - (n+7)	See subvector key X'42' (Relative Time)	
		(n+8) - (n+20)
	See subvector key X'52' (Link Connection Subsystem Configuration Data (Frame Relay))	
(n+21) - (n+31)	See subvector key X'92' (Generic Alert Data)	
		(n+32) - (n+37)
	See subvector key X'93' (Generic Alert Probable Causes)	
	(n+38) - (n+43)	
	See subvector key X'95' (Generic Alert Install Causes)	

Frame-Relay Microcode Mismatch Alert

This alert is sent when a Frame Relay physical line which was coded as FRELAY=(PHYSICAL,ANY) does not have the microcode level to supports peripheral and subarea nodes on the same scanner.

Note: 91 is the cross reference number of this request or reply from the "Network Management Vector Transport (NMVT) Subvector List" on page 16-104. A list of all cross reference numbers can be found in Table 16-1 on page 16-1.

		8(8) Major vector length (byte 1)
9(9) Major vector length (byte 2)	10(A) Major vector key X'0000'	12(C)-m
	See subvector key X'10' (Product Set Identifier).	
	(m+1)-(m+7)	
	See subvector key X'42' (Relative Time).	
(m+8)-(m+18)	See subvector key X'92' (Generic Alert Data).	
(m+19)-(m+24)	See subvector key X'93' (Generic Alert Probable Causes).	
(m+25)-(n)	See subvector key X'95' (Generic Alert User Causes).	

NCP ETSS CSMA/CD LAN No-Carrier Generic Alert

Note: 49 is the cross reference number of this request or reply from the "Network Management Vector Transport (NMVT) Subvector List" on page 16-104. A list of all cross reference numbers can be found in Table 16-1 on page 16-1.

		8(8) Major vector length (byte 1)
9(9) Major vector length (byte 2)	10(A) Major vector key X'0000'	12(C)
	See subvector key X'04' (SNA Address List).	
	22(16) - m	
	See subvector key X'10' (Product Set Identifier).	
		(m+1) - (m+7)
	See subvector key X'42' (Relative Time).	
		(m+8) - (m+23)
	See subvector X'5D' (LAN Media Access Control Data)	
		(m+24) - (m+34)
	See subvector key X'92' (Generic Alert Data).	
		(m+35) - (m+38)
	See subvector key X'93' (Generic Alert Probable Causes).	
		(m+39) - (m+61)
	See subvector key X'96' (Generic Alert Failure Causes).	

Down-Level ESS Adapter Microcode Alert

During activation of an ESS adapter, NCP learned that the ESS ADAPTER microcode cannot process the Ethernet frames supported table.

Note: 65 is the cross reference number of this request or reply from the "Network Management Vector Transport (NMVT) Subvector List" on page 16-104. A list of all cross reference numbers can be found in Table 16-1 on page 16-1.

		8(8) Major vector length (byte 1)
9(9) Major vector length (byte 2)	10(A) Major vector key X'0000'	12(C)-21(15)
	See subvector key X'04' (SNA Address List - single network address).	
	22(16)-m	
	See subvector key X'10' (Product Set Identifier).	
		(m+1)-(m+7)
	See subvector key X'42' (Relative Time).	
		(m+8)-(m+23)
	See subvector key X'5D' (LAN Media Access Control Data)	
(m+24)-(m+34)	See subvector key X'92' (Generic Alert Data)	
(m+35)-(m+38)	See subvector key X'93' (Generic Alert Probable Cause)	
(m+39)-(m+60)	See subvector key X'95' (Generic Alert Failure Cause)	

Owning TCP/IP Host Down Alert

This is the case where NCP believes the owning TCP/IP host's NCPROUTE application is down, since a datagram has not been received by NCP from the owning TCP/IP's NCPROUTE application in the previous three minutes.

Note: 66 is the cross reference number of this request or reply from the "Network Management Vector Transport (NMVT) Subvector List" on page 16-104. A list of all cross reference numbers can be found in Table 16-1 on page 16-1.

		8(8) Major vector length (byte 1)
9(9) Major vector length (byte 2)	10(A) Major vector key X'0000'	12(C)-m
	See subvector key X'10' (Product Set Identifier).	
	(m+1)-(m+7)	
	See subvector key X'42' (Relative Time).	
(m+8)-(m+18)	See subvector key X'92' (Generic Alert Data).	
(m+19)-(m+22)	See subvector key X'93' (Generic Alert Probable Causes).	
(m+23)-(m+118)	See subvector key X'96' (Generic Alert Failure Causes).	

Bad NCPROUTE Datagram Alert

This is the case where the NCP has received a bad datagram from NCPROUTE and puts the IP Router in a "reset" state.

Note: 67 is the cross reference number of this request or reply from the "Network Management Vector Transport (NMVT) Subvector List" on page 16-104. A list of all cross reference numbers can be found in Table 16-1 on page 16-1.

		8(8) Major vector length (byte 1)
9(9) Major vector length (byte 2)	10(A) Major vector key X'0000'	12(C)-m
	See subvector key X'10' (Product Set Identifier).	
	(m+1)-(m+7)	
	See subvector key X'42' (Relative Time).	
(m+8)-(m+18)	See subvector key X'92' (Generic Alert Data).	
(m+19)-(m+24)	See subvector key X'93' (Generic Alert Probable Causes).	
(m+25)-(m+113)	See subvector key X'96' (Generic Alert Failure Causes).	

Hello Threshold Reached Alert

NCP has sent a number of "Hello" UDP datagrams to the owning TCP/IP host's NCPROUTE application. Each time NCP sent one of these datagrams, NCP timed out waiting for an acknowledgement. The number of consecutive timeouts has reached a user-specifiable threshold.

Note: 88 is the cross reference number of this request or reply from the "Network Management Vector Transport (NMVT) Subvector List" on page 16-104. A list of all cross reference numbers can be found in Table 16-1 on page 16-1.

		8(8) Major vector length (byte 1)
9(9) Major vector length (byte 2)	10(A) Major vector key X'0000'	12(C)-m
	See subvector key X'10' (Product Set Identifier).	
	(m+1)-(m+7)	
	See subvector key X'42' (Relative Time).	
(m+8)-(m+18)	See subvector key X'92' (Generic Alert Data).	
(m+19)-(m+22)	See subvector key X'93' (Generic Alert Probable Causes).	
(m+23)-(m+133)	See subvector key X'96' (Generic Alert Failure Causes).	

NCPROUTE Connection Activation Failed Alert

This is the case where NCP has received a UDP datagram from the owning TCP/IP host's NCPROUTE application indicating that activation of the NCP-IP-Router-to-NCPROUTE connection failed; and, therefore, NCP has put the router in a "reset" state.

Note: 89 is the cross reference number of this request or reply from the "Network Management Vector Transport (NMVT) Subvector List" on page 16-104. A list of all cross reference numbers can be found in Table 16-1 on page 16-1.

		8(8) Major vector length (byte 1)
9(9) Major vector length (byte 2)	10(A) Major vector key X'0000'	12(C)-m
	See subvector key X'10' (Product Set Identifier).	
	(m+1)-(m+7)	
	See subvector key X'42' (Relative Time).	
(m+8)-(m+18)	See subvector key X'92' (Generic Alert Data).	
(m+19)-(m+24)	See subvector key X'93' (Generic Alert Probable Causes).	
(m+25)-(n)	See subvector key X'96' (Generic Alert Failure Causes).	

Alert Due to a Blocked Virtual Route

- VR held time limit reached.
- VR pacing withheld time limit reached.
- Held VR deactivation time limit reached.
- VR transmit queue overrun.

Note: 51 is the cross reference number of this request or reply from the "Network Management Vector Transport (NMVT) Subvector List" on page 16-104. A list of all cross reference numbers can be found in Table 16-1 on page 16-1.

		8(8) Major vector length (byte 1)
9(9) Major vector length (byte 2)	10(A) Major vector key X'0000'	12(C) - m
See subvector key X'10' (Product Set Identifier).		
(m+1) - (m+7) See subvector key X'42' (Relative Time).		
		(m+8) - n
See subvector key X'92' (Generic Alert Data).		
(n+1) - p See subvector key X'93' (Generic Alert Probable Causes).		
(p+1) - q See subvector key X'97' (Generic Alert Cause Undetermined).		

Alert Due to a Virtual Route Out-of-Sequence

This alert is sent, when NCP first detects a virtual route is out of sequence.

Note: 72 is the cross reference number of this request or reply from the "Network Management Vector Transport (NMVT) Subvector List" on page 16-104. A list of all cross reference numbers can be found in Table 16-1 on page 16-1.

		8(8) Major vector length (byte 1)
9(9) Major vector length (byte 2)	10(A) Major vector key X'0000'	12(C)
	See subvector key X'10' (Product Set Identifier).	
	88(58)	
	See subvector key X'42' (Relative Time).	
95(5F) - n	See subvector key X'92' (Generic Alert Data).	
(n+1) - p	See subvector key X'93' (Generic Alert Probable Causes).	
(p+1) - q	See subvector key X'97' (Generic Alert Cause Undetermined).	

Alert due to NCST Receiving a PIU which Violates a SNA Protocol

Note: 70 is the cross reference number of this request or reply from the "Network Management Vector Transport (NMVT) Subvector List" on page 16-104. A list of all cross reference numbers can be found in Table 16-1 on page 16-1.

		8(8) Major vector length (byte 1)
9(9) Major vector length (byte 2)	10(A) Major vector key X'0000'	12(C)
See subvector key X'04' (SNA Address List--Session Partner Network Address Pair)		
29(1D) - m See subvector key X'10' (Product Set Identifier)		
(m+1) - (m+7) See subvector key X'42' (Relative Time)		
		(m+8) - (m+18)
See subvector key X'92' (Generic Alert Data)		
		(m+19) - (m+22)
See subvector key X'93' (Generic Alert Probable Causes)		
		(m+23) - n
See subvector key X'96' (Generic Alert Failure Causes)		

Alert due to NCST Logic Error

Note: 71 is the cross reference number of this request or reply from the "Network Management Vector Transport (NMVT) Subvector List" on page 16-104. A list of all cross reference numbers can be found in Table 16-1 on page 16-1.

		8(8) Major vector length (byte 1)
9(9) Major vector length (byte 2)	10(A) Major vector key X'0000'	12(C)
See subvector key X'04' (SNA Address List--Session Partner Network Address Pair)		
29(1D) - m See subvector key X'10' (Product Set Identifier)		
(m+1) - (m+7) See subvector key X'42' (Relative Time)		
		(m+8) - (m+18)
See subvector key X'92' (Generic Alert Data)		
		(m+19) - (m+22)
See subvector key X'93' (Generic Alert Probable Causes)		
		(m+23) - n
See subvector key X'96' (Generic Alert Failure Causes)		

Alert Generated by NTRI (Physical Link)

If the action code (see subvector key X'91') is X'13', or X'1F', subvector key X'57' is not included.

Note: 1 is the cross reference number of this request or reply from the "Network Management Vector Transport (NMVT) Subvector List" on page 16-104. A list of all cross reference numbers can be found in Table 16-1 on page 16-1.

		8(8) Major vector (byte 1)
9(9) Major vector length (byte 2)	10(A) Major vector key X'0000'	12(C)
	See subvector key X'04' (SNA Address List--Single Network Address)	
	22(16)	
	See subvector key X'42' (Relative Time)	
29(1D) - m	See subvector key X'51' (LAN Connection Subsystem Data)	
(m+1) - n	See subvector key X'52' (Link Connection Subsystem Configuration Data)	
(n+1) - p	See subvector key X'57' (LAN Physical Link Station Counters)	
(p+1) - (p+14)	See subvector key X'91' (Basic Alert)	
(p+15) - q	See subvector key X'A0' (CNM Detailed Qualifier (EBCDIC) Physical Link)	
(q+1) - r	See subvector key X'A1' (CNM Detailed Qualifier (Hexadecimal) Physical Link)	
(r+1) - s	See subvector key X'10' (Product Set Identifier)	

Alert Generated by NTRI (Logical Link)

Note: 3 is the cross reference number of this request or reply from the "Network Management Vector Transport (NMVT) Subvector List" on page 16-104. A list of all cross reference numbers can be found in Table 16-1 on page 16-1.

		8(8) Major vector length (byte 1)
9(9) Major vector length (byte 2)	10(A) Major vector key X'0000'	12(C)
	See subvector key X'04' (SNA Address List--Single Network Address)	
	22(16)	
	See subvector key X'42' (Relative Time)	
29(1D) - m	See subvector key X'51' (LAN Connection Subsystem Data)	
(m+1) - n	See subvector key X'52' (Link Connection Subsystem Configuration Data)	
(n+1) - p	See subvector key X'53' (SDLC Link Station Counters)	
(p+1) - (p-14)	See subvector key X'91' (Basic Alert)	
(p+15) - (p-22)	See subvector key X'A0' (CNM Detailed Qualifier (EBCDIC) Logical Link)	
(p+23) - (p+32)	See subvector key X'A1' (CNM Detailed Qualifier (Hexadecimal) Logical Link)	
(p + 33) - q	See subvector key X'10' (Product Set Identifier)	

Alert Due to a Modem Dial-Out Failure (NCP Case), SNA Protocol Error, NCST Logic Error, Invalid Dial Digits, or Callout Contention

Note: NMVTs with the following cross reference numbers from the “Network Management Vector Transport (NMVT) Subvector List” on page 16-104. use this format:

- 4a.
- 70.
- 71.
- 92.
- 93.

A list of all cross reference numbers can be found in Table 16-1 on page 16-1.

		8(8) Major vector length (byte 1) X'00'
9(9) Major vector length (byte 2)	10(A) Major vector key X'0000'	12(C)
	See subvector key X'04' (SNA Address List).	
	22(16) - m	
	See subvector key X'10' (Product Set Identifier).	
		(m+1) - (m+7)
	See subvector key X'42' (Relative Time).	
		(m+8) - n
	See subvector key X'92' (Generic Alert Data).	
	(n+1) - p	
	See subvector key X'93' (Generic Alert Probable Causes).	
(p+1) - q	See subvector key X'96' (Generic Alert Failure Causes).	

Alert Due to a Modem Dial-Out Failure (NEO Case)

Note: 4b is the cross reference number of this request or reply from the "Network Management Vector Transport (NMVT) Subvector List" on page 16-104. A list of all cross reference numbers can be found in Table 16-1 on page 16-1.

		8(8) Major vector length (byte 1) X'00'
9(9) Major vector length (byte 2)	10(A) Major vector key X'0000'	12(C)
	See subvector key X'04' (SNA Address List).	
	22(16) - m	
	See subvector key X'10' (Product Set Identifier). (See note.)	
(m+1) - (m+7)	See subvector key X'42' (Relative Time).	
(m+8) - n	See subvector key X'92' (Generic Alert Data).	
(n+1) - p	See subvector key X'93' (Generic Alert Probable Causes).	
(p+1) - q	See subvector key X'96' (Generic Alert Failure Causes).	

Note: If the network enhancement option (NEO) chooses to display its NEO product identifier subvector X'11', it will appear within the Product Set Identifier (PSI) subvector X'10' of the generic alert. Otherwise, the layout for the NEO generic alert NMVT will be the same as the layout for the NCP case.

ODLC Token-Ring Logical Resource Failure Caused by Failure of the Physical Link

Note: 73 is the cross reference number of this request or reply from the “Network Management Vector Transport (NMVT) Subvector List” on page 16-104. A list of all cross reference numbers can be found in Table 16-1 on page 16-1.

		8(8) Major vector (byte 1)
9(9) Major vector length (byte 2)	10(A) Major vector key X'0000'	12(C)
	See subvector key X'04' (SNA Address List, single network address).	
	22(16) - m	
	See subvector key X'05' (Hierarchy Resource List).	
(m+1) - n	See subvector key X'10' (Product Set Identifier).	
(n+1) - (n+7)	See subvector key X'42' (Relative Time).	
		(n+8) - (n+18)
	See subvector key X'92' (Generic Alert Data).	
		(n+19) - (n+22)
	See subvector key X'93' (Generic Alert Possible Causes).	
		(n+23) - (n+56)
	See subvector key X'96' (Generic Alert Failure Causes).	
(n+57) - (n+92)	See subvector key X'51' (LAN Connection Subsystem Data).	
(n+93) - (n+104)	See subvector key X'52' (Link Connection Subsystem Configuration Data).	

ODLC Token-Ring CONNOUT Failure - Invalid Dial Digits

Note: 74 is the cross reference number of this request or reply from the "Network Management Vector Transport (NMVT) Subvector List" on page 16-104. A list of all cross reference numbers can be found in Table 16-1 on page 16-1.

		8(8) Major vector (byte 1)
9(9) Major vector length (byte 2)	10(A) Major vector key X'0000'	12(C)
	See subvector key X'04' (SNA Address List, single network address).	
	22(16) - m	
	See subvector key X'05' (Hierarchy Resource List).	
(m+1) - n	See subvector key X'10' (Product Set Identifier).	
(n+1) - (n+7)	See subvector key X'42' (Relative Time).	
		(n+8) - (n+18)
	See subvector key X'92' (Generic Alert Data).	
		(n+19) - (n+22)
	See subvector key X'93' (Generic Alert Possible Causes).	
		(n+23) - (n+74)
	See subvector key X'94' (Generic Alert User Causes).	

ODLC Token-Ring CONNOUT Failure - Physical Resource Not Operational

Note: 75 is the cross reference number of this request or reply from the "Network Management Vector Transport (NMVT) Subvector List" on page 16-104. A list of all cross reference numbers can be found in Table 16-1 on page 16-1.

		8(8) Major vector (byte 1)
9(9) Major vector length (byte 2)	10(A) Major vector key X'0000'	12(C)
	See subvector key X'04' (SNA Address List, single network address).	
	22(16) - m	
	See subvector key X'05' (Hierarchy Resource List).	
(m+1) - n	See subvector key X'10' (Product Set Identifier).	
(n+1) - (n+7)	See subvector key X'42' (Relative Time).	
		(n+8) - (n+18)
	See subvector key X'92' (Generic Alert Data).	
		(n+19) - (n+22)
	See subvector key X'93' (Generic Alert Possible Causes).	
		(n+23) - (n+45)
	See subvector key X'94' (Generic Alert User Causes).	
	(n+46) - (n+77)	
	See subvector key X'96' (Generic Alert Failure Causes).	

ODLC Token-Ring Notify Call Indication LDPSA Rejection Due to No Logical Resources Available

Note: 76 is the cross reference number of this request or reply from the "Network Management Vector Transport (NMVT) Subvector List" on page 16-104. A list of all cross reference numbers can be found in Table 16-1 on page 16-1.

		8(8) Major vector (byte 1)
9(9) Major vector length (byte 2)	10(A) Major vector key X'0000'	12(C)
	See subvector key X'04' (SNA Address List, single network address).	
	22(16) - m	
	See subvector key X'05' (Hierarchy Resource List).	
(m+1) - n	See subvector key X'10' (Product Set Identifier).	
(n+1) - (n+7)	See subvector key X'42' (Relative Time).	
		(n+8) - (n+18)
	See subvector key X'92' (Generic Alert Data).	
		(n+19) - (n+22)
	See subvector key X'93' (Generic Alert Possible Causes).	
		(n+23) - (n+45)
	See subvector key X'94' (Generic Alert User Causes).	
(n+46) - (n+80)	See subvector key X'95' (Generic Alert Install Causes).	

ODLC Token-Ring CONNOUT Failure - Incoming Call Collision

Note: 77 is the cross reference number of this request or reply from the "Network Management Vector Transport (NMVT) Subvector List" on page 16-104. A list of all cross reference numbers can be found in Table 16-1 on page 16-1.

		8(8) Major vector (byte 1)
9(9) Major vector length (byte 2)	10(A) Major vector key X'0000'	12(C)
	See subvector key X'04' (SNA Address List, single network address).	
	22(16) - m	
	See subvector key X'05' (Hierarchy Resource List).	
(m+1) - n		
	See subvector key X'10' (Product Set Identifier).	
(n+1) - (n+7)		
	See subvector key X'42' (Relative Time).	
		(n+8) - (n+18)
	See subvector key X'92' (Generic Alert Data).	
		(n+19) - (n+22)
	See subvector key X'93' (Generic Alert Possible Causes).	
		(n+23) - (n+36)
	See subvector key X'96' (Generic Alert Failure Causes).	
(n+37) - (n+72)		
	See subvector key X'51' (LAN Connection Subsystem Data).	
(n+73) - (n+84)		
	See subvector key X'52' (Link Connection Subsystem Configuration Data).	

ODLC Permanent Station/Link Error Alert

Note: 78 is the cross reference number of this request or reply from the "Network Management Vector Transport (NMVT) Subvector List" on page 16-104. A list of all cross reference numbers can be found in Table 16-1 on page 16-1.

		8(8) Major vector (byte 1)
9(9) Major vector length (byte 2)	10(A) Major vector key X'0000'	12(C)
	See subvector key X'04' (SNA Address List, single network address).	
	22(16) - m	
	See subvector key X'05' (Hierarchy Resource List).	
(m+1) - n	See subvector key X'10' (Product Set Identifier).	
(n+1) - (n+7)	See subvector key X'42' (Relative Time).	

When subvectors are supplied by the CSS:

(n+8) - m	Subvectors supplied by the CSS (one or more subvectors in MS architected format).
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When no subvectors are provided by the CSS the following are built by the NCP:

(n+8) - (n+51)	See subvector key X'47'. (MSU Correlation)
(n+52) - (n+62)	See subvector key X'92' (Generic Alert Data).
(n+63) - (n+66)	See subvector key X'93' (Generic Alert Possible Causes).
(n+67) - m	See subvector key X'96' (Generic Alert Failure Causes).

ODLC Permanent Link Error Alert - ESCA Forced Deactivation

Note: 79 is the cross reference number of this request or reply from the "Network Management Vector Transport (NMVT) Subvector List" on page 16-104. A list of all cross reference numbers can be found in Table 16-1 on page 16-1.

		8(8) Major vector (byte 1)
9(9) Major vector length (byte 2)	10(A) Major vector key X'0000'	12(C)
	See subvector key X'04' (SNA Address List, single network address).	
	22(16) - m	
	See subvector key X'05' (Hierarchy Resource List).	
(m+1) - n	See subvector key X'10' (Product Set Identifier).	
(n+1) - (n+7)	See subvector key X'42' (Relative Time).	

When subvectors are supplied by the CSS:

(n+8) - m	Subvectors supplied by the CSS (one or more subvectors in MS architected format).
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When no subvectors are provided by the CSS the following are built by the NCP:

(n+8) - (n+51)	See subvector key X'47'. (MSU Correlation)
(n+52) - (n+62)	See subvector key X'92'. (Generic Alert Data).
(n+63) - (n+66)	See subvector key X'93'. (Generic Alert Possible Causes).
(n+67) - (n+91)	See subvector key X'94'. (Generic Alert User Causes).

Usage Tier Exceeded Generic Alert

Note: 87 is the cross reference number of this request or reply from the "Network Management Vector Transport (NMVT) Subvector List" on page 16-104. A list of all cross reference numbers can be found in Table 16-1 on page 16-1.

		8(8) Major vector (byte 1)
9(9) Major vector length (byte 2)	10(A) Major vector key X'0000'	12(C) - n
See subvector key X'10' (Product Set Identifier).		
(n+1) - (n+7) See subvector key X'42' (Relative Time).		
		(n+8) - (n+18)
See subvector key X'92' (Generic Alert Data).		
		(n+19) - (n+26)
See subvector key X'93' (Generic Alert Possible Causes).		
		(n+27) - (n+143)
See subvector key X'95' (Generic Alert Install Causes).		

Alert Threshold for Dynamic Control Blocks Reached

This is the case where the Control Block Buffer Usage Alert Threshold (DYNPOOL(2nd suboperand)) has been reached.

Note: 60 is the cross reference number of this request or reply from the "Network Management Vector Transport (NMVT) Subvector List" on page 16-104. A list of all cross reference numbers can be found in Table 16-1 on page 16-1.

		8(8) Major vector length (byte 1)
9(9) Major vector length (byte 2)	10(A) Major vector key X'0000'	12(C)
	See subvector key X'10' (Product Set Identifier).	
	88(58)	
	See subvector key X'42' (Relative Time).	
95(5F)	See subvector key X'92' (Generic Alert Data).	
106(6A)	See subvector key X'93' (Generic Alert Probable Causes).	
110(6e)	See subvector key X'94' (Generic Alert User Causes).	
120(78) - 149(95)	See subvector key X'95' (Generic Alert Install Causes).	

Buffers for Dynamic Control Blocks Depleted

This is the case where the maximum allowable amount of the buffer pool (DYNPOOL(1st suboperand)) is already being used for control blocks and a request is received for which another control block needs to be dynamically allocated.

Note: 61 is the cross reference number of this request or reply from the "Network Management Vector Transport (NMVT) Subvector List" on page 16-104. A list of all cross reference numbers can be found in Table 16-1 on page 16-1.

		8(8) Major vector length (byte 1)
9(9) Major vector length (byte 2)	10(A) Major vector key X'0000'	12(C)
	See subvector key X'10' (Product Set Identifier).	
	88(58)	
	See subvector key X'42' (Relative Time).	
95(5F)	See subvector key X'92' (Generic Alert Data).	
106(6A)	See subvector key X'93' (Generic Alert Probable Causes).	
110(6E) - 139(8B)	See subvector key X'95' (Generic Alert Install Causes).	

Allocation for Dynamic CBs failed: Too Close to Slowdown

Even if the Control Block Buffer Usage Threshold (DYNPOOL (2nd suboperand)) has not been reached, dynamic allocation of a control block can fail due to NCP being too close to going into slowdown.

Note: 62 is the cross reference number of this request or reply from the "Network Management Vector Transport (NMVT) Subvector List" on page 16-104. A list of all cross reference numbers can be found in Table 16-1 on page 16-1.

		8(8) Major vector length (byte 1)
9(9) Major vector length (byte 2)	10(A) Major vector key X'0000'	12(C)
	See subvector key X'10' (Product Set Identifier).	
	88(58)	
	See subvector key X'42' (Relative Time).	
95(5F)	See subvector key X'92' (Generic Alert Data).	
106(6A)	See subvector key X'93' (Generic Alert Probable Causes).	
112(70)	See subvector key X'94' (Generic Alert User Causes).	
142(8E) - 167(A7)	See subvector key X'95' (Generic Alert Install Causes).	

First Dynamic Control Block Allocated

This alert will be sent the very first time a control block of a particular type is built dynamically.

Note: 63 is the cross reference number of this request or reply from the "Network Management Vector Transport (NMVT) Subvector List" on page 16-104. A list of all cross reference numbers can be found in Table 16-1 on page 16-1.

		8(8) Major vector length (byte 1)
9(9) Major vector length (byte 2)	10(A) Major vector key X'0000'	12(C)
	See subvector key X'10' (Product Set Identifier).	
	88(58)	
	See subvector key X'42' (Relative Time).	
95(5F)	See subvector key X'92' (Generic Alert Data).	
106(6A)	See subvector key X'93' (Generic Alert Probable Causes).	
110(6E) - n	See subvector key X'95' (Generic Alert Install Causes).	

Allocation for Control Block Failed due to Genned Limit

This alert is send the very first time allocation fails for a particular type of control block due to a genned limit.

Note: 64 is the cross reference number of this request or reply from the "Network Management Vector Transport (NMVT) Subvector List" on page 16-104. A list of all cross reference numbers can be found in Table 16-1 on page 16-1.

		8(8) Major vector length (byte 1)
9(9) Major vector length (byte 2)	10(A) Major vector key X'0000'	12(C)
	See subvector key X'10' (Product Set Identifier).	
	88(58)	
	See subvector key X'42' (Relative Time).	
95(5F)	See subvector key X'92' (Generic Alert Data).	
106(6A)	See subvector key X'93' (Generic Alert Probable Causes).	
110(6E) - n	See subvector key X'95' (Generic Alert Install Causes).	

LK-EVENT Reply Due to a Line Permanent Error on a Non-Tailed Line

- An unsolicited reply.
- The LPDA2 NMVT builder (CXDTLPD), the subvector 52 builder (CXDTS52), and the NMVT reply generator (CXDTREP) build this NMVT.

Note: 5 is the cross reference number of this request or reply from the "Network Management Vector Transport (NMVT) Subvector List" on page 16-104. A list of all cross reference numbers can be found in Table 16-1 on page 16-1.

		8(8) Major vector length (byte 1)
9(9) Major vector length (byte 2)	10(A) Major vector length (Unsolicited Link Event) X'0001'	12(C) - 21(15)
See subvector key X'04' (SNA Address List, single network address).		
	22(16)-30(1E)	
(Link Event Status), which includes subfield keys X'01' and X'03'.		
	31(1F) - m	
(Link Configuration Data), which includes subfield keys X'01', X'03', X'07', and possibly X'05'.		
(m+1) - n		
See subvector key X'58' (NCP Product-Specific Data), which includes subfield keys keys X'01' and X'02'.		
(n+1) - p		
If the LPDA2 command executed successfully, see subvector key X'50' (LPDA2 Response Data).		

If the LPDA2 test cannot be run or the LPDA2 command was unsuccessful, see subvector key X'7D' (Sense Data).		
(p+1) - q		
See the product set identifier control block (PSI) format in Volume 1 Section 1, "Data Area Layouts." It contains subvector key X'10' (Product Set Identifier).		
(q+1) - (q+7)		
See subvector key X'42' (Relative Time).		

LK-EVENT Reply Due to a Line Permanent Error on a Tailed Line

- An unsolicited reply.
- The LPDA2 NMVT builder (CXDTLPD), the subvector 52 builder (CXDTS52), and the NMVT reply generator (CXDTREP) build this NMVT.

Note: 6 is the cross reference number of this request or reply from the "Network Management Vector Transport (NMVT) Subvector List" on page 16-104. A list of all cross reference numbers can be found in Table 16-1 on page 16-1.

		8(8) Major vector length (byte 1)
9(9) Major vector length (byte 2)	10(A) Major vector key (Unsolicited Link Event) X'0001'	12(C)
See subvector key X'04' (SNA Address List, single network address).		
	22(16) - 30(1E)	
See subvector key X'8A' (Link Event Status), which includes subfield keys X'01' and X'03'.		
	31(1F) - m	
See subvector key X'52' (Link Configuration Data) which includes subfield keys X'01', X'03', X'07', and possibly X'05'.		
(m+1) - n	See subvector key X'58' (NCP Product Specific Data), which includes subfield keys X'01' and X'02'.	
(n+1) - p	If the LPDA2 command executed successfully on primary, see subvector key X'50' (LPDA2 Response Data).	

If the LPDA2 test cannot be run or the LPDA2 command was unsuccessful, see subvector key X'7D' (Sense Data).		
(p+1) - q	If the LPDA2 command executed successfully on secondary, see subvector key X'50' (LPDA2 Response Data).	

If the LPDA2 test cannot be run or the LPDA2 command was unsuccessful, see subvector key X'7D' (Sense Data).		
(q+1) - r	See the product set identifier (PSI) control block format in Volume 1 Section 1, "Data Area Layouts." It contains subvector key X'10' (Product Set Identifier).	
(r+1) - (r+7)	See subvector key X'42' (Relative Time).	

LK-EVENT Reply Due to a Station Permanent Error on a Non-Tailed SDLC Line

- An unsolicited reply.
- The LPDA2 NMVT builder (CXDTLPD), the subvector 52 builder (CXDTS52), and the NMVT reply generator (CXDTREP) build this NMVT.

Note: 7 is the cross reference number of this request or reply from the "Network Management Vector Transport (NMVT) Subvector List" on page 16-104. A list of all cross reference numbers can be found in Table 16-1 on page 16-1.

		8(8) Major vector length (byte 1)
9(9) Major vector length (byte 2)	10(A) Major vector key (Unsolicited Link Event) X'0001'	12(C)
See subvector key X'04' (SNA Address List, single network address).		
	22(16) - m	
See subvector key X'03' (SNA Hierarchy Name List).		
	(m+1) - (m+16)	
See subvector key X'53' (SDLC Link Station Counters) which includes subfield keys X'02' through X'05'.		
	(m+17) - (m+37)	
See subvector key X'56' (Optional SDLC Link Station Counters) which includes subfield keys X'02' through X'06'.		
	(m+38) - (m+47)	
See subvector key X'8A' (Link Event Status) which includes subfield keys X'02' and X'03'.		
(m+48) - (m+74)		
See subvector key X'8C' (SDLC Link Station Data) which includes subfield keys X'01' through X'06'.		
	(m+75) - n	
See subvector key X'52' (Link Configuration Data) which includes subfield keys X'01', X'02', X'03', X'06', X'07', and possibly X'05'.		
(n+1) - p		
See subvector key X'58' (NCP Product-Specific Data) which includes subfield keys X'01' and X'02'.		
(p+1) - q		
If the LPDA2 command executed successfully, see subvector key X'50' (LPDA2 Response Data).		

If the LPDA2 test cannot be run or the LPDA2 command was unsuccessful, see subvector key X'7D' (Sense Data).		
(q+1) - r		
See the product set identifier control block (PSI) format in Volume 1 Section 1, "Data Area Layouts." It contains subvector key X'10' (Product Set Identifier).		
(r+1) - (r+7)		
See subvector key X'42' (Relative Time).		

LK-EVENT Reply Due to a Station Permanent Error on a Tailed SDLC Line

- An unsolicited reply.
- The LPDA2 NMVT builder (CXDTLPD), the subvector 52 builder (CXDTS52), and the NMVT reply generator (CXDTREP) build this NMVT.

Note: 8 is the cross reference number of this request or reply from the "Network Management Vector Transport (NMVT) Subvector List" on page 16-104. A list of all cross reference numbers can be found in Table 16-1 on page 16-1.

		8(8) Major vector length (byte 1)
9(9) Major vector length (byte 2)	10(A) Major vector key (Unsolicited Link Event) X'0001'	12(C) - 21(15)
See subvector key X'04' (SNA Address List, single network address).		
		22(16) - m
See subvector key X'03' (SNA Hierarchy Name List)		
		(m+1) - (m+16)
See subvector key X'53' (SDLC Link Station Counters), which includes subfield keys X'02' through X'05'.		
		(m+17) - (m+37)
See subvector key X'56' (Optional SDLC Link Station Counters), which includes subfield keys X'02' through X'06'.		
		(m+38) - (m+47)
See subvector key X'8A' (Link Event Status), which includes subfield keys X'02' and X'03'.		
		(m+48) - (m+74)
See subvector key X'8C' (SDLC Link Station Data), which includes subfield keys X'01' through X'06'.		
		(m+75) - n
See subvector key X'52' (Link Configuration Data), which includes subfield keys X'01', X'02', X'03', X'06', X'07', and possibly X'05'.		
		(n+1) - p
See subvector key X'58' (NCP Product-Specific Data), which includes subfield keys X'01' and X'02'.		

(p+1) - q
If the LPDA2 command executed successfully on primary, see subvector key X'50' (LPDA2 Response Data).

If the LPDA2 test cannot be run or the LPDA2 command was unsuccessful, see subvector key X'7D' (Sense Data).
(q+1) - r
If the LPDA2 command executed successfully on secondary, see subvector key X'50' (LPDA2 Response Data).

If the LPDA2 test cannot be run or the LPDA2 command was unsuccessful, see subvector key X'7D' (Sense Data).
(r+1) - s
See the product set identifier control block (PSI) format in Volume 1 Section 1, "Data Area Layout." It contains subvector key X'10' (Product Set Identifier).
(s+1) - (s+7)
See subvector key X'42' (Relative Time).

LK-EVENT Reply Due to a BSC Terminal Permanent Error on a Non-Tailed BSC Line

- An unsolicited reply.
- The LPDA2 NMVT builder (CXDTLPD), the subvector 52 builder (CXDTS52), and the NMVT reply generator (CXDTREP) build this NMVT.

Note: 9 is the cross reference number of this request or reply from the "Network Management Vector Transport (NMVT) Subvector List" on page 16-104. A list of all cross reference numbers can be found in Table 16-1 on page 16-1.

		8(8) Major vector length (byte 1)
9(9) Major vector length (byte 2)	10(A) Major vector key (Unsolicited Link Event) X'0001'	12(C) - 21(15)
See subvector key X'04'. (SNA Address List, single network address).		
	22(16) - k	
See subvector key X'54'. (BSC Link Station Counters), which includes subfield keys X'02' and X'03'.		
(k+1) - (k+10)		
See subvector key X'8A'. (Link Event Status), which includes subfield keys X'02' and X'03'.		
	(k+11) - m	
See subvector key X'52'. (Link Configuration Data), which includes subfield keys X'01', X'02', X'03', X'06', X'07', and possibly X'05'.		
(m+1) - n		
See subvector key X'58'. (NCP Product-Specific Data), which includes subfield keys X'01' and X'02'.		
(n+1) - p		
If the LPDA2 command executed successfully, see subvector key X'50' (LPDA2 Response Data).		
If the LPDA2 test cannot be run or the LPDA2 command was unsuccessful, see subvector key X'7D' (Sense Data).		
(p+1) - q		
See the product set identifier control block (PSI) format in Volume 1 Section 1, "Data Area Layouts." It contains subvector key X'10' (Product Set Identifier).		
(q+1) - (q+7)		
See subvector key X'42'. (Relative Time).		

LK-EVENT Reply Due to a BSC Terminal Permanent Error on a Tailed BSC Line

- An unsolicited reply.
- The LPDA2 NMVT builder (CXDTLPD), the subvector 52 builder (CXDTS52), and the NMVT reply generator (CXDTREP) build this NMVT.

Note: **10** is the cross reference number of this request or reply from the "Network Management Vector Transport (NMVT) Subvector List" on page 16-104. A list of all cross reference numbers can be found in Table 16-1 on page 16-1.

		8(8) Major vector length (byte 1)
9(9) Major vector length (byte 2)	10(A) Major vector key (Unsolicited Link Event) X'0001'	12(C) - 21(15)
See subvector key X'04' (SNA Address List, single network address).		
	22(16) - k	
See subvector key X'54' (BSC Link Station Counters), which includes subfield keys X'02' and X'03'.		
(k+1) - (k+10)		
See subvector key X'8A' (Link Event Status), which includes subfield keys X'02' and X'03'.		
	(k+11) - m	
See subvector key X'52' (Link Configuration Data), which includes subfield keys X'01', X'02', X'03', X'06', X'07', and possibly X'05'.		
(m+1) - n		
See subvector key X'58' (NCP Product-Specific Data), which includes subfield keys X'01' and X'02'.		
(n+1) - p		
If the LPDA2 command executed successfully on primary, see subvector key X'50' (LPDA2 Response Data).		

If the LPDA2 test cannot be run or the LPDA2 command was unsuccessful, see subvector key X'7D' (Sense Data).		
(p+1) - q		
If the LPDA2 command executed successfully on secondary, see subvector key X'50' (LPDA2 Response Data).		

If the LPDA2 test cannot be run or the LPDA2 command was unsuccessful, see subvector key X'7D' (Sense Data).		
(q+1) - r		
See the product set identifier control block (PSI) format in Volume 1 Section 1, "Data Area Layouts." It contains subvector key X'10' (Product Set Identifier).		
(r+1) - (r+7)		
See subvector key X'42' (Relative Time).		

LK-EVENT Generated for Frame Relay (Logical Link)

Note: 68 is the cross reference number of this request or reply from the "Network Management Vector Transport (NMVT) Subvector List" on page 16-104. A list of all cross reference numbers can be found in Table 16-1 on page 16-1.

		8(8) Major vector (byte 1)
9(9) Major vector length (byte 2)	10(A) Major vector key X'0001'	12(C)
	See subvector key X'04' (SNA Address List, single network address).	
	22(16) - 28(1C)	
	See subvector key X'42' (Relative Time).	
29(1D) - m	See subvector key X'05' (Hierarchy/Resource List).	
(m+1) - n	See subvector key X'52' (Link Connection Subsystem Configuration Data).	
(n+1) - p	See subvector key X'53' (SDLC Link Station Counters).	
(p+1) - q	See subvector key X'58' (LCS Product-Specific Hexadecimal Data).	
(q+1) - (q+11)	See subvector key X'8A' (Link Event Status).	
(q+12) - (q+31)	See subvector key X'8C' (SDLC Link Station Data).	
(q+32) - r	See subvector key X'10' (Product Set Identifier).	

LK-EVENT Generated by NTRI (Logical Link)

Note: 11 is the cross reference number of this request or reply from the “Network Management Vector Transport (NMVT) Subvector List” on page 16-104. A list of all cross reference numbers can be found in Table 16-1 on page 16-1.

		8(8) Major vector length (byte 1)
9(9) Major vector length (byte 2)	10(A) Major vector key X'0001'	12(C)
	See subvector key X'04' (SNA Address List--Single Network Address)	
	22(16)	
	See subvector key X'42' (Relative Time)	
29(1D) - m	See subvector key X'51' (LAN Connection Subsystem Data)	
(m+1) - n	See subvector key X'52' (Link Connection Subsystem Configuration Data)	
(n+1) - p	See subvector key X'53' (SDLC Link Station Counters)	
(p+1) - q	See subvector key X'58' (LCS Product-Specific Hexadecimal Data)	
(q+1) - r	See subvector key X'59' (LCS Product-Specific EBCDIC Data)	
(r+1) - (r+11)	See subvector key X'8A' (Link Event Status)	
(r+12) - (r+31)	See subvector key X'8C' (SDLC Link Station Data)	
(r+32) - s	See subvector key X'10' (Product Set Identifier)	

LK-Event ODLC Station/Link Error

Note: 80 is the cross reference number of this request or reply from the "Network Management Vector Transport (NMVT) Subvector List" on page 16-104. A list of all cross reference numbers can be found in Table 16-1 on page 16-1.

		8(8) Major vector (byte 1)
9(9) Major vector length (byte 2)	10(A) Major vector key X'0001'	12(C)
	See subvector key X'04' (SNA Address List, single network address).	
	22(16) - m	
	See subvector key X'05' (Hierarchy Resource List).	
(m+1) - n	See subvector key X'10' (Product Set Identifier).	
(n+1) - (n+7)	See subvector key X'42' (Relative Time).	
		(n+8) - p
	Subvectors supplied by the CSS (one or more subvectors in MS architected format).	

PDSTATS Reply Due to a Statistical Event for a Non-Tailed SDLC Line

- An unsolicited reply.
- The LPDA2 NMVT builder (CXDTLPD), the subvector 52 builder (CXDTS52), and the NMVT reply generator (CXDTREP) build this NMVT.

Note: 23 is the cross reference number of this request or reply from the "Network Management Vector Transport (NMVT) Subvector List" on page 16-104. A list of all cross reference numbers can be found in Table 16-1 on page 16-1.

		8(8) Major vector length (byte 1)
9(9) Major vector length (byte 2)	10(A) Major vector key X'04' (Unsolicited PDSTATS) X'0025'	12(C) - 21(15)
See subvector key X'04' (SNA Address List, single network address).		
	22(16) - m	
See subvector key X'03' (SNA Hierarchy Name List).		
(m+1) - (m+21)	See subvector key X'53' (SDLC Link Station Counters), which includes subfield keys X'01' through X'05'.	
	(m+22) - (m+47)	
See subvector key X'56' (Optional SDLC Link Station counters), which includes subfield keys X'01' through X'06'.		
	(m+48) - n	
See subvector key X'52' (Link Configuration Data), which includes subfield keys X'01', X'03', and possibly X'05'.		
(n+1) - p	See subvector key X'58' (NCP Product-Specific Data), which includes subfield keys X'01' and X'02'.	
(p+1) - q	If the LPDA2 command executed successfully, see subvector key X'50' (LPDA2 Response Data).	
If the LPDA2 test cannot be run or the LPDA2 command was unsuccessful, see subvector key X'7D' (Sense Data).		
(q+1) - r	See the product set identifier control block (PSI) format in Volume 1 Section 1, "Data Area Layouts." It contains subvector key X'10' (Product Set Identifier).	
(r+1) - (r+7)	See subvector key X'42' (Relative Time).	

PDSTATS Reply Due to a Statistical Event for a Tailed SDLC Line

- An unsolicited reply.
- The LPDA2 NMVT builder (CXDTLPD), the subvector 52 builder (CXDTS52), and the NMVT reply generator (CXDTREP) build this NMVT.

Note: 24 is the cross reference number of this request or reply from the "Network Management Vector Transport (NMVT) Subvector List" on page 16-104. A list of all cross reference numbers can be found in Table 16-1 on page 16-1.

		8(8) Major vector length (byte 1)
9(9) Major vector length (byte 2)	10(A) Major vector key (Unsolicited PDSTATS) X'0025'	12(C) - 21(15)
	See subvector key X'04' (SNA Address List, single network address).	
	22(16) - m	
	See subvector key X'03' (SNA Hierarchy Name List).	
(m+1) - (m+21)		
	See subvector key X'53' (SDLC Link Station Counters), which includes subfield keys X'01' through X'05'.	
	(m+22) - (m+47)	
	See subvector key X'56' (Optional SDLC Link Station Counters), which includes subfield keys X'01' through X'06'.	
	(m+48) - n	
	See subvector key X'52' (Link Configuration Data), which includes subfield keys X'01', X'03', and possibly X'05'.	
(n+1) - p		
	See subvector key X'58' (NCP Product-Specific Data), which includes subfield keys X'01' and X'02'.	
(p+1) - q		
	If the LPDA2 command executed successfully on primary, see subvector key X'50' (LPDA2 Response Data).	
	If the LPDA2 test cannot be run or the LPDA2 command was unsuccessful, see subvector key X'7D' (Sense Data).	

(q+1) - r

If the LPDA2 command executed successfully on secondary, see subvector key X'50'
(LPDA2 Response Data).

If the LPDA2 test cannot be run or the LPDA2 command was unsuccessful, see subvector key
X'7D'
(Sense Data).

(r+1) - s

See the product set identifier control block (PSI) format in Volume 1 Section 1, "Data
Area Layouts." It contains subvector key X'10' (Product Set Identifier).

(s+1) - (s+7)

See subvector key X'42'
(Relative Time).

PDSTATS Reply Due to a Statistical Event for a Non-Tailed BSC Line

- An unsolicited reply.
- The LPDA2 NMVT builder (CXDTLPD), the subvector 52 builder (CXDTS52), and the NMVT reply generator (CXDTREP) build this NMVT.

Note: 25 is the cross reference number of this request or reply from the "Network Management Vector Transport (NMVT) Subvector List" on page 16-104. A list of all cross reference numbers can be found in Table 16-1 on page 16-1.

		8(8) Major vector length (byte 1)
9(9) Major vector length (byte 2)	10(A) Major vector key (Unsolicited PDSTATS) X'0025'	12(C)
	See subvector key X'04' (SNA Address List, single network address).	
	22(16) - 35(23)	
	See subvector key X'54' (BSC Link Station Counters), which includes subfield keys X'01' through X'03'.	
		36(24) - m
	See subvector key X'52' (Link Configuration Data), which includes subfield keys X'01', X'03', and possibly X'05'.	
(m+1) - n	See subvector key X'58' (NCP Product-Specific Data), which includes subfield keys X'01' and X'02'.	
(n+1) - p	If the LPDA2 command executed successfully, see subvector key X'50' (LPDA2 Response Data).	
	----- If the LPDA2 test cannot be run or the LPDA2 command was unsuccessful, see subvector key X'7D' (Sense Data).	
(p+1) - q	See the product set identifier control block (PSI) format in Volume 1 Section 1, "Data Area Layouts." It contains subvector key X'10' (Product Set Identifier).	
(q+1) - (q+7)	See subvector key X'42' (Relative Time).	

PDSTATS Reply Due to a Statistical Event for a Tailed BSC Line

- An unsolicited reply.
- The LPDA2 NMVT builder (CXDTLPD), the subvector 52 builder (CXDTS52), and the NMVT reply generator (CXDTREP) build this NMVT.

Note: 26 is the cross reference number of this request or reply from the "Network Management Vector Transport (NMVT) Subvector List" on page 16-104. A list of all cross reference numbers can be found in Table 16-1 on page 16-1.

		8(8) Major vector length (byte 1)
9(9) Major vector length (byte 2)	10(A) Major vector key (Unsolicited PDSTATS) X'0025'	12(C) - 21(15)
See subvector key X'04' (SNA Address List, single network address).		
	22(16) - m	
See vector key X'52' (Link Configuration Data), which includes subfield keys X'01', X'03', and possibly X'05'.		
(m+1) - n	See subvector key X'54' (BSC Link Station Counters), which includes subfield keys X'01' through X'03'.	
(n+1) - p	See subvector key X'58' (NCP Product-Specific Data), which includes subfield keys X'01' and X'02'.	
(p+1) - q	If the LPDA2 command executed successfully on primary, see subvector key X'50' (LPDA2 Response Data).	

If the LPDA2 test cannot be run or the LPDA2 command was unsuccessful, see subvector key X'7D' (Sense Data).		
(q+1) - r	If the LPDA2 command executed successfully on secondary, see subvector key X'50' (LPDA2 Response Data).	

If the LPDA2 test cannot be run or the LPDA2 command was unsuccessful, see subvector key X'7D' (Sense Data).		
(r+1) - s	See the product set identifier control block (PSI) format in Volume 1 Section 1, "Data Area Layouts." It contains subvector key X'10' (Product Set Identifier).	
(s+1) - (s+7)	See subvector key X'42' (Relative Time).	

PDSTATS Generated for Frame Relay (Logical Link)

Note: 69 is the cross reference number of this request or reply from the “Network Management Vector Transport (NMVT) Subvector List” on page 16-104. A list of all cross reference numbers can be found in Table 16-1 on page 16-1.

		8(8) Major vector (byte 1)
9(9) Major vector length (byte 2)	10(A) Major vector key X'0025'	12(C)
	See subvector key X'04' (SNA Address List, single network address).	
	22(16)	
	See subvector key X'42' (Relative Time).	
29(1D) - m	See subvector key X'05' (Hierarchy/Resource List).	
(m+1) - n	See subvector key X'52' (Link Connection Subsystem Configuration Data).	
(n+1) - p	See subvector key X'53' (SDLC Link Station Counters).	
(p+1) - q	See subvector key X'10' (Product Set Identifier).	

PDSTATS Generated by NTRI (Physical Link)

Note: 27 is the cross reference number of this request or reply from the "Network Management Vector Transport (NMVT) Subvector List" on page 16-104. A list of all cross reference numbers can be found in Table 16-1 on page 16-1.

		8(8) Major vector length (byte 1)
9(9) Major vector length (byte 2)	10(A) Major vector key X'0025'	12(C)
	See subvector key X'04' (SNA Address List--Single Network Address)	
	22(16)	
	See subvector key X'42' (Relative Time)	
29(1D) - m	See subvector key X'51' (LAN Connection Subsystem Data)	
(m+1) - n	See subvector key X'52' (Link Connection Subsystem Configuration Data)	
(n+1) - p	See subvector key X'57' (LAN Physical Link Station Counters)	
(p+1) - q	See subvector key X'10' (Product Set Identifier)	

PDSTATS Generated by NTRI (Logical Link)

Note: 28 is the cross reference number of this request or reply from the "Network Management Vector Transport (NMVT) Subvector List" on page 16-104. A list of all cross reference numbers can be found in Table 16-1 on page 16-1.

		8(8) Major vector length (byte 1)
9(9) Major vector length (byte 2)	10(A) Major vector key X'0025'	12(C)
	See subvector key X'04' (SNA Address List--Single Network Address)	
	22(16)	
	See subvector key X'42' (Relative Time)	
29(1D) - m	See subvector key X'51' (LAN Connection Subsystem Data)	
(m+1) - n	See subvector key X'52' (Link Connection Subsystem Configuration Data)	
(n+1) - p	See subvector key X'53' (SDLC Link Station Counters)	
(p+1) - q	See subvector key X'10' (Product Set Identifier)	

PDSTATS for Ethernet Counters

Note: 50 is the cross reference number of this request or reply from the "Network Management Vector Transport (NMVT) Subvector List" on page 16-104. A list of all cross reference numbers can be found in Table 16-1 on page 16-1.

		8(8) Major vector length (byte 1) X'00'
9(9) Major vector length (byte 2)	10(A) Major vector key X'0025'	12(C) - 21(15)
	See subvector key X'04' (SNA Address List--Single Network Address).	
	22(16) - m	
	See subvector key X'10' (Product Set Identifier).	
(m+1) - (m+7)	See subvector key X'42' (Relative Time).	
		(m+8) - n
	See subvector key X'5D' (LAN Media Access Control Data)	
(n+1) - p	See subvector key X'5C' (CSMA/CD Counters)	

PDSTATS for ODLC Station Statistics

Note: 82 is the cross reference number of this request or reply from the "Network Management Vector Transport (NMVT) Subvector List" on page 16-104. A list of all cross reference numbers can be found in Table 16-1 on page 16-1.

		8(8) Major vector (byte 1)
9(9) Major vector length (byte 2)	10(A) Major vector key X'0025'	12(C)
	See subvector key X'04' (SNA Address List, single network address).	
	22(16) - m	
	See subvector key X'05' (Hierarchy Resource List).	
(m+1) - n	See subvector key X'10' (Product Set Identifier).	
(n+1) - (n+7)	See subvector key X'42' (Relative Time).	
	(n+8) - m	
	Subvectors supplied by the CSS (one or more subvectors in MS architected format).	

Common Management Information Protocol (CMIP) Link Data

Note: 83 is the cross reference number of this request or reply from the "Network Management Vector Transport (NMVT) Subvector List" on page 16-104. A list of all cross reference numbers can be found in Table 16-1 on page 16-1.

		8(8) Major vector length (byte 1)
9(9) Major vector length (byte 2)	10(A) Major vector key (Management Association) X'1330'	12(C)
See subvector key X'04' (SNA Address List, single network address).		
	22(16) - 41(29)	
See subvector key X'0C' (Distinguished name extension).		
42(2A) - n	See subvector key X'10' (Product Set Identifier).	
(n+1) - p	See subvector key X'81' (Directed Actions)	
(p+1)	Major vector length	
(p+5) - q	(p+3)	CMIP data from the CSS (Basic Encoding Rules Envelope) X'132F'

Common Management Information Protocol (CMIP) Station Data

Note: 84 is the cross reference number of this request or reply from the "Network Management Vector Transport (NMVT) Subvector List" on page 16-104. A list of all cross reference numbers can be found in Table 16-1 on page 16-1.

		8(8) Major vector length (byte 1)
9(9) Major vector length (byte 2)	10(A) Major vector key (Management Association) X'1330'	12(C) - 21(15)
	See subvector key X'04' (SNA Address List, single network address).	
	22(16) - n	
	See subvector key X'05' (Hierarchy/Resource List).	
(n+1) - (n+19)		
	See subvector key X'0C' (Distinguished name extension).	
		(n+20) - p
	See subvector key X'10' (Product Set Identifier).	
(p+1) - q See subvector key X'81' (Directed Actions)		
(q+1) Major vector length	(q+3) Major vector key (Basic Encoding Rules Envelope) X'132F'	
(q+5) - r CMIP data from the CSS		

Link Configuration Data

Note: 59 is the cross reference number of this request or reply from the "Network Management Vector Transport (NMVT) Subvector List" on page 16-104. A list of all cross reference numbers can be found in Table 16-1 on page 16-1.

		8(8) Major vector length (byte 1)
9(9) Major vector length (byte 2)	10(A) Major vector key X'1332'	12(C)
	See subvector key X'04' (SNA Address List--Single Network Address)	
	22(16) - m	
	See subvector key X'10' (Product Set Identifier)	
	(m+1) - (m+7)	
	See subvector key X'42' (Relative Time)	
(m+8) - n	See subvector key X'52' (Link Connection Subsystem Configuration Data (Frame Relay)) More than one SV X'52' may be included	

Error Reply to a Set or Query Link Attributes Request or an Alter or Query Link Station Attributes Request

- A reply to an NMVT request.
- The set link attributes processor (CXDTSLA) or the query line adapter processor (CXDTQLA) or the alter link station attributes (LSA) processor (CXDTDTAP) or the query LSA processor (CXDTDTQP) and the NMVT reply generator (CXDTREP) build this NMVT.

Note: 36 is the cross reference number of this request or reply from the "Network Management Vector Transport (NMVT) Subvector List" on page 16-104. A list of all cross reference numbers can be found in Table 16-1 on page 16-1.

		8(8) Major vector length (byte 1) X'00'
9(9) Major vector length (byte 2) X'1B'	10(A) Major vector key (Reply Link Resource Control) X'00A0'	12(C)
See subvector key X'04' (SNA Address List--Single Network Address)		
22(16)		
See subvector key X'7D' (Sense Data)		
		28(1C)
See subvector key X'42' (Relative Time)		

Error Reply to a Modify SIR Data Request or to a Query Data Request

- A reply to an NMVT request.
- The session information retrieval (SIR) modify processor (CXDTGTM or CXDTGTM2) or the SIR query processor (CXDTGTQ or CXDTGTQ2) and the NMVT error reply generator (CXDTNRPL) build this NMVT.

Note: 12 is the cross reference number of this request or reply from the "Network Management Vector Transport (NMVT) Subvector List" on page 16-104. A list of all cross reference numbers can be found in Table 16-1 on page 16-1.

		8(8) Major vector length (byte 1) X'00'
9(9) Major vector length (byte 2) X'29'	10(A) Major vector key (Solicited/Unsolicited Trace) X'0010'	12(C) - 35(23)
See subvector key X'04' (SNA Address List--Network-qualified Address Pairs or Session Partner Address Pair)		36(24)
See subvector key X'7D' (Sense Data)		
	42(2A)	
See subvector key X'42' (Relative Time)		

SIR Data Request

- An NMVT request.
- NetView builds and sends this NMVT.

Note: **37** is the cross reference number of this request or reply from the "Network Management Vector Transport (NMVT) Subvector List" on page 16-104. A list of all cross reference numbers can be found in Table 16-1 on page 16-1.

		8(8) Major vector length (byte 1)
9(9) Major vector length (byte 2)*	10(A) Major vector key (Request Trace) X'8010'	12(C) - 35(23)
See subvector key X'04' (SNA Address List--Network-qualified Address Pairs or Partner Address Pair)		36(24)-39(27)
See subvector key X'83' (Query SIR Data)		

* The major vector length is X'0020' for an NMVT containing one network qualified address pair (target address) in the SNA Address List subvector. This length increases by 20 for each additional target address. Also, see the note with "Subvector Key X'04' (SNA Address List)" on page 16-109.

Common Data and Control Block Data for a SIR Query Data Reply for SNI Session

- An unsolicited reply or a reply to an SIR Query Data NMVT request.
- The session information retrieval (SIR) query processor (CXDTGTQ) and the NMVT reply generator (CXTREP) build this NMVT.

Note: 13 is the cross reference number of this request or reply from the "Network Management Vector Transport (NMVT) Subvector List" on page 16-104. A list of all cross reference numbers can be found in Table 16-1 on page 16-1.

		8(8) Major vector length (byte 1) X'00'
9(9) Major vector length (byte 2) X'C7'	10(A) Major vector key (Solicited/Unsolicited Trace) X'0010'	12(C) - 35(23)
See subvector key X'04' (SNA Address List--Single Network Address)		

Data for the Native Network Addressable Unit (NAU)

	36(24) - 48(30)
See subvector key X'84' (SIR Common Data)	
49(31) - 62(3E)	See subvector key X'86' (NLX data)
	63(3F) - 76(4C)
See subvector key X'86' (NLB data)	
77(4D) - 117(75)	See subvector key X'86' (NIX data)

Data for the Outboard NAU

118(76) - 130(82)	
See subvector key X'84' (SIR Common Data)	
	131(83) - 144(90)
See subvector key X'86' (NLX data)	
145(91) - 158(9E)	
See subvector key X'86' (NLB data)	
	159(9F) - 199(C7)
See subvector key X'86' (NIX data)	
	200(C8)
See subvector key X'42' (Relative Time)	

Common Data and Control Block Data for a SIR Query Data Reply for SSCP-LU or LU-LU Session

The session information retrieval (SIR) query processor (CXDTGTQ2) and the NMVT reply generator (CXDTREP) build this NMVT.

Note: 14 is the cross reference number of this request or reply from the "Network Management Vector Transport (NMVT) Subvector List" on page 16-104. A list of all cross reference numbers can be found in Table 16-1 on page 16-1.

		8(8) Major vector length (byte 1)
9(9) Major vector length (byte 2)	10(A) Major vector key (Solicited/Unsolicited Trace) X'0010'	12(C) - 29(1D)
See subvector key X'04' (SNA Address List, session partner network address pair, SSCP-LU or LU-LU session).		
	30(1E) - 42(2A)	
See subvector key X'84' (SSCP-LU or LU-LU session).		
	43(2B) - 70(46)	
See subvector key X'86' (BSB data).		
	71(47) - 76(4C)	
See subvector key X'86' (LUB data).		
77(4D) - 100(64)	See subvector key X'86' (BXI data). (LU-LU session only)	
101(65) - 118(76)	See subvector key X'86' (PSB-ID data).	
	119(77) - 128(80)	
See subvector key X'86' (LTX data). (PU T1 only)		
129(81) - 135(87)	See subvector key X'42' (Relative Time).	

Common Data and Control Block Data for a SIR Query Data Reply for SSCP-PUT4 or PUT4-PUT4 Session

The session information retrieval (SIR) query processor (CXDTGTQ2) and the NMVT reply generator (CXDTREP) build this NMVT.

Note: 15 is the cross reference number of this request or reply from the "Network Management Vector Transport (NMVT) Subvector List" on page 16-104. A list of all cross reference numbers can be found in Table 16-1 on page 16-1.

		8(8) Major vector length (byte 1) X'00'
9(9) Major vector length (byte 2) X'59'	10(A) Major vector key (Solicited/Unsolicited Trace) X'0010'	12(C) - 29(1D)
See subvector key X'04' (SNA Address List, session partner network address pair, SSCP-PUT4 or PUT4-PUT4 session).		
	30(1E) - 42(2A)	
See subvector key X'84' (SSCP-PUT4 or PUT4-PUT4 session).		
	43(2B) - 80(50)	
See subvector key X'86' (PSB data).		
81(51) - 93(5D)		
See subvector key X'86' (SNP data).		
	94(5E) - 100(64)	
See subvector key X'42' (Relative Time).		

Common Data and Control Block Data for a SIR Query Data Reply for SSCP-PUT2 Session (Duplex Case)

The session information retrieval (SIR) query processor (CXDTGTQ2) and the NMVT reply generator (CXDTREP) build this NMVT.

Note: 16 is the cross reference number of this request or reply from the "Network Management Vector Transport (NMVT) Subvector List" on page 16-104. A list of all cross reference numbers can be found in Table 16-1 on page 16-1.

		8(8) Major vector length (byte 1)
9(9) Major vector length (byte 2)	10(A) Major vector key (Solicited/Unsolicited Trace) X'0010'	12(C) - 29(1D)
See subvector key X'04' (SNA Address List, session partner network address pair, SSCP-PUT2 session).		
		30(1E) - 42(2A)
See subvector key X'84' (SSCP-PUT2 session).		
		43(2B) - 103(67)
See subvector key X'86' (CUB data).		
		104(68) - 131(83)
See subvector key X'86' (LKB data).		
		132(84) - 149(95)
See subvector key X'86' (PSB-ID data).		
		150(96) - 177(B1)
See subvector key X'86' (AXB data).		
		178(B2) - 192(C0)
See subvector key X'86' (LXB Data).		
193(C1) - m See subvector key X'86' (PSA Transmit data if non-ODLC or NPSA data if ODLC physical or nothing if ODLC logical).		
(m+1) - n See subvector key X'86' (CCB Receive data).		
(n+1) - p See subvector key X'86' (PSA Receive data if non-ODLC or LPSA data if ODLC physical or nothing if ODLC logical).		
(p+1) - q See subvector key X'86' (CCB Transmit data).		
(q+1) - (q+7) See subvector key X'42' (Relative Time).		

Common Data and Control Block Data for a SIR Query Data Reply for SSCP-PUT2 Session (Half-Duplex Case)

The session information retrieval (SIR) query processor (CXDTGTQ2) and the NMVT reply generator (CXDTREP) build this NMVT.

Note: 17 is the cross reference number of this request or reply from the "Network Management Vector Transport (NMVT) Subvector List" on page 16-104. A list of all cross reference numbers can be found in Table 16-1 on page 16-1.

		8(8) Major vector length (byte 1)
9(9) Major vector length (byte 2)	10(A) Major vector key (Solicited/Unsolicited Trace) X'0010'	12(C) - 29(1D)
See subvector key X'04' (SNA Address List, session partner network address pair, SSCP-PUT2 session).		
	30(1E) - 42(2A)	
See subvector key X'84' (SSCP-PUT2 session).		
	43(2B) - 103(67)	
See subvector key X'86' (CUB data).		
		104(68) - 131(83)
See subvector key X'86' (LKB data).		
		132(84) - 149(95)
See subvector key X'86' (PSB-ID data).		
	150(96) - 177(B1)	
See subvector key X'86' (AXB data).		
	178(B2) - 192(C0)	
See subvector key X'86' (LXB Data).		
193(C1) - 207(CF)		
See subvector key X'86' (PSA Transmit data).		
		208(D0) - m
See subvector key X'86' (CCB Receive data).		
(m+1) - (m+7)		
See subvector key X'42' (Relative Time).		

Common Data and Control Block Data for a SIR Query Data Reply for SSCP-PUT2 Session (OEM Case)

The session information retrieval (SIR) query processor (CXDTGTQ2) and the NMVT reply generator (CXDTREP) build this NMVT.

Note: 18 is the cross reference number of this request or reply from the "Network Management Vector Transport (NMVT) Subvector List" on page 16-104. A list of all cross reference numbers can be found in Table 16-1 on page 16-1.

		8(8) Major vector length (byte 1) X'00'
9(9) Major vector length (byte 2) X'8E'	10(A) Major vector key (Solicited/Unsolicited Trace) X'0010'	12(C)-29(1D)
See subvector key X'04' (SNA Address List--Session Partner Network Address Pair, SSCP-PUT2 Session)		
	30(1E) - 42(2A)	
See subvector key X'84' (SSCP-PUT2 session)		
	43(2B) - 101(65)	
See subvector key X'86' (CUB data)		
	102(66) - 124(7C)	
See subvector key X'86' (LKB data)		
125(7D) - 140(8C)		
See subvector key X'86' (PSB-ID data)		
141(8D) See subvector key X'86' (CCB-OEM data)		143(8F) - 149(95)
See subvector key X'42' (Relative Time)		

Modify Request for SIR for a Specific Resource

- An NMVT request.
- NetView builds and sends this NMVT.

Note: 38 is the cross reference number of this request or reply from the "Network Management Vector Transport (NMVT) Subvector List" on page 16-104. A list of all cross reference numbers can be found in Table 16-1 on page 16-1.

		8(8) Major vector length (byte 1)
9(9) Major vector length (byte 2)*	10(A) Major vector key (Request Trace) X'8010'	12(C) - 35(23)
See subvector key X'04' (SNA Address List--Network Qualified Address Pairs or Session Partner Address Pair)		36(24)
See subvector key X'81' (Modify SIR Control)		

* The major vector length is X'0021' for an NMVT containing one network-qualified address pair (target address) in the SNA Address List subvector. This length increases by 20 for each additional target address. Also, see the note with "Subvector Key X'04' (SNA Address List)" on page 16-109.

Reply to Request to Modify SIR Data for a Specific Resource

- A reply to a Modify SIR Data NMVT request.
- The session information retrieval (SIR) modify processor (CXDTGTM or CXDTGTM2) and the NMVT reply generator (CXDTREP) build this NMVT.

Note: 19 is the cross reference number of this request or reply from the "Network Management Vector Transport (NMVT) Subvector List" on page 16-104. A list of all cross reference numbers can be found in Table 16-1 on page 16-1.

		8(8) Major vector length (byte 1) X'00'
9(9) Major vector length (byte 2) X'28'	10(A) Major vector key (Solicited/Unsolicited Trace) X'0010'	12(C) - 35(23)
See subvector key X'04' (SNA Address List--Network Qualified Address Pairs or Session Partner Address Pair)		36(24)
See subvector key X'82' (Reply SIR Control)		
41(29)	See subvector key X'42' (Relative Time)	

Modify Request for SIR for SNI Resources, Boundary Resources, Boundary and SNI Resources, and Resources for a Specific NAU

- An NMVT request.
- NetView builds and sends this NMVT.

Note: 39 is the cross reference number of this request or reply from the “Network Management Vector Transport (NMVT) Subvector List” on page 16-104. A list of all cross reference numbers can be found in Table 16-1 on page 16-1.

		8(8) Major vector length (byte 1) X'00'
9(9) Major vector length (byte 2) X'09'	10(A) Major vector key (Request Trace) X'8010'	12(C)
See subvector key X'81' (Modify SIR Control)		

Reply to a Request to Modify SIR for SNI Resources, Boundary Resources, Boundary and SNI Resources, and Resources for a Specific NAU

- A reply to a Modify SIR Data NMVT request.
- The session information retrieval (SIR) modify processor (CXDTGTM) and the NMVT reply generator (CXDTREP) build this NMVT.

Note: 20 is the cross reference number of this request or reply from the "Network Management Vector Transport (NMVT) Subvector List" on page 16-104. A list of all cross reference numbers can be found in Table 16-1 on page 16-1.

		8(8) Major vector length (byte 1) X'00'
9(9) Major vector length (byte 2) X'10'	10(A) Major vector key (Solicited/Unsolicited Trace) X'0010'	12(C)
See subvector key X'82' (Reply SIR Control)		
17(11) See subvector key X'42' (Relative Time)		

Query Flow Control Request

- An NMVT request

Note: 86 is the cross reference number of this request or reply from the "Network Management Vector Transport (NMVT) Subvector List" on page 16-104. A list of all cross reference numbers can be found in Table 16-1 on page 16-1.

		8(8) Major vector length (byte 1)
9(9) Major vector length (byte 2) X'17'	10(A) Major vector key (Request Trace) X'8010'	12(C)
See subvector key X'04' (SNA Address List, session partner network address pair).		
29(1D) See subvector key X'9B' (Query Flow Control Data).		

Query Flow Control Reply

- A reply to a Query Flow Control Request
- The Request Flow Control Data Processor (CXDTRFCP) and the NMVT Reply Generator (CXDTREP) build this NMVT.

Note: 81 is the cross reference number of this request or reply from the "Network Management Vector Transport (NMVT) Subvector List" on page 16-104. A list of all cross reference numbers can be found in Table 16-1 on page 16-1.

		8(8) Major vector length (byte 1)
9(9) Major vector length (byte 2)	10(A) Major vector key (Solicited/Unsolicited Trace) X'0010'	12(C)
See subvector key X'04' (SNA Address List, session partner network address pair).		
29(1D) See subvector key X'9C' (Query Flow Control Data Reply).		

LCSDIAG Modem Request

- An NMVT request.
- Network Problem Determination Aid (NPDA) builds and sends this NMVT.

Note: 40 is the cross reference number of this request or reply from the “Network Management Vector Transport (NMVT) Subvector List” on page 16-104. A list of all cross reference numbers can be found in Table 16-1 on page 16-1.

		8(8) Major vector length (byte 1)
9(9) Major vector length (byte 2)	10(A) Major vector key (Request LCSDIAG Modem Test) X'8020'	12(C)
	See subvector key X'04' (SNA Address List--Single Network Address)	
	22(16) - m	
	See subvector key X'81' (LPDA2 Test Modem LCS), which includes subfield keys X'01' and X'02'	

LCSDIAG Modem Positive Reply

- A positive reply to an LCSDIAG NMVT request.
- The LPDA2 pre-initiator (CXDKSYP), the LPDA2 terminator (CXDKSYT), and the NMVT reply generator (CXDTREP) build this NMVT.

Note: 21 is the cross reference number of this request or reply from the "Network Management Vector Transport (NMVT) Subvector List" on page 16-104. A list of all cross reference numbers can be found in Table 16-1 on page 16-1.

		8(8) Major vector length (byte 1)
9(9) Major vector length (byte 2)	10(A) Major vector key (Reply LCSDIAG Modem Test) X'0020'	12(C) - 21(15)
	See subvector key X'04' (SNA Address List, single network address).	
	22(16) - n	
	See subvector key X'52' (Link Configuration Data), which includes subfield keys X'02', X'03', X'07', and possibly X'05'.	
(n+1) - p	See subvector key X'50' (LPDA2 response data).	
(p+1) - (p+7)	See subvector key X'42' (Relative Time).	

LCSDIAG Modem Negative Reply

- A negative reply to a LCSDIAG NMVT request.
- Caused by nonsyntactical errors.
- The LPDA2 pre-initiator (CXDKSYP), the LPDA2 terminator (CXDKSYT), and the NMVT reply generator (CXDTREP) build this NMVT.

Note: 22 is the cross reference number of this request or reply from the "Network Management Vector Transport (NMVT) Subvector List" on page 16-104. A list of all cross reference numbers can be found in Table 16-1 on page 16-1.

		8(8) Major vector length (byte 1)
9(9) Major vector length (byte 2)	10(A) Major vector key (Reply LCSDIAG Modem Test) X'0020'	12(C)
	See subvector key X'04' (SNA Address List, single network address).	
	22(16) - p	
	See subvector key X'52' (Link Configuration Data), which includes subfield keys X'02', X'03', X'07', and possibly X'05'.	
(p+1) - (p+6)	See subvector key X'7D' (Sense Data).	
(p+7) - (p+13)	See subvector key X'42' (Relative Time).	

Product Set ID Request

- An NMVT request.
- NetView builds and sends this NMVT.

Note: 41 is the cross reference number of this request or reply from the "Network Management Vector Transport (NMVT) Subvector List" on page 16-104. A list of all cross reference numbers can be found in Table 16-1 on page 16-1.

		8(8) Major vector length (byte 1) X'00'
9(9) Major vector length (byte 2) X'06'	10(A) Major vector key (Request Product Set ID) X'8090'	12(C)-13(D)
		See subvector key X'81' (Request Product Set ID)

Product Set ID Reply

- A reply to a Product Set ID NMVT request.
- This query product set ID processor (CXDTQPI) and the NMVT reply generator (CXDTREP) build this NMVT.

Note: 29 is the cross reference number of this request or reply from the “Network Management Vector Transport (NMVT) Subvector List” on page 16-104. A list of all cross reference numbers can be found in Table 16-1 on page 16-1.

		8(8) Major vector length (byte 1) X'00'
9(9) Major vector length (byte 2) X'3A'	10(A) Major vector key (Reply Product Set ID) X'0090'	12(C) - m
See the product set identifier control block (PSI) format in Volume 1 Section 1, "Data Area Layouts." It contains subvector key X'10' (Product Set Identifier).		
(m+1) - (m+7) See subvector key X'42' (Relative Time).		

LCSOPCTL Modem Request

- An NMVT request.
- NetView builds and sends this NMVT.

Note: 42 is the cross reference number of this request or reply from the "Network Management Vector Transport (NMVT) Subvector List" on page 16-104. A list of all cross reference numbers can be found in Table 16-1 on page 16-1.

		8(8) Major vector length (byte 1)
9(9) Major vector length (byte 2)	10(A) Major vector key (Request LCSOPCTL Modem Operation and Control) X'8091'	12(C)
	See subvector key X'04' (SNA Address List--Single Network Address)	
	(22(16) - m	
	See subvector key X'81' (LPDA2 Test Modem LCS)	

LCSOPCTL Modem Positive Reply

- A positive reply to a LCSOPCTL NMVT request.
- The LPDA2 pre-initiator (CXDKSYP), the LPDA2 terminator (CXDKSYT), and the NMVT reply generator (CXDTREP) build this NMVT.

Note: 30 is the cross reference number of this request or reply from the "Network Management Vector Transport (NMVT) Subvector List" on page 16-104. A list of all cross reference numbers can be found in Table 16-1 on page 16-1.

		8(8) Major vector length (byte 1)
9(9) Major vector length (byte 2)	10(A) Major vector key (Reply LCSOPCTL Modem Operation and Control) X'0091'	12(C)
	See subvector key X'04' (SNA Address List, single network address).	
	22(16) - n	
	See subvector key X'52' (Link Configuration Data), which includes subfield keys X'02', X'03', X'07', and possibly X'05'.	
(n+1) - p	See subvector key X'50' (LPDA response data).	
(p+1) - (p+7)	See subvector key X'42' (Relative Time).	

LCSOPCTL Modem Negative Reply

- A negative reply to a LCSOPCTL NMVT request.
- The LPDA2 pre-initiator (CXDKSYP), the LPDA2 terminator (CXDKSYT), and the NMVT reply generator (CXDTREP) build this NMVT.

Note: 31 is the cross reference number of this request or reply from the "Network Management Vector Transport (NMVT) Subvector List" on page 16-104. A list of all cross reference numbers can be found in Table 16-1 on page 16-1.

		8(8) Major vector length (byte 1)
9(9) Major vector length (byte 2)	10(A) Major vector key (Reply LCSOPCTL Modem Operation and Control) X'0091'	12(C)
	See subvector key X'04' (SNA Address List--Single Network Address)	
	22(16) - p	
	See subvector key X'52' (Link Configuration data), which includes subfield keys X'02', X'03', X'07', and possibly X'05'	
(p+1) - (p+6)	See subvector key X'7D' (Sense Data)	
(p+7) - (p+13)	See subvector key X'42' (Relative Time)	

Query Link Attributes Request

- An NMVT request.
- NetView builds and sends this NMVT.

Note: 43 is the cross reference number of this request or reply from the “Network Management Vector Transport (NMVT) Subvector List” on page 16-104. A list of all cross reference numbers can be found in Table 16-1 on page 16-1.

		8(8) Major vector length (byte 1)*
9(9) Major vector length (byte 2)*	10(A) Major vector key (Request Link Resource Control) X'80A0'	12(C)
	See subvector key X'04' (SNA Address List--Single Network Address)	
	22(16)-25(19)	
	See subvector key X'87' (Query Link Attributes)	

* The major vector length is X'0012' for an NMVT containing one single network address (target address) in the SNA Address List subvector. The length increases by 6 for each additional target address. Also, see “Subvector Key X'04' (SNA Address List)” on page 16-109.

Query Link Attributes Reply

- A reply to a Query Link Attributes NMVT request.
- The query link attributes processor (CXDTQLA) and the NMVT reply generator (CXDTREP) build this NMVT.

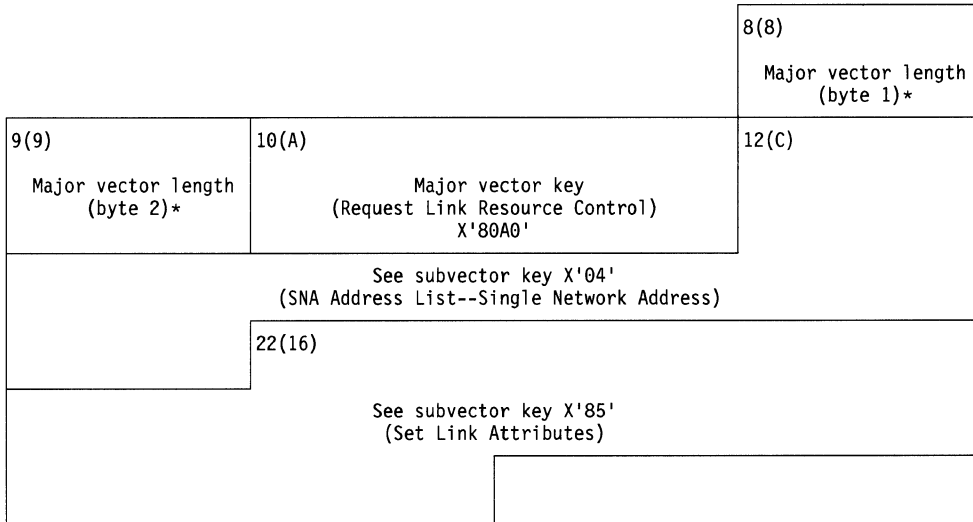
Note: 32 is the cross reference number of this request or reply from the "Network Management Vector Transport (NMVT) Subvector List" on page 16-104. A list of all cross reference numbers can be found in Table 16-1 on page 16-1.

		8(8) Major vector length (byte 1) X'00'
9(9) Major vector length (byte 2) X'1E'	10(A) Major vector key (Reply Link Resource Control) X'00A0'	12(C)
See subvector key X'04' (SNA Address List--Single Network Address)		
	22(16)	
See subvector key X'84' (Reply Link Attributes) which includes subfield keys X'20' and X'30'		
		31(1F)
	See subvector key X'42' (Relative Time)	

Set Link Attributes Request

- An NMVT request.
- NetView builds and sends this NMVT.

Note: 44 is the cross reference number of this request or reply from the "Network Management Vector Transport (NMVT) Subvector List" on page 16-104. A list of all cross reference numbers can be found in Table 16-1 on page 16-1.

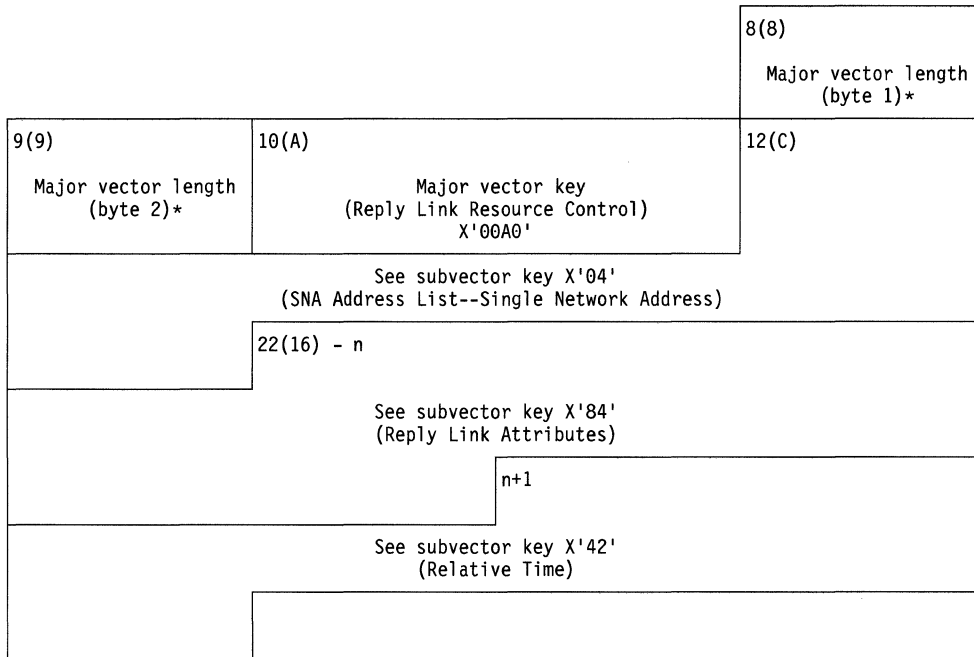


* The major vector length is X'0013' for an NMVT containing one single network address (target address) in the SNA Address List subvector. This length increases by 6 for each additional target address. Also, refer to the note with "Subvector Key X'04' (SNA Address List)" on page 16-109.

Set Link Attributes Reply

- A reply to a Set Link Attributes NMVT request.
- The set link attributes processor (CXDTSLA) and the NMVT reply generator (CXDTREP) build this NMVT.

Note: 33 is the cross reference number of this request or reply from the "Network Management Vector Transport (NMVT) Subvector List" on page 16-104. A list of all cross reference numbers can be found in Table 16-1 on page 16-1.



* The major vector length is equal to the sum of the subvector lengths plus 4.

Query Link Station Attributes Request

- An NMVT request.
- NetView builds and sends this NMVT.

Note: 45 is the cross reference number of this request or reply from the "Network Management Vector Transport (NMVT) Subvector List" on page 16-104. A list of all cross reference numbers can be found in Table 16-1 on page 16-1.

		8(8) Major vector length (byte 1)*
9(9) Major vector length (byte 2)*	10(A) Major vector key (Request Link Resource Control) X'80A0'	12(C)
	See subvector key X'04' (SNA Address List--Single Network Address)	
	22(16)	
	See subvector key X'83' (Query Link Station Attributes)	

* The major vector length is X'0012' for an NMVT containing one single network address (target address) in the SNA Address List subvector. This length increases by 6 for each additional target address. Also, see "Subvector Key X'04' (SNA Address List)" on page 16-109.

Query Link Station Attributes Reply

- A reply to a Query Link Station Attributes NMVT request.
- The query link station attributes (LSA) processor (CXDTDTQP) and the NMVT reply generator (CXDTREP) build this NMVT.

Note: 34 is the cross reference number of this request or reply from the "Network Management Vector Transport (NMVT) Subvector List" on page 16-104. A list of all cross reference numbers can be found in Table 16-1 on page 16-1.

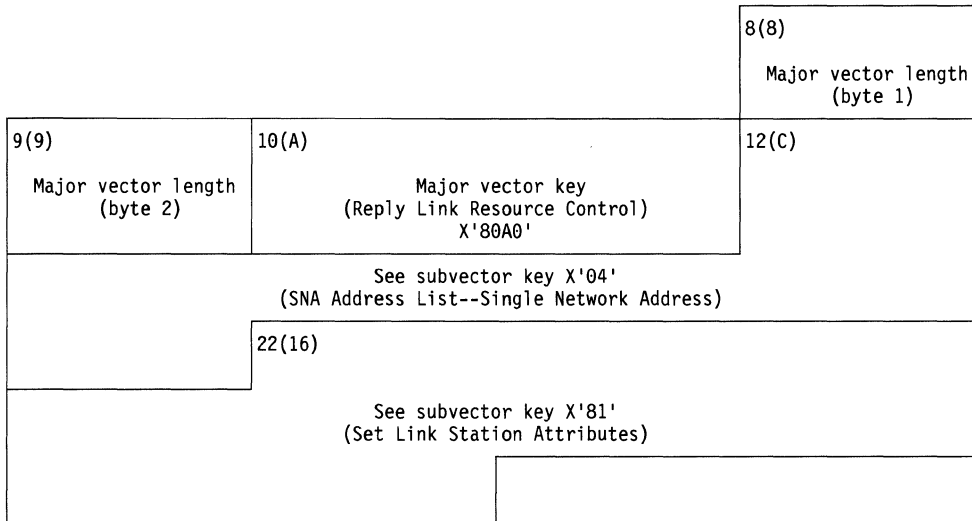
		8(8) Major vector length (byte 1)*
9(9) Major vector length (byte 2)*	10(A) Major vector key (Reply Link Resource Control) X'00A0'	12(C)
	See subvector key X'04' (SNA Address List--Single Network Address)	
	22(16) - n	
	See subvector key X'82' (Reply Link Station Attributes)	
(n+1) - (n+9)	See subvector key X'84' (Reply Link Attributes), which includes subfield keys X'20' and X'30'	
(n+10) - (n+16)	See subvector key X'42' (Relative Time)	

* The major vector length is equal to the sum of the subvector lengths plus 4.

Alter Link Station Attributes Request

- An NMVT request.
- NetView builds and sends this NMVT.

Note: 46 is the cross reference number of this request or reply from the "Network Management Vector Transport (NMVT) Subvector List" on page 16-104. A list of all cross reference numbers can be found in Table 16-1 on page 16-1.



* The major vector length is X'0013' for an NMVT containing one single network address (target address) in the SNA Address List subvector. This length increases by 6 for each additional target address. Also, see "Subvector Key X'04' (SNA Address List)" on page 16-109.

Alter Link Station Attributes Reply

- A reply to an Alter Link Station Attributes NMVT request.
- The alter link station attributes (LSA) processor (CXDTDTAP) and the NMVT reply generator (CXDTREP) build this NMVT.

Note: 35 is the cross reference number of this request or reply from the "Network Management Vector Transport (NMVT) Subvector List." A list of all cross reference numbers can be found in Table 16-1 on page 16-1.

		8(8) Major vector length (byte 1)*
9(9) Major vector length (byte 2)	10(A) Major vector key (Reply Link Resource Control) X'00A0'	12(C)
See subvector key X'04' (SNA Address List--Single Network Address)		
	22(16) See subvector key X'45' (Data Reset Flag)	24(18) - n
See subvector key X'82' (Reply Link Station Attributes)		
n+1	See subvector key X'42' (Relative Time)	

* The major vector length is equal to the sum of the subvector lengths plus 4.

Network Management Vector Transport (NMVT) Subvector List

The following table shows, by key value, the NMVT requests and replies that contain the specific subvector. The numbers in the third column refer to numbers assigned to NMVT requests and replies as shown in the table at the beginning of this section. Subvector formats, together with their associated subfields, follow this table.

Subvector Key	Subvector Description	Cross Reference Number	Page
Note: An asterisk (*) indicates both NCP/token-ring interconnection (NTRI) and NCP subvector format. Two asterisks (**) indicate an NTRI-generated subvector format.			
X'03'	SNA Hierarchy Name List	7, 8, 23, 24	16-108
X'04'*	SNA Address List—Single Network Address	1–3, 5–11, 13, 21–28, 30–36, 40, 42–50, 52–59, 68, 69, 73–80, 82–84	16-109
X'04'	SNA Address List—Network-Qualified Address Pair	4a, 4b, 12, 19, 37, 38	16-109

Subvector Key	Subvector Description	Cross Reference Number	Page
X'04'	SNA Address List—Session Partner Network Address Pair	12, 14–19, 37, 38, 70, 71, 81, 86	16-109
X'05'	Hierarchy/Resource List	47, 48, 54, 57, 58, 68, 69, 73–80, 82–84	16-112
X'0C'	Distinguished Named Extension	83, 84	16-113
X'10'*	Product Set Identifier	1–11, 23–29, 47–59, 68–71, 73–80, 82–84, 87	16-113
X'42'*	Relative Time	1–36, 47–59, 68–71, 73–80, 82–84, 87	16-114
X'45'	Data Reset Flag	35	16-114
X'47'	MSU Correlation	78, 79	16-115
X'50'	LPDA2 Response Data	5–10, 21, 23–26, 30	16-115
X'51'*	Local Area Network Connection Subsystem Data	1, 3, 11, 27, 28, 49, 73, 77	16-116
X'52'	Link Configuration Data	5–10, 21–26, 30, 31	16-117
X'52'***	Link Connection Subsystem Configuration Data (Frame Relay)	47, 48, 52–59, 68, 69	16-119
X'52'*	Link Connection Subsystem Configuration Data (LAN)	1, 3, 11, 27, 28, 73, 77	16-123
X'53'*	SDLC Link Station Counters	3, 7, 8, 11, 23, 24, 27, 28, 47, 48, 68, 69	16-124
X'54'	BSC Link Station Counters	9, 10, 25, 26	16-126
X'56'	Optional SDLC Line Station Counters	7, 8, 23, 24	16-127
X'57'***	Local Area Network Physical Link Station Counters	1, 27	16-129
X'58'	NCP Product-Specific Data	5–10, 23–26	16-129
X'58'***	LCS Product Specific Hexadecimal Data (NTRI/Frame Relay)	11, 68	16-132
X'59'***	LCS Product Specific EBCDIC Data	11	16-133
X'5C'	CSMA/CD Counters	50	16-133
X'5D'	LAN Media Access Control Data	49, 50	16-136
X'7D'	Sense Data	5–10, 12, 22–26, 31, 36	16-137
X'81'	Modify SIR Control	38, 39	16-137
X'81'	LPDA2 Test Modem LCS	40, 42	16-138
X'81'	Request Product Set ID	41	16-138
X'81'	Set Link Station Attributes	46	16-138
X'81'	Directed Action	83, 84	16-139
X'82'	Reply Query/Set Link Station Attributes	34, 35	16-140
X'82'	Reply SIR Control	19, 20	16-141
X'83'	Query SIR Data	37	16-141
X'83'	Query Link Station Attributes	45	16-142

Subvector Key	Subvector Description	Cross Reference Number	Page
X'84'	SIR Common Data	13–18	16-143
X'84'	Reply Link Attributes	32–34	16-145
X'85'	Set Link Attributes	44	16-146
X'86'	SIR Control Block xxx		16-147
X'86'	SIR Control Block AXB	16, 17	16-149
X'86'	SIR Control Block BSB	14	16-150
X'86'	SIR Control Block BXI	14	16-151
X'86'	SIR Control Block CCB-RCV/XMT	16, 17	16-152
X'86'	SIR Control Block CCB-OEM	18	16-152
X'86'	SIR Control Block CUB	16–18	16-155
X'86'	SIR Control Block LKB	16–18	16-157
X'86'	SIR Control Block LPSA	16–17	16-158
X'86'	SIR Control Block LTX	14	16-159
X'86'	SIR Control Block LUB	14	16-160
X'86'	SIR Control Block LXB	16, 17	16-161
X'86'	SIR Control Block NIX	13	16-162
X'86'	SIR Control Block NLB/NLX	13	16-163
X'86'	SIR Control Block NPSA	16–17	16-164
X'86'	SIR Control Block PSA-RCV/XMT	16, 17	16-165
X'86'	SIR Control Block PSB	15	16-166
X'86'	SIR Control Block PSB-ID	14, 16–18	16-167
X'86'	SIR Control Block SNP	15	16-168
X'87'	Query Link Attributes	43	16-168
X'8A ^{1**}	Link Event Status	5–11, 68	16-168
X'8C'	SDLC Link Station Data	7, 8, 11	16-172
X'8C ^{1**}	SDLC Link Station Data (NTRI/Frame Relay)	4, 68	16-174
X'91'	Basic Alert	1–3	16-175
X'92'	Generic Alert Data	4a, 4b, 47–49, 51–58, 70, 71, 73–79, 87	16-181
X'93'	Generic Alert Possible Causes	4a, 4b, 47–49, 51–58, 70, 71, 73–79, 87	16-185
X'94'	Generic Alert User Causes	48, 54, 57, 74–76, 79	16-186
X'95'	Generic Alert Install Causes	52–54, 58, 76, 87	16-190
X'96'	Generic Alert Failure Causes	4a, 4b, 47, 49, 55, 56, 70, 71, 73, 75, 77, 78	16-195
X'97'	Generic Alert Cause Undetermined	51	16-199
X'9B'	Query Flow Control Data	86	16-204
X'9C'	Query Flow Control Data Reply	81	16-205

Subvector Key	Subvector Description	Cross Reference Number	Page
X'A0'	CNM Detailed Qualifier (EBCDIC)	1, 3	16-208
X'A1'***	CNM Detailed Qualifier (Hexadecimal)	1,3	16-209

Subvector Key X'03' (SNA Hierarchy Name List)

0(0) Subvector length	1(1) SNA hierarchy name list subvector key X'03'	2(2) Subvector indicator X'03'	3(3) Link resource type ID (continued) <hr style="border-top: 1px dashed black;"/> Number of entries X'03'
4(4) Length of the NCP name + 1	5(5) - n NCP name (n+1) - (n+4) NCP resource type ID (C'COMC')		
NCP resource type ID (continued)	(n+5) Length of the link name + 1	(n+6) - p Link name (p+1) - (p+4) Link resource type ID (C'LINK')	
Link resource type ID (continued)	(p+5) Length of the PU name + 1		(p+6) - q (q+1) - (q+4) PU resource type ID (C'CTRL')
PU name			
PU resource type ID (continued)			

Subvector Key X'04' (SNA Address List)

Single Network Address

0(0) Subvector length*	1(1) SNA address list subvector key X'04'	2(2) Retired (for a request)	3(3) Target address type X'80'
		Target count X'01' (for a reply)	
4(4) - 9(9) Single network address of the target (the first 4 bytes are the subarea address, followed by a 2 byte element address)			

* The SNA address list subvector length is X'0A' for an NMVT containing one single network address (target address) in the SNA address list subvector. This length and the offsets to the other subvectors increase by 6 for each additional target address.

Network-Qualified Address Pairs

0(0) Subvector length**	1(1) SNA address list subvector key X'04'	2(2) Retired	3(3) Target address type X'A0'
4(4) - 9(9) Network address of the session partner (the first 4 bytes are the subarea address, followed by a 2 byte element address)			
		10(A) - 15(F)	
Network address of the resource in NCP (the first 4 bytes are the subarea address, followed by a 2 byte element address)			
16(10) - 23(17) Network ID			

** The SNA address list subvector length is X'18' for an NMVT containing one single network address pair (target address) in the SNA address list subvector. This length and the offsets of the other subvectors increase by 20 for each additional target address.

Session Partner Network Address Pair

- SSCP-LU or LU-LU session
- SSCP-PUT4 or PUT4-PUT4 session
- SSCP-PUT2 session.

SSCP-LU or LU-LU Session

0(0) Subvector length X'11'	1(1) SNA address list subvector key X'04'	2(2) Retired X'00'	3(3) Target type X'C0'
4(4) - 9(9) Network address of the NAU1 session partner (the first 4 bytes are the subarea address, resolved from VVTI (RCBVVT)** and followed by a 2 byte element address (RCBSPART)**)			
		10(A) Retired X'00'	11(B) - 16(10)
Network address of the NAU2 resource in NCP (the first 4 bytes are the subarea address (PSBPSNWA)**, followed by a 2 byte element address (SPCELMAD)**)			

** Indicates the control block field from which this NMVT field is loaded. (See Volume 1 Section 1, "Data Area Layouts," for field definitions.)

SSCP-PUT4 or PUT4-PUT4 Session

0(0) Subvector length X'11'	1(1) SNA address list subvector key X'04'	2(2) Retired X'00'	3(3) Target type X'C0'
4(4) - 9(9) Network address of the NAU1 session partner (the first 4 bytes are the subarea address (SNPSUBAH and SNPSUBAL)**, followed by a 2 byte element address (SNPADRPC)**)			
		10(A) Retired X'00'	11(B) - 16(10)
Network address of the NAU2 resource in NCP (the first 4 bytes are the subarea address (PSBPSNWA)**, followed by a 2 byte element address (PSBADRPS)**)			

** Indicates the control block field from which this NMVT field is loaded. (See Volume 1 Section 1, "Data Area Layouts," for field definitions.)

SSCP-PUT2

0(0) Subvector length X'11'	1(1) SNA address list subvector key X'04'	2(2) Retired X'00'	3(3) Target type X'C0'
4(4) - 9(9) Network address of the NAU1 session partner (the first 4 bytes are the subarea address, resolved from VVTI and followed by a 2 byte element address (RCBSPART)**)			
		10(A) Retired X'00'	11(B) - 16(10)
Network address of the NAU2 resource in NCP (the first 4 bytes are the subarea address (PSBPSNWA)**, followed by a 2 byte element address (CUBRSE)**)			

** Indicates the control block field from which this NMVT field is loaded. (See Volume 1 Section 1, "Data Area Layouts," for field definitions.)

Subvector Key X'05' (Hierarchy/Resource List)

0(0) Subvector length	1(1) Hierarchy/resource list subvector key X'05'
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Subfield Key X'11' (Associated Resources)

0(0) Subfield length	1(1) Subfield key X'11'	2(2) Reserved	3(3) - n Associated resource entry
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Associated Resource Entry

0(0) Length of the following name plus this length field	1 - r		
Name of resource in upper-case EBCDIC characters			
			r + 1 Flags (see note 1)
r + 2 Resource type identifier (see note 2)			

Notes:

1. Flags
 ..x. Resource list indexing flag
2. Resource type identifier
 X'44' Frame-relay

Subvector Key X'0C' (Distinguished Name Extension Subvector)

0(0) Subvector length X'13'	1(1) Distinguished name extension subvector key X'0C'
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Subfield Key X'00' (Relative Distinguished Name Subfield)

0(0) Subfield length X'0B'	1(1) Subfield key X'00'	2(2) Identifier X'06'	3(3) Object length X'07'
4(4) - 10(A) Object identifier X'2B0C02876C8428'			

Subfield Key X'01' (Relative Distinguished Name Value Subfield)

0(0) Subfield length X'06'	1(1) Subfield key X'01'	2(2) Identifier X'04' (Address is of ANS.1 type octet string)	3(3) Object network address length
4(4) Object network address value (Element address of the logical or physical line)			

Subvector Key X'10' (Product Set Identifier)

0(0) Subvector length	1(1) Product set identifier subvector key X'10'	2(2) Retired X'00'	3(3) - m
Product set identifier. See the product set identifier control block (PSI) format in Volume 1 Section 1, "Data Area Layouts."			

Subvector Key X'42' (Relative Time)

0(0) Subvector length X'07'	1(1) Relative Time subvector key X'42'	2(2) Relative time increment X'00'*	3(3) Relative time data** (byte 1)
4(4) Relative time data** (bytes 2 through 4)			

* Relative time increment X'00' means the value in the data field is in tenths of a second.

** The first 2 bytes are always X'0000'. The last 2 bytes contain a binary representation of the time an NMVT is created relative to other NMVTs.

Subvector Key X'45' (Data Reset Flag)

0(0) Subvector length X'02'	1(1) Data reset flag subvector key X'45'
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Subvector Key X'47' (MSU Correlation)

0(0) Subvector length X'2C'	1(1) MSU correlation subvector key X'47'
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Subfield Key X'10' (Resource Instance Identifier Subfield)

0(0) Subfield length X'2A'	1(1) Subfield key X'10'	2(2) - 33(21)
Resource name		34(22) - 37(25)
Resource number		38(26) - 41(29)
Sequence number		

Subvector Key X'50' (LPDA2 Response Data)

0(0) Subvector length	1(1) LPDA2 response data subvector key X'50'	2(2) Identifier field	
4(4) Link segment level	5(5) Modem address	6(6) Link problem determination aid 2 (LPDA2) command	7(7) Sense byte
8(8) - n Variable-length response data (if any)			

Subvector Key X'51' (LAN Connection Subsystem Data)

0(0) Subvector length*	1(1) LAN Connection Subsystem Data subvector key X'51'
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* The subvector length is equal to the sum of the subfield lengths plus 2. One or more subfields will be present in any order.

Subfield Key X'03' (Local Individual MAC Address)

0(0) Subfield length X'08'	1(1) Subfield key X'03'	2(2) - 7(7)
Local individual medium access control (MAC) address		

Subfield Key X'04' (Remote Individual MAC Address)

0(0) Subfield length X'08'	1(1) Subfield key X'04'	2(2) - 7(7)
Target individual MAC address		

Subfield Key X'05' (MAC Routing Information)

0(0) Subfield length	1(1) Subfield key X'05'	2(2) - q MAC routing information
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Subfield Key X'06' (Fault Domain Description)

0(0) Subfield length X'0E'	1(1) Subfield key X'06'	2(2) - 7(7)
Individual medium access control (MAC) address of the fault domain pair		
8(8) - 13(D) Individual MAC address of the upstream member of the fault domain pair (NAUN)		

Subvector Key X'52' (Link Configuration Data)

0(0) Subvector length*	1(1) Link Configuration Data subvector key X'52'
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* The subvector length is equal to the sum of the subfield lengths plus 2. One or more subfields will be present in any order.

Subfield Key X'01' (Port Address)

0(0) Subfield length X'04'	1(1) Subfield key X'01'	2(2) Port address (AXBOLDLN)**
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** Indicates the control block field from which this NMVT field is loaded. (See Volume 1 Section 1, "Data Area Layouts," for field definitions.)

Subfield Key X'02' (Remote Device Address)

0(0) Subfield length X'03'	1(1) Subfield key X'02'	2(2) Remote device address (See note)
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Note: The remote device address is loaded from one of the following:

- SDLC line (SCBADRC)
- BSC line:
 - (DAEADDR) if address characters
 - (DVB POLL) if polling characters
 - X'FF' if neither addressing nor polling characters

Subfield Key X'03' (Modem LCS Topology)

0(0) Subfield length X'04'	1(1) Subfield key X'03'	2(2) Modem configuration type X'00' (See note)	3(3) Link segment on which the resource resides
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Note: Modem configuration type:

- 1... Channelized modem is in use.
- .1.. Integrated modem is in use.

Subfield Key X'05' (Modem LCS Correlation Number)

0(0) Subfield length X'04'	1(1) Subfield key X'05'	2(2) Correlation number (LKBCORN)*
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* Indicates the control block field from which this NMVT field is loaded. (See Volume 1 Section 1, "Data Area Layouts," for field definitions.)

Subfield Key X'06' (Modem LCS Link Station Attributes)

0(0) Subfield length X'04'	1(1) Subfield key X'06'	2(2) Primary (X'01') or secondary (X'02') station	3(3) Link station type. (See note.)
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Note: Link station type:

- X'01' PU type 1
- X'02' PU type 2
- X'03' PU type 4
- X'80' BSC device.

Subfield Key X'07' (Modem LCS Link Attributes)

0(0) Subfield length X'06'	1(1) Subfield key X'07'	2(2) Leased (X'01') or switched (X'02') line	3(3) Half-duplex (X'01') or duplex (X'02') line
4(4) DLC protocol type: X'01' SDLC X'02' BSC	5(5) Link configuration: X'01' Point-to-Point X'02' Multipoint		

Subvector Key X'52' (Link Connection Subsystem Configuration Data) FR

0(0) Subvector length*	1(1) Subvector key X'52'
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* The subvector length is equal to the sum of the subfield lengths plus two. One or more subfields will be present in any order.

Subfield Key X'04' (Local Device Address)

0(0) Subfield length X'04'	1(1) Subfield key X'04'	2(2) DLCI
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Subfield Key X'07' (LCS Link Attributes)

0(0) Subfield length X'07'	1(1) Subfield key X'07'	2(2) Link connection type used X'03'*	3(3) Half- or full-duplex X'02'*
4(4) DLC protocol type X'00' or X'07'*	5(5) Point-to-point or multipoint X'01'*	6(6) MAC type X'01' Frame relay	

* See notes.

Note: Link connection type used:

- X'01' nonswitched
- X'02' switched
- X'03' packet switched

Note: Half- or full-duplex:

- X'01' half-duplex
- X'02' full-duplex

Note: DLC protocol type:

- X'00' Unknown
- X'01' SDLC
- X'02' BSC
- X'03' Start-stop
- X'04' LAPB
- X'05' LAPD
- X'06' LAPE
- X'07' LAN LLC

Note: Point-to-point or multi-point:

- X'01' point-to-point
- X'02' multi-point

Subfield X'0E' (Frame Relay DLCI Status Subfield)
Subfield header

0(0) Subfield length	1(1) Subfield key X'0E'	2(2) - 9(9) Physical line name
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Subfield entry (one or more present)

0(0) - 7(7) Resource name	
8(8) DLCI number of resource	10(A) DLCI status*

* Indicates a byte expansion follows.

Byte Expansions

Offset/Field Name	Bit Pattern/ Hex Value	Contents
10(A)	.1..	DLCI Status
	..1.	Unsupported DLCI's exist
	.... 1...	Station failure due to inactive DLCI
	.... .1..	New DLCI
	.... ..1.	DLCI not present
	.... ..1.	DLCI active

Subfield X'0F' (FRSE Support Set Status Subfield)

Subfield header

0(0) Subfield length	1(1) Subfield key X'0F'
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Subfield entry (one or more present)

0(0) Support set length*	1(1) Segment status*	2(2) - 9(9)	
Physical line name of subport A		10(A) - 17(11)	
Resource name of subport A		18(12) Resource status of subport A*	19(13) - 20(14)
DLCI number of subport A		22(16) - 29(10)	
21(15) DLCI status of subport A*			
Physical line name of subport B		30(1E) - 37(25)	
Resource name of subport B		38(26) Resource status of subport B*	39(27) - 40(28)
DLCI number of subport B		41(29) DLCI status of subport B*	

Optionally present, substitute subport entries

42(2A) - 49(31)		
Physical line name of substitute subport A		
50(32) - 57(39)		
Resource name of substitute subport A		
58(3A)	59(3B)	61(3D)
Resource status of substitute subport A*	DLCI number of substitute subport A	DLCI status of substitute subport A*
62(3E) - 69(45)		
Physical line name of substitute subport B		
70(46) - 77(4D)		
Resource name of substitute subport B		
78(4E)	79(4F)	81(51)
Resource status of substitute subport B*	DLCI number of substitute subport B	DLCI status of substitute subport B*

* Indicates a byte expansion follows.

Byte Expansions

Offset/Field Name	Bit Pattern/ Hex Value	Contents
0(0)		Segment Status
	X'00'	No active segment
	X'01'	Subport A - subport B
	X'02'	Subport A - substitute subport B
	X'03'	Subport B - substitute subport A
	X'04'	Invalid configuration
18(12),38(26) 58(3A),78(4E)		Resource status
	X'00'	Not present
	X'01'	Inactive
	X'02'	Active
21(15),41(29) 61(3D),81(51)		DLCI status of subport
	..1.	Resource failure associated with DLCI status
	.... 1...	New DLCI
	.... .1..	DLCI not present
	.... ..1.	DLCI active
	xx.x ...x	Reserved

Subvector Key X'52' (Link Connection Subsystem Configuration Data) LAN

0(0) Subvector length*	1(1) Link Connection Subsystem Configuration Data subvector key X'52'
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* The subvector length is equal to the sum of the subfield lengths plus 2. One or more subfields will be present in any order.

Subfield Key X'01' (Port Address)

0(0) Subfield length X'04'	1(1) Subfield key X'01'	2(2) Port address of the token-ring interface coupler (TIC)
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Subfield Key X'02' (Remote Device Address)

0(0) Subfield length X'03'	1(1) Subfield key X'02'	2(2) Remote device address.
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Subfield Key X'04' (Local Device Address)

0(0) Subfield length X'03'	1(1) Subfield key X'04'	2(2) Local device address
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Subvector Key X'53' (SDLC Link Station Counters)

0(0) Subvector length*	1(1) SDLC Link Station Counters subvector key X'53'
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* The subvector length is equal to the sum of the subfield lengths plus 2. One or more subfields will be present in any order.

Subfield Key X'01' (Cause Code)

0(0) Subfield length X'03'	1(1) Subfield key X'01'	2(2) Cause code (See note)
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Note: Cause codes:

- X'03' Deactivation is in progress
- X'04' Transmit counter reached threshold (SCBTCNT)
- X'05' Receive-error counter reached threshold (SCBRECNT)
- X'09' Transmit-error counter reached threshold (SCBTINCT)
- X'0A' Receive counter reached threshold (SCBRCNT + SCBRECNT)
- X'0B' Optional SDLC counter reached threshold

Subfield Key X'02' (SDLC Transmit Counter)

0(0) Subfield length X'04'	1(1) Subfield key X'02'	2(2) Total transmissions of I-frames (error-free) (SCBTCNT or LLBXMICT)**
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** Indicates the control block field from which this NMVT field is loaded. (See Volume 1 Section 1, "Data Area Layouts," for field definitions.)

Subfield Key X'03' (SDLC Transmit Error Counter)

0(0) Subfield length X'04'	1(1) Subfield key X'03'	2(2) Total retransmission actions of I-frames (SCBTINCT or LLBXERCT)**
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** Indicates the control block field from which this NMVT field is loaded. (See Volume 1 Section 1, "Data Area Layouts," for field definitions.)

Subfield Key X'04' (SDLC Receive Counter)

0(0) Subfield length X'06'	1(1) Subfield key X'04'	2(2) - 5(5) Total receptions of I-frames (error-free plus in-error) (SCBRCNT + SCBRECNT or LLBRCVCT)**
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** Indicates the control block field from which this NMVT field is loaded. (See Volume 1 Section 1, "Data Area Layouts," for field definitions.)

Subfield Key X'05' (SDLC Receive Error Counter)

0(0) Subfield length X'04'	1(1) Subfield key X'05'	2(2) Total receptions of I-frames (in-error) (SCBRECNT or LLBRERCT)**
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** Indicates the control block field from which this NMVT field is loaded. (See Volume 1 Section 1, "Data Area Layouts," for field definitions.)

Subvector Key X'54' (BSC Link Station Counters)

0(0)	1(1)
Subvector length*	BSC Link Station subvector key X'54'

* The subvector length is equal to the sum of the subfield lengths plus 2. One or more subfields will be present in any order.

Subfield Key X'01' (Cause Code)

0(0)	1(1)	2(2)
Subfield length X'03'	Subfield key X'01'	Cause code. (See note.)

Note: Cause code:

- X'01' Total traffic counter reached threshold (DVBSDRT).
- X'02' Total traffic error counter reached threshold (DVBSDRE).
- X'03' Deactivation is in progress.

Subfield Key X'02' (Total Traffic Counter)

0(0)	1(1)	2(2) - n
Subfield length X'06'	Subfield key X'02'	BSC total traffic counter for a link station

Subfield Key X'03' (Total Traffic Counter)

0(0)	1(1)	2(2)
Subfield length X'03'	Subfield key X'03'	BSC total traffic error counter (DVBSDRE)**

** Indicates the control block field from which this NMVT field is loaded. (See Volume 1 Section 1, "Data Area Layouts," for field definitions.)

Subvector Key X'56' (Optional SDLC Link Station Counters)

0(0) Subvector length*	1(1) Optional SDLC Link Station Counters subvector key X'56'
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* The subvector length is equal to the sum of the subfield lengths plus 2. One or more subfields will be present in any order.

Subfield Key X'01' (Cause Code)

0(0) Subfield length X'03'	1(1) Subfield key X'01'	2(2) Cause code. (See note.)
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Note: Cause code:

- X'01' Total transmit frames counter reached threshold (SCBTPCNT).
- X'02' Total errors retries counter reached threshold (SCBTRTCT).
- X'06' S-frames received counter reached threshold (SCBRPCNT).
- X'07' I-frames acknowledged counter reached threshold (SCBTIACT).
- X'08' I-frames received counter reached threshold (SCBRCNT).
- X'0C' No optional counter threshold was reached.

Subfield Key X'02' (Total Frames Transmitted Counter)

0(0) Subfield length X'04'	1(1) Subfield key X'02'	2(2) Total SDLC frames transmitted counter (SCBTPCNT)**
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** Indicates the control block field from which this NMVT field is loaded. (See Volume 1 Section 1, "Data Area Layouts," for field definitions.)

Subfield Key X'03' (Total Error Retries Counter)

0(0) Subfield length X'04'	1(1) Subfield key X'03'	2(2) Total SDLC error retries counter (SCBTRTCT)**
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** Indicates the control block field from which this NMVT field is loaded. (See Volume 1 Section 1, "Data Area Layouts," for field definitions.)

Subfield Key X'04' (I-Frames Acknowledged Counter)

0(0) Subfield length X'04'	1(1) Subfield key X'04'	2(2) SDLC I-frames acknowledged counter (SCBTIACT)**
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** Indicates the control block field from which this NMVT field is loaded. (See Volume 1 Section 1, "Data Area Layouts," for field definitions.)

Subfield Key X'05' (S-Frames Received Counter)

0(0) Subfield length X'04'	1(1) Subfield key X'05'	2(2) SDLC S-frames received counter (error-free) (SCBRPCNT)**
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** Indicates the control block field from which this NMVT field is loaded. (See Volume 1 Section 1, "Data Area Layouts," for field definitions.)

Subfield Key X'06' (I-Frames Received Counter)

0(0) Subfield length X'04'	1(1) Subfield key X'06'	2(2) SDLC I-frames received counter (error-free) (SCBRPCNT)**
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** Indicates the control block field from which this NMVT field is loaded. (See Volume 1 Section 1, "Data Area Layouts," for field definitions.)

Subvector Key X'57' (LAN Physical Link Station Counters)

0(0) Subvector length*	1(1) Subvector key X'57'
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* The subvector length is equal to the sum of the subfield lengths plus 2. One or more subfields will be present in any order.

Subfield Key X'01' (Cause Code)

0(0) Subfield length X'03'	1(1) Subfield key X'01'	2(2) Cause code (See note)
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Note: Cause code:

- X'01' Deactivation is in progress
- X'02' Receive congestion counter reached threshold

Subfield Key X'02' (Receive Congestion Counter)

0(0) Subfield length	1(1) Subfield key X'02'	2(2) - q Counter value in binary not to exceed 4 bytes
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Subvector Key X'58' (NCP Product-Specific Data)

0(0) Subvector length*	1(1) NCP Product-Specific Data subvector key X'58'
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* The subvector length is equal to the sum of the subfield lengths plus 2.

Subfield Key X'01' (Data Types)

0(0) Subfield length X'03'	1(1) Subfield key X'01'	2(2) Data types. (See note.)
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Note: Data types:

- X'01' SDLC permanent link station error data (LK-EVENT)
- X'02' SDLC permanent link error data (LK-EVENT)
- X'03' SDLC statistics data (PDSTATS)
- X'10' BSC permanent device/line error data (LK-EVENT)
- X'12' BSC statistics data (PDSTATS)

Subfield Key X'02' (Product-Specific Data)

0(0) Subfield length	1(1) Subfield key X'02'
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NCP Specific Data When Data Type=X'01' for Subfield Key
X'01' (SDLC Permanent Link Station Error Data)

		2(2) Current error status (LXBSTAT)**	
4(4) First error status (LXBERST, LXBHSTAT)**		6(6) Extended error status (LXBEXTST)**	7(7) First extended error status (LXBEREST)**
8(8) Command modifier field (LXBCMODS)**		10(A) Immediate control command flags (LXBIMCTL)**	11(B) Line type (CCBTYP E)**
12(C) Dial control (CCBTYP EC)**	13(D) Control flags (CCBRSPON)**	14(E) Command reject data	
		----- Command received from the secondary station	
16(10) Command reject data		18(12) Command reject reason	19(13) Station control block (SCB) type**
----- NR and NS counts received from the secondary station			
20(14) Service seeking control flags (SCBSSCF)**		22(16) Output control flags (SCBOCF)**	23(17) Current outstanding count (SCBCOC)**
24(18) Pass limit (SCBPCNT)**			

** Indicates the control block field from which this NMVT field is loaded. (See Volume 1 Section 1, "Data Area Layouts," for field definitions.)

NCP Specific Data When Data Type=X'02' for Subfield Key
 X'01' (SDLC Permanent Link Error Data)

		2(2) Current error status (LXBSTAT)**	
4(4) First error status (LXBERST, LXBHSTAT)**		6(6) Extended error status (LXBEXTST)**	7(7) First extended error status (LXBEREST)**
8(8) Command modifier field (LXBCMODS)**		10(A) Immediate control command flags (LXBIMCTL)**	11(B) Line type (CCBTYPY)**
12(C) Dial control (CCBTYPYEC)**	13(D) Control flags (CCBRSPON)**	14(E) Command reject data	
		----- Command received from the secondary station	
16(10) Command reject data		18(12) Command reject reason	19(13) X'00'
----- NR and NS counts received from the secondary station			
20(14) X'00'			

** Indicates the control block field from which this NMVT field is loaded. (See Volume 1 Section 1, "Data Area Layouts," for field definitions.)

2(2) Station type (SCBTYPY)**

** Indicates the control block field from which this NMVT field is loaded. (See Volume 1 Section 1, "Data Area Layouts," for field definitions.)

NCP Specific Data When Data Type=X'10' for Subfield Key X'01' (BSC Permanent Device/Line Error Data)

		2(2) Current error status (IOBSTAT)**	
4(4) First error status (IOBERST)**	6(6) Extended error status (IOBEXTST)**	7(7) First extended error status (IOBEREST)**	
8(8) Command modifier field (IOBCMODS)**		10(A) Immediate control command flags (IOBIMCTL)**	11(B) BTU command (BCHCMD)**
12(C) Function flags (BCHSFLAG)**	13(D) BTU flags (BCHBDUF)**	14(E) BTU modifier (BCHMOD)**	15(F) Device type (DVBTYP E)**
16(10) Device features (DVBFEAT1, DVBFEAT2)**		18(12) X'00'	19(13) X'00'

** Indicates the control block field from which this NMVT field is loaded. (See Volume 1 Section 1, "Data Area Layouts," for field definitions.)

NCP Specific Data When Data Type=X'12' for Subfield Key X'01' (BSC Statistics Data)

		2(2) Device features (DVBFEAT, DVBFEAT2)**	
4(4) Device type (DVBTYP E)**			

** Indicates the control block field from which this NMVT field is loaded. (See Volume 1 Section 1, "Data Area Layouts," for field definitions.)

Subvector Key X'58' (LCS Product-Specific Hexadecimal Data) NTRI

0(0) Subvector length	1(1) LCS Product-Specific Hexadecimal Data Subvector key X'58'	2(2) MAC status (XUAMACS)**	3(3) PLM status (PLBPLMST)**
4(4) Copy of LLBLLCST (LLBLSTIN)**			

** Indicates the control block field from which this NMVT field is loaded. (See Volume 1 Section 1, "Data Area Layouts," for field definitions.)

Subvector Key X'59' (LCS Product-Specific EBCDIC Data) NTRI

0(0) Subvector length X'0A'	1(1) Subvector key X'59'	2(2) - 9(9)
Symbolic name of physical link		

Subvector Key X'5C' (CSMA/CD Counters)

0(0) Subvector length*	1(1) Subvector key X'5C'
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* The subvector length is equal to the sum of the subfield lengths plus two. One or more subfields will be present.

Subfield Key X'01' (CSMA/CD Counters Subfield)

0(0) Subfield Length X'03'	1(1) Subfield Key X'01'	2(2) Cause code (See note)
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Note: Cause code:

- X'02' Totals frames transmitted counter reached threshold
- X'03' Totals frames received counter reached threshold
- X'04' Totals transmit errors counter reached threshold
- X'05' Totals receive error counter reached threshold
- X'80' Adapter deactivation in progress
- X'81' Permanent line error

Subfield Key X'02' (Total Frames Transmitted)

0(0) Subfield length X'06'	1(1) Subfield key X'02'	2(2) - 5(5)
Total frames transmitted counter		

Subfield Key X'03' (Total Frames Received)

0(0) Subfield length X'06'	1(1) Subfield key X'03'	2(2) - 5(5)
Total frames received counter		

Subfield Key X'04' (Total Transmit Errors Subfield)

0(0) Subfield length X'06'	1(1) Subfield key X'04'	2(2) - 5(5)
Total transmit errors counter		

Subfield Key X'05' (Total Receive Errors Subfield)

0(0) Subfield length X'06'	1(1) Subfield key X'05'	2(2) - 5(5)
Total receive errors counter		

Subfield Key X'06' (Excessive Collisions Subfield)

0(0) Subfield length X'08'	1(1) Subfield key X'06'	2(2) Time domain reflectometry
4(4) Excessive collisions counter		

Subfield Key X'07' (Late Collisions Subfield)

0(0) Subfield length X'06'	1(1) Subfield key X'07'	2(2) - 5(5)
Late collisions counter		

Subfield Key X'08' (Receive Congestion Errors Subfield)

0(0) Subfield length X'06'	1(1) Subfield key X'08'	2(2) - 5(5)
Receive congestion errors counter		

Subfield Key X'09' (CRC Errors Subfield)

0(0) Subfield length X'06'	1(1) Subfield key X'09'	2(2) - 5(5)
CRC errors counter		

Subfield Key X'0A' (Framing Errors Subfield)

0(0) Subfield length X'06'	1(1) Subfield key X'0A'	2(2) - 5(5)
Framing errors counter		

Subfield Key X'0B' (Receive Size Errors Subfield)

0(0) Subfield length X'06'	1(1) Subfield key X'0B'	2(2) - 5(5)
Receive size error counter		

Subfield Key X'0C' (Transmit Deferred Counter Subfield)

0(0) Subfield length X'06'	1(1) Subfield key X'0C'	2(2) - 5(5)
Transmit deferred counter		

Subfield Key X'0D' (One Collision Errors Subfield)

0(0) Subfield length X'06'	1(1) Subfield key X'0D'	2(2) - 5(5)
One collision errors counter		

Subfield Key X'0E' (Multiple Collision Errors Subfield)

0(0) Subfield length X'06'	1(1) Subfield key X'0E'	2(2) - 5(5)
Multiple collision errors counter		

Subvector Key X'5D' (LAN Media Access Control Data)

0(0) Subvector length*	1(1) Subvector key X'5D'
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* The subvector length is equal to the sum of the subfield lengths plus two. One or more subfields will be present.

Subfield Key X'03' (Local Individual MAC Address)

0(0) Subfield length X'08'	1(1) Subfield key X'03'	2(2) - 7(7)
Local individual MAC address		

Subfield Key X'29' (MAC Type)

0(0) Subfield length X'03'	1(1) Subfield key X'29'	2(2) MAC type (See note)
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Note: MAC type:

- X'01' CSMA/CD

Subfield Key X'40' (LAN Media Access Control Data)

0(0) Subfield length X'03'	1(1) Subfield key X'40'	2(2) Address format (See note)
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Note: Address format:

- X'02' Most significant bit first

Subvector Key X'7D' (Sense Data)

0(0) Subvector length X'06'	1(1) Subvector key X'7D'	2(2) Sense code (See NCP, SSP, and EP Messages and Codes for details)
4(4) User sense code (See NCP, SSP, and EP Messages and Codes for details)		

Subvector Key X'81' (Modify SIR Control)

0(0) Subvector length X'05'	1(1) Modify SIR control subvector key X'81'	2(2) Subfield length X'03'	3(3) Subfield key (See note 1)
4(4) Command type (See note 2)			

Notes:

1. Subfield key:

- X'01' Single-session control (specific resource, boundary or SNI)
- X'02' Network interconnection session control (all SNI resources)
- X'03' All boundary sessions
- X'04' All boundary and all SNA network interconnect (SNI) sessions
- X'05' All sessions for a specific network addressable unit (NAU)

2. Command type:

- X'01' Enable the session information retrieval (SIR) function for the resource specified in the subfield key
- X'02' Disable the SIR function for the resource specified in the subfield key.

Subvector Key X'81' (LPDA2 Test Modem LCS)

0(0) Subvector length*	1(1) LPDA Test Modem LCS subvector key X'81'
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* The subvector length is equal to the sum of the subfield lengths plus 2.

Subfield Key X'01' (Time-out Value)

0(0) Subfield length X'04'	1(1) Subfield key X'01'	2(2) Time-out value (in 100 ms increments)
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Subfield Key X'02' (LPDA2 Modem Command Data)

0(0) Subfield length	1(1) Subfield key X'02'	2(2) - m link problem determination aid 2 (LPDA) modem command data (to test 586X modems)
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Subvector Key X'81' (Request Product Set ID)

0(0) Subvector length X'02'	1(1) Request product set ID subvector key X'81'
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Subvector Key X'81' (Set Link Station Attributes)

0(0) Subvector length*	1(1) Set link station attributes subvector key X'81'
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* The subvector length is equal to the sum of the subfield lengths plus 2. One or more subfields will be present in any order.

Subfield Key X'01' (Set Transmit Data Threshold)

0(0) Subfield length	1(1) Subfield key X'01'	2(2) - n Threshold value 2 right-justified bytes are stored in CUBSRTT/DVBSRTT
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Subfield Key X'02' (Set Transmit Error Threshold)

0(0) Subfield length	1(1) Subfield key X'02'	2(2) - n Threshold value 2 right-justified bytes are stored in CUBSRTR/DVBSRTR
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Subfield Key X'20' (Set LPDA Status)

0(0) Subfield length X'03'	1(1) Subfield key X'20'	2(2) Link problem determination aid (LPDA) status (See note)
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Note: LPDA status:

- X'00' Prevented
- X'01' Allowed

Subvector Key X'81' (Directed Action)

0(0) Subvector length X'03'	1(1) Directed actions subvector key X'81'	2(2) Directed action*
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* Indicates a byte expansion follows.

Byte Expansions

Offset/Field Name	Bit Pattern/ Hex Value	Contents
2(2)	X'00'	Directed action Undefined-no action required
	X'01'	CMIP alarm

Subvector Key X'82' (Reply Query/Set Link Station Attributes)

0(0)	1(1)
Subvector length*	Reply Query/Set Link Station Attributes subvector key X'82'

* The subvector length is equal to the sum of subfield lengths plus 2. Subfield keys X'01' and X'02' are presented together in this order; the subfield length is equal to X'04'. Subfield key X'20' is presented alone; the subfield length is equal to X'03'.

Subfield Key X'01' (Reply Transmit Data Threshold)

0(0)	1(1)	2(2)
Subfield length X'04'	Subfield key X'01'	Threshold value. SDLC (CUBSRTR)** BSC/SS (DVBSRTR)**

** Indicates the control block field from which this NMVT field is loaded. (See Volume 1 Section 1, "Data Area Layouts," for field definitions.)

Subfield Key X'02' (Reply Transmit Error Threshold)

0(0)	1(1)	2(2)
Subfield length X'04'	Subfield key X'02'	Threshold value. SDLC (CUBSRTR)** BSC/SS (DVBSRTR)**

** Indicates the control block field from which this NMVT field is loaded. (See Volume 1 Section 1, "Data Area Layouts," for field definitions.)

Subfield Key X'20' (Reply LPDA Status)

0(0)	1(1)	2(2)
Subfield length X'03'	Subfield key X'20'	Link Problem Determination Aid (LPDA) support: X'00' = Prevented X'01' = Allowed.

Subvector Key X'82' (Reply SIR Control)

0(0) Subvector length X'05'	1(1) Reply SIR control subvector key X'82'	2(2) Subfield length X'03'	3(3) Subfield key (See note 1)
4(4) Command acknowledged (See note 2)			

Notes:

1. Subfield key:

- X'01' Reply single-session control (specific resource, boundary or SNI)
- X'02' Reply network-interconnection sessions control (all SNI resources)
- X'03' Reply all boundary sessions
- X'04' Reply all boundary and all SNA network interconnect (SNI) sessions
- X'05' Reply all sessions for a specific network addressable unit (NAU)

2. Command acknowledged:

- X'01' Session information retrieval (SIR) function has been enabled
- X'02' SIR function has been disabled

Subvector Key X'83' (Query SIR Data)

0(0) Subvector length X'04'	1(1) Query SIR data subvector key X'83'	2(2) Subfield length X'02'	3(3) Subfield key
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Subvector Key X'83' (Query Link Station Attributes)

0(0) Subvector length*	1(1) Query link station attributes subvector key X'83'
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* The subvector length is a constant X'04'. Both subfields cannot be present at the same time.

Subfield Key X'01' (Query Thresholds)

0(0) Subfield length X'02'	1(1) Subfield key X'01'
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Subfield Key X'20' (Query LPDA Status)

0(0) Subfield length X'02'	1(1) Subfield key X'20'
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Subvector Key X'84' (SIR Common Data)

- Gateway session
- SSCP-LU or LU-LU session
- SSCP-PUT4 or PUT4-PUT4 session
- SSCP-PUT2 session

Gateway Session

0(0) Subvector length X'0D'	1(1) SIR Common Data subvector key X'84'	2(2) Subfield length X'0B'	3(3) Sequence numbers subfield key X'01'
4(4) Last outgoing PIU sequence number (NIXOUTB1)**		6(6) Next-to-last outgoing PIU sequence number (NIXOUTB2)**	
8(8) Last incoming PIU sequence number (NIXINB1)**		10(A) Next-to-last incoming PIU sequence number (NIXINB2)**	
12(C) Sequence number status information (NIXSNSTA)**			

** Indicates the control block field from which this NMVT field is loaded. (See Volume 1 Section 1, "Data Area Layouts," for field definitions.)

SSCP-LU or LU-LU Session

0(0) Subvector length X'0D'	1(1) SIR Common Data subvector key X'84'	2(2) Subfield length X'0B'	3(3) Subfield key X'01'
4(4) Last outgoing PIU sequence number (BSBOUT1)**		6(6) Next-to-last outgoing PIU sequence number (BSBOUT2)**	
8(8) Last incoming PIU sequence number (BSBINC1)**		10(A) Next-to-last incoming PIU sequence number (BSBINC2)**	
12(C) Flow control indicator (BSBSTRC)**			

** Indicates the control block field from which this NMVT field is loaded. (See Volume 1 Section 1, "Data Area Layouts," for field definitions.)

SSCP-PUT4 or PUT4-PUT4 Session

0(0) Subvector length X'0D'	1(1) SIR Common Data subvector key X'84'	2(2) Subfield length X'0B'	3(3) Sequence numbers subfield key X'01'
4(4) Last outgoing PIU sequence number (SNPSEQI)**		6(6) Next-to-last outgoing PIU sequence number X'0000'	
8(8) Last incoming PIU sequence number (SNPSEQQ)**		10(A) Next-to-last incoming PIU sequence number X'0000'	
12(C) Flow control indicator X'00'			

** Indicates the control block field from which this NMVT field is loaded. (See Volume 1 Section 1, "Data Area Layouts," for field definitions.)

SSCP-PUT2 Session

0(0) Subvector length X'0D'	1(1) SIR Common Data subvector key X'84'	2(2) Subfield length X'0B'	3(3) Subfield key X'01'
4(4) Last outgoing PIU sequence number (CXBOUTB1)**		6(6) Next-to-last outgoing PIU sequence number (CXBOUTB2)**	
8(8) Last incoming PIU sequence number (CXBINB1)**		10(A) Next-to-last incoming PIU sequence number (CXBINB2)**	
12(C) Flow control indicator (CUBSTRC)**			

** Indicates the control block field from which this NMVT field is loaded. (See Volume 1 Section 1, "Data Area Layouts," for field definitions.)

Subvector Key X'84' (Reply Link Attributes)

0(0) Subvector length*	1(1) Reply link attributes subvector key X'84'
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* The subvector length is equal to the sum of the subfield lengths plus 2. One or more subfields will be present in any order.

Subfield Key X'20' (Reply LPDA Support)

0(0) Subfield length* X'03'	1(1) Subfield key X'20'	2(2) Link problem determination aid (LPDA) support (See note)
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Note: LPDA support:

- X'00' LPDA support inhibited
- X'01' LPDA1 support for IBM modems
- X'02' LPDA1 support for IBM 3867 link diagnostic unit
- X'03' LPDA2 support

Subfield Key X'30' (Reply Modem LCS Configuration)

0(0) Subfield length* X'04'	1(1) Subfield key X'30'	2(2) Modem/line configuration (See note)	3(3) Link segment level on which the resource resides
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Note: Modem/line configuration

- 1... Channelized modem is in use
- .1... Line is switched

Subvector Key X'85' (Set Link Attributes)

0(0) Subvector length X'05'	1(1) Set link attributes subvector key X'85'	2(2) Subfield length X'03'	3(3) Set link problem determination aid (LPDA) subfield key X'20'
4(4) LPDA support type (See note)			

Note: LPDA support:

- X'00' LPDA support inhibited
- X'01' LPDA support for IBM 3863, 3864, 3865, and 3868 modems
- X'02' LPDA support for IBM 3867 link diagnostic unit
- X'03' LPDA2 support for 586X modems

Subvector Key X'86' (SIR Control Block xxx)

Valid session information retrieval (SIR) control blocks include the following:

- adapter control block extension (AXB)
- boundary session block (BSB)
- boundary session block extension (BXI)
- character control block (CCB)
- character control block for OEM lines (CCB-OEM)
- common physical unit block (CUB)
- line control block (LKB)
- LU terminal node extension (LTX)
- LU control block (LUB)
- LU control block extension (LXB)
- network interconnection extension (NIX)
- programmed resource LU block/ programmed resource LU block extension (NLB/NLX)
- parameter/status area-receive or parameter/status area-transmit (PSA-RCV/PSA-XMT)
- physical services control block (PSB)
- physical services control block identifier (PSB-ID)
- SSCP-NCP session control block (SNP).

0(0)	1(1)
Subvector length*	SIR Control Block xxx subvector key X'86'

* The subvector length is equal to the sum of the subfield lengths plus 2.

Note: Each subvector key X'86' will contain a subfield key X'01', a subfield key X'02', and a subfield key X'03' (in that order) for each SIR control block.

Subfield Key X'01' (Control Block Name)

0(0)	1(1)	2(2) - 9(9)
Subfield length X'0A'	Subfield key X'01'	
Control block name (8 characters of name and modifier in the form 'PSA-XMT' or 'LUB,' left-justified, blank filled)		

Subfield Key X'02' (Control Block Data Level)

0(0) Subfield length X'03'	1(1) Subfield key X'02'	2(2) - 9(9) Control block data level. (See note 1.)
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Notes:

1. X'00' indicates the control block that is defined by subvector key X'86' (contains Version 4 data).
2. Subfield key X'02' will be followed by one of the following subfield key X'03' control block data formats.

Subvector Key X'86' (SIR Control Block AXB)

Subfield Key X'03' (AXB/ATT Control Block Data)

0(0) Subfield length X'1C'	1(1) Adapter control block extension (AXB) data subfield key X'03'	2(2) Trace entry control byte (ATTECTL)**	3(3) First adapter control block (ACB) command (ATTCMD1)**
4(4) Second ACB command (ATTCMD2)**	5(5) Third ACB command (ATTCMD3)**	6(6) Fourth ACB command (ATTCMD4)**	7(7) Fifth ACB command (ATTCMD5)**
8(8) Sixth ACB command (ATTCMD6)**	9(9) Seventh ACB command (ATTCMD7)**	10(A) Eighth ACB command (ATTCMD8)**	11(B) First ACB end status (byte 0) (ATTSTAT1)**
12(C) First ACB end status (byte 1) (ATTSTAT1)**	13(D) Second ACB end status (ATTSTAT2)**		15(F) Third ACB end status (byte 0) (ATTSTAT3)**
16(10) Third ACB end status (byte 1) (ATTSTAT3)**	17(11) Fourth ACB end status (ATTSTAT4)**		19(13) Fifth ACB end status (byte 0) (ATTSTAT5)**
20(14) Fifth ACB end status (byte 1) (ATTSTAT5)**	21(15) Sixth ACB end status (ATTSTAT6)**		23(17) Seventh ACB end status (byte 0) (ATTSTAT7)**
24(18) Seventh ACB end status (byte 1) (ATTSTAT7)	25(19) Eighth ACB end status (ATTSTAT8)		27(1B) SDLC--save final status until final flag. (AXBSTSV)

** Indicates the control block field from which this NMVT field is loaded. (See Volume 1 Section 1, "Data Area Layouts," for field definitions.)

Note: The above fields, ATTECTL through ATTSTAT8, have been moved from the AXB to the ACB trace table control block (ATT). They are still used for the same purpose—ACB trace entry information.

Subvector Key X'86' (SIR Control Block BSB)

Subfield Key X'03' (BSB Control Block Data)

0(0) Subfield length X'1C'	1(1) Boundary session block (BSB) data subfield key X'03'	2(2) First element on the queue control block (QCB) (bytes 0 and 1)	
4(4) First element on the QCB (bytes 2 and 3)		6(6) Last element in the QCB (bytes 0 and 1)	
8(8) Last element in the QCB (bytes 2 and 3)		10(A) Task and queue status (BSBSTAT)**	11(B) Dispatching priority (BSBSCHED)**
12(C) PRELASE flags (BSBSTATP)**	13(D) PRELASE buffer count (BSBPREL)**	14(E) UNBIND type (BSBUNBTP)**	15(F) Session type flags (BSBFLGS)**
16(10) Element address (SPCELMAD)**		18(12) Session partner element address (RCBSPART)**	
20(14) Session status primary (BSBCPST)**	21(15) Session status secondary (SBCSSET)**	22(16) Identification number generation (BSBIDGN)**	
24(18) SSCP-LU normal outgoing ID (BSBSOSLU)**		26(1A) SSCP-LU expedited outgoing ID (BSBAOSLU)**	

** Indicates the control block field from which this NMVT field is loaded. (See Volume 1 Section 1, "Data Area Layouts," for field definitions.)

Subvector Key X'86' (SIR Control Block BXI)

Subfield Key X'03' (BXI Control Block Data)

0(0) Subfield length	1(1) Boundary session block extension (BXI) data subfield key X'03'	2(2) Length of the session incoming held queue (BXIINQL)**	3(3) Length of the BSB outgoing queue (BXIOUTQL)**
4(4) Subarea-stage transmit residual pace count (BXIRTRPC)**		6(6) Subarea-stage receive residual pace count (BXISRRPC)**	
8(8) REX-stage transmit residual pace count (BXIRTRPC)**		10(A) REX-stage receive residual pace count (BXIRRRPC)**	
12(C) Subarea-stage transmit next window size (BXISTNWS)**		14(E) Subarea-stage receive next window size (BXISRNWS)**	
16(10) REX-stage transmit next window size (BXIRTNWS)**		18(12) REX-stage receive next window size (BXIRSRNWS)**	
20(14) Subarea-stage transmit pace indicators (BXISATPI)**	21(15) Subarea-stage receive pace indicators (BXISARPI)**	22(16) REX-stage transmit pace indicators (BXIRXTPI)**	23(17) REX-stage receive pace indicators (BXIRXRPI)**

** Indicates the control block field from which this NMVT field is loaded. (See Volume 1 Section 1, "Data Area Layouts," for field definitions.)

Subvector Key X'86' (SIR Control Block CCB)

Subfield Key X'03' (CUB Control Block Data)

0(0) Subfield length X'36'	1(1) Character control block extension (CCB) data subfield key X'03'	2(2) Current level-2 character service routine (CCBL2)**
4(4) Time-out interface (CCBTIME)**		6(6) Line vector table (LNVT) entry pointer (CCBBAR)**
ODLC link timer counter (CCBLLKCT)**	5(5) ODLC timer flags (CCBTFLG)**	
8(8) Cyclic redundancy check (CRC) character (BSC) or frame check sequence (SDLC) (CCBBCC)**		10(A) Current operational status (CCBSTAT1)**
12(C) Status at the end of a level 2 (CCBEND1)**		14(E) Address of the data byte in progress (bytes 0 and 1) (CCBDATA)**
		ODLC first N/LDPSA in list (bytes 0 and 1) (CCBFDP5)**
16(10) Address of the data byte in progress (bytes 2 and 3) (CCBDATA)**		18(12) Current buffer address (bytes 0 and 1) (CCBDATA)**
ODLC first N/LDPSA in list (bytes 2 and 3) (CCBFDP5)**		
		ODLC first buffer in receive chain or first element on work queue (bytes 0 and 1) (CCBPTR)**

** Indicates the control block field from which this NMVT field is loaded. (See Volume 1 Section 1, "Data Area Layouts," for field definitions.)

Note: Data common to receive and transmit is shown in 2(2) through 34(22). Data unique to receive is shown in 35(23) through 53(35).

20(14) Current buffer address (bytes 2 and 3) (CCBSTART)**		22(16) Address of the next level-3 routine (CCBL3)**	
ODLC first buffer in receive chain or first element on work queue (bytes 2 and 3) (CCBPTR)**			
24(18) Expected ending status of a level-2 operation (CCBESTAT)**		26(1A) Receive secondary station address (CCBAFLD)**	27(1B) Command field (transmit/receive) SDLC (byte 0) (CCBCFLD)**
ODLC halt cause code (CCBHCC)**			ODLC interface type (CCBRTYP)**
28(1C) Command field (transmit/receive) SDLC (byte 1) (CCBCFLD)**	29(1D) Address of the station to be selected (bytes 0, 1, and 2) (CCBSEL)**		
ODLC flags (CCBFLAG)**			
32(20) Address of the station to be selected (byte 3) (CCBSEL)**	33(21) Control flags (CCBRSPON)**	34(22) Line type (CCBTYPE)**	35(23) Pointer to the character service state address table (byte 0) (CCBSTATE)**

** Indicates the control block field from which this NMVT field is loaded. (See Volume 1 Section 1, "Data Area Layouts," for field definitions.)

Note: Data common to receive and transmit is shown in 2(2) through 34(22). Data unique to receive is shown in 35(23) through 53(35).

36(24) Pointer to the character service state address table (byte 1) (CCBSTATE)**	37(25) Character-count/buffer-count field (CCBCNTS)**	39(27) Received SDLC basic link unit (BLU) command field (byte 0) (CCBRBLUC)**
	-----	38(26) ODLC ERP flags (CCBERPF)**
	ODLC CCB flags byte 3 (CCBFLG3)**	
40(28) Received SDLC BLU command field (byte 1) (CCBRBLUC)**	41(29) Address of the first buffer (bytes 0, 1, and 2) (CCBHDBF)**	

	ODLC N/LACB pointer (bytes 0, 1, and 2) (CCBXACB)**	
44(2C) Address of the first buffer (byte 3) (CCBHDBF)**	45(2D) Mode control flag (CCBFLAG2)**	46(2E) Link activity time-out (CCBLATO)**

ODLC N/LACB pointer (byte 3) (CCBXACB)**		
48(30) Flags for operations between input/output block commands (CCBNCFL)**	49(31) Offset into the buffer of the first character received (CCBOFSET)**	50(32) Service order entry table pointer (bytes 0 and 1) (CCBPOLL)**
52(34) Service order entry table pointer (bytes 2 and 3) (CCBPOLL)**		

** Indicates the control block field from which this NMVT field is loaded. (See Volume 1 Section 1, "Data Area Layouts," for field definitions.)

0(0) Subfield length X'04'	1(1) CCB-OEM control block data subfield key X'03'	2(2) Pointer to the LNVT entry (CCBBAR)**
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** Indicates the control block field from which this NMVT field is loaded. (See Volume 1 Section 1, "Data Area Layouts," for field definitions.)

Subvector Key X'86' (SIR Control Block CUB)

Subfield Key X'03' (CUB Control Block Data)

0(0) Subfield length X'3D'	1(1) Common physical unit block (CUB) data subfield key X'03'	2(2) First element on the queue control block (QCB) (bytes 0 and 1) (CUBIECB)**	
4(4) First element on the QCB (bytes 2 and 3) (CUBIECB)**		6(6) Last element on the QCB (bytes 0 and 1) (CUBIECB)**	
8(8) Last element on the QCB (bytes 2 and 3) (CUBIECB)**		10(A) Task and queue status (CUBSTAT)**	11(B) Dispatching priority (CUBSCHED)**
12(C) Type of PRELASE (CUBSTATP)**	13(D) PRELASE buffer count (CUBPREL)**	14(E) Link outgoing queue head pointer (bytes 0 and 1) (CUBLOBH)**	
16(10) Link outgoing queue head pointer (bytes 2 and 3) (CUBLOBH)**		18(12) Link outgoing queue tail pointer (bytes 0 and 1) (CUBLOBT)**	
20(14) Link outgoing queue tail pointer (bytes 2 and 3) (CUBLOBT)**		22(16) Link outstanding queue head pointer (bytes 0 and 1) (CUBLOSH)**	
24(18) Link outstanding queue head pointer (bytes 2 and 3) (CUBLOSH)**		26(1A) Link outstanding queue tail pointer (bytes 0 and 1) (CUBLOST)**	
28(1C) Link outstanding queue tail pointer (bytes 2 and 3) (CUBLOST)**		30(1E) SDLC addressing character (CUBADRC)**	31(1F) Service-seeking control flags (byte 0) (CUBSSCF)**

** Indicates the control block field from which this NMVT field is loaded. (See Volume 1 Section 1, "Data Area Layouts," for field definitions.)

32(20) Service-seeking control flags (byte 1) (CUBSSCF)**	33(21) Station status (CUBSTATS)**	34(22) Service seeking output control flags (CUBOCF)**	35(23) Transmission counter (byte 0) (CUBTCNT)**
36(24) Transmission counter (byte 1) (CUBTCNT)**	37(25) Address of the physical services PIU (bytes 0, 1, and 2)		
40(28) Address of the physical services PIU (byte 3) (CUBAPIU)**	41(29) NR receive count (CUBNTR)**	42(2A) NS send count (CUBNS)**	43(2B) Error retry status (byte 0) (CUBERS)**
44(2C) Error retry status (byte 1) (CUBERS)**	45(2D) Outstanding count limit (CUBOCL)**		47(2F) Run command modifier (CUBRCMD)**
48(30) Monitor secondary error count (CUBTERR)**	49(31) Total retry counter (CUBTRICT)**		51(33) Receive I-format error counter (byte 0) (CUBRECNT)**
	ODLC status (CUBMSTA)**	50(32) ODLC CUB flags (CUBFLGS)**	
52(34) Receive I-format error counter (byte 1) (CUBRECNT)**	53(35) Total transmission counter (CUBTPCNT)**		55(37) Intensive mode record counter (byte 0) (CUBIMRC)**
56(38) Intensive mode record counter (byte 1) (CUBIMRC)**	57(39) I-format received counter (CUBRNCT)**		59(3B) S-format received counter (byte 0) (CUBRPCN)**
60(3C) S-format received counter (byte 0) (CUBRPCN)**			

** Indicates the control block field from which this NMVT field is loaded. (See Volume 1 Section 1, "Data Area Layouts," for field definitions.)

Subvector Key X'86' (SIR Control Block LKB)

Subfield Key X'03' (LKB Control Block Data)

0(0) Subfield length X'1C'	1(1) Line control block (LKB) data subfield key X'03'	2(2) First element on the queue control block (QCB) (bytes 0 and 1) (LKWIECB)**	
4(4) First element on the QCB (bytes 2 and 3) (LKWLECB)**		6(6) Last element on the QCB (bytes 0 and 1) (LKWLECB)**	
8(8) Last element on the QCB (bytes 2 and 3) (LKWLECB)**		10(A) Task entry point (bytes 0 and 1) (LKWSKEP)**	
12(C) Task entry point (bytes 2 and 3) (LKWSKEP)**		14(E) Dispatching priority (LKWSCHED)**	15(F) Element address of the link (byte 0) (LKBWADR)**
16(10) Element address of the link (byte 1) (LKBWADR)**	17(11) Link status (LKBSTAT)**	18(12) Link type (LKBTYPE)**	19(13) SSCP-NCP session control block (SNP) mask of the SSCPs (LKBSPM)**
20(14) Switched status flags (LKBWSST)**	21(15) Dynamic reconfiguration flags (LKBDRST)**	22(16) Link problem determination aid (LPDA) flag (LKBLPDA)**	23(17) LPDA alarm parameter (LKBALARM)**
24(18) Link subsystem type (LKBSSST)**	25(19) Deactivate reason code (LKBDA RC)**	26(1A) Extended line type (LKBTYPE2)**	27(1B) Line speed category (LKBLSPC)**

** Indicates the control block field from which this NMVT field is loaded. (See Volume 1 Section 1, "Data Area Layouts," for field definitions.)

Subvector Key X'86' (SIR Control Block LPSA)

Subfield Key X'03' (LPSA Control Block Data)

0(0) Subfield length X'0F'	1(1) Processor-NCP parameter/status area (LPSA) X'03'	2(2) LPSA command (LPSACMD)**	3(3) Pointer to last LDPSA (byte 0) (LPSALDPS)**
4(4) Pointer to last LDPSA (bytes 1,2) (LPSALDPS)**		6(6) Sequence counter (LPSASEQN)**	
8(8) Abnormal request reason code (LPSARRC)**		10(A) Residual data count (LPSARDCT)**	
12(C) Reason code (LPSAREAS)**	13(D) Diagnostic code (LPSADIAG)**	14(E) NCP congestion flags (LPSANCPC)**	

** Indicates the control block field from which this NMVT field is loaded. (See Volume 1 Section 1, "Data Area Layouts," for field definitions.)

Subvector Key X'86' (SIR Control Block LTX)

Subfield Key X'03' (LTX Control Block Data)

0(0) Subfield length X'0A'	1(1) LU terminal node control block extension (LTX) data subfield key X'03'	2(2) LU-LU expedited outgoing ID (LTXAOLLU)**
4(4) LU-LU normal incoming sequence number (LTXSILLU)**		6(6) LU-LU normal outgoing check (LTXSOLLC)**
8(8) LU-LU normal outgoing save (LTXSOLLS)**		

** Indicates the control block field from which this NMVT field is loaded. (See Volume 1 Section 1, "Data Area Layouts," for field definitions.)

Subvector Key X'86' (SIR Control Block LUB)

Subfield Key X'03' (LUB Control Block Data)

0(0) Subfield length X'06'	1(1) LU control block extension (LUB) data subfield key X'03'	2(2) Reserved	3(3) LU pace parameter n (LUBNG)**
4(4) LU characteristics and status (LUADST)**	5(5) Local address of the LU (LUBLALU)**		

* For releases prior to Version 5 Release 3, this field is reserved.

** Indicates the control block field from which this NMVT field is loaded. (See Volume 1 Section 1, "Data Area Layouts," for field definitions.)

Subvector Key X'86' (SIR Control Block LXB)

Subfield Key X'03' (LXB Control Block Data)

0(0) Subfield length X'0F'	1(1) Link XI0 control block (LXB) data subfield key X'03'	2(2) Immediate control command flags (LXBIMCTL)**	3(3) Input/output command (LXBCMAND)**
4(4) Command modifiers field (LXBCMODS)**		6(6) Command end status and completion code (LXBSTAT)**	
8(8) First error status (LXBERST)**		10(A) First error extended status (LXBEREST)**	11(B) Total error recovery procedure (ERP) retry count (LKBRYTYCT)**
----- 9(9) Hold SDLC statistics (LXBHSTAT)**			
12(C) Received block size (LXBBKSIZ)**		14(E) Extended error status (LXBEXTS)**	

** Indicates the control block field from which this NMVT field is loaded. (See Volume 1 Section 1, "Data Area Layouts," for field definitions.)

Subvector Key X'86' (SIR Control Block NIX)

Subfield Key X'03' (NIX Control Block Data)

0(0) Subfield length X'17'	1(1) Network interconnect control block extension (NIX) data subfield key X'03'	2(2) - 9(9)	
		Network ID (NIXNETID)**	
		10(A) - 17(11)	
		Resource name (NIXRNAME)**	
		18(12) Sequence number status information (NIXSNSTA)**	19(13) Deactivation information (Notify response sequence number) (NIXDINF)**
20(14) Deactivation information (continued)	21(15) - 26(1A)		
		SSCP identifier (NIXSSCP)**	
		27(1B) Session status flags (byte 1) (NIXSTAT1)**	
28(1C) Session status flags (byte 2) (NIXSTAT2)**	29(1D) FID0 status (NIXFOFLG)**	30(1E) FID0 response counter (NIXFORC)**	

** Indicates the control block field from which this NMVT field is loaded. (See Volume 1 Section 1, "Data Area Layouts," for field definitions.)

Subvector Key X'86' (SIR Control Block NLB)

Subfield Key X'03' (NLB/NLX Control Block Data)

0(0) Subfield length X'04'	1(1) Programmed resource LU block/programmed resource LU block extension (NLB/NLX) data subfield key X'03'	2(2) Element address of the programmed resource LU (NLBNETAD)** <hr style="border-top: 1px dashed black;"/> Element address of the session partner (NLXSPSART)**
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** Indicates the control block field from which this NMVT field is loaded. (See Volume 1 Section 1, "Data Area Layouts," for field definitions.)

Subvector Key X'86' (SIR Control Block NPSA)

Subfield Key X'03' (NPSA Control Block Data)

0(0) Subfield length X'12'	1(1) NCP-processor parameter/status area X'03'	2(2) NPSA command (NPSACMD)**	3(3) Pointer to first NDPSA (byte 0) (NPSANDPS)**
4(4) Pointer to first NDPSA (bytes 1,2) (NPSANDPS)**		6(6) Sequence counter (NPSASEQN)**	
8(8) Halt cause code (NPSAHCC)**		10(A) Halt command (NPSAHCMD)**	11(B) LDPSA in error (byte 0) (NPSALDPS)**
12(C) LDPSA in error (bytes 1 and 2) (NPSALDPS)**		14(E) Line ID (NPSAGLID)**	
16(10) Reason code (NPSAREAS)**	17(11) Diagnostic code (NPSADIAG)**		

** Indicates the control block field from which this NMVT field is loaded. (See Volume 1 Section 1, "Data Area Layouts," for field definitions.)

Subvector Key X'86' (SIR Control Block PSA)

Subfield Key X'03' (PSA-RCV/PSA-XMT Control Block Data)

0(0) Subfield length X'0F'	1(1) Parameter/status area control block (PSA) data subfield key X'03'	2(2) Command modifiers (PSAPCMOD)	3(3) Secondary control field (SCF) (PSAPSCF)**
4(4) Parallel data field (PDF) (PSAPDF)**	5(5) Primary control field (PCF) (PSAPCPC)**	6(6) Transmit control (BSC) (PSAXMITC)**	7(7) Status control field (PSASSCF)**
8(8) Character mode command (PSACMD)**	9(9) Secondary status (PSASES)**	10(A) Line communication status (LCS) (PSALSTAT)**	11(B) Line control definition (LCD) and PDF (PSASLCPC)**
12(C) Input leads from a modem (PSAINLD)**	13(D) First call progress signal (PSASCPSI)**	14(E) Second call progress signal (PSASCPS2)**	

** Indicates the control block field from which this NMVT field is loaded. (See Volume 1 Section 1, "Data Area Layouts," for field definitions.)

Subvector Key X'86' (SIR Control Block PSB)

Subfield Key X'03' (PSB Control Block Data)

0(0) Subfield length X'26'	1(1) Physical services block (PSB) data subfield key X'03'	2(2) First element on the queue control block (QCB) (bytes 0 and 1) (PSBLECB)**	
4(4) First element on the QCB (bytes 2 and 3) (PSBIECB)**		6(6) Last element on the QCB (bytes 0 and 1) (PSBLECB)**	
8(8) Last element on the QCB (bytes 2 and 3) (PSBLECB)**		10(A) Task and queue status (PSBSTAT)**	11(B) Dispatching priority (PSBSCHED)**
12(C) Element address of physical services (PSBADRPS)**		14(E) Mask of the SSCPs in session with NCP (PSBSSNPM)**	15(F) Status and flags (PSBPSTAT)**
16(10) NCP capability (PSBNCAP)**		18(12) - 25(19) Load ID characters (PSBLDID)**	
		26(1A) - 33(21) Level ID characters (PSBLVID)**	
		34(22) Commit request block (CRB) pointer (byte 0 and 1) (PSBCRBP)**	
36(24) CRB pointer (PSBCRBP)**			

** Indicates the control block field from which this NMVT field is loaded. (See Volume 1 Section 1, "Data Area Layouts," for field definitions.)

Subvector Key X'86' (SIR Control Block PSB-ID)

Subfield Key X'03' (PSBID Control Block Data)

0(0) Subfield length X'12'	1(1) PSB-ID control block data subfield key X'03'	2(2) - 9(9)
		Load ID characters (PSBLDID)**
		10(A) - 17(11)
		Level ID characters (PSBLVID)**

** Indicates the control block field from which this NMVT field is loaded. (See Volume 1 Section 1, "Data Area Layouts," for field definitions.)

Subvector Key X'86' (SIR Control Block SNP)

Subfield Key X'03' (SNP Control Block Data)

0(0) Subfield length X'0D'	1(1) SSCP-NCP session control block (SNP) data subfield key X'03'	2(2) Element address of the SSCP (SNPADRPC)**	
4(4) Physical services primary status (SNPPSTAT)**	5(5) Physical services secondary status (SNPSTAT)**	6(6) SNP mask (SNPSNPM)**	7(7) Automatic network shutdown (ANS) reason code (SNAPANSC)**
8(8) Session trace flags (SNPSTFLG)**	9(9) SSCP-NCP session capability (bytes 0, 1, and 2) (SNPSCAP)**		
12(C) SSCP-NCP session capability (byte 3) (SNPSCAP)**			

** Indicates the control block field from which this NMVT field is loaded. (See Volume 1 Section 1, "Data Area Layouts," for field definitions.)

Subvector Key X'87' (Query Link Attributes)

0(0) Subvector length X'04'	1(1) Query link attributes subvector key X'87'	2(2) Subfield length X'02'	3(3) Query link problem determination aid (LPDA) subfield key X'20'
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Subvector Key X'8A' (Link Event Status)

0(0) Subvector length X'0B'	1(1) Link Event Status subvector key X'8A'
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Either subfield key X'01' or subfield key X'02' is included with subfield X'03'.

Subfield Key X'01' (Link Event Type = Line Error)

0(0) Subfield length X'02'	1(1) Subfield key X'01'
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Subfield Key X'02' (Link Event Type = Station or Terminal Error)

0(0) Subfield length X'02'	1(1) Subfield key X'02'
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Subfield Key X'03' (Link Event Error Description)

0(0) Subfield length X'07'	1(1) Subfield key X'03'	2(2) Non-NTRI operation code. See SDLC (LXBCMAND) BSC (IOBCMAND).	3(3) Initial error major code*
		NTRI operation code. X'F0' No operation code recorded.	
4(4) Initial error minor code*	5(5) Non-NTRI final error major code*	6(6) Non-NTRI final error minor code*	
	NTRI final error major code* X'F0' Error not recorded.	NTRI final error minor code* X'01' Error not recorded.	

* See Table 16-2.

Table 16-2 (Page 1 of 3). Error Codes for the Link Event Status Subvector Key

Initial and Final Error Major Codes	Initial and Final Error Minor Codes	Error Descriptions
Note: An asterisk (*) indicates both NCP/token-ring interconnection (NTRI) and non-NTRI code. Two asterisks (**) indicate NTRI only code.		
X'01'		Modem error
	X'01'	Clear to Send (CTS) drop
	X'02'	Data Set Ready (DSR) drop
	X'03'	DSR/CTS drop
	X'06'	Clock or CTS error
	X'09'	DSR failed to rise.
	X'0A'	DSR failed to drop.
	X'0B'	Link adapter check
X'02'		No external interface adapter (EIA) cable installed
	X'00'	No minor code
X'03'		Modem in test
	X'00'	No minor code
X'05'	X'08'	Auto call unit check
X'06'		Communication error*

Table 16-2 (Page 2 of 3). Error Codes for the Link Event Status Subvector Key

Initial and Final Error Major Codes	Initial and Final Error Minor Codes	Error Descriptions
	X'01'	Data check
	X'02'	FCS error
	X'04'	Cutoff. Exceeded maximum number of buffers for Receive operation.
	X'05'	Abort
	X'06'*	Data not expected
	X'07'	Break in text
	X'08'	Sub-block error flag
	X'09'	Poll stop BSC Device was polled to the polling limit and responded negatively SDLC Changing state from Contact Pending to Discontact Pending
	X'0A'	Break in transmit
	X'0B'	Format exception
	X'02'	FCS error
	X'05'	Abort (SDLC)
	X'01'	Data check
	X'06'	Data not expected
	X'07'	Break received in test mode
	X'08'	Sub-block error flag
	X'0A'	Break sent in transmit mode
X'07'*		Time-out
	X'01**	No data received
	X'02'	Some data received
	X'03'	Link activity time-out
	X'05'	Line quiet time-out. S/S line not idle within specified time limit.
X'08'		BSC protocol error
	X'01'	Wrong acknowledgment (ACK)
	X'02'	Received sub-block end
	X'03'	WACK received
	X'07'	Data Link Escape/End of Transmission (DLE/EOT) received
	X'08'	EOT sent after weak acknowledgment (WACK).
	X'09'	DLE format exception
	X'0A'	Text in control mode
	X'0B'	DLE control
X'09**		SDLC protocol error
	X'01**	Reject (REJ) received
	X'02**	DM received
	X'03**	Disconnect (DISC) received

Table 16-2 (Page 3 of 3). Error Codes for the Link Event Status Subvector Key

Initial and Final Error Major Codes	Initial and Final Error Minor Codes	Error Descriptions
	X'04'	Set Normal Response Mode (SNRM) received
	X'04'**	SNRM or SABM received
	X'05'	Request Initialization Mode (RIM) or Set Initialization Mode (SIM) received
	X'06'	UA or Receive Ready (RR) received
	X'07'**	Unexpected NSI
	X'08'**	U format frame without information received
	X'09'*	Received invalid command
	X'0A'*	Received invalid N(R) count
	X'0B'**	Received frame too short
	X'0C'**	Received frame too long
	X'0D'**	XID3 received out of sequence when link opened
X'0A'*		SDLC command reject received frame reject (FRMR) response received**
	X'01'*	Invalid N(R) count
	X'02'*	Frame too long
	X'03'*	Data in S or U format
	X'04'*	Invalid command
	X'05'**	Permanent error-affected device
	X'FF'	Undetermined error. NCP is unable to determine the cause of the error.
X'0D'**		LAN error
	X'01'	Beaconing on token-ring
X'0E'		Retries
	X'02'*	RNR limit exceeded
	X'03'	Negative ACK
	X'04'	Partial or negative acknowledgement
	X'05'	Monitor count overflow
X'0F'	X'00'	Forced Deactivate. No minor code. A Forced Deactivate is in progress and no error status is set for the line or no errors indicated by major error codes X'01' – X'0A' were found.
X'FF'	X'00'	Undetermined error. No minor code. Error status set for the line and no errors indicated by major error codes X'01' – X'0F' were found.

Subvector Key X'8C' (SDLC Link Station Data)

0(0) Subvector length X'1A'	1(1) SDLC Link Station Data subvector key X'8C'
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Subfield Key X'01' (Next Send and Receive Count)

0(0) Subfield length X'06'	1(1) Subfield key X'01'	2(2) Next send count (SCBNS)**
4(4) Next receive count (SCBNR)**		

** Indicates the control block field from which this NMVT field is loaded. (See Volume 1 Section 1, "Data Area Layouts," for field definitions.)

Subfield Key X'02' (Outstanding Frame Count)

0(0) Subfield length X'04'	1(1) Subfield key X'02'	2(2) Outstanding frame count (SCBCOC)**
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** Indicates the control block field from which this NMVT field is loaded. (See Volume 1 Section 1, "Data Area Layouts," for field definitions.)

Subfield Key X'03' (Last Command Received)

0(0) Subfield length X'04'	1(1) Subfield key X'03'	2(2) Last SDLC command received before the error occurred (LXBRBLUC)**
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** Indicates the control block field from which this NMVT field is loaded. (See Volume 1 Section 1, "Data Area Layouts," for field definitions.)

Subfield Key X'04' (Last Command Sent)

0(0) Subfield length X'04'	1(1) Subfield key X'04'	2(2) Last SDLC command sent before the error occurred (CCBCFLD)**
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** Indicates the control block field from which this NMVT field is loaded. (See Volume 1 Section 1, "Data Area Layouts," for field definitions.)

Subfield Key X'05' (Sequence Number Modulus)

0(0) Subfield length X'03'	1(1) Subfield key X'05'	2(2) Modulus (in binary)
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Subfield Key X'06' (Link Station State)

0(0) Subfield length X'03'	1(1) Subfield key X'06'	2(2) Link station state*
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* Indicates a byte expansion follows.

Byte Expansions

Offset/Field Name	Bit Pattern/ Hex Value	Contents
2(2)		Link station state
	1... ..	Local link station is busy; Receive Not Ready (RNR) sent.
	.1.. ..	Remote link station is busy; RNR received.

Subvector Key X'8C' (SDLC Link Station Data) NTRI

0(0)	1(1)
Subvector length X'14'	SDLC Link Station Data subvector key X'8C'

Subfield Key X'01' (Next Send and Receive Count)

0(0)	1(1)	2(2)	3(3)
Subfield length X'04'	Subfield key X'01'	Next send count	Next receive count

Subfield Key X'02' (Outstanding Frame Count)

0(0)	1(1)	2(2)
Subfield length X'03'	Subfield key X'02'	Outstanding frame count

Subfield Key X'03' (Last SDLC Control Field Received)

0(0)	1(1)	2(2)
Subfield length X'04'	Subfield key X'03'	Last SDLC control field received

Subfield Key X'04' (Last SDLC Control Field Sent)

0(0)	1(1)	2(2)
Subfield length X'04'	Subfield key X'04'	Last SDLC control field sent

Subfield Key X'07' (LLC Reply Timer Expiration Count)

0(0)	1(1)	2(2)
Subfield length X'03'	Subfield key X'07'	Count of logical link control (LLC) reply timer (T1) expirations

Subfield Key X'06' (Link Station State)

0(0)	1(1)	2(2)
Subfield length X'03'	Subfield key X'06'	Link station state*

* See the byte expansion on page 16-173.

Subvector Key X'91' (Basic Alert)

0(0) Subvector length X'0E'	1(1) Basic Alert subvector key X'91'	2(2) Flags X'00'	3(3) Alert type*
4(4) General cause code X'0F' (undetermined)	5(5) Specific component cause. X'0080' token-ring LAN error.		7(7) Alert description code (byte 1)
8(8) Alert description code (byte 2)	9(9) User action code		11(B) Detail text reference code (byte 1)
12(C) Detail text reference code (byte 2)	13(D) Retired X'00'		

* See note, and see Table 16-3 on page 16-176.

Note: Alert types:

- X'01' Permanent loss of availability
- X'02' Temporary loss of availability
- X'0A' Warning
- X'10' Permanently affected resource.

Table 16-3 (Page 1 of 5). Alert Types for the Basic Alert Subvector Key

Alert code	Alert type	Alert description	Detail description	Probable cause	User action
01	01	Physical link activation failure	A hardware error in the TIC was detected during TIC activation	TIC	This may not be a persistent error, so try to activate the physical line again. If the problem persists, contact an IBM service representative.
02	01	Physical link activation failure	The parameters that NTRI passed to the TIC at TIC initialization time are invalid.	User or NCP (NTRI)	Verify that there is not a TIC Type 1 in the 3745 with a TIC Type 2 definition statement in NCP sysgen. If that is not the case, it is likely that a NTRI internal problem exists, so contact an IBM software service representative.
03	01	Physical link activation failure	A hardware error at the TRM/TIC interface was detected at TIC initialization time.	TRM or TIC	This may not be a persistent error, so try to activate the physical line again. If the problem persists, contact an IBM service representative.
04	01	Physical link activation failure	A TIC activation was attempted while its the associated TRM was not operational due a TRM error.	TRM	Review the most recent events for this physical link, and contact an IBM service representative.
05	01	Physical link time-out failure	The TIC did not respond to a NTRI command within 30 seconds.	TIC	This may not be a persistent error, so try to activate the physical line again. If the problem persists, contact an IBM service representative.
06	01	Physical link time-out failure	The TRM did not respond to a NTRI command within 30 seconds.	TRM	This may not be a persistent error, so try to activate the physical line again. If the problem persists, contact an IBM service representative.
07	01	Physical link activation failure	The TIC detected another device on the ring it is attached to with the same token-ring MAC address as the TIC.	User	Determine the MAC addresses of the devices in the token-ring network, and ensure that no two devices with the same address are on the same ring. Two devices may have the same MAC address as long as they are on separate rings.
08	01	Physical link activation failure	The parameters that NTRI passed to the TIC at TIC open time are invalid.	Possibly NCP (NTRI)	Try to reactivate the physical link; if the problem persists, contact an IBM software service representative.
09	01	Physical link activation failure	When the TIC attempted to insert onto the ring during TIC open time, it detected a non-specific ring failure.	Token-ring LAN or TIC	Try to reactivate the physical link; if the problem persists, contact an IBM service representative.
0A	01	Physical link activation failure	When the TIC attempted to insert onto the ring during TIC open, it detected a <i>lobe media error</i> (loss of signal from the ring). This error indicates a loose or disconnected cable between the TIC and the MAU. It may also indicate a defective cable or a defective MAU.	Loose cable connection	Check all connections and try to reactivate the physical link. If it still fails, connect the cable to another plug on the MAU. If that doesn't work, replace the cable. If the problem persists, contact the local token-ring LAN administrator.

Table 16-3 (Page 2 of 5). Alert Types for the Basic Alert Subvector Key

Alert code	Alert type	Alert description	Detail description	Probable cause	User action
0B	01	Physical link activation failure	When the TIC attempted to insert onto the ring during TIC open time, it detected a token-ring failure such as loss of signal or frame timeout.	Token-ring LAN	This may not be a persistent problem, so try to reactivate the physical link; if the problem persists, contact the local token-ring LAN administrator.
0C	01	Physical link activation failure	When the TIC attempted to insert onto the ring during TIC open, it received a signal from the <i>parameters server</i> (a device on the ring) to remove itself from the ring.	Parameters server error	This may not be a persistent problem, so try to reactivate the physical link and if the problem persists, then contact the local token-ring LAN administrator.
0D	01	Physical link activation failure	When the TIC attempted to insert onto the ring during TIC open it detected an abnormal signal on the ring. This may be due to ring beaconing or the adapter attempting to insert onto the ring at a different ring speed.	Token-ring LAN or user	Ring beaconing may be a temporary condition, so wait 30 seconds and try to reactivate the physical link. If the problem persists, verify that the speed of the ring matches the speed specified by the TRSPEED keyword on the physical link definition statement. If the problem still persists, contact your local token-ring LAN administrator.
0E	01	Physical link INOP due to receiving a remove command	A device on the token-ring sent a Remove command to this TIC, which caused the TIC to de-insert from the ring. The physical link, as well as all its associated logical links, are INOPed.	Other token-ring LAN device	Contact the token-ring operator or administrator to determine what device sent the REMOVE command and why it was sent.
0F	01	Physical link error due to permanent beaconing	There is a hard error on the token-ring which has not been recovered by the beaconing process. Data transmission to the token-ring has been suspended and all logical links associated with this physical link have been INOPed. The physical link will remain active and inserted in the ring; report beaconing recovery when that occurs.	Token-ring LAN	Contact the token-ring operator or administrator to determine the cause of the permanent beaconing condition.
10	01	Physical link INOP due to loss of connection	When the TIC attempted to insert onto the ring during TIC open, it detected a <i>lobe media error</i> (loss of signal from the ring). The physical link, as well as all its associated logical links, are INOPed. This alert indicates a loose or disconnected cable between the TIC and the MAU, or it may also indicate a defective cable or a defective MAU.	Loose cable connection	Check all connections and try to reactivate the physical link. If it still fails, connect the cable to another plug on the MAU. If that doesn't work, replace the cable. If the problem persists, contact the local token-ring LAN administrator.

Table 16-3 (Page 3 of 5). Alert Types for the Basic Alert Subvector Key

Alert code	Alert type	Alert description	Detail description	Probable cause	User action
11	01	Physical link INOP due to auto-removal process	The TIC removed itself from the ring after detecting an error during a self-test. The self-test was performed as part of the beaconing process. The physical link, as well as all its associated logical links, are INOPed.	TIC	This may not be a persistent problem, so try to reactivate the physical link; if the problem persists, contact an IBM service representative.
12		Unused			
13	02	Physical link recovery - beacon process ended	The token-ring has recovered after a beacon process.	None	None
14		Unused			
15		Unused			
16	01	Physical link INOP due to deadman timer expiration	The TIC did not interrupt NTRI for a period of time, so NTRI issued a command to the TIC to request the TIC to interrupt NTRI. After the TIC didn't interrupt NTRI, NTRI detects an error. The physical link, as well as all its associated logical links, are INOPed.	TIC or TRM	This may not be a persistent problem, so try to reactivate the physical link; if the problem persists, contact an IBM service representative.
17	01	Physical link INOP due to an interrupt processing error	NTRI detects an error during the processing of an interrupt from the TIC. The physical link, as well as all its associated logical links, are INOPed.	TIC or TRM	This may not be a persistent problem, so try to reactivate the physical link; if the problem persists, contact an IBM service representative.
18	01	Physical link failure on 3720 due to a sysgen error	NTRI detects a discrepancy between the NCP sysgen and the information received from MOSS at IPL time in the CDF. The physical link, as well as all its associated logical links, are INOPed.	User	Check the ADDR keyword of the physical link line statement. Correct this if necessary and reactivate the physical link. If the problem persists, contact an IBM service representative.
19	01	Physical link INOP due to hardware error interrupt	A Level 1 interrupt occurred to report a hardware error. The problem may be that MOSS has issued a disconnect line command or that the TRM is not installed and an attempt was made to use it or that a real hardware failure exists in the TIC, TRM or CCU. The physical link, as well as all its associated logical links, are INOPed.	TIC, TRM or CCU	Review the BER log at the MOSS console for a more specific description of the problem. This may not be a persistent problem, so try to reactivate the physical link. If the problem persists, contact an IBM service representative.

Table 16-3 (Page 4 of 5). Alert Types for the Basic Alert Subvector Key

Alert code	Alert type	Alert description	Detail description	Probable cause	User action
1A	01	Physical link INOP due to unknown cause	Something caused a physical link INOP, but the cause could not be reported by NTRI due to a buffer depletion condition in the CCU. The physical link, as well as all its associated logical links, are INOPed.	Unknown	This may not be a persistent problem, so try to reactivate the physical link. If the problem persists, contact an IBM service representative.
1B	01	Logical link activation failure - timeout	NTRI timed-out trying to establish a connection with another device on the ring. The problem may be that the other device is powered off or not initialized, or that the dial digits on the PATH macro of the VTAM definition statement are incorrect. There may also be a failure in NTRI or in the other device.	User error, other device, NCP (NTRI)	Investigate and correct any suspected causes and try to reactivate the logical link. If the problem persists, run a line trace and contact an appropriate service representative.
1C	10	Logical link INOP due to physical link failure	A physical link failure caused this logical link to be INOPed.	Physical link	Investigate the cause of the physical link failure.
1D	01	Logical link activation failure - invalid dial digits	NTRI received invalid dial digits in the connect-out command from VTAM. The problem may be that the VTAM definition statement for DIALNO on the PATH statement is incorrect or that NTRI is not processing valid digits correctly.	User or NCP (NTRI)	Check the VTAM generation statements and make sure that they are coded correctly and attempt to reactivate the logical link. If the problem persists, contact an IBM service representative.
1E	01	Logical link activation failure - physical link not active	NTRI receives a logical link outgoing call request via a connect-out from VTAM and then detects that the physical link is not operational.	User or NCP (NTRI)	Make sure the physical link is active, then try to reactivate the logical link. If the problem persists, contact an IBM service representative.
1F	02	Logical link activation failure - incoming call refused	NTRI receives an incoming call from another device, but cannot accept it because no logical links are available. The problem may be that logical links associated with the physical line are not active or that too many logical connections are requested on the same physical link. The problem may also be that the logical links are not defined with CALL=IN or CALL=INOUT on the line macro.	User	Investigate the possible causes, then try to reactivate the logical link. If the problem persists, contact an IBM service representative.
20		Unused			

Table 16-3 (Page 5 of 5). Alert Types for the Basic Alert Subvector Key

Alert code	Alert type	Alert description	Detail description	Probable cause	User action
21	02	Logical link activation failure - contention	While NTRI is attempting an outgoing call, the device it is calling is attempting to call in. This alert indicates that NTRI has chosen to cancel its outgoing call and process the incoming call.	None	This may not be a persistent problem, but if it persists and the connections fail, contact an IBM service representative.
22	01	Physical link INOP due to an interrupt processing error	NTRI detects an error during the processing of an interrupt from the TRM. The physical link, as well as all its associated logical links, are INOPed.	TRM	This may not be a persistent problem, so try to reactivate the physical link; if the problem persists, contact an IBM service representative.
23	01	Physical link activation failure following TIC dump	The user is attempting to activate the physical link while MOSS is in the process of dumping the TIC.	User	Wait 30 seconds, then reactivate the physical link. If the problem persists, use the MOSS operator function to reset the Activate Link Inhibit bit to reactivate the link again. If the problem persists, contact an IBM service representative.
24	01	Frame received was too long	Frame was received from a device on the token-ring which is larger than the value coded for RCVBUFC.	Other device	Change the value coded on the RCVBUFC keyword to accommodate the frame received from the adjacent station, or change the parameters of the device to cause it to send frames smaller than the current value of RCVBUFC.

Subvector Key X'92' (Generic Alert Data)

0(0) Subvector length X'0B'	1(1) Generic Alert Data subvector key X'92'	2(2) Generic Alert Data flags (byte 0)*	3(3) Generic Alert Data flags (byte 1)*
4(4) Alert type (See note 1)	5(5) Alert description (See note 2)		7(7) - 10(A)
Generic alert ID number (See note 3)			

* Indicates a byte expansion follows.

Notes:

- This field consists of one of the following values:
 - X'01' Permanent loss of availability.
 - X'02' Temporary loss of availability.
 - X'03' Performance is below an acceptable level.
 - X'11' Impending, but not yet realized loss of availability to the end user.
 - X'12' Severity of problem is unknown.
 - X'14' Loss of availability has been bypassed.
- This field consists one of the following 2-byte description codes:
 - For ODLC Token-Ring Logical Resource Failure Caused by Failure of the Physical Resource
X'1010' Adapter Error
 - For ODLC Permanent Station/Link Error (Outboard DLC Error)
X'1603' Communications Subsystem Failure
 - For NCST Logic Error, FRPE Microcode Mismatch Alerts
X'2100' Software program error.
 - For ODLC Permanent Station/Link Error (NCP Programming Error)
X'2101' Programming Procedure Incorrect
 - For SNA Protocol Error Alert:
X'3100' SNA protocol error.
 - For ODLC Token-Ring - Connout Failure - Physical Resource Not Operational
X'3200' Token-Ring Error
 - For ODLC Token-Ring - Connout Failure Due to Collision With Incoming Call
X'3200' Token-Ring Error
 - For the Ethernet CSMA/CD LAN No-carrier Alert:
X'3221' CSMA/CD LAN communications lost.
 - For the Common Management Information Protocol (CMIP) Link Data Alert:
X'3300' Link Error.
 - For the Common Management Information Protocol (CMIP) Station Data Alert:
X'3300' Link Error.
 - Default:
X'3302' Unable to communicate with the device.
 - For the Frame-relay Logical Line Lost Because Physical Line Lost Alert:
X'3617' DCE interface error.
 - For Frame-relay Logical Line Activation failure alerts

- X'3641' Logical Line Activation Failure
- For Frame-relay LMI Error Threshold Exceeded Alert:
X'4012' Threshold has been reached.
- For VR Held Time Limit Reached Alert:
X'500C' A congested VR has been in the held state for longer than a defined time limit.
- For VR Pacing Withheld Time Limit Reached Alert:
X'500D' A congested VR endpoint has not sent a virtual route pacing response for longer than a defined time limit.
- For Held VR Deactivation Time Limit Reached Alert:
X'500E' A congested VR has been deactivated since it was in a held state for longer than a defined time limit.
- For VR Transmit Queue Overrun Alert:
X'500F' The size of a VR Transmit Queue has exceeded a defined threshold for longer than a defined time limit.
- For Usage Tier Exceeded Alert:
X'5114' Authorized Software Usage Exceeded
- For Frame-relay Associated FRSE Deleted Alert:
X'7000' Operator Procedural Error.
- For the Frame-relay Logical Line Lost Because Physical Line Forced Deactivated Alert:
X'7001' Resources not active.
- For ODLC Token-Ring - Notify Call Indication LDPSA Rejection Due to No Logical Resources Available
X'7001' Resources not active.
- For ODLC Permanent Link Error Alert - ESCA Forced Deactivation
X'7001' Resources not active.
- For Frame-relay DLCI Mismatch Alert:
X'8000' Configuration Error.
- For Frame-relay LMI Configuration Mismatch Alert:
X'8000' Configuration Error.
- For Frame-relay DLCI Deleted Alert:
X'8000' Configuration Error.
- For Frame-relay FRSE Substitute Failure due to LMI Configuration Mismatch Alert:
X'8000' Configuration Error.
- For ODLC Token-Ring - Connout Failure - Invalid Dial Digits
X'8000' Configuration Error.
- For Frame-relay DLCI Inactive Alert:
X'FE01' Resource Unavailable.
- For Alert Threshold for Dynamic Control Blocks Reached Alert
X'5105' Memory Usage Threshold Reached
- For Buffers for Dynamic Control Blocks Depleted Alert
X'5105' Memory Usage Threshold Reached
- For Allocation for Dynamic Control Blocks Failed: Too Close to Slowdown Alert
X'5003' Capacity Exceeded
- For First Dynamic Control Block Allocated Alert
X'8000' Configuration or Customization Error
- For Allocation for Control Block Failed du to Gennable Limit Alert
X'8000' Configuration or Customization Error
- For Down-Level ESS Adapter Microcode Alert:
X'6300' Microcode Program Mismatch
- For Owning-TCP/IP-Host's-NCPROUTE-application-down Alert:
X'2122' IP Dynamic Routing Data Not Received
- For Bad-NCPROUTE-Datagram Alert:
X'330C' Error Receiving IP Dynamic Routing Data

- For VR Out-of-Sequence Alert
X'2110' VR has gone out-of-sequence.

3. This field consists of one of the following values:

- X'0B46F1FF' Frame-relay Associated FRSE Deleted Alert.
- X'0D9CB673' ODLC Permanent Link Error - ESCA Forced Deactivation
- X'0EB9B8AD' Line in use on other CCU Alert.
- X'0F825E10' V.25 bis and Sandkey modem dial failure.
- X'36775528' Frame-relay LMI Error Threshold Exceeded Alert.
- X'40E1FA7F' Frame-relay LMI Configuration Mismatch Alert.
- X'483F3EC5' Frame-relay logical line lost because Physical Line Force Deactivated.
- X'5632C759' Frame-relay DLCI Inactive Alert.
- X'668E036D' Ethernet CSMA/CD LAN No-carrier Alert.
- X'6931D5FC' VR Transmit Queue Overrun Alert.
- X'7BF136E1' VR Held Time Limit Reached Alert.
- X'889BF5FE' Frame-relay logical line lost because Physical Line Lost.
- X'89F19C87' VR Pacing Withheld Time Limit Reached Alert.
- X'89F692C2' ODLC Token-Ring Notify Call Indication LDPSA Rejection Due to No Logical Resources Available Deactivation
- X'8AAEB81D' Frame-relay DLCI Mismatch Alert.
- X'912257AE' NCST Logic Error Alert.
- X'98BEF9B3' Frame-relay FRSE Substitute Failure due to LMI Configuration Mismatch Alert.
- X'993338D2' ODLC Permanent Station/Link Error (NCP Programming Error).
- X'9A0CAA7F' ODLC Permanent Station/Link Error (Outboard DLC Error).
- X'9B317F9A' Held VR Deactivation Time Limit Reached Alert.
- X'9D8E8458' ODLC Token-Ring - Connout Failure Due to Collision With Incoming Call Deactivation
- X'ABA27E3A' Frame-relay DLCI Deleted Alert.
- X'B756BD60' ODLC Token-Ring - Connout Failure - Invalid Dial Digits
- X'BDC2FEFD' ODLC Token-Ring - Connout Failure - Physical Resource is Not Operational
- X'DA036CB5' Usage Tier Exceeded Alert
- X'EE5205EC' SNA Protocol Error Alert.
- X'E5C08E4C' Alert Threshold for Dynamic Control Blocks Reached Alert
- X'5AE2C7C7' Buffers for Dynamic Control Blocks Depleted Alert
- X'7B514519' Allocation for Dynamic Control Blocks Failed: Too Close to Slowdown Alert
- X'8BD8B04A' First Dynamic Control Block Allocated Alert
- X'CE9863DA' Allocation for Control Block Failed due to Gennable Limit Alert
- X'FBE0ABA8' Bad NCPROUTE Datagram Alert
- X'7EE41B6D' Owing IP Host's NCPROUTE Application Down Alert
- X'0C3852E8' Down-Level ESS Adapter Microcode Alert
- X'F09DFEB0' Frame-relay incoming call refused, no logical links available
- X'3A79E007' Invalid Dial Digits
- X'8A1724DB' DLCI in use
- X'2E427FD6' FRPE microcode mismatch
- X'E1CDFB52' VR Out-of-Sequence Alert.
- X'F578F9E2' ODLC Token-Ring Logical Resource Failure Caused by Failure of the Physical Resource

Byte Expansions

Offset/Field Name	Bit Pattern/ Hex Value	Contents
2(2)		Generic alert data flags (byte 0)
	x...	1 = Solicited data 0 = Unsolicited data
	.x...	1 = Alert was not sent when the problem was detected because there was no session to send it on. 0 = Alert was sent when the problem was detected.
	..x.	1 = Alert delayed 0 = Alert not delayed
...x xxxx	Reserved	
3(3)		Generic alert data flags (byte 1)
	xxxx xxxx	Reserved

Subvector Key X'93' (Generic Alert Probable Causes)

0(0) Subvector length*	1(1) Generic alert probable causes subvector key X'93'	2(2) - n Generic alert probable causes. (See note.)
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* The subvector length is equal to the size of the probable causes code points plus 2.

Note: This field consists of one or more of the following 2-byte probable causes code points:

- X'0503' Communication subsystem failure
- X'1021' Problem with communication controller control program
- X'1026' Invalid UDP datagram checksum
- X'1065' Time-out
- X'2000' Communications: The facility used to permit data flow from one location to another
- X'2003' Problem with SNA communications
- X'200D' Frame-relay communications
- X'2031' Line problem
- X'2131' Communications program in adjacent node
- X'2300' Connection not established
- X'230A' Call collision
- X'230F' Invalid dial digits
- X'32D1' Local DCE communications interface
- X'3309' Line adapter
- X'3320' Local token-ring adapter
- X'3331' Microcode executing in an adapter
- X'33C2' Line Adapter Microcode
- X'3401' Local DCE interface cable
- X'3426' CSMA/CD LAN cables
- X'3503' Line switch
- X'3601' Local modem
- X'3603' Remote modem
- X'4001' Storage subsystem overload
- X'7003' Network operator
- X'7005' Systems programmer
- X'8000' Configuration
- X'8001' Storage configuration
- X'8003' Communication configuration

Subvector Key X'94' (Generic Alert User Causes)

0(0) Subvector length	1(1) Users causes subvector key X'94'
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Subfield Key X'01' (User Causes)

0(0) Subfield length*	1(1) Subfield key X'01'	2(2) User cause code (see note)
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* The subfield length is equal to the size of code points plus 2.

Note: This field consists of one or more of the following 2-byte code points:

- X'0106' Insufficient memory
- X'0112' A user-specified threshold, indicating that available auxiliary storage is nearly full, has been reached
- X'01A0' Dynamic allocation of a control block failed: too close to (sf85)
- X'2307' Incorrect parameter
- X'2400' Busy--a requested resource was unavailable because it was in use
- X'2500' Line not enabled
- X'2501' Port deactivated
- X'7140' Operator deactivated the session
- X'71A6' Operator deleted (sf85)
- X'71A7' Operator deleted (sf85) in adjacent node

Subfield key X'81' (Recommended Actions)

0(0) Subfield length*	1(1) Subfield key X'81'	2(2) Action code points (See note)
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* The subfield length is equal to the size of code points plus 2.

Note: This field consists of one or more of the following 2-byte action code points:

- X'010A' Check configuration of sending node
- X'1058' Remove processes from system
- X'1332' Reactivate the line
- X'1412' Restart resource
- X'14A2' Activate
- X'1518' Increase number of control blocks in genned pool
- X'3112' Contact system programmer
- X'13A1' Activate resources attached to:
- X'1501' Correct generation problem
- X'3110' Contact communication system programmer
- X'3125' Contact remote link station operator
- X'32C0' Report the following:
- X'F011' No further action required unless problem persists

Subfield Key X'82' (Detailed Data)

0(0) Subfield length*	1(1) Subfield key X'82'	2(2) Detailed data product ID code X'00'	3(3) Data ID (See note 1)
4(4) Data encoding (See note 2)	5(5) - n Detailed data (See note 3)		

* The subfield length is equal to the size of the detailed data field plus 5.

Notes:

1. This field consists of one of the following data IDs:
 - X'55' Line
 - X'70' Generation parameter
 - X'75' Parameter value
2. This field consists of one of the following data encoding types:
 - X'00' Detailed data is in hexadecimal
 - X'11' Detailed data is in EBCDIC
3. This field consists of detailed data encoded as specified in byte 4 (data encoding).

Subfield Key X'85' (Detailed Data Extended Subfield)

0(0) Subfield length*	1(1) Subfield key X'85'	2(2) Product ID code (x'00')	3(3) Reserved (x'00')
4(4) Data ID (See note 1)		6(6) Data Encoding (See note 2)	7(7) - p
detailed data (See note 3)			

* The subfield length is equal to the size of the detailed data field plus 7.

Notes:

1. This field consists of one of the following 2-byte data IDs:
 - X'0071' Threshold parameter
 - X'0083' PU
 - X'0117' DLCI
2. This field consists of one of the following data encoding types:
 - X'00' Detailed data is in hexadecimal
 - X'11' Detailed data is in EBCDIC
3. This field consists of detailed data encoded as specified in byte 6 (data encoding).

Subvector Key X'95' (Generic Alert Install Causes)

0(0) Subvector length*	1(1) Generic Alert Install causes subvector key X'95'
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* The subvector length is equal to the size of the subfield lengths plus 2. One or more of the following subfields will be present.

Subfield Key X'01' (Install Causes Subfield)

0(0) Subfield length*	1(1) Subfield key X'01'	2(2) - n Subfield code points. (See note.)
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* The subfield length is equal to the size of install causes code points plus 2.

Note: This field consists of one or more of the following 2-byte probable causes code points:

- X'1600' Mismatch between software and microcode
- X'16A2' Incorrect microcode mevel (sf85)
- X'17C0' Threshold value set to low (sf85) (sf85)
- X'8000' Configuration error
- X'8029' Not enough memory in control block memory pool
- X'80AC' No memory available for (sf85)
- X'80B4' (sf85) not defined in adjacent node
- X'80B8' Preallocated (sf85) storage depleted
- X'80C4' Communication configuration error (sf85) (sf85)

Subfield Key X'81' (Recommended Actions Subfield)

0(0) Subfield length*	1(1) Subfield key X'81'	2(2) - N Actions code points. (See note.)
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* The subfield length is equal to the size of the recommended actions code points plus 2.

Note: This field consists of one or more of the following 2-byte recommended actions subfield code points:

- X'010A' Check configuration of the sending node
- X'010D' Check configuration of the remote node
- X'1029' Increase size of control block memory pool
- X'105F' Delete dynamically added resources (PUs, LUs, and sessions)
- X'1501' Correct generation problem
- X'150F' Check threshold limit and change if too low
- X'1516' Install latest microcode level
- X'1518' Increase number of control blocks in genned pools
- X'1503' Correct configuration
- X'15C0' Increase (sf85) on (sf85)
- X'2010' Review link detailed data
- X'310B' Contact network administrator
- X'310C' Contact administrator of affected resources
- X'3110' Contact communications system programmer
- X'3112' Contact system programmer
- X'32A0' Report the following:
 - X'3112' Contact system programmer
- X'3301' If problem persists do the following:
 - X'35A0' Refer to (sf85) for additional information

Subfield Key X'82' (Detailed Data)

0(0) Subfield length*	1(1) Subfield key X'82'	2(2) Detailed data product ID code X'00'	3(3) Data ID (See note 1)
4(4) Data encoding (See note 2)	5(5) - n Detailed data (See note 3)		

* The subfield length is equal to the size of the detailed data field plus 5.

Notes:

- This field consists of one of the following data IDs:
 - X'70' Generation Parameter
- This field consists of one of the following data encoding types:
 - X'11' Detailed data is in EBCDIC
- This field consists of detailed data encoded as specified in byte 4 (data encoding).

Subfield Key X'85' (Detailed Data Extended Subfield)

0(0) Subfield length*	1(1) Subfield key X'85'	2(2) Product ID code (X'00')	3(3) Reserved (X'00')
4(4) Data ID (See note 1.)		6(6) Data encoding (See note 2.)	7(7) - p
Detailed data (See note 3.)			

* The subfield length is equal to the size of the detailed data field plus 7.

Notes:

1. This field consists of one of the following 2-byte Data IDs:

- X'0000' No display
- X'0070' Generation parameter
- X'0071' Threshold parameter
- X'0072' Configuration object/record
- X'0073' Configuration parameter.
- X'0075' Parameter value.
- X'00A7' Resource
- X'00F5' Problem data.
- X'0117' DLCL.

2. This field consists of one of the following data encoding types:

- X'00' Detailed data is in hexadecimal
- X'11' Detailed data is in EBCDIC

3. This field consists of detailed data encoded as specified in byte 6 (data encoding).

For the Usage Tier Exceeded Generic Alert when the Data ID field is X'00F5' (Problem Data) the detailed data information is interpreted as follows:

			7(7) Model Number (CDSMDLNO)**
8(8) Operating Data*	9(9) Usage Tier Limit for LSS/HPTSS adapters	10(A) Usage Tier Limit for TRA/ESS adapters	11(B) Number of LSS/HPTSS adapters over the Usage Tier limit
12(C) Number of TRA/ESS adapters over the Usage Tier limit	13(D) - n One entry for each adapter which is operative with lines defined		

Adapter Entry Format:

0(0)	1(1)
Adapter ID Number (AITADNO)**	Adapter Type (AITTYPE)**

* Indicates a byte expansion follows.

** Indicates the control block field from which this NMVT field is loaded (see Volume 1, Section 1, "Data Area Layouts", for field definitions).

Byte Expansions

Offset/Field Name	Bit Pattern/ Hex Value	Contents
8(8)		Operating Data
	x...	0 = LAs being reported are attached and not switched to this CCU (i.e. on the primary bus) 1 = LAs being reported ater attached and switched to this CCU (i.e. on the secondary bus)
	.xxx	Operating Mode 001 = Single 010 = Twin-standby 100 = Twin-backup 101 = Twin-dual
	.... xx..	Reserved
	.... ..xx	CCU Indicator 01 = Generic Alert is for CCU A 10 = Generic Alert is for CCU B

Subvector Key X'96' (Generic Alert Failure Causes)

0(0) Subvector length*	1(1) Generic alert Failure causes subvector key X'96'
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* The subfield length is equal to the size of the subfield lengths plus 2. One or more of the following subfields will be present.

Subfield Key X'01' (Failure Causes Subfield)

0(0) Subvector length*	1(1) Subfield key X'01'	2(2) - n Subfield code points. (See note.)
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* The subfield length is equal to the size of failure causes code points plus 2.

Note: This field consists of one or more of the following 2-byte failure causes code points:

- X'0503' Communications subsystem failure
- X'1021' Communication controller control program problem
- X'10A0' Software subsystem(sf85)
- X'10A3' (sf85) is corrupt
- X'1206' TCP/IP Communication Protocol
- X'124A' Invalid Parameter
- X'2003' SNA communication error
- X'200D' Frame Relay communications
- X'20C6' (sf85)(sf85) Connection not available at this time
- X'2132' Server not available
- X'2300' Connection not established
- X'230D' Outgoing call blocked by incoming call
- X'2315' Call collision
- X'2320' Not enough active logical links for connect-in
- X'3220' Local token-ring adapter interface
- X'32D1' Local DCE communications interface
- X'3320' Local token-ring adapter
- X'3329' Local frame relay adapter
- X'33C0' Line adapter
- X'3401' Local DCE interface cable
- X'3426' CSMA/CD LAN cables
- X'3436' Local CSMA/CD adapter cable
- X'3503' Line switch
- X'3511' Line problem
- X'3601' Local modem
- X'3603' Remote modem.
- X'3721' CSMA/CD LAN component
- X'40A0' (sf85) threshold reached
- X'F0C0' Resource limit reached

Subfield Key X'81' (Recommended Actions Subfield)

0(0) Subvector length*	1(1) Subfield key X'81'	2(2) Subfield code points. (See note.)
---------------------------	-------------------------------	--

* The subfield length is equal to the size of the recommended actions code points plus 2.

Note: This field consists of one or more of the following 2-byte recommended actions subfield code points:

- X'0037' Increase size of resource
- X'0103' Verify the telephone number.
- X'015C' Verify configuration file
- X'01A1' Verify (sf 85)
- X'0403' Run modem tests.
- X'1204' Attempt to reestablish the connection.
- X'1208' Retry request
- X'1332' Reactivate line.
- X'14A5' Restart (sf85)
- X'14A2' Activate.
- X'2010' Review link detailed data.
- X'2012' Review associated resources
- X'2102' No text
- X'2203' Review support data
- X'3000' Contact appropriate service representative.
- X'30E1' Contact service representative for ODLC token-ring.
- X'3102' Contact CSMA/CD administrator responsible for this LAN.
- X'3110' Contact communications systems programmer
- X'3301' If problem persists then do the following
- X'32A0' Report the following: (sense byte provided by subfield X'82').
- X'3302' If problem persists then do the following:
- X'32D0' Report the following (sf85) (sf85) (sf85)
- X'3303' If unsuccessful then do the following:

Subfield Key X'82' (Detailed Data Subfield)

0(0) Subfield length*	1(1) Subfield key X'82'	2(2) Subfield product ID X'00'	3(3) Data ID. (See note 1.)
4(4) Data encoding. (See note 2.)	5(5) - r Detailed data (for example, a sense code value). (See note 3.)		

* The subfield length is equal to the size of the detailed data plus 5.

Notes:

1. This field contains one of the following values:
 - X'00' No canned words will be displayed by NetView.
 - X'10' "Sense Code" will be displayed by NetView.
 - X'13' "Status Code" will be displayed by NetView.
 - X'14' "Symptom" will be displayed by NetView
 - X'52' "Line Address" will be displayed by NetView.
 - X'53' "Line Address Range" will be displayed by NetView.
 - X'55' "Line" will be displayed by NetView.
 - X'61' "Adapter Number" will be displayed by NetView.
2. This field contains one of the following values:
 - X'00' Detailed data is in hexadecimal.
 - X'11' Detailed data is in EBCDIC.
3. If the data ID field at offset 3(3) contains a value of X'13' (status code), then the detailed data field (offset 5(5)) contains 4 bytes of status data in hexadecimal. For the meaning of the first 2 bytes, 5(5)–6(6), see the LXBSTAT and LXBSTATC fields. For the meaning of bytes 7(7) and 8(8), see the line communication status (LCS) and extended line communication status (ELCS) fields in the parameter/status area control block (PSA). However, if byte 7(7) (LCS value) is X'EA' (delayed call), then the next 2 bytes, 8(8)–9(9), contain a decimal representation of the time delay required before the operator should retry the call request. For the Ethernet CSMA/CD LAN No-Carrier Alert, byte 3 will contain X'61' (adapter number), and byte 5 will contain the adapter number, in hexadecimal, if installed or X'FF' if not installed. For the SNA Protocol Error Alert and NCST Logic Error Alert, bytes 5(5)-8(8) will be the first four bytes of the FEB for the first sf82 and the second sf82 will contain from 5-12 consecutive bytes from the PIU beginning with TH1DCF.

Subfield Key X'83' (Product Set ID Index)

0(0) Subvector length	1(1) Subfield key X'83'	2(2) Product ID Code X'91'
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Subfield Key X'85' (Detailed Data Extended Subfield)

0(0) Subfield length*	1(1) Subfield key X'85'	2(2) Product ID code (X'00')	3(3) Reserved (X'00')
4(4) Data ID (See note 1.)		6(6) Data encoding (See note 2.)	7(7) - P
Detailed data (See note 3.)			

* The subfield length is equal to the size of the detailed data field plus 7.

Notes:

1. This field consists of one of the following 2-byte data ids:

- X'0000' No Display
- X'0035' Type
- X'0056' DTE Adress Called
- X'0060' Port Number
- X'00FE' Internet Protocol Address
- X'0129' DSAP

2. This field consists of one of the following data encoding types:

- X'00' HEX
- X'11' EBCDIC

3. This field consists of detailed data encoded as specified in byte 6 (data encoding).

Subvector Key X'97' (Generic Alert Cause Undetermined)

0(0) Subvector length*	1(1) Generic alert cause undetermined subvector key X'97'
---------------------------	---

* The subvector length is equal to the size of the subfield lengths plus 2. The following subfields will be present.

Subfield Key X'81' (Recommended Actions Subfield)

0(0)	1(1)	2(2)
Subvector length*	Subfield key X'81'	Subfield code points. (See note.)

* The subfield length is equal to the size of the recommended actions code points plus 2.

Note: This field consists of the following 2-byte recommended actions subfield code points:

- X'00B0' Perform problem determination for (sense byte provided by subfield X'82')
- X'0103' Verify telephone number
- X'010A' Check configuration of sending node
- X'010D' Check configuration of remote node
- X'0403' Run modem tests
- X'1204' Attempt to reestablish connection
- X'1208' Retry request
- X'1332' Reactivate line
- X'13A1' Activate resources attached to ...
- X'13A2' Deactivate resources attached to ...
- X'1412' Restart resource
- X'14A2' Activate
- X'14A4' Vary or connect (sf85) online
- X'1501' Correct generation problem
- X'1503' Correct configuration
- X'2010' Review link detailed data
- X'2012' Review associated resources
- X'2100' Review recent alerts for this resource
- X'2102' No text
- X'2203' Review support data
- X'3000' Contact service representative
- X'30E1' Contact service representative for ...
- X'3102' Contact CSMA/CD administrator responsible for this LAN
- X'310B' Contact network administrator
- X'310C' Contact administrator of affected resources
- X'3110' Contact communication systems programmer
- X'3112' Contact system programmer
- X'3125' Contact remote link station operator
- X'32A0' Report the following: (sense byte provided by subfield X'82')
- X'32C0' Report the following:
- X'3301' If problem persists, then do the following:
- X'3302' If problem persists, do the following:
- X'3303' If unsuccessful, then do the following:
- X'35E0' Refer to product documentation for additional information (sense byte provided by subfield X'83')

Subfield Key X'82' (Detailed Data Subfield)

0(0) Subfield length*	1(1) Subfield key X'82'	2(2) Subfield product ID X'00'	3(3) Data ID. (See note 1.)
4(4) Data encoding. (See note 2.)	5(5) - r Detailed data. (See note 3.)		

* The subfield length is equal to the size of the detailed data plus 5.

Notes:

1. This field contains the following value:
 - X'00' No canned words will be displayed by NetView.
 - X'4F' Active Route
2. This field contains one of the following values:
 - X'00' Detailed data is in hexadecimal.
 - X'11' Detailed data is in EBCDIC.
3. For the VR Held Time Limit Reached Alert, the VR Pacing Withheld Time Limit Reached Alert, the Held VR Deactivation Time Limit Reached Alert, the VR Transmit Queue Overrun Alert, and the VR Out-of_sequence Alert, the detailed data is defined as the following: Bytes 5(5) - 12(C) will be the NETID. Bytes 13(D) - 16(10) will be the alert sender subarea. Bytes 17(11) - 20(14) will be the other end subarea. Byte 21(15) will be the VRID: X'yz' where y = VRN and z = TPF. Byte 22(16) will be ERN/RERN:X'yz' where y = ERN and z = RERN.

Subfield Key X'82' (Detailed Data Subfield)

0(0) Subfield length*	1(1) Subfield key X'82'	2(2) Subfield product ID X'00'	3(3) Data ID. (See note 1.)
4(4) Data encoding. (See note 2.)	5(5) - r Detailed Data. (See note 3.)		

* The subfield length is equal to the size of the detailed data plus 5.

Notes:

1. This field contains the following value:
 - X'13' "Sense Code" will be displayed by NetView.
2. This field contains one of the following values:
 - X'00' Detailed data is in hexadecimal.
 - X'11' Detailed data is in EBCDIC.
3. For the VR Held Time Limit Reached Alert, the VR Pacing Withheld Time Limit Reached Alert, the Held VR Deactivation Time Limit Reached Alert, and the VR Transmit Queue Overrun Alert, the detailed data is defined as the following: Byte 5(5) will be the minimum window size. Byte 6(6) will be the maximum window size. Byte 7(7) will be the current window size. Bytes 8(8) - 9(9) will be the number of PIUs on the VR transmit queue. Byte 10(A) will be the VR transmit queue depth alert threshold for this VR. Bytes 11(B) - 12(C) will be the VR status flags. Bytes 13(D) - 14(E) will be the VR PIU pool count. Bytes 15(F) - 16(10) will be the VR PIU pool threshold. Bytes 17(11) - 20(14) will be duration of congestion in seconds.

For the VR Out-of-Sequence Alert, the detailed data is defined as the following: Bytes 5(5) - 6(6) will be the next expected sequence number (when the out-of-sequence PIU was received). From bytes 7(7), the TH4/RH/RU(up to 5 bytes) portion of the out-of sequence PIU is saved. The length of this portion is a variable, because the RU length may be less than 5 bytes.

Subfield Key X'83' (Product Set ID Index)

0(0) Subvector length X'03'	1(1) Subfield key X'83'	2(2) Product ID code X'91'
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Subfield Key X'85' (Detailed Data Extended)

0(0) Subvector length*	1(1) Subfield key X'85'	2(2) Product ID code X'00'	3(3) Reserved
4(4) Data ID (See note 1)		6(6) Data encoding (See note 2)	7(7) - r
Detailed data			

* The subfield length is equal to the size of the detailed data plus 7.

Notes:

1. This field consists of the following 2-byte recommended actions subfield code points:

- X'0010' Sense data
- X'0055' Line
- X'0070' Generation parameter
- X'0073' Configuration parameter
- X'0075' Parameter value
- X'0083' PU
- X'00F5' Problem data
- X'0117' DLCI number

2. This field contains one of the following values:

- X'00' Detailed data is in hexadecimal
- X'11' Detailed data is in EBCDIC

Subvector Key X'9B' (Query Flow Control Data)

0(0)	1(1)
Subvector length X'02'	Query flow control data request trace X'9B'

Subvector Key X'9C' (Query Flow Control Data Reply)

0(0) Subvector length*	1(1) Sir flow control data trace X'9C'
---------------------------	---

* The subvector length is equal to the size of the subfield lengths plus 2. One or more of the following subfields will be present.

Subfield Key X'10' (Primary Session Stage Most Recent PIUS)

0(0) S10SFLEN Subfield length X'14'	1(1) S10SFKEY Subfield key X'10'	2(2) S10FLSP RH and TH of last sent PIU(FID2)	
		S10SFTHS TH byte 0	3(3) Reserved
4(4) S10FLSP RH and TH of last sent PIU(FID2) (continued)			
S10SFDS Destination element address	5(5) S10SF0S Origin element address	6(6) S10FSS Sequence number field	
8(8) S10FLSP RH and TH of last sent PIU(FID2) (continued)			11(B) S10FLRP RH and TH of last received PIU(FID2)
S10FB0S RH byte 0	9(9) S10FB1S RH byte 1	10(A) S10FB2S RH byte 2	S10SFTHR TH byte 0
12(C) S10FLRP RH and TH of last received PIU(FID2) (continued)			
Reserved	13(D) S10SFDR Destination element address	14(E) S10SF0R Origin element address	15(F) S10FSR Sequence number field
S10FLRP RH and TH of last received PIU(FID2) (continued)			
16(10) S10FSR Sequence number field (continued)	17(11) S10FB0R RH byte 0	18(12) S10FB1S RH byte 1	19(13) S10FB2S RH byte 2

Subfield Key X'11' (Secondary Session Stage Most Recent PIUS)

0(0) S11SFLEN Subfield length X'14'	1(1) S11SFKEY Subfield key X'11'	2(2) S11SFLAP RH, TH of last sent PIU(FID2)	
		S11SFTHS TH byte 0	3(3) Reserved
4(4) S11SFLAP RH, TH of last sent PIU(FID2) (continued)			
S11SFDS Destination element address	5(5) S11SF0S Origin element address	6(6) S11FSS Sequence number field	
8(8) S11SFLAP RH, TH of last sent PIU(FID2) (continued)			11(B) S11FLRP RH and TH of last received PIU(FID2)
S11FB0S RH byte 0	9(9) S11FB1S RH byte 1	10(A) S11FB2S RH byte 2	S11SFTHR TH byte 0
12(C) S11FLRP RH and TH of last received PIU(FID2)			
Reserved	13(D) S11SFDR Destination element address	14(E) S11SF0R Origin element address	15(F) S11FSR Sequence number field
16(10) S11FLRP RH and TH of last received PIU(FID2) (continued)			
	17(11) S11FB0R RH byte 0	18(12) S11FB1S RH byte 1	15(F) S11FB2S RH byte 2 (continued)

Subfield Key X'30' (Primary Session Stage Pacing Data)

0(0) S30SFLEN Subfield length X'12'	1(1) S30SFKEY Subfield key X'30'	2(2) S30SFLIS Last IPM sent	
		S30SFRB0 RH byte 0	3(3) S30SFRB1 RH byte 1
4(4) S30SFLIS Last IPM sent (continued)			
S30SFRB2 RH byte 2	5(5) S30SFTYP Type byte of last IPM sent	6(6) S30FNWS Next window information	
8(8) S30FRPC Residual pacing count in send window		10(A) S30FSWS Next send window size	
12(C) S30SFRPW Residual pacing count in send window		14(E) S30SFRWS Next receive window size	
16(10) S30SFMPQ Number of messages in pacing queue			

Subfield Key X'31' (Secondary Session Stage Pacing Data)

0(0) S31SFLEN Subfield length X'12'	1(1) S31SFKEY Subfield key X'31'	2(2) S31SFLIS Last IPM sent	
		S31SFRB0 RH byte 0	3(3) S31SFRB1 RH byte 1
4(4) S31SFLIS Last IPM sent (continued)			
S31SFRB2 RH byte 2	5(5) S31SFTYP Type byte of last IPM sent	6(6) S31FNWS Next window information	
8(8) S31FRPC Residual pacing count in send window		10(A) S31FSWS Next send window size	
12(C) S31SFRPW Residual pacing count in send window		14(E) S31SFRWS Next receive window size	
16(10) S31SFMPQ Number of messages in pacing queue			

Subvector Key X'A0' (CNM Detailed Qualifier EBCDIC)

0(0) Subvector length X'05' or X'08'	1(1) CNM detailed qualifier EBCDIC subvector key X'A0'	2(2) - 5(5) or 7(7) EBCDIC characters
--	--	--

Physical Link Example—If NCP/token-ring interconnection (NTRI) wants to report the value 1234, the subvector is coded as follows:

0(0) Subvector length X'05'	1(1) Subvector key X'A0'	2(2) Detail qualifier X'F1F2' (bytes 1 and 2)
4(4) Detail qualifier X'F3F4' (bytes 3 and 4)		

This subvector contains the NCP line interface address (up to 3 decimal bytes).

Logic Link Example—If NTRI wants to report the value LANLK1, the subvector is coded as follows:

0(0) Subvector length X'08'	1(1) Subvector key X'A0'	2(2) - 7(7) Detail qualifier X'D3C1D5D3D2F1'
-----------------------------------	--------------------------------	--

This subvector contains the SNA symbolic name of the associated physical link (up to 8 EBCDIC bytes).

Subvector Key X'A1' (CNM Detailed Qualifier—Hexadecimal)

0(0) Subvector length X'0A'	1(1) CNM detailed qualifier hexadecimal subvector key X'A1'	2(2) - 9(9) Hexadecimal bytes
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This subvector contains internal error information (up to 8 hexadecimal bytes).

Physical Link Example—If NCP/token-ring interconnection (NTRI) wants to report the value X'123456789ABCDEF', the subvector is coded as follows:

0(0) Subvector length X'0A'	1(1) Subvector key X'A1'	2(2) - 9(9) Detail qualifier X'123456789ABCDEF'
-----------------------------------	--------------------------------	---

In some cases, NTRI also generates another X'A1' (hexadecimal) subvector containing SSB completion bytes or the adapter check status (up to 8 hexadecimal bytes).

Logic Link Example—If NTRI wants to report the value X'123456789ABCDEF', the subvector is coded as follows:

0(0) Subvector length X'0A'	1(1) Subvector key X'A1'	2(2) - 9(9) Detail qualifier X'123456789ABCDEF'
-----------------------------------	--------------------------------	---

In some cases, NTRI also generates another X'A1' (hexadecimal) subvector containing transmit completion bytes (up to 8 hexadecimal bytes).

Network Performance Monitor (NPM) Request Unit (RU) Formats

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Section 17. Network Performance Monitor (NPM) Request Unit (RU) Formats

The RUs in this section define the interface between NCP and a host application called Network Performance Monitor (NPM). The RUs allow NPM to monitor the performance of the following NCP resources:

- NCP
- Channel links
- SDLC link and SDLC physical unit
- SDLC logical unit and programmed resource virtual logical unit
- Token-ring physical and logical links
- BSC line supporting IBM 3270 devices exclusively, IBM 3270 BSC cluster controllers (physical units), and IBM 3270 BSC terminals (logical units).

A virtual LU within NCP processes the Start, Stop, and Forward requests sent by the host application program. This virtual LU collects performance information on the specified resources and sends this performance data to NPM, upon request, in the Collect RU. To inform NPM of dynamic resource address assignments, the LU also sends NPM RNAA/FNA RUs.

The virtual LU also supports boundary function session accounting, gateway session accounting, and IBM special products or user-written code session accounting (a subset of boundary function session accounting). For these functions, Enable Send, Disable Send, Solicit Session Counters, and Change Accounting Parameters requests sent by the host application program are also processed by the virtual LU. The virtual LU collects accounting data on boundary function sessions or gateway sessions (or both) and sends NPM Session Start, NPM Session End, and Accounting Data RUs.

The PIUs that carry the RUs defined here are function manager (FM) Data PIUs (RH byte 0, bits 1 and 2 are both off). The only other PIU that contains NPM-specific data is the BIND request/response, which flows between NPM and the virtual LU in NCP.

The BIND contains a special user data field. The format is a non-zero length of greater than 3, a non-zero first byte, a second byte equal to the length of subfield X'10', a third byte of X'10', and a status byte. The status byte is defined as shown in Table 17-1.

Table 17-1. The BIND Status Byte for the NPM RUs

Bit Pattern	Contents
xx..	Reserved
..1.	NPM is IBM special products or user-written code session accounting capable.
...1	NPM is gateway session accounting capable.
.... 1...	NPM wishes to receive takeover notification.
.... .1..	NPM is capable of dynamic reconfiguration (DR).
.... ..1.	NPM is session accounting capable.
.... ...1	NPM is network performance capable.

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Start Network Data Acquisition RU

Request Format

		55(37) RUSTRCMD Start acquisition command code X'11'
56(38) Reserved	58(3A) RUSTRQID Interval queue number	59(3B) RUSTRRCT Count (m) of the resource ID fields that follow
60(3C) - n 'm' 4-byte resource ID fields as defined in the following control block		

Network Performance Analyzer (NPA) RU Resources ID field

0(0) RUSTRRA Element address of the resource	2(2) RUSTRTYP* Type of resource	3(3) RUSTRSV* Flags byte for type CCU/NCP (otherwise, reserved)
--	---------------------------------------	---

* Indicates a byte expansion follows.

Byte Expansions

Offset/Field Name	Bit Pattern/ Hex Value	Contents
2(2) RUSTRTYP		Type of resource
	1... ..	CCU/NCP
	.1.. ..	SDLC link or BSC 3270 line
	..1. ..	SDLC PU or BSC 3270 cluster
	...1 ..	SDLC LU or BSC 3270 terminal
	.... 1..	Extended resource record format
	.... ..1.	Programmed resource virtual LU
	.... ...x	1 = SDLC, frame-relay, or NTRI resource 0 = BSC 3270 resource
3(3) RUSTRSV		Flags for type CCU/NPM (otherwise, reserved)
	1... ..	Send control block pool/table data (RUSTRCD)
	.xxx xxxx	Reserved

Forward Network Data RU

Request Format

		55(37) RUFWDCMD Forward command code X'12'	
56(38) RUFWDTOD Time-of-day clock value			
60(3C) RUFWDQID Interval queue number	61(3D) RUFWDFG1 Flags X'00'		

Stop Network Data Acquisition RU

Request Format

		55(37) RUSTPCMD Stop acquisition command code X'14'	
56(38) RUSTPMOD* Stop request modifier	Reserved	58(3A) RUSTPQID Interval queue number or X'FF' for all intervals	59(3B) RUSTPRCT Count (m) of the resource ID fields that follow
60(3C) - n 'm' 4-byte resource ID fields as defined in the following control block			

* Indicates a byte expansion follows.

Network Performance Analyzer (NPA) RU Resources ID field

0(0) RUSPTRA Element address of the resource	2(2) RUSTPTYP* Type of resource	3(3) RUSTPSV* Flags byte for type CCU/NCP (otherwise, reserved)
--	---------------------------------------	---

* Indicates a byte expansion follows.

Byte Expansions

Offset/Field Name	Bit Pattern/ Hex Value	Contents
56(38) RUSTPMOD		Stop request modifier
	X'00'	Stop specific resources.
	X'01'	Stop all resources.
2(2) RUSTPTYP		Type of resource
	1...	CCU/NCP
	.1.	SDLC link or BSC 3270 line
	..1.	SDLC PU or BSC 3270 cluster
	...1	SDLC LU or BSC 3270 terminal
	.... xx..	Reserved
	.... ..1.	Programmed resource virtual LU
	.... ...x	1 = SDLC, frame-relay, or NTRI resource 0 = BSC 3270 resource
3(3) RUSTPSV		Flags for type CCU/NPM (otherwise, reserved)
	1...	Send control block pool/table data (RUSTPCD)
	.xxx xxxx	

Collect Network Data RU

Note: There is a dependency that RUCOLTOD, RUCOLQID, RUCOLFG1, and RUCOLTIM in the NPM Collect Network Data RU have the same meaning and are at the same offsets as the corresponding fields in a Control Block Pool/Table Data RU.

Request Format

			55(37) RUCOLCMD Collect command code X'18'
56(38) RUCOLTOD Time-of-day clock value (from the Forward Network Data RU)			
60(3C) RUCOLQID Number of the highest interval the queue forwarded	61(3D) RUCOLFG1* Flags	62(3E) RUCOLTIM NCP timer value (in tenth of a second increments)	
64(40) RUCOLTIM NCP timer value (continued)		66(42) RUCOLRRC Count (m) of the resource records in this RU	
68(44) - n 'm' resource records as defined in the following control block (one or more in any order)			

* Indicates a byte expansion follows.

Common Resource Record Header

0(0) RURRADDR Element address of the resource	2(2) RURRTYPE* Resource type	3(3) RURRLEN Length of this resource record
---	------------------------------------	--

* Indicates a byte expansion follows.

Resource Record Format for Resource Type = CCU/NCP (X'81')

4(4)		6(6)	
RURRFGS Resource record overflow flags		RURRCYS CCU cycle speed	
RURRFGS1* High-order flag	5(5) RURRFGS2* Low-order flag		
8(8)			
RURRFCC Free cycle count (RURRFGS1 bit 0=0)			
RURRUCC Used cycle count (RURRFGS1 bit 0=1)			
RURRCH1 High byte of count			
12(C)			
RURRFBQ Free buffer queue length (count at the time of the collect)			
RURRCH2 High byte of count			
16(10)			
RURRFBH Highest free buffer count since the last collect			
RURRCH3 High byte of count			
20(14)			
RURRFBL Lowest free buffer count since the last collect			
RURRCH4 High byte of count			
24(18)			
RURRSLM NCP buffer slowdown limit			
RURRCH5 High byte of count			
28(1C)			
RURRMXF Maximum available NCP buffers			
RURRCH6 High byte of count			

32(20) RURRCIQ Channel intermediate queue length at the time of the collect (sum of all the channels)	34(22) RURRCHQ Channel hold queue length at the time of the collect (sum of all the channels)
36(24) RURRSL NCP slowdown count (in 0.1 seconds)	38(26) RURRFLG7 Reserved
40(28) RURRDYMX Maximum number of buffers used for dynamic control blocks since the last collect	
44(2C) RURRDYNB Upper limit for buffers available for use as dynamic control blocks	
48(30) RURRDYCU Number of buffers currently being used for dynamic control blocks	

* Indicates a byte expansion follows.

Resource Record Format for Resource Type = SDLC LU (X'11') or Programmed Resource Virtual LU (X'02')

4(4) RURRFGS Resource record overflow flags	6(6) RURRTPS Total PIUs sent
RURRFGS1* High-order flag	5(5) RURRFGS2* Low-order flag
8(8) RURRTPR Total PIUs received	10(A) RURRTBS Total bytes sent
12(C) RURRTBS Total bytes sent (continued)	14(E) RURRTBR Total bytes received
16(10) RURRTBR Total bytes received (continued)	18(12) RURRROQ Resource outbound queue length at the time of the collect

* Indicates a byte expansion follows.

Resource Record Format Extended

4(4) RURRUID NEO program identifier	5(5) RURRURSC NEO program resource type ----- Reserved	6(6) Reserved	7(7) Reserved
8(8) - 254(FE) Reserved			

Resource Record Format for NTRI and Frame-Relay Lines (Common Section)

4(4) RURUID* NEO program identifier	5(5) RURRURSC* Program resource type	6(6) Content flag 1*	7(7) Reserved
8(8) Overflow byte 1*	9(9) Reserved	10(A) Data frames sent**	
12(C) Data frames sent (continued)		14(E) Data frames received**	
16(10) Data frames received (continued)		18(12) Total bytes sent	
20(14) Total bytes sent (continued)		22(16) Total bytes received	
24(18) Total bytes received (continued)		26(1A) Total I-frames retransmitted	
28(1C) Total I-frames retransmitted (continued)		30(1E) Total bytes retransmitted	
32(20) Total bytes retransmitted (continued)		34(22) Spare	
36(24) Spare (continued)		38(26) Data frames on link outbound queue**	
40(28) - 63(3F) Reserved			

* Indicates a byte expansion follows.

** For NTRI, these counts include SNA I-frames and IP data frames.

Resource Record Format for NTRI Physical Lines (Unique Section)

64(40) Content flag 3*	65(41) Content flag 4*	66(42) Reserved	67(43) Reserved
68(44) Overflow byte 3*	69(45) Overflow byte 4*	70(46) Reserved	71(47) Overflow byte 6*
72(48) Total frames sent			
76(4C) Total frames received			
80(50) Number of active logical connections		82(52) Congestion count	
84(54) Time per byte sent		86(56) Time per byte received	
88(58) Time per frame sent		90(5A) Time per frame received	
92(5C) Total IP data frames transmitted			
96(60) Total IP data frames received			
100(64) Total IP frames transmitted			
104(68) Total IP frames received			
108(6C) Total IP frames discarded due to congestion			
112(70) Total IP bytes transmitted			
116(74) Total IP bytes received			

* Indicates a byte expansion follows.

Resource Record Format for Frame-Relay Physical Lines (Unique Section)

64(40) Content flag 3*	65(41) Content flag 4*	66(42) Reserved	67(43) Reserved
68(44) Overflow byte 3*	69(45) Reserved	70(46) Reserved	71(47) Overflow byte 6*
72(48) Total frames sent			
76(4C) Total frames received			
80(50) Number of active logical connections		82(52) Reserved	
84(54) Number of frames with forward congestion			
88(58) Number of frames with backward congestion			
92(5C) Number of frames discarded			

* Indicates a byte expansion follows.

Resource Record Format for NTRI Logical Lines

64(40) Content flag 3*	65(41) Reserved	66(42) Reserved	67(43) Reserved
68(44) Overflow byte 3*	69(45) Reserved	70(46) Reserved	71(47) Overflow byte 6*
72(48) Total frames sent			
76(4C) Total frames received			
80(50) Reply (TI) timeouts			

* Indicates a byte expansion follows.

Resource Record Format for Frame-Relay Logical Lines

64(40) Content flag 3*	65(41) Content flag 4*	66(42) Reserved	67(43) Reserved
68(44) Overflow byte 3*	69(45) Reserved	70(46) Reserved	71(47) Overflow byte 6*
72(48) Total frames sent			
76(4C) Total frames received			
80(50) Reply (TI) timeouts			
84(54) Number of frames with forward congestion			
88(58) Number of frames with backward congestion			

* Indicates a byte expansion follows.

Resource Record Format for Frame-Relay Physical Stations (DCE) (FRSE)

4(4) RURRUID Program identifier X'07'	5(5) RURRURSC Program resource type X'12'	6(6) RURRCONF* Content flag 1	7(7) Reserved
8(8) RURROFG1* Overflow byte 1	9(9) Reserved	10(A) - 17(11) Reserved	
Reserved		18(12) RURRXCH Bytes sent	
20(14) RURRXCH Bytes sent (continued)		22(16) RURRXCH Bytes received	
24(18) RURRXCH Bytes received (continued)		26(1A) - 37(25) Reserved	
Reserved		38(26) RURROBQL Outbound queue length	
40(28) - 63(3F) Reserved			
64(40) RURRCFG1* Content flags 3	65(41) RURRCFG2* Content flag 4	66(42) Reserved	
68(44) RURROV1* Overflow byte 3	69(45) RURROV2* Overflow byte 4	70(46) Reserved	71(47) RURROV4* Overflow byte 6
72(48) RURTFRMS Total frames sent			
76(4C) RURTFMR Total frames received			
80(50) Reserved			
84(54) RURRPFCN Number of frames with forward congestion			
88(58) RURRPBCN Number of frames with backward congestion			
92(5C) RURRPDF Number of frames discarded			

* Indicates a byte expansion follows.

Resource Record Format for Frame-Relay LMI Stations

4(4) RURRUID Program identifier X'07'	5(5) RURRURSC Program resource type X'13'	6(6) RURRCONF* Content flag 1	7(7) Reserved
8(8) RURROFG1* Overflow byte 1	9(9) Reserved	10(A) - 17(11)	
Reserved		18(12) RURRXCH Bytes sent	
20(14) RURRXCH Bytes sent (continued)		22(16) RURRXCH Bytes received	
24(18) RURRXCH Bytes received (continued)		26(1A) - 63(3F)	
Reserved			
64(40) RURRCFG1* Content flags 3	65(41) RURRCFG2* Content flag 4	66(42) Reserved	
68(44) RURROV1* Overflow byte 3	69(45) RURROV2* Overflow byte 4	70(46) Reserved	71(47) RURROV4* Overflow byte 6
72(48) RURTFRMS Total frames sent			
76(4C) RURTFMR Total frames received			
80(50) - 91(5B) Reserved			
92(5C) RURRPDF Number of frames discarded			

* Indicates a byte expansion follows.

Resource Record Format for ODLG resources

4(4) RURRUID Program identifier X'06'	5(5) RURRURSC Program resource type X'09' (link) or X'0A' (station)	6(6) Content flags	
8(8) Overflow flags		10(A) Total frames sent	
12(C) Total frames sent (continued)		14(E) Total frames received	
16(10) Total frames received (continued)		18(12) Total bytes sent	
20(14) Total bytes sent (continued)		22(16) Total bytes received	
24(18) Total bytes received (continued)		26(1A) Retransmitted PIUs	
28(1C) Retransmitted PIUs (continued)		30(1E) Retransmitted bytes	
32(20) Retransmitted bytes (continued)		34(22) Total errors	
36(24) Total errors (continued)		38(26) Outbound queue length	
40(28) Total poll count			
44(2C) Positive poll count			
48(30) NB channel count		50(32) Rate adapted	51(33) Control flags
52(34)-63(3F) Reserved Note-only present when Transmission Priority data will follow.			

* Indicates a byte expansion follows.

Resource Record Format for Ethernet Lines

4(4) NDBPID Program identifier X'08'	5(5) NDBPRSC Program resource type X'11'	6(6) NDBCFL1* Content flag 1	7(7) Reserved
8(8) NDBOL1* Overflow byte 1	9(9) Reserved	10(A) - 13(D) NDBXDF	
Transmitted data frames count		14(E) - 17(11) NDBRDF	
Received data frames count		18(12) - 21(15) NDBXBC	
Transmitted byte total		22(16) - 25(19) NDBRBC	
Received byte total		26(1A) - 29(1D)	
Reserved		30(1E) - 33(21)	
Reserved		34(22) - 37(25)	
Reserved		38(26) NDBPLQ Frames on physical link outbound queue	

* Indicates a byte expansion follows.

Resource Record Format for Ethernet Lines (continued)

40(28) - 63(3F)			
Reserved			
64(40) NDBCFL3* Content flag 3	65(41) NDBCFL4* Content flag 4	66(42) Reserved	67(43) Reserved
68(44) NDBOL3* Overflow flags 3	69(45) NDBOL4* Overflow flags 4	70(46) Reserved	71(47) NDBOL6* Overflow flags 6
72(48) NDBXFC Total frames sent			
76(4C) NDBRFC Total frames received			
80(50) NDBCONG Congestion count			
84(54) Reserved			
88(58) Reserved			
92(5C) NDBXDEF Transmission deferred count			
96(60) NDBICOL One collision count			
100(64) NDBMCOL Multiple collision count			
104(68) NDBDIPD Discarded IP frames (IP congestion)			

* Indicates a byte expansion follows.

Resource Record Format for All Other Resource Types

4(4) RURRFGS Resource record overflow flags	6(6) RURRTPS Total PIUs sent
RURRFGS1* High-order flag	5(5) RURRFGS2* Low-order flag
8(8) RURRTPR Total PIUs received	10(A) RURRTBS Total bytes sent
12(C) RURRTBS Total bytes sent (continued)	14(E) RURRTBR Total bytes received
16(10) RURRTBR Total bytes received (continued)	18(12) RURRROQ Resource outbound queue length at the time of the collect
20(14) RURRTPC Total poll count	22(16) RURRPPC Positive poll count
24(18) RURRERR Total error count	26(1A) RURRRPC Retransmit PIU count
28(1C) RURRRBC Retransmit byte count	

* Indicates a byte expansion follows.

Format of Transmission Priority Collection Data

n	RURRCNT Contents flags	n+2	Reserved		
	<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%; text-align: center;">RURRCNT1* Contents flag byte 1</td> <td style="width: 50%; text-align: center;">RURRCNT2* Contents flag byte 2</td> </tr> </table>	RURRCNT1* Contents flag byte 1	RURRCNT2* Contents flag byte 2		
RURRCNT1* Contents flag byte 1	RURRCNT2* Contents flag byte 2				
n+4	RURROVF Overflow flag	n+6	Reserved		
	<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%; text-align: center;">RURROVF1* Overflow flag byte 1</td> <td style="width: 50%; text-align: center;">RURROVF2* Overflow flag byte 2</td> </tr> </table>	RURROVF1* Overflow flag byte 1	RURROVF2* Overflow flag byte 2		
RURROVF1* Overflow flag byte 1	RURROVF2* Overflow flag byte 2				
n+8	RURRHIFS High priority I-frames sent				
n+12	RURRHIFR High priority I-frames received				
n+16	RURRHBY S High priority bytes sent				
n+20	RURRHBYR High priority bytes received				
n+24	RURRMIFS Medium priority I-frames sent				
28(1C)	RURRMIFR Medium priority I-frames received				
n+32	RURRMBYS Medium priority bytes sent				
n+36	RURRMBYR Medium priority bytes received				
n+40	RURRLIFS Low priority I-frames sent				
n+44	RURRLIFR Low priority I-frames received				
n+48	RURRLBYS Low priority bytes sent				
n+52	RURRLBYR Low priority bytes received				

* Indicates a byte expansion follows.

Byte Expansions

Offset/Field Name	Bit Pattern/ Hex Value	Contents
61(3D) RUCOLFG1		Flags
	.... ..1.	NCP has entered slowdown; discontinued processing of the Forward request (never set by NCP)
	.... ...1	Last PIU for the current Forward request
2(2) RURRTYPE (Resource record header)		Resource type
	1...	CCU/NCP (RURRCCU)
	.1..	SDLC link or BSC 3270 line (RURRLK)
	..1.	SDLC PU or BSC 3270 cluster (RURRPU)
	...1	SDLC LU or BSC 3270 terminal (RURRLU)
	.... 1...	Extended resource record format (RURRFMT)
	.... ..1.	Programmed resource virtual LU (RURRNEO)
	.... ...x	Resource type (valid when bit 0 is 0) (RURRSNA)
		1 = SDLC, frame-relay, or NTRI resource 0 = BSC 3270 resource
	.... ...x	Buffer count format (valid when bit 0 is 1) (RURRLNG)
		1 = Uses 4 byte format 0 = Uses 2 byte format

Resource Type = CCU/NCP

Offset/Field Name	Bit Pattern/ Hex Value	Contents
4(4) RURRFGS1		High-order flag
	x...	1 = RURRUCC contains the used cycle count. 0 = RURRFCC contains the free cycle count.
	.1..	Double overflow
	..xx xxxx	Reserved
5(5) RURRFGS2		Low-order flag
	xxxx xx..	Reserved
	.... ..1.	Overflow on count of slowdown time
	.... ...1	Overflow on free cycle or used cycle

Resource Types = SDLC LU or Programmed Resource Virtual LU

Offset/Field Name	Bit Pattern/ Hex Value	Contents
4(4) RURRFGS1		High-order flag
	.1.. x.xx xxxx	Double overflow Reserved
5(5) RURRFGS2		Low-order flag
	xxxx 1.. .... .1.. .... ..1. .... ...1	Reserved Overflow on total bytes received Overflow on total bytes sent Overflow on total PIUs received Overflow on total PIUs sent

Resource Record Format for NTRI and Frame-Relay Lines (Common Section)

Offset/Field Name	Bit Pattern/ Hex Value	Contents
4(4) RURUID		Program identifier
	X'02' X'07'	NTRI Frame-relay
5(5) RURRUSC		Program resource type
	X'01', X'0C' X'02', X'0D'	Physical link Logical link
6(6)		Content flag 1
	1... .... .1.. .... ..1. .... ...1 1.. .... .1.. .... ..x. .... ...1	I-frames sent I-frames received Total bytes sent Total bytes received Retransmitted I-frames Retransmitted bytes Reserved Outbound queue length
8(8)		Overflow byte 1
	1... .... .1.. .... ..1. .... ...1 1.. .... .1.. .... ..xx	Overflow I-frames sent Overflow I-frames received Overflow total bytes sent Overflow total bytes received Overflow retransmitted I-frames Overflow retransmitted bytes Reserved

Resource Record Format for NTRI Physical Lines (Unique Section)

Offset/Field Name	Bit Pattern/ Hex Value	Contents
64(40)		Content flag 3
	1...	Total frames sent
	.1..	Total frames received
	..1.	Active logical connections
	...1	Congestion count
	.... 1..	Time per byte sent
	.... .1..	Time per byte received
	.... ..1.	Time per frame sent
	.... ...1	Time per frame received
65(41)		Content flag 4
	1...	Total IP data frames sent
	.1..	Total IP data frames received
	..1.	Total IP frames sent
	...1	Total IP frames received
	.... 1..	Total IP frames discarded due to congestion
	.... .1..	Total IP bytes sent
	.... ..1.	Total IP bytes received
	.... ...x	Reserved
68(44)		Overflow byte 3
	1...	Overflow total frames sent
	.1..	Overflow total frames received
	..1.	Overflow logical connections
	...1	Overflow congestion count
	.... xxxx	Reserved
69(45)		Overflow flag 4
	1...	Overflow total IP data frames sent
	.1..	Overflow total IP data frames received
	..1.	Overflow total IP frames sent
	...1	Overflow total IP frames received
	.... 1..	Overflow total IP frames discarded due to congestion
	.... .1..	Overflow total IP bytes sent
	.... ..1.	Overflow total IP bytes received
	.... ...x	Reserved
71(47)		Overflow byte 6
	xxxx xxx.	Reserved
	.... ..1	Double overflow

Resource Record Format for Frame-Relay Physical Lines (Unique Section)

Offset/Field Name	Bit Pattern/ Hex Value	Contents
64(40)	1...	Content flag 3
	.1..	Total frames sent
	..1.	Total frames received
	...x xxxx	Active logical connections
65(41)	1...	Reserved
	.1..	Content flag 4
	..1.	Frames with forward congestion
	...x xxxx	Frames with backward congestion
68(44)	1...	Frames discarded
	.1..	Reserved
	..1.	Overflow byte 3
	...1	Overflow total frames sent
	.... 1...	Overflow total frames received
	.... .1..	Overflow active logical connections
	.... ..xx	Overflow forward congestion
71(47)	xxxx xxx.	Overflow backward congestion
	.... ...1	Overflow frames discarded
		Reserved
		Double overflow

Resource Record Format for NTRI and Frame-Relay Logical Lines

Offset/Field Name	Bit Pattern/ Hex Value	Contents
64(40)		Content flag 3
	1... ..	Total frames sent
	.1.. ..	Total frames received
	..1. ..	Reply timeouts
	...x xxxx	Reserved
65(41)		Content flag 4
	1... ..	Frames with forward congestion (frame-relay)
	.1.. ..	Frames with backward congestion (frame-relay)
	..xx xxxx	Reserved
68(44)		Overflow byte 3
	1... ..	Overflow total frames sent
	.1.. ..	Overflow total frames received
	..1. ..	Overflow reply timeouts
	...1 ..	Overflow forward congestion (frame-relay)
	.... 1..	Overflow backward congestion (frame-relay)
	.... .xxx	Reserved
71(47)		Overflow byte 6
	xxxx xxx.	Reserved
	.... ...1	Double overflow

Resource Record Format for Frame-Relay physical station (DCE) (FRSE)

Offset/Field Name	Bit Pattern/ Hex Value	Contents
6(6) RURRCONF		Content flag 1
	xx.. ..	Reserved
	..1.	Total bytes sent
	...1	Total bytes received
	.... xxx.	Reserved
	.... ...1	Outbound queue length
8(8) RURROFG1		Overflow byte 1
	xx.. ..	Reserved
	..1.	Overflow total bytes sent
	...1	Overflow total bytes received
	.... xxxx	Reserved
64(40) RURRCFG1		Content flag 3
	1... ..	Total frames sent
	.1.. ..	Total frames received
	..xx xxxx	Reserved
65(41) RURRCFG2		Content flag 4
	1... ..	Frames with forward congestion
	.1.. ..	Frames with backward congestion
	..1.	Frames discarded
	...x xxxx	Reserved

Offset/Field Name	Bit Pattern/ Hex Value	Contents
68(44) RURROV1		Overflow byte 3
	1... ..	Overflow total frames sent
	.1.. ..	Overflow total frames received
	..xx xxxx	Reserved
69(45) RURROV2		Overflow byte 4
	1... ..	Frames with forward congestion
	.1.. ..	Frames with backward congestion
	..1.	Discarded frame count
	...x xxxx	Reserved
71(47) RURROV4		Overflow byte 6
	xxxx xxx.	Reserved
	.... ...1	Double overflow

Resource Record Format for Frame-Relay LMI station

Offset/Field Name	Bit Pattern/ Hex Value	Contents
6(6) RURRCONF		Content flag 1
	xx..	Reserved
	..1.	Total bytes sent
	...1	Total bytes received
	.... xxxx	Reserved
8(8) RURROFG1		Overflow byte 1
	xx..	Reserved
	..1.	Overflow total bytes sent
	...1	Overflow total bytes received
	.... xxxx	Reserved
64(40) RURRCFG1		Content flag 3
	1... ..	Total frames sent
	.1.. ..	Total frames received
	..xx xxxx	Reserved
65(41) RURRCFG2		Content flag 4
	xx..	Reserved
	..1.	Frames discarded
	...x xxxx	Reserved
68(44) RURROV1		Overflow byte 3
	1... ..	Overflow total frames sent
	.1.. ..	Overflow total frames received
	..xx xxxx	Reserved

Offset/Field Name	Bit Pattern/ Hex Value	Contents
69(45) RURROV2		Overflow byte 4
	xx..	Reserved
	..1.	Discarded frame count
	...x xxxx	Reserved
71(47) RURROV4		Overflow byte 6
	xxxx xxx.	Reserved
	.... ...1	Double overflow

Resource Record Format for ODLC resources

Offset/Field Name	Bit Pattern/ Hex Value	Contents
6(6)		Content flag 1
	1...	I-frame sent
	.1..	I-frame received
	..1.	Byte sent
	...1	byte received
	.... 1...	Retransmitted I-frame
	.... .1..	Retransmitted bytes
	.... ..1.	Total errors
	.... ...1	Outbound queue length
7(7)		Content flag 2
	1...	Total poll count
	.1..	Total positive poll count
	..1.	ISDN NB channel count
	...1	ISDN rate adapted speed
	.... xxxx	Reserved
8(8)		Overflow flag 1
	1...	I-frame sent
	.1..	I-frame received
	..1.	Byte sent
	...1	byte received
	.... 1...	Retransmitted I-frame
	.... .1..	Retransmitted bytes
	.... ..1.	Total errors
	.... ...1	Outbound queue length
9(9)		Overflow flag 2
	1...	Total poll count
	.1..	Total positive poll count
	..1.	ISDN NB channel count
	...1	ISDN rate adapted speed
	.... ...1	Double overflow
51(33)		Control flags
	1...	First collect for resource

Resource Record Format for Ethernet Lines

Offset/Field Name	Bit Pattern/ Hex Value	Contents
6(6) NDBCFL1		Content flag 1
	1...	Data frames sent
	.1..	Data frames received
	..1.	Total bytes sent
	...1	Total bytes received
	.... ...1	Frames on the link outbound queue
8(8) NDBOL1		Overflow byte 1
	1...	Overflow data frames sent
	.1..	Overflow data frames received
	..1.	Overflow total bytes sent
	...1	Overflow total bytes received
64(40) NDBCFL3		Content flag 3
	1...	Total frames sent
	.1..	Total frames received
	...1	Congestion count
65(41) NDBCFL4		Content flag 4
	1...	Transmission deferred
	.1..	One collision
	..1.	Multiple collisions
	...1	Discarded IP datagrams
68(44) NDBOL3		Overflow byte 3
	1...	Overflow total frames sent count
	.1..	Overflow total frames received count
	..1.	Overflow congestion count
69(45) NDBOL4		Overflow byte 4
	1...	Overflow transmission deferred count
	.1..	Overflow one collision count
	..1.	Overflow multiple collision count
	...1	Overflow discarded IP datagrams
71(47) NDBOL6		Overflow byte 6
	.... ...1	Double overflow

Resource Types = SDLC Link, SDLC PU, BSC 3270 Line, BSC 3270 Cluster, and BSC 3270 Terminals

Offset/Field Name	Bit Pattern/ Hex Value	Contents
4(4) RURRFGS1		High-order flag
	.1..	Double overflow
	x.xx xxx.	Reserved
	.... ...1	Overflow on retransmitted character count
5(5) RURRFGS2		Low-order flag
	1...	Overflow on retransmitted PIU count
	.1..	Overflow on total error count
	..1.	Overflow on positive poll count
	...1	Overflow on total poll count
	.... 1..	Overflow on total bytes received
	.... .1..	Overflow on total bytes sent
	.... ..1.	Overflow on total PIUs received
	.... ...1	Overflow on total PIUs sent

Format of Transmission Priority Collection Data

Offset/Field Name	Bit Pattern/ Hex Value	Contents
n RURRCNT1		Contents flag byte 1
	1...	High priority I-frames sent
	.1..	High priority I-frames received
	..1.	High priority bytes sent
	...1	High priority bytes received
	.... 1..	Medium priority I-frames sent
	.... .1..	Medium priority I-frames received
	.... ..1.	Medium priority bytes sent
	.... ...1	Medium priority bytes received
n+1 RURRCNT2		Contents flag byte 2
	1...	Low priority I-frames sent
	.1..	Low priority I-frames received
	..1.	Low priority bytes sent
	...1	Low priority bytes received
	.... 1..	Double overflow indicator
	.... .xxx	Reserved
n+4 RURROVF1		Overflow flag byte 1
	1...	High priority I-frames sent overflow
	.1..	High priority I-frames received overflow
	..1.	High priority bytes sent overflow
	...1	High priority bytes received overflow
	.... 1..	Medium priority I-frames sent overflow
	.... .1..	Medium priority I-frames received overflow
	.... ..1.	Medium priority bytes sent overflow
	.... ...1	Medium priority bytes received overflow

Offset/Field Name	Bit Pattern/ Hex Value	Contents
n+5 RURROVF2		Overflow flag byte 2
	1...	Low priority I-frames sent overflow
	.1..	Low priority I-frames received overflow
	..1.	Low priority bytes sent overflow
	...1	Low priority bytes received overflow
	.... 1...	Double overflow indicator
	.... .xxx	Reserved

Resource Record Format for Non-NCP Resources

0(0) Element address of the resource	2(2) Resource type*	3(3) Length of the resource record
---	------------------------	---------------------------------------

* Indicates a byte expansion follows.

Byte Expansion

Offset/Field Name	Bit Pattern/ Hex Value	Contents
2(2)	.... 1...	Content flags ULC/programmed resource format (always 1 for the illustrated format. All other bits are a copy of the type sent in the start request.)

Resource Record Format for Resource Type = X.25 Link

4(4) NEO program identifier*	5(5) NEO program resource type	6(6) Content flags*	7(7) Reserved
8(8) Overflow flags 1*	9(9) Overflow flags 2*	10(A) I-frames sent	
12(C) I-frames sent (continued)		14(E) I-frames received	
16(10) I-frames received (continued)		18(12) Bytes sent	
20(14) Bytes sent (continued)		22(16) Bytes received	
24(18) Bytes received (continued)		26(1A) Retransmitted I-frames	
28(1C) Retransmitted I-frames (continued)		30(1E) Retransmitted bytes	
32(20) Retransmitted bytes (continued)		34(22) Total errors	
36(24) Total errors (continued)		38(26) Outbound queue length	
40(28) - 63(3F) Reserved for future network performance monitor (NPM) use			
64(40) Content flags*	65(41) Reserved		
68(44) Overflow flags 3*	69(45) Reserved		71(47) Overflow flags 4*
72(48) Total Receive Not Ready (RNR) frames sent			
76(4C) Total RNR frames received			

* Indicates a byte expansion follows.

80(50) Total Receive Ready (RR) frames sent
84(54) Total RR frames received

Byte Expansions

Offset/Field Name	Bit Pattern/ Hex Value	Contents
4(4)	X'03' X'04'	NEO program identifier NPSI XI
5(5)	X'03' X'0B'	NEO program resource type NPSI link XI link
6(6)	1... .. .1.. .. ..1. .. ...1 1.. .... .1.. .... ..0. .... ...1	Content flags I-frames sent I-frames received Bytes sent Bytes received Retransmitted I-frames Retransmitted bytes Total errors Outbound queue length
8(8)	x... .. .x.. .. ..x. .. ...x x.. .... .x.. .... ..0.	Overflow flags 1 I-frames sent I-frames received Bytes sent Bytes received Retransmitted I-frames Retransmitted bytes Total errors
9(9)	.... ...x	Overflow flags 2 Double overflow
64(40)	x... .. .x.. .. ..x. .. ...x ..	Content flags Total RNR frames sent Total RNR frames received Total RR frames sent Total RR frames received
68(44)	x... .. .x.. .. ..x. .. ...x ..	Overflow flags 3 Total RNR frames sent Total RNR frames received Total RR frames sent Total RR frames received
71(47)	.... ...x	Overflow flags 4 Total RNR frames sent

Resource Record Format for Resource Type = X.25 Packet

4(4) NEO program identifier*	5(5) NEO program resource type*	6(6) Content flags*	7(7) Reserved
8(8) Overflow flags 1*	9(9) Overflow flags 2*	10(A) I-frames sent	
12(C) I-frames sent (continued)		14(E) I-frames received	
16(10) I-frames received (continued)		18(12) Bytes sent	
20(14) Bytes sent (continued)		22(16) Bytes received	
24(18) Bytes received (continued)		26(1A) Retransmitted I-frames	
28(1C) Retransmitted I-frames (continued)		30(1E) Retransmitted bytes	
32(20) Retransmitted bytes (continued)		34(22) Total errors	
36(24) Total errors (continued)		38(26) Outbound queue length	
40(28) - 63(3F) Reserved for future network performance monitor (NPM) use			
64(40) Content flags 1*	65(41) Content flags 2*	66(42) Reserved	
68(44) Overflow flags 3*	69(45) Overflow flags 4*	70(46) Reserved	71(47) Overflow flags 5*

* Indicates a byte expansion follows.

72(48) Current number of virtual circuits (VCs) established	74(4A) New VCs established during this interval
76(4C) Total data packets sent	
80(50) Total data packets received	
84(54) Total Receive Not Ready (RNR) packets sent	
88(58) Total RNR packets received	
92(5C) Total number of outbound connections (Call requests)	
96(60) Total number of inbound connections (Incoming calls)	
100(64) Total number of outbound disconnections (Clear requests)	
104(68) Total number of inbound disconnections (Clear indications)	
108(6C) Total number of INN-SHM connections	

Byte Expansions

Offset/Field Name	Bit Pattern/ Hex Value	Contents
4(4)	X'03'	NEO program identifier
	X'04'	NPSI
	X'04'	XI
5(5)	X'05'	NEO program resource type
	X'05'	NX25PU (NPSI)
	X'04'	XX25PU (XI)
6(6)	1... ..	Content flags
	.1... ..	I-frames sent
	..1... ..	I-frames received
	...1... ..	Bytes sent
	....1... ..	Bytes received
	.... .1... ..	Retransmitted I-frames
	.... .1.. ..	Retransmitted bytes
	.... ..0. ..	Total errors
.... ...1 ..	Outbound queue length	

Offset/Field Name	Bit Pattern/ Hex Value	Contents
8(8)	x... .. .x.. .. ..x. .. ...x x.. .... .x.. .... ..0.	Overflow flags 1 I-frames sent I-frames received Bytes sent Bytes received Retransmitted I-frames Retransmitted bytes Total errors
9(9)	.... ..x	Overflow flags 2 Double overflow
64(40)	x... .. .x.. .. ..x. .. ...x x.. .... .x.. .... ..x. .... ..x	Content flags Total data packets sent Total data packets received Total RNR packets sent Total RNR packets received Current number of VCs New VCs this interval Inbound connections Outbound connections
65(41)	x... .. .x.. .. ..x. ..	Content flags Inbound disconnections Outbound disconnections INN-SHM reconnections
68(44)	x... .. .x.. .. ..x. .. ...x x.. .... .x.. .... ..x. .... ..x	Overflow flags 3 Data packets sent Data packets received RNR packets sent RNR packets received Outbound connections Inbound connections Outbound disconnections Inbound disconnections
69(45)	x... ..	Overflow flags 4 INN-SHM reconnections
71(47)	.... ..x	Overflow flags 5 Double overflow

Resource Record Format for Resource Type = X.25 VC

4(4) NEO program identifier*	5(5) NEO program resource type*	6(6) Content flags*	7(7) Reserved
8(8) Overflow flags 1*	9(9) Overflow flags 2*	10(A) I-frames sent	
12(C) I-frames sent (continued)		14(E) I-frames received	
16(10) I-frames received (continued)		18(12) Bytes sent	
20(14) Bytes sent (continued)		22(16) Bytes received	
24(18) Bytes received (continued)		26(1A) Retransmitted I-frames	
28(1C) Retransmitted I-frames (continued)		30(1E) Retransmitted bytes	
32(20) Retransmitted bytes (continued)		34(22) Total errors	
36(24) Total errors (continued)		38(26) Outbound queue length	
40(28) - 63(3F) Reserved for future network performance monitor (NPM) use			
64(40) Content flags 1*	65(41) Reserved		
68(44) Overflow flags 3*	69(45) Reserved		71(47) Overflow flags 4*
72(48) Total data packets sent			

* Indicates a byte expansion follows.

76(4C)	Total data packets received
80(50)	Total data packets sent with D-bit on
84(54)	Total data packets sent with M-bit on
88(58)	Total data packets sent with M-bit on
92(5C)	Total data packets received with M-bit on

Byte Expansions

Offset/Field Name	Bit Pattern/ Hex Value	Contents
4(4)	X'03'	NEO program identifier NEO X.25 NPSI
5(5)	X'06'	NEO program resource type X25VC (NPSI)
6(6)	1... .... .1... .... ..1. .... ...1 1... .... .1.. .... ..0. .... ...1	Content flags I-frames sent I-frames received Bytes sent Bytes received Retransmitted I-frames Retransmitted bytes Total errors Outbound queue length
8(8)	x... .... .x... .... ..x. .... ...x x... .... .x.. .... ..0.	Overflow flags 1 I-frames sent I-frames received Bytes sent Bytes received Retransmitted I-frames Retransmitted bytes Total errors
9(9)	.... ...x	Overflow flags 2 Double overflow
64(40)	x... .... .x... .... ..x. .... ...x x... .... .x..	Content flags Total data packets sent Total data packets received Packets sent with D-bit on Packets received with D-bit on Packets sent with M-bit on Packets received with M-bit on

Offset/Field Name	Bit Pattern/ Hex Value	Contents
68(44)		Overflow flags 3
	x...	Total data packets sent
	.x..	Total data packets received
	..x.	Packets sent with D-bit on
	...x	Packets received with D-bit on
	.... x...	Packets sent with M-bit on
	.... .x..	Packets received with M-bit on
71(47)		Overflow flags 4
	.... ...x	Double overflow

Resource Record Format for Resource Type = Generic Link or PU

4(4) NEO program identifier*	5(5) NEO program resource type*	6(6) Content flags*	7(7) Reserved
8(8) Overflow flags 1*	9(9) Overflow flags 2*	10(A) I-frames sent	
12(C) I-frames sent (continued)		14(E) I-frames received	
16(10) I-frames received (continued)		18(12) Bytes sent	
20(14) Bytes sent (continued)		22(16) Bytes received	
24(18) Bytes received (continued)		26(1A) Retransmitted I-frames	
28(1C) Retransmitted I-frames (continued)		30(1E) Retransmitted bytes	
32(20) Retransmitted bytes (continued)		34(22) Total errors	
36(24) Total errors (continued)		38(26) Outbound queue length	
40(28) - 63(3F) Reserved for future network performance monitor (NPM) use			
64(40) - 244(F4) Generic link or PU unique data			

* Indicates a byte expansion follows.

Byte Expansions

Offset/Field Name	Bit Pattern/ Hex Value	Contents
4(4)	X'01'	NEO program identifier NEO
5(5)	X'07' X'08'	NEO program resource type NEO PU NEO link

Offset/Field Name	Bit Pattern/ Hex Value	Contents
6(6)		Content flags
	1...	I-frames sent
	.1..	I-frames received
	..1.	Bytes sent
	...1	Bytes received
	.... 1...	Retransmitted I-frames
	.... .1..	Retransmitted bytes
	.... ..0.	Total errors
	.... ...1	Outbound queue length
8(8)		Overflow flags 1
	x...	I-frames sent
	.x..	I-frames received
	..x.	Bytes sent
	...x	Bytes received
	.... x...	Retransmitted I-frames
	.... .x..	Retransmitted bytes
.... ..0.	Total errors	
9(9)		Overflow flags 2
	.... ...x	Double overflow

Control Block Pool/Table Data RU

Note: There is a dependency that RUCBDTOD, RUCBDQID, RUCBDFG1, and RUCBDTIM in the control block pool/table data RU have the same meaning and are at the same offsets as the corresponding fields in an NPM COLLECT network data RU.

Request Format

		55(37) RUCBDCMD Control block pool/table data command code X'19'
56(38) RUCBDTOD Time-of-day clock value (from the FORWARD network data RU)		
60(3C) RUCBDQID Number of the highest interval the queue FORWARDED	61(3D) RUCBDFG1* Flags	62(3E) RUCBDTIM NCP timer value (in tenth of a second increments)
64(40) RUCBDTIM NCP timer value (continued)		66(42) RUCBDCVC Count (m) of the number of control vectors in this RU
68(44) - n 'm' control block pool/table data control vectors (X'54') (m could be zero)		

* Indicates a byte expansion follows.

Byte Expansions

Offset/Field Name	Bit Pattern/ Hex Value	Contents
61(3D) RUCBDFG1	xxxx xx.. .... ..1. .... ..1	Flags Reserved NCP has entered slowdown; discontinued processing of the FORWARD request - not used (RUCBDL) (RUCBDLS)

X'46' NPM RNAA Control Vector

0(0) RURFMKY Control vector key X'46'	1(1) RURFML Control vector length	2(2) RURFMCVF* Resource/control vector type	3(3) RURFMREA Resource element address (PU/LU)
4(4) Resource element address (continued)	5(5) RURFMIQF* Interval queue flags		7(7) RURFMTEA Target resource element address (link/PU)
8(8) Target resource element address (continued)	9(9) RURFMRNL Resource name length	10(A) - n RURFMRNB Resource name (if available) (variable length up to 8 bytes)	

* Indicates a byte expansion follows.

Byte Expansions

Offset/Field Name	Bit Pattern/ Hex Value	Contents
2(2) RURFMCVF		Resource/control vector type
	xx..	Reserved
	..1.	Resource is a PU
	...1	Resource is an LU
	.... 1...	1 = RNAA is a move 0 = RNAA is an add
	.... .1..	Resource uses extended format COLLECTs
	.... ..xx	Reserved
5(5) RURFMIQF		Interval queue flags
	Byte 0	
	xxxx xx..	Reserved
	.... ..1.	Queue 10
	.... ...1	Queue 9
	Byte 1	
	1...	Queue 8
	.1..	Queue 7
	..1.	Queue 6
	...1	Queue 5
	.... 1...	Queue 4
	.... .1..	Queue 3
	.... ..1.	Queue 2
	.... ...1	Queue 1

X'47' NPM FNA Control Vector

0(0) RURFMKY Control vector key X'47'	1(1) RURFML Control vector length	2(2) RURFMCVF* Resource/control vector type	3(3) RURFMREA Resource element address (PU/LU)
4(4) Resource element address (continued)			

* Indicates a byte expansion follows.

Byte Expansions

Offset/Field Name	Bit Pattern/ Hex Value	Contents
2(2) RURFMCVF		Resource/control vector type
	xx.. xxxx	Reserved
	..1.	Resource freed is a PU
	...1	Resource is an LU

X'48' NSC Performance Control Vector

0(0) Control vector identifier X'48'	1(1) Control vector length	2(2) Number of gateway sessions being accounted for
4(4) Number of session accounting control blocks currently in the NCP (includes genenned and dynamic ones)	6(6) Number of session accounting control blocks in use	
8(8) Number of primary LU sessions being accounted for (BF)	10(A) Number of secondary LU sessions being accounted for (BF)	
12(C) Number of delayed records	14(E) Number of sessions not being accounted for (BF and GW)	
16(10) Number of session accounting block extensions currently in the NCP (includes genenned and dynamic ones)	18(12) Number of session accounting block extensions in use	

X'49' NPA Information Control Vector

0(0) Control vector key X'49'	1(1) Control vector length	2(2) Indicators*	3(3) Network performance capable SPLUs mask
4(4) BF session accounting capable SPLUs mask	5(5) Dynamic reconfiguration (DR) SPLUs mask	6(6) PIU threshold count for boundary function (BF) accounting	
8(8) Byte threshold count for BF accounting			
12(C) - 19(13) Name of the session partner LU of the first defined network performance analyzer (NPA) LU			
20(14) - 27(1B) Name of the session partner LU of the second defined NPA LU			
28(1C) - 35(23) Name of the session partner LU of the third defined NPA LU			
36(24) - 43(2B) Name of the session partner LU of the fourth defined NPA LU			
44(2C) - 51(33) Name of the session partner LU of the fifth defined NPA LU			
52(34) - 59(3B) Name of the session partner LU of the sixth defined NPA LU			
60(3C) - 67(43) Name of the session partner LU of the seventh defined NPA LU			
68(44) - 75(4B) Name of the session partner LU of the eighth defined NPA LU			
76(4C) PIU frequency range limit 1	78(4E) PIU frequency range limit 2		
80(50) PIU frequency range limit 3	82(52) PIU frequency range limit 4		
84(54) PIU frequency range limit 5	86(56) PIU frequency range limit 6		

* Indicates a byte expansion follows.

Note: PIU length frequency ranges in effect for BF session accounting.

Byte Expansion

Offset/Field Name	Bit Pattern	Contents
2(2)	xx..	Indicators Sessions eligible for accounting 00 = Defer (none) 10 = Secondary LU 01 = Primary LU 11 = ALL
	..1.	Session accounting is enabled.
	...1	Session accounting is included.
	.... 1...	DR notification is included.
	.... .1..	PIU frequency ranges are supported .
	.... ..1.	NCP included gateway session accounting support.
	.... ...X	Reserved

X'50' Session Accounting Data Control Vector

0(0) RUSAID Control vector identifier X'50'	1(1) RUSA50L Control vector length (CV52s, CV60s, and CV12s not included)	2(2) RUSA01* Overflow error indicator	3(3) RUSA50FG* Flags
4(4) RUSASQ Sequence number of the control vector		6(6) Reserved	
8(8) RUSALA Subarea address of the LU (BF) or subarea address of the secondary LU(SLU)/non-session originator (GW)			
12(C) RUSASP Subarea address of the SPLU (BF) or subarea address of the PLU session originator (GW)			
16(10) RUSAEAL Element address of the LU (BF) or element address of the SLU/ non-session originator (GW)		18(12) RUSAEAS Element address of the SPLU (BF) or element address of the PLU/ session originator (GW)	
20(14)-27(1B) RUSANID Network ID of the LU (BF) or network ID of the SLU/ non-session originator (GW)			

* Indicates a byte expansion follows.

Note: PIU length frequency ranges in effect for boundary function (BF) session accounting.

Bytes 28(1C) through 51(33) are included when the NPA session counters control block (NSC) is allocated to the boundary session block (BSB).

28(1C) RUSARTPC Received text PIU count	30(1E) RUSATTPC Transmitted text PIU count
32(20)	RUSARTBC Received text byte count
36(24)	RUSATTBC Transmitted text byte count
40(28) RUSARCPC Received control PIU count	42(2A) RUSATCPC Transmitted control PIU count
44(2c)	RUSSARCBC Received control byte count
48(30)	RUSSATCBC Transmitted control byte count
52(34) - 59(3B)	RUSAPNID Network ID of the SPLU (BF) or network ID of the PLU/ session originator (GW)
<p>60(3C) The following control vectors are conditionally present in the CV50. (Their lengths are not counted in the CV50 length.) See Section 20 for the layout of the CV '52'X. See Section 5 for the layouts of the CV '60'X CV X'0E', and the CV '12'X. Boundary Function (BF): (The following two vectors appear together or not at all.) CV '0E'X (Network Qualified LU Name) CV '0E'X (Network Qualified SPLU Name) CV '52'X (NPM PIU Distribution Counters) CV '60'X (Fully Qualified PCID). (The following vector is always present.) CV '51'X (Date-Time Control Vector)</p> <p>Gateway (GW): (The following two vectors appear together or not at all.) CV '0E'X (Network Qualified SLU Name) CV '0E'X (Network Qualified PLU Name) CV '52'X (NPM PIU Distribution Counters) CV '60'X (Fully Qualified PCID) (The following two vectors appear together or not at all.) CV '12'X (Network Identifier; adjacent network ID of the SLU) CV '12'X (Network Identifier; adjacent network ID of the PLU). (The following vector is always present.) CV '51'X (Date-Time Control Vector)</p>	

Byte Expansions

Offset/Field Name	Bit Pattern/ Hex Value	Contents
2(2) RUSA01		Overflow error indicator
	1... ..	Received text PIU count overflow field
	.1.. ..	Transmitted text PIU count overflow field
	..1.	Received text byte count overflow field
	...1	Transmitted text byte count overflow field
	.... 1..	Received control PIU count overflow field
	.... .1..	Transmitted control PIU count overflow field
	.... ..1.	Received control byte count overflow field
	.... ...1	Transmitted control byte count overflow field
3(3) RUSA50FG		Flags
	1... ..	Text and control counts are included.
	.1.. ..	Gateway session accounting data
	..1.	Extended control vector X'50' format (always on)
	...1	PIU length frequency counters are included (NPM-control vector X'52').
	.... 1..	Adjacent network identifiers are appended (control vector X'12's).
	.... .1..	PCID (control vector X'60') is appended.
	.... ..1.	Network names are appended (control vector X'0E's).
	.... ...x	Reserved

X'51' NPM Date-Time Control Vector

0(0) CV identifier '51'X	1(1) Control vector length	2(2) Month packed (MM)	3(3) Day packed (DD)
4(4) Year packed (YY)	5(5) Julian date packed (ODDD)		7(7) Hour packed (HH)
8(8) Minute packed (MM)	9(9) Second packed (SS)		

X'52' PIU Distribution Counters Control Vector

0(0) CV identifier '52'X	1(1) Control vector length	2(2) Overflow flag 1*	3(3) Overflow flag 2*
4(4) Reserved		6(6) Received PIU frequency count number 1	
8(8) Received PIU frequency count number 2		10(A) Received PIU frequency count number 3	
12(C) Received PIU frequency count number 4		14(E) Received PIU frequency count number 5	
16(10) Received PIU frequency count number 6		18(12) Received PIUs greater than the maximum range count	
20(14) Transmitted PIU frequency count number 1		22(16) Transmitted PIU frequency count number 2	
24(18) Transmitted PIU frequency count number 3		26(1A) Transmitted PIU frequency count number 4	
28(1C) Transmitted PIU frequency count number 5		30(1E) Transmitted PIU frequency count number 6	
32(20) Transmitted PIUs greater than the maximum range count			

* Indicates a byte expansion follows.

Byte Expansions

Offset/Field Name	Bit Pattern	Contents
2(2)		Overflow flag 1
	1... ..	Received PIU frequency count 1 overflowed.
	.1.. ..	Received PIU frequency count 2 overflowed.
	..1. ..	Received PIU frequency count 3 overflowed.
	...1	Received PIU frequency count 4 overflowed.
	.... 1...	Received PIU frequency count 5 overflowed.
	.... .1..	Received PIU frequency count 6 overflowed.
	.... ..1.	Received PIUs greater than the maximum range count overflowed.
	.... ...X	Reserved

Offset/Field Name	Bit Pattern	Contents
3(3)		Overflow flag 2
	1...	Transmitted PIU frequency count 1 overflowed.
	.1..	Transmitted PIU frequency count 2 overflowed.
	..1.	Transmitted PIU frequency count 3 overflowed.
	...1	Transmitted PIU frequency count 4 overflowed.
	.... 1...	Transmitted PIU frequency count 5 overflowed.
	.... .1..	Transmitted PIU frequency count 6 overflowed.
	.... ..1.	Transmitted PIUs greater than the maximum range count overflowed.
	.... ...X	Reserved

X'53' Gateway Session Accounting Parameters Control Vector

0(0) CV identifier '53'X	1(1) Control vector length	2(2) Status*	3(3) Gateway session accounting capable SPLUS mask
4(4) Byte threshold value			
8(8) PIU threshold value		10(A) Range limit 1	
12(C) Range limit 2		14(E) Range limit 3	
16(10) Range limit 4		18(12) Range limit 5	
20(14) Range limit 6			

* Indicates a byte expansion follows.

Byte Expansion

Offset/Field Name	Bit Pattern	Contents
2(2)		Status
	1...	Gateway session accounting is active.
	.1..	Sending of gateway session accounting data is enabled.
	..xx xxxx	Reserved

X'54' NPA Control Block Pool/Table Data Control Vector

Note: As noted in the layout, the values in some of the fields have slightly different meanings for the buffer pool than for the other pools.

Note: The total number of genned control blocks/entries is the sum of the permanently assigned control blocks/entries plus the initial number of free ones plus the initial number of in-use ones.

Note: The initial total number of control blocks/entries that belong to the pool of control blocks/entries is the sum of the initial number of free ones plus the initial number of in-use ones. The permanently assigned control blocks/entries are not considered to belong to the pool.

0(0) RU54ID Control vector key X'54'	1(1) RU54L Control vector length	2(2) RU54CBID* Control block pool/table identifier
4(4) - 11(B) R54NETID Network identifier (left-justified, padded with blanks) The NETID of the network the pool/table belongs in or the NETID of the native network if the pool/table does not belong to a particular network.		
12(C) RU54FLAG* Flags	13(D) RU54RSV1 Reserved	
16(10) R54USINT Initial number of in-use control blocks/entries		
20(14) R54FRINT Initial number of free control blocks/entries		
24(18) R54USMXI Maximum number of in-use control blocks/entries since NCP was last initialized For the Buffer pool; this field contains the approximate maximum detected during NPM CCU/NCP data collection.		
28(1C) R54DCBBF Number of buffers from the buffer pool currently being used for this type of control block For the Buffer pool; this field contains the total number of buffers currently being used for control blocks and table entries.		
32(20) R54USMAX Maximum number of in-use control blocks/entries during this interval (only approximate for the buffer pool)		
36(24) R54USCUR Number of control blocks/entries currently in-use		
40(28) R54USMIN Minimum number of in-use control blocks/entries during this interval (only approximate for the buffer pool)		
44(2C) R54IUBCT Maximum number of free control blocks/entries in the unreserved pool/table during this interval. (only approximate for the buffer pool)		
48(30) R54UCBCT Number of free control blocks/entries currently in the unreserved pool/table.		
52(34) R54UBMIN Minimum number of free control blocks/entries in the unreserved pool/table during this interval. (only approximate for the buffer pool)		

* Indicates a byte expansion follows.

56(38)	R54IRBCT Maximum number of free control blocks/entries in the reserved pool/table during this interval.
60(3C)	R54RCBCT Number of free control blocks/entries currently in the reserved pool/table.
64(40)	R54RBMIN Minimum number of free control blocks/entries in the reserved pool/table during this interval.
68(44)	R54DCBMX Maximum number of control blocks/entries from the buffer pool during this interval. For the buffer pool; this field contains the maximum number of buffers being used for control blocks and table entries during this interval.
72(48)	R54DCBCU Number of in-use control blocks/entries currently from the buffer pool. For the buffer pool; this field contains the total number of buffers currently being used for control blocks and table entries (i.e. the same value as contained in R54DCBBF).
76(4C)	R54DCBMN Minimum number of control blocks/entries from the buffer pool during this interval. For the buffer pool; this field contains the minimum number of buffers being used for control blocks and table entries during this interval.
80(50)	R54NPDEF Number of permanently assigned control blocks/entries from the gen. Note these control blocks/entries are never included in any of the other GPA counts.

Byte Expansion

Offset/Field Name	Bit Pattern/ Hex Value	Contents
2(2)-3(3) RU54CBID		Flags (same values as used for GPACBID)
	X'0000'	Buffer Pool, one per NCP Associated generation parameter: Not applicable
	X'0001'	BSB pool (for independent LUs), one per NCP Associated generation parameter: ADDSESS on BUILD
	X'0002'	CUB pool (PU DR pool), one per NCP Associated generation parameter: NUMBER on PUDRPOOL
	X'0003'	Flow control parameter table (FCT), one per NCP Associated generation parameter: VRPOOL on BUILD
	X'0004'	Token-ring LLB pool, one per NCP Associated generation parameter: AUTOGEN on GROUP
	X'0005'	LNB pool (for independent LUs), one per NCP Associated generation parameter: AUXADDR on BUILD
	X'0006'	LND/LNB pool (for dependent LUs), one per NCP Associated generation parameter: NUMTYP1/NUMTYP2 on LUDRPOOL
	X'0007'	LTX pool, one per NCP Associated generation parameter: NUMTYP1 on LUDRPOOL
	X'0008'	LUB pool (LU DR pool), one per NCP Associated generation parameter: NUMILU/NUMTYP1/NUMTYP2 on LUDRPOOL
	X'0009'	LUX pool, one per NCP Associated generation parameter: BACKUP on BUILD

Offset/Field Name	Bit Pattern/ Hex Value	Contents
	X'000A'	SNI NLB/NIB pair pool(GWNAUs), one per network Associated generation parameter: NUMADDR on GWNAU
	X'000B'	NIX/NLX pair pool(HSB pool), one per NCP Associated generation parameter: HSBPOOL on BUILD
	X'000C'	Network Names Table(NNT), one per NCP Associated generation parameter: NAMTAB on BUILD
	X'000D'	NQE pool, one per NCP Associated generation parameter: MAXCOLL on NPA LU
	X'000E'	NQX pool, one per NCP Associated generation parameter: MAXTP on NPA LU
	X'000F'	NSB pool, one per NCP Associated generation parameter: FRSEDRPU on PUDRPOOL
	X'0010'	NSC pool, one per NCP Associated generation parameter: GWSESAC/SESSACC on BUILD
	X'0011'	NSX pool, one per NCP Associated generation parameter: GWSESAC/SESSACC on BUILD
	X'0012'	Network Vector Table(NVT), one per NCP Associated generation parameter: COPIES on NETWORK
	X'0013'	ODLC LAN Logical Resources pool, one per NCP Associated generation parameter: AUTOGEN on GROUP
	X'0014'	Free RVT entry pool, one per NCP Associated generation parameter: Not applicable
	X'0015'	TGB pool, one per network Associated generation parameter: TGBXTRA on BUILD and NETWORK
	X'0016'	Transit Routing Table(TRT) entry pool, one per network Associated generation parameter: PATHEXT on BUILD and NETWORK
	X'0017'	Virtual Route Status Table(VST)/Virtual Route Access Table(VAT), one per NCP Associated generation parameter: NUMHSAS on BUILD and NETWORK
	X'0018'	Vector Table of SNPs(VTS) (SNP pool), one per NCP. Associated generation parameter: MAXSSCP on BUILD
	X'0019'	Virtual Route Vector Table(VVT) (VRB pool), one per NCP. Associated generation parameter: VRPOOL on BUILD
	X'001A'	Frame Relay LLB pool, one per NCP Associated generation parameter: AUTOGEN on GROUP
	X'0028'	HRE pool, one per NCP Associated generation parameter: NUMROUTE on IPOWNER
	X'0029'	SRE pool, one per NCP Associated generation parameter: NUMROUTE on IPOWNER
	X'002A'	NRE pool, one per NCP Associated generation parameter: NUMROUTE on IPOWNER
12(C) RU54FLAG		Flags
	1... .. .xxx xxxx	Pool/table supports dynamic creation of control blocks (RU54DYN) Reserved

Enable Send Session Accounting RU

55(37) RUENACMD Request code X'51'	56(38) RUENADI* Enable accounting indicators
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* Indicates a byte expansion follows.

Byte Expansion

Offset/Field Name	Bit Pattern	Contents
56(38) RUENADI		Enable accounting indicators
	x... ..	Enable boundary function session accounting
	.x... ..	Enable gateway session accounting
	..xx xxxx	Reserved

Disable Send Session Accounting RU

55(37) RUDISCMD Request code X'52'	56(38) RUDISDI* Disable accounting indicators
---	--

* Indicates a byte expansion follows.

Byte Expansion

Offset/Field Name	Bit Pattern	Contents
56(38) RUDISDI		Disable accounting indicators
	x... ..	Disable boundary function session accounting
	.x... ..	Disable gateway session accounting
	..xx xxxx	Reserved

Change Accounting Parameters RU

Request Format

		55(37) RUCHACMD Request code X'53'
56(38) RUCHAFG* Change parameter indicators	57(39) RUCHCVN Number of control vectors	58(3A) RUCHAPTH PIU threshold count
60(3C) RUCHABTH Byte threshold count		
64(40) RUCHPF1 First PIU length frequency range	66(42) RUCHPF2 Second PIU length frequency range	
68(44) RUCHPF3 Third PIU length frequency range	70(46) RUCHPF4 Fourth PIU length frequency range	
72(48) RUCHPF5 Fifth PIU length frequency range	74(4A) RUCHPF6 Sixth PIU length frequency range	
76(4C) Reserved		
84(54) - n User Accounting Threshold control vector (CV90 - CV9F) (Conditionally present - possibly multiple control vectors, most possible is based on number of routines coded on UACCTNG keyword)		

* Indicates a byte expansion follows.

Byte Expansion

Offset/Field Name	Bit Pattern	Contents
56(38) RUCHAFG		Change parameter indicators
	xx... ..	If bit 7=1, bits 0 through 1 are as follows: 1... .. Change gateway session accounting state to active. 0... .. Change gateway session accounting state to inactive. .x... .. Reserved.
		If bit 7=0, bits 0 through 1 indicate which sessions are eligible for accounting as follows: 00 = None 10 = Secondary LU 01 = Primary LU 11 = ALL.
	..1.	Change byte threshold value.
	...1	Change PIU threshold value.

Offset/Field Name	Bit Pattern	Contents
	.... 1...	Change PIU length frequency ranges.
	.... .xx.	Reserved
	.... ...x	Session accounting function: 0 = Change boundary function session accounting parameters. 1 = Change gateway session accounting parameters.

X'90' NPSI Session Accounting Parameters Control Vector

0(0) Control vector key X'90'	1(1) Control vector length	2(2) UACCTNG index	3(3) Reserved
4(4) NPSI segment threshold			
8(8) NPSI byte threshold			

X'91' XI Session Accounting Parameters Control Vector

0(0) Control vector key X'91'	1(1) Control vector length	2(2) UACCTNG index	3(3) Reserved
4(4) XI segment threshold			
8(8) XI byte threshold			

X'92' NEO Session Accounting Parameters Control Vector

0(0) Control vector key X'92'	1(1) Control vector length	2(2) UACCTNG index	3(3) Reserved
4(4) PDU threshold			
8(8) OCTET threshold			

Account Data RU

Request Format

		55(37) RUSADCMD Request code X'54'
56(38) RUSADCVN Number of control vectors	57(39) Reserved	
60(3C) RUSADPSQ RU sequence number		
<p>64(40) - n See control vector X'50' (Session Accounting Data) earlier in this section. Note: There may be multiple CV50s. The following control vectors may be present in each CV50. (Their lengths are not included in the CV50 length.) Boundary Function (BF): (The following two vectors appear together or not at all.) CV '0E'X (Network Qualified LU Name) CV '0E'X (Network Qualified SPLU Name)</p> <p>CV'52'X (NPM.PIU Distribution Counters) CV'60'X (Fully Qualified PCID)</p> <p>(The following vector is always present.) CV '51'X (Date-Time Control Vector)</p> <p>Gateway (GW): (The following two vectors appear together or not at all.) CV '0E'X (Network Qualified SLU Name) CV '0E'X (Network Qualified PLU Name)</p> <p>CV'52'X (NPM PIU Distribution Counters) CV'60'X (Fully Qualified PCID) (The following two vectors appear together or not at all.) CV'12'X (Network Identifier; adjacent network ID of the SLU) CV'12'X (Network Identifier; adjacent network ID of the PLU)</p> <p>(The following vector is always present.) CV '51'X (Date-Time Control Vector)</p> <p>User accounting: The following control vectors may be present: CV80 - CV8F</p>		

X'80' Correlation Control Vector

0(0) Control vector key X'80'	1(1) Control vector length	2(2) Content flags*	3(3) Reserved
4(4) Subarea address of the logical unit (LU)			
8(8) Subarea address of the session partner logical unit (SPLU)			
12(C) Element address of the LU		14(E) Element address of the SPLU	
16(10) - 23(17) Network ID of the LU			
24(18) - 31(1F) Network ID of the SPLU			
32(20) - 39(27) Procedure correlation identifier (PCID)			

* Indicates a byte expansion follows.

Byte Expansion

Offset/Field Name	Bit Pattern/ Hex Value	Contents
2(2)		Content flags
	1... ..	Subarea of the LU
	.1..	Subarea of the SPLU
	..1.	Element of the LU
	...1	Element of the SPLU
	.... 1...	Network ID of the LU
	.... .1..	Network ID of the SPLU
	.... ..1.	PCID
	.... ...x	Reserved

X'81' NPSI/XI Accounting Data Control Vector

0(0) Control vector key X'81'	1(1) Control vector length	2(2) Content flag 1*	3(3) Content flag 2*
4(4) Content flag 3*	5(5) Content flag 4*	6(6) Overflow flag*	7(7) Reserved
8(8) Reserved	9(9) Product ID*	10(A) Sequence number	
12(C) Logical channel number		14(E) - 22(16) Called data terminal equipment (DTE) address	
		23(17) - 31(1F) Calling DTE address	
32(20) - 51(33) Time stamp (mm/dd/yy/hh/mn/ss)			
52(34) - 60(3C) Local access address to extension net			
		61(3D) - 81(51) Called DTE address extension	
		82(52) - 102(66) Calling DTE address extension	
		103(67) - 111(6F) XI component charged	
112(70) NPSI logical link control (LLC)*	113(71) Clearing cause byte	114(72) Throughout classes (in/out)	115(73) Bilateral CUG selection facilities
116(74) Bilateral CUG selection facilities (continued)	117(75) Reporting type	118(76) Local access attributes	119(77) Facilities*

* Indicates a byte expansion follows.

120(78)	Window sizes (in/out)	122(7A)	Transit delay
124(7C) - 139(8B) Call user data field			
140(8C) Number of segments inbound			
144(90) Number of segments outbound			
148(94) Number of bytes sent			
152(98) Number of bytes received			
156(9C)	Number of DTE originated reset packets	158(9E)	Number of DTE originated interrupt packets
160(A0)	Clear diagnostic code		

Byte Expansions

Offset/Field Name	Bit Pattern/ Hex Value	Contents
2(2)	1...	Content flags 1
	.1..	Logical channel number
	..1.	Called DTE address
	...1	Calling DTE address
	.... 1..	Time stamp
	.... .1..	Local access address
	.... ..1.	Called DTE address extension
	.... ...1	Calling DTE address extension
3(3)	1...	Component charged
	.1..	Content flags 2
	..1.	NPSI LLC type
	...1	Clearing cause type
	.... 1..	DTE throughput classes
	.... .1..	Bilateral CUG selection facility
	.... ..1.	Report type
	.... ...1	Local access attributes
4(4)	1...	Facilities byte
	.1..	Window sizes (in/out)
	..1.	Content flags 3
	...x xxxx	Transit delay
	.... ....	Call user data field
....	Clear diagnostic code	
....	Reserved	

Offset/Field Name	Bit Pattern/Hex Value	Contents
5(5)		Content flags 4
	1... ..	Inbound segments
	.1.. ..	Outbound segments
	..1. ..	Bytes sent
	...1 ..	Bytes received
	.... 1..	Reset packets
	.... .1..	Interrupt packets
.... ..xx	Reserved	
6(6)		Overflow flags
	1... ..	Inbound text segment count
	.1.. ..	Outbound text segment count
	..1.	Bytes sent
	...1	Bytes received
	.... 1..	Total number of reset packets
	.... .1..	Total number of interrupt packets
.... ..xx	Reserved	
9(9)		Product ID
	X'01'	NPSI
	X'02'	XI
112(70)		X.25 NPSI LLC description
	X'00'	PCNE
	X'01'	PSH
	X'02'	QLLC BNN
	X'03'	QLLC INN
	X'04'	GATE
	X'05'	Integrated pad
	X'06'	Transparent pad
	X'10'	PCNE under date
	X'11'	PSH under date
	X'12'	QLLC BNN under date
	X'15'	Integrated pad under date
	X'16'	Transparent pad under date
	X'24'	Gate fast connect
119(77)		Facilities
	00..	No fast select
	01..	No fast select
	10..	Fast select with no restriction on response
	..xx xxxx	Reserved

X'82' NEO Accounting Data Control Vector

0(0) Control vector key X'82'	1(1) Control vector length	2(2) Content flags*	3(3) Reserved
4(4) Reserved		6(6) Overflow flags*	7(7) Reserved
8(8) Reserved		10(A) Sequence number	
12(C) Reserved		14(E) Received text PDU count	
16(10) Transmitted text PDU count		18(12) Received text OCTET count	
20(14) Received text OCTET count (continued)		22(16) Transmitted text OCTET count	
24(18) Transmitted text OCTET count (continued)		26(1A) Received control PDU count	
28(1C) Transmitted control PDU count		30(1E) Received control OCTET count	
32(20) Transmitted text OCTET count		34(22) Transmitted text OCTET count (continued)	
36(24) Transmitted text OCTET count (continued)			

* Indicates a byte expansion follows.

Byte Expansions

Offset/Field Name	Bit Pattern/ Hex Value	Contents
2(2)		Content flags
	1...	Received text PDU count
	.1..	Transmitted text PDU count
	..1.	Received text OCTET count
	...1	Transmitted text OCTET count
	.... 1...	Received control PDU count
	.... .1..	Transmitted control PDU count
	.... ..1.	Received control OCTET count
	.... ...1	Transmitted control OCTET count

Offset/Field Name	Bit Pattern/ Hex Value	Contents
6(6)		Overflow flags
	1...	Received text PDU count
	.1..	Transmitted text PDU count
	..1.	Received text OCTET count
	...1	Transmitted text OCTET count
	.... 1...	Received control PDU count
	.... .1..	Transmitted control PDU count
	.... ..1.	Received control OCTET count
	.... ...1	Transmitted control OCTET count

NPM Session Start RU

Request Format

		55(37) RUSSTCMD Request code X'55'
56(38) RUSSTCFG+ Session Start indicators	57(39) Reserved	
60(3C) RUSSTPSQ RU sequence number		
64(40) - k See control vector X'50' (Session Accounting Data) earlier in this section. The following control vectors are conditionally present in the CV50. (Their lengths are not included in the CV50 length). Boundary Function (BF): (The following two vectors appear together or not at all.) CV '0E'X (Network Qualified LU Name) CV '0E'X (Network Qualified SPLU Name) CV '52'X (NPM PIU Distribution Counters) CV '60'X (Fully Qualified PCID) (The following vector is always present.) CV '51'X (Date-Time Control Vector) Gateway (GW): (The following two vectors appear together or not at all.) CV '0E'X (Network Qualified SLU Name) CV '0E'X (Network Qualified PLU Name) CV '52'X (NPM PIU Distribution Counters) CV '60'X (Fully Qualified PCID) (The following two vectors appear together or not at all.) CV '12'X (Network Identifier; adjacent network ID of SLU) CV '12'X (Network Identifier; adjacent network ID of PLU) (The following vector is always present.) CV '51'X (Date-Time Control Vector)		
64(40) - m User Accounting Data control vector (CV80 - 8F (present for a user-generated RU)		
(L+1) - n Other conditionally present control vectors: (See Section 5 for layouts of the following) Boundary Function (BF): CV '0E'X (Network Qualified Link Station Name) CV '1A'X (NAU Address; Network Qualified Link) CV '1E'X (VR-ER Mapping Data) CV '23'X (Local Form Session Identifier) Gateway (GW): CV '1E'X (VR-ER Mapping Data) CV '0E'X (Network Qualified Alias SLU Name) CV '0E'X (Network Qualified Alias PLU Name)		

* Indicates a byte expansion follows.

Byte Expansion

Offset/Field Name	Bit Pattern	Contents
56(38) RUSSTCFG		Session Start indicators
	x... ..	Primary/secondary indicator: 1 = LU is primary for the session. 0 = LU is secondary for the session.
	.1..	Note: If bits 6–7 do not equal 00, then bit 0 will always be 0. Session Start was delayed.
	..1.	Resources are not available to collect data on the session.
	...x	Date-time accurate indicator: 0 = Date-time is the actual time that the session started. 1 = Date-time represents the time the session start record was created.
	.... xx..	Reserved
	.... ..xx	Session type indicator: 00 = Boundary LU-LU 01 = Gateway LU-LU 10 = Gateway SSCP-SSCP 11 = Gateway FID0. Note: If bits 6–7 do not equal 00, then bit 0 will always be 0.

NPM Session End RU

Request Format

		55(37) RUSENCMD Request code X'56'
56(38) RUSENFG* Session End indicators	57(39) Reserved	
60(3C) RUSENPSQ RU sequence number		
64(40) - m	<p>See control vector X'50' (Session Accounting Data) earlier in this section. The following control vectors are conditionally present in the CV50. (Their lengths are not included in the CV50 length.)</p> <p>Boundary Function (BF): (The following two vectors appear together or not at all.) CV '0E'X (Network Qualified LU Name) CV '0E'X (Network Qualified SPLU Name)</p> <p>CV '52'X (NPM PIU Distribution Counters) CV '60'X (Fully Qualified PCID)</p> <p>(The following vector is always present.) CV '51'X (Date-Time Control Vector)</p> <p>Gateway (GW): (The following two vectors appear together or not at all.) CV '0E'X (Network Qualified SLU Name) CV '0E'X (Network Qualified PLU Name)</p> <p>CV '52'X (NPM PIU Distribution Counters) CV '60'X (Fully Qualified PCID)</p> <p>(The following two vectors appear together or not at all.) CV '12'X (Network Identifier; adjacent network ID of SLU) CV '12'X (Network Identifier; adjacent network ID of PLU)</p> <p>(The following vector is always present.) CV '51'X (Date-Time Control Vector)</p>	
64(40) - k	User Accounting Data control vector (CV80 - 8F) (present for user-generated RU)	

* Indicates a byte expansion follows.

Byte Expansion

Offset/Field Name	Bit Pattern	Contents
56(38) RUSENFG		Session End indicators
	x... ..	Primary/secondary indicator: 1 = LU is primary for the session. 0 = LU is secondary for the session.
	.1..	Note: If a gateway session is indicated (bits 6–7 are not equal to 00), then bit 0 will always be 0. Session End was delayed.
	..1.	Resources are not available to collect data on the session.
	...x	Date-time accurate indicator: 0 = Date-time is the actual time the session ended. 1 = Date-time represents the time the session end record was created.
	.... xx..	Reserved
	.... ..xx	Session type indicator: 00 = Boundary LU-LU 01 = Gateway LU-LU 10 = Gateway SSCP-SSCP 11 = Gateway FID0. Note: If a gateway session is indicated (bits 6–7 are not equal to 00), then bit 0 will always be 0.

NPM Session Start/End RU

Request Format

		55(37) Request code 'X'62'	
56(38) Session indicators*	57(39) Number of control vectors	58(3A) Reserved	
60(3C) RUSSTPSQ RU sequence number			
64(40) User Accounting Data control vector (CV80 - 8F) (present for a NEO generated RU-possibly multiple)			

* Indicates a byte expansion follows.

Byte Expansion

Offset/Field Name	Bit Pattern	Contents
56(38)		Session indicators are identical to the Session End indicators except as follows:
	...x	Date time accurate indicator for Start Time
	.... x...	Date time accurate indicator for End Time
	.... .x..	Reserved

NPM RNAA/FNA RU

Request Format

	55(37) RURFMCMD Request code (RNAA/FNA) X'57'	56(38) RURFMSTB* Status byte
57(39) RURFMCVN Number of NPM DR control vectors	58(3A) One or more NPM DR control vectors. See control vector X'46' (NPM RNAA) earlier in this section or control vector X'47' (NPM FNA) earlier in this section	

* Indicates a byte expansion follows.

Byte Expansion

Offset/Field Name	Bit Pattern	Contents
56(38) RURFMSTB		Status byte
	x... ..	Dynamic reconfiguration (DR) history/notify indicator: 1 = PIU contains DR history. 0 = PIU contains DR notifies.
	.1... ..	End of DR history
	...x xxxx	Reserved

Solicit Session Counters RU

55(37) RUSOLCMD Request code X'58'	56(38) RUSOLDI* Solicit indicators
---	--

* Indicates a byte expansion follows.

Byte Expansion

Offset/Field Name	Bit Pattern	Contents
56(38) RUSOLDI		Solicit counters indicators
	x...	Send boundary function session accounting data.
	.X..	Send gateway session accounting data.
	..XX XXXX	Reserved

Report Session Accounting Parameters RU

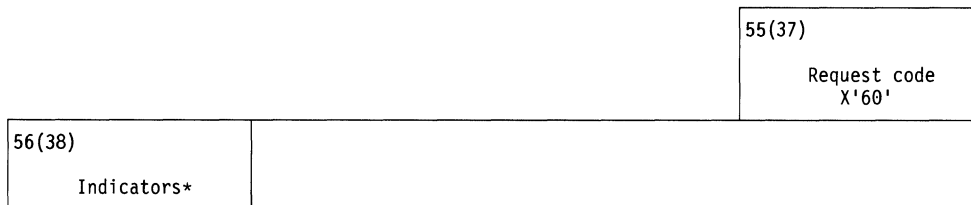
		55(37) Request code X'59'
56(38) Indicators*	57(39) Number of control vectors	58(3A) Reserved
60(3C) - 131(83) Session Accounting Status control vector (control vector X'49')		
(m+1) - n NSC Performance control vector (control vector X'49')		
(n+1) - o Gateway Session Accounting Information control vector (control vector X'53') (conditionally present)		
(o+1) - p User Accounting Parameters control vector (CV90 - 9F) conditionally present - possibly multiple control vectors, most possible is based on number of routines coded on UACCTNG keyword)		

* Indicates a byte expansion follows.

Byte Expansion

Offset/Field Name	Bit Pattern	Contents
56(38)	1...	Indicators
	.1..	NSC Performance control vector appended (control vector X'48')
	..xx xxxx	Gateway Session Accounting Information control vector (control vector X'53') appended
		Reserved

Query Session Accounting Parameters RU



* Indicates a byte expansion follows.

Byte Expansion

Offset/Field Name	Bit Pattern	Contents
56(38)		Indicators
	1...	Attach NSC Performance control vector (control vector X'48').
	.1..	Attach Gateway Session Accounting Information control vector (control vector X'53').
	..xx xxxx	Reserved

Takeover Notification RU

			55(37) Request code X'61'
56(38) Status*	57(39) Number of control vectors	58(3A) Reserved	
60(3C) - n NPA Information control vector (NPM-control vector X'49')			
(n+1) - p Gateway Session Accounting Information control vector (NPM-control vector X'53') (conditionally present)			
(p+1) - o User Accounting Parameters control vector (CV90 - 9F) (conditionally present - possibly multiple control vectors, most possible is based on number of routines coded on UACCTNG keyword)			

* Indicates a byte expansion follows.

Byte Expansion

Offset/Field Name	Bit Pattern	Contents
56(38)	1... .. .1... .. ..1. .... ...1 1... .... .1.. .... ..XX	Status Dynamic reconfiguration (DR) summary is forthcoming. Receiver is primary for session accounting data. Receiver is primary for and will receive DR notification. Receiver is primary for network performance data. Reset resource resolution table (RRT) to GENERATED NCP level. Receiver is primary for gateway session accounting data. Reserved

NCP Storage Format for the 3745

Section 18. NCP Storage Format for the 3745	18-1
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Section 18. NCP Storage Format for the 3745

000	010	50		
Branch to zero detector	Error PSA	Common Level-2 BSC and SS (CXDCG09)	CXFENTRY initialization code	
	800 Level-2 Router (CXDCG00)		1000 \$CCB	
\$SATLTCT state address tables and line type control tables				
Line trace support (CXDCG11)				
Level-2 SDLC code (CXDCG08)				
SS routines (CXDCG0A)				
Command decode routines				
Command initialization (CXDCG0C)				
Command end routines (CXDCG0D)				
\$LVL2 level-2 and level-3 control blocks				
64K boundary CXB64LMT				
\$LVL2E (extension of level-2 and level-3 control blocks)				
Level-3 SDLC code				
NCP modules				
Supervisor nucleus (CXDCG01)				
Supervisor services (CXDCG02)				
NCP modules				
Level-3 router (CXDRTR3)				
Channel routines (CXDCG06)				
CXDCG07				
Level-5 tables and control blocks				
(CXAL5SA)	CXFINITC initialization code		\$INIT	\$LVL5M \$LVL2EM \$CUVM \$QABM \$ECLHI
Buffer pool				
Control block pool				
MOSS/TSS workspace (last 4K x CDSMBSZ of installed storage)				
MOSS mailbox (last 2K of installed storage)				

Note: See the local storage map on the following page.

Format of the Local Storage Map

X'yyyy000'	Storage keys
X'yyyy800'	Local storage registers*
X'yyyyA00'	LSSD strings
X'yyyyB00'	IPL ports trace X'7FF'

Where yyyy = 400, 800, C00, or 1000 depending upon whether the controller storage size is 4, 8, 12, or 16 megabytes, respectively.

* See Table 18-1 for address values.

The local storage map is not displayable. It appears only at the end of a dump (with the exception of a dynamic dump).

Table 18-1 (Page 1 of 2). Dump and Register Addresses for the 3745

Dump Address	Register Address	Contents
yyyy800	00–07	General register group 0 (level 2)
yyyy820	08–0F	General register group 1 (level 3)
yyyy840	10–17	General register group 2 (level 4)
yyyy860	18–1F	General register group 3 (level 5)
yyyy880	20–27	General register group 4 (level 1)
yyyy8A0	28–2F	Invalid
yyyy8C0	30	Cycle steal address register—channel adapter position 5
yyyy8C4	31	Cycle steal address register—channel adapter position 6
yyyy8C8	32	Cycle steal address register—channel adapter position 7
yyyy8CC	33	Cycle steal address register—channel adapter position 8
yyyy8D0	34	Cycle steal address register—channel adapter position 13
yyyy8D4	35	Cycle steal address register—channel adapter position 14
yyyy8D8	36	Cycle steal address register—channel adapter position 15
yyyy8DC	37	Cycle steal address register—channel adapter position 16
yyyy8E0	38–3E	Reserved
yyyy8FC	3F	Cycle steal address register—all line adapters on IOC-1
yyyy900	40	Interrupt start address—level 1
yyyy904	41	Interrupt start address—level 2
yyyy908	42	Interrupt start address—level 3
yyyy90C	43	Interrupt start address—level 4
yyyy910	44	Byte operations base register
yyyy914	45	Halfword operations base register
yyyy918	46	Fullword operations base register
yyyy91C	47	CCU storage control register on ECC

Table 18-1 (Page 2 of 2). Dump and Register Addresses for the 3745

Dump Address	Register Address	Contents
yyyy920	48	IOH address substitution register
yyyy924	49–4F	Invalid—hardware registers
yyyy940	50–5F	Programmable registers
yyyy980	60	Cycle steal address register—channel adapter position 1
yyyy984	61	Cycle steal address register—channel adapter position 2
yyyy988	62	Cycle steal address register—channel adapter position 3
yyyy98C	63	Cycle steal address register—channel adapter position 4
yyyy990	64	Cycle steal address register—channel adapter position 9
yyyy994	65	Cycle steal address register—channel adapter position 10
yyyy998	66	Cycle steal address register—channel adapter position 11
yyyy99C	67	Cycle steal address register—channel adapter position 12
yyyy9A0	68–6E	Invalid—hardware registers
yyyy9BC	6F	Cycle steal address register—all line adapters on IOC-2
yyyy9C0	70	Invalid—hardware registers
yyyy9C4	71	Operator address and data entry register
yyyy9C8	72	Operator display and function selection control
yyyy9CC	73–7A	Invalid—hardware registers
yyyy9EC	7B	Branch trace address pointer
yyyy9F0	7C	Branch trace buffer count
yyyy9F4	7D–7F	Invalid—hardware registers

Warning: The values in the local storage registers 00 through 7F are those obtained by MOSS and are not necessarily the values that would be obtained if an Input instruction were executed for any given register. For details on local storage registers, see the *IBM 3745 Principles of Operation* manual.

		SP Key*	Read Only
0	Lower 2K of executable code	0	Yes
2K	Line vector table (LNVT)	2	No
8K	NCP code below 64K	0	No
CXALIGN1	Pre-assembled user code that must run key 0 below 64K (INCL2LO/ORDL2LO)	0	No
	NCP control blocks below 64K	2	No
CXALIGN2	NCP control blocks above 64K	2	No
	User key 0 code above 64K (INCL2HI/ORDL2HI)	0	No
CXALIGN3	NCP executable code above 64K	0	No
	User code that runs in key 1 (INCL0/ORDLO)	1	No
	User block handler routines	1	No
CXALIGN4	SRCL0 user control blocks	1	No
	User key 0 code (read-only) (KEY0INC/ORD0INC)	0	Yes
CXAL5SA	NCP read-only storage (not used)	0	Yes
	Level-5 save areas	7	No
CXFSTART	CXFINITC		
\$NEOMHI	NCP control block pools that can be above 4M	2	No
	User INCHI/ORDHI/SRCHI that can be 4M	1	No
\$BUFPOOL	Buffer pool	7	No
	Control block pools	2	No
UTILSTSZ	Installed but unused storage	2	Yes
	MOSS mailbox, line adapter workspace	2	No
TRUE SIZE			

* See Table 18-2.

Table 18-2. Store and Execute Keys for the 3745

Code Executing With key	Can Store Only in Storage with key	Can Execute Only in Storage with key	Violation Results in
0	0 through 7 (See note.)	0 (See note.)	Abend
1 through 7	Own Key or 7	1 through 7 (match)	Abend

Note: Any attempt to store or execute in read-only storage causes a level interrupt due to a storage protection exception.

NCP--Processor Parameter/Status Area Layouts

Section 19. NCP--Processor Parameter/Status Area Layouts	19-1
NDPSA - Activate	19-2
NDPSA - Connect Request	19-4
NDPSA - Connect Response	19-5
NDPSA - Deactivate Link	19-6
NDPSA - Deactivate SAP	19-8
NDPSA - Disconnect Request	19-10
NDPSA - Disconnect Response	19-12
NDPSA - Halt Line Force Deactivate	19-14
NDPSA - ID	19-16
NDPSA - Load/Dump Initialization Request	19-18
NDPSA - Load/Dump Initialization Response	19-19
NDPSA - Notify Station State Change	19-21
NDPSA - Notify Flow Control	19-23
NDPSA - Notify Takeover	19-25
NDPSA - Notify Call Response	19-26
NDPSA - NPA Start	19-28
NDPSA - NPA Stop	19-30
NDPSA - NPA Forward	19-32
NDPSA - PIU	19-34
NDPSA - RAS Start Link Level 2 Test	19-35
NDPSA - RAS End Link Level 2 Test	19-36
NDPSA - RAS LPDA2 Test	19-37
NDPSA - RAS Intensive Mode Start	19-38
NDPSA - RAS Intensive Mode Stop	19-39
NDPSA - RAS Start Wrap Test	19-41
NDPSA - RAS Stop Wrap Test	19-42
NDPSA - Receive Initial	19-43
NDPSA - Resource Definition Initial	19-45
NDPSA - Resource Definition Update	19-47
NDPSA - Resource Definition Modify	19-49
NDPSA - Station Delete	19-51
NDPSA - Stop Line	19-52
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Section 19. NCP--Processor Parameter/Status Area Layouts

The following layouts make it easier to determine the exact layout of each NDPSA. See Volume 1 Section 1, "Data Area Layouts," for the generic layout of all NDPSAs.

NDPSA - Activate

Program: NCP

Size in bytes: 32(20)

Function: To request that the designated link be enabled.

0(0)		NDPPSAP Chain pointer to next NDPSA	
4(4)	NDPCMD Activate X'01'	5(5)	NDPQUAL* Qualifier
			7(7)
		NDPFLAG1* Common NDPSA flags	NDPFLAG2*** Command-unique NDPSA flags
8(8)		NDPLLRIID Processor.LRID	
NDPSAP** Token-ring SAP for activate/deactivate SAP			
12(C)			
Reserved			
16(10)			
Reserved			
20(14)			
Reserved			
24(18)		26(1A)	
NDPSEQN Sequence counter		NDPRSVD Not transferred, Reserved	
28(1C)			
NDPNLRID NCP.LRID (Not transferred) (Used during NDP list cleanup processing to determine ODLC resource) (Pointer to LKE)			

* Indicates a byte expansion follows.

** NDPSAP is only valid when NDPQUAL = X'30'.

The only valid value is X'04'.

*** NDPFLAG2 is not defined for this NDPSA.

Byte Expansions

Offset/Field Name	Bit Pattern/ Hex Value	Contents
5(5) NDPQUAL		Qualifier
	X'10'	Enable
	X'20'	Dial
	X'30'	SAP
6(6) NDPFLAG1		Common NDPSA flags
	1...	Command is to the processor
	.x..	1 = Command is to a line 0 = Command is to a PU
	..1.	Station state field is valid
	.... ...x	Reserved for CLDP use

NDPSA - Connect Request

Program: NCP

Size in bytes: 32(20)

Function: To request a connection be established with the adjacent link station.

0(0)		NDPPSAP Chain pointer to next NDPSA	
4(4)	5(5)	6(6)	
NDPCMD Connect request X'02'	NDPQUAL X'00'	NDPFLAGS Flags	
		NDPFLAG1* Common NDPSA flags	7(7) NDPFLAG2*** Command-unique NDPSA flags
8(8)			
NDPLLRID Processor.LRID			
12(C)			
Reserved			
16(10)			
Reserved			
20(14)		22(16)	
NDPSTST Station state X'A141'		Reserved	
24(18)		26(1A)	
NDPSEQN Sequence counter		NDPRSVD Not transferred, Reserved	
28(1C)			
NDPNLRID NCP.LRID (Not transferred) (Used during NDP list cleanup processing to determine ODLC resource) (Pointer to SCE)			

* Indicates a byte expansion follows.

*** NDPFLAG2 is not defined for this NDPSA.

Byte Expansions

Offset/Field Name	Bit Pattern/ Hex Value	Contents
6(6) NDPFLAG1		Common NDPSA flags
	1...	Command is to the processor
	.x..	1 = Command is to a line 0 = Command is to a PU
	..1.	Station state field is valid
	.... ...x	Reserved for CLDP use

NDPSA - Connect Response

Program: NCP

Size in bytes: 32(20)

Function: To signal to the processor the acceptance of a mode setting command previously reported to NCP in a CONNECT INDICATE LDPSA.

0(0)		NDPDPSAP Chain pointer to next NDPSA	
4(4)	5(5)	6(6)	
NDPCMD Connect response X'03'	NDPQUAL X'00'	NDPFLAGS Flags	
		NDPFLAG1* Common NDPSA flags	7(7) NDPFLAG2*** Command-unique NDPSA flags
8(8)			
NDPLLRIID Processor.LRID			
12(C)			
Reserved			
16(10)			
Reserved			
20(14)		22(16)	
NDPSTST Station state X'A141'		Reserved	
24(18)		26(1A)	
NDPSEQN Sequence counter		NDPRSVD Not transferred, Reserved	
28(1C)			
NDPNLRID NCP.LRID (Not transferred) (Used during NDP list cleanup processing to determine ODLIC resource) (Pointer to SCE)			

* Indicates a byte expansion follows.

*** NDPFLAG2 is not defined for this NDPSA.

Byte Expansions

Offset/Field Name	Bit Pattern/ Hex Value	Contents
6(6) NDPFLAG1		Common NDPSA flags
	1...	Command is to the processor
	.x..	1 = Command is to a line 0 = Command is to a PU
	..1.	Station state field is valid
	.... ...x	Reserved for CLDP use

NDPSA - Deactivate Link

Program: NCP

Size in bytes: 32(20)

Function: To deactivate a link.

0(0)		NDPDPSAP Chain pointer to next NDPSA	
4(4)	NDPCMD Deactivate X'04'	5(5)	NDPQUAL Link X'00'
		6(6) NDPFLAGS Flags	
		NDPFLAG1* Common NDPSA flags	7(7) NDPFLAG2*** Command-unique NDPSA flags
8(8) NDPLLRIID Processor.LRID			
12(C) Reserved			
16(10) NDPNLRD NCP.LRID DMAed by the processor for the line being deactivated			
20(14)	NDPDERC* Reason code	21(15) Reserved	
24(18)	NDPSEQN Sequence counter	26(1A) NDPRSVD Not transferred, Reserved	
28(1C) NDPNLRID NCP.LRID (Not transferred) (Used during NDP list cleanup processing to determine ODLIC resource) (Pointer to LKE)			

* Indicates a byte expansion follows.

*** NDPFLAG2 is not defined for this NDPSA.

Byte Expansions

Offset/Field Name	Bit Pattern/ Hex Value	Contents
6(6) NDPFLAG1		Common NDPSA flags
	1...	Command is to the processor
	.x..	1 = Command is to a line 0 = Command is to a PU
	..1.	Station state field is valid
	.... ...x	Reserved for CLDP use

Offset/Field Name	Bit Pattern/ Hex Value	Contents
20(14) NDPDERC		Reason code
	X'00'	Destroy the towers associated with the designated link and its stations
	X'01'	Destroy the towers associated with the designated physical link and its stations
	X'02'	Destroy the towers for all of the logical links associated with the designated physical link but do not destroy the designated physical link

NDPSA - Deactivate SAP

Program: NCP

Size in bytes: 32(20)

Function: To deactivate a service access point (SAP).

0(0)		NDPDPSAP Chain pointer to next NDPSA	
4(4)	NDPCMD Deactivate X'04'	5(5)	NDPQUAL SAP X'10'
		6(6)	NDPFLAGS Flags
		NDPFLAG1* Common NDPSA flags	7(7) NDPFLAG2*** Command-unique NDPSA flags
8(8)			
NDPLLRID Processor.LRID			
NDPSAP** Token-ring SAP for activate/deactivate SAP			
12(C)			
Reserved			
16(10)			
NDPNLRD NCP.LRID DMAed by processor for the line being deactivated			
20(14)			
Reserved			
24(18)	NDPSEQN Sequence counter	26(1A)	NDPRSVD Not transferred, Reserved
28(1C)			
NDPNLRID NCP.LRID (Not transferred) (Used during NDP list cleanup processing to determine ODLC resource) (Pointer to LKE)			

* Indicates a byte expansion follows.

** The only valid value is X'04'.

*** NDPFLAG2 is not defined for this NDPSA.

Byte Expansions

Offset/Field Name	Bit Pattern/ Hex Value	Contents
6(6) NDPFLAG1		Common NDPSA flags
	1...	Command is to the processor
	.x..	1 = Command is to a line 0 = Command is to a PU
	..1.	Station state field is valid
	.... ...x	Reserved for CLDP use

NDPSA - Disconnect Request

Program: NCP

Size in bytes: 32(20)

Function: To request a disconnection from the adjacent link station.

0(0)		NDPDPSAP Chain pointer to next NDPSA	
4(4)	NDPCMD Disconnect request X'05'	5(5)	NDPQUAL X'00'
		6(6) NDPFLAGS Flags	
		NDPFLAG1* Common NDPSA flags	7(7) NDPFLAG2*** Command-unique NDPSA flags
8(8) NDPLLRIID Processor.LRID			
12(C) Reserved			
16(10) Reserved			
20(14) NDPSTST* Station state		22(16) Reserved	
24(18) NDPSEQN Sequence counter		26(1A) NDPRSVD Not transferred, Reserved	
28(1C) NDPNLRIID NCP.LRID (Not transferred) (Used during NDP list cleanup processing to determine ODLIC resource) (Pointer to SCE)			

* Indicates a byte expansion follows.

*** NDPFLAG2 is not defined for this NDPSA.

Byte Expansions

Offset/Field Name	Bit Pattern/ Hex Value	Contents
6(6) NDPFLAG1		Common NDPSA flags
	1...	Command is to the processor
	.x..	1 = Command is to a line 0 = Command is to a PU
	..1.	Station state field is valid
	.... ...x	Reserved for CLDP use
20(14) NDPSTST		Station state
	X'A181'	For a primary station
	X'A187'	For a secondary station

NDPSA - Disconnect Response

Program: NCP

Size in bytes: 32(20)

Function: To signal the processor the acceptance of a disconnect indication.

0(0)		NDPDPSPAP Chain pointer to next NDPSA	
4(4)	NDPCMD Disconnect response X'06'	5(5)	NDPQUAL X'00'
		6(6) NDPFLAGS Flags	
		NDPFLAG1* Common NDPSA flags	7(7) NDPFLAG2*** Command-unique NDPSA flags
8(8) NDPLLRIID Processor.LRID			
12(C) Reserved			
16(10) Reserved			
20(14) NDPSTST* Station state		22(16) Reserved	
24(18) NDPSEQN Sequence counter		26(1A) NDPRSVD Not transferred, Reserved	
28(1C) NDPNLRID NCP.LRID (Not transferred) (Used during NDP list cleanup processing to determine ODLC resource) (Pointer to SCE)			

* Indicates a byte expansion follows.

*** NDPFLAG2 is not defined for this NDPSA.

Byte Expansions

Offset/Field Name	Bit Pattern/ Hex Value	Contents
6(6) NDPFLAG1		Common NDPSA flags
	1... ..	Command is to the processor
	.x.. ..	1 = Command is to a line 0 = Command is to a PU
	..1. ..	Station state field is valid
	.... ..x	Reserved for CLDP use
20(14) NDPSTST		Station state
	X'A181'	For a secondary station in normal response mode
	X'A001'	For a secondary station already in disconnected mode

NDPSA - Halt Line Force Deactivate

Program: NCP

Size in bytes: 32(20)

Function: To inform the processor to stop operation on the line resource indicated and to HALT like a permanent line error.

0(0)		NDPPSAP Chain pointer to next NDPSA	
4(4)	NDPCMD Halt X'07'	5(5)	NDPQUAL Line X'10'
			7(7)
		NDPFLAG1* Common NDPSA flags	NDPFLAG2*** Command-unique NDPSA flags
8(8)		NDPLLRID Processor.LRID	
12(C)		NDPLERRP Pointer to buffer with LDPSA in error or 0	
	NDPRSCD* Reason code		
16(10)		NDPNLRD NCP.LRID DMAed by processor of the line being halted	
20(14)		Reserved	
24(18)	NDPSEQN Sequence counter	26(1A)	NDPRSVD Not transferred, Reserved
28(1C)		NDPNLRID NCP.LRID (Not transferred) (Used during NDP list cleanup processing to determine ODLIC resource) (Pointer to LKE)	

* Indicates a byte expansion follows.

*** NDPFLAG2 is not defined for this NDPSA.

Byte Expansions

Offset/Field Name	Bit Pattern/ Hex Value	Contents
6(6) NDPFLAG1		Common NDPSA flags
	1... ..	Command is to the processor
	.x... ..	Command is to a line
		1 = Command is to a line 0 = Command is to a PU
	..1.	Station state field is valid
	.... ...x	Reserved for CLDP use
12(C) NDPRSCD		Reason code
	X'00'	Halt line force deactivate was issued as a result of normal NCP processing (e.g. DACTLINK FORCED from the SSCP)
	X'01'	Halt line force deactivate was issued as result of a protocol error between NCP and the CSS

NDPSA - ID

Program: NCP

Size in bytes: 32(20)

Function: To inform the processor to send an XID to an adjacent link station.

0(0)		NDPDPSAP Chain pointer to next NDPSA	
4(4)	NDPCMD ID X'08'	5(5)	NDPQUAL X'00'
			7(7)
		NDPFLAG1* Common NDPSA flags	NDPFLAG2*** Command-unique NDPSA flags
8(8)			
NDPLLRIID Processor.LRID			
12(C)			
NDPXIDP Pointer to XID data			
16(10)			
Reserved			
20(14)		22(16)	
NDPSTST* Station state		Reserved	
24(18)		26(1A)	
NDPSEQN Sequence counter		NDPRSVD Not transferred, Reserved	
28(1C)			
NDPNLRID NCP.LRID (Not transferred) (Used during NDP list cleanup processing to determine ODLIC resource) (Pointer to SCE)			

* Indicates a byte expansion follows.

*** NDPFLAG2 is not defined for this NDPSA.

Byte Expansions

Offset/Field Name	Bit Pattern/ Hex Value	Contents
6(6) NDPFLAG1		Common NDPSA flags
	1... ..	Command is to the processor
	.x... ..	1 = Command is to a line 0 = Command is to a PU
	..1.	Station state field is valid
	.... ..x	Reserved for CLDP use

Offset/Field Name	Bit Pattern/ Hex Value	Contents
20(14) NDPSTST		Station state
	X'A103'	XID without data
	X'A109'	XID with data
	X'0001'	Non-activation XID3

NDPSA - Load/Dump Initialization Request

Program: NCP

Size in bytes: 32(20)

Function: To request that the processor set the adjacent link station in initialization mode.

0(0)		NDPDPSAP Chain pointer to next NDPSA	
4(4)	NDPCMD Load/dump X'09'	5(5)	NDPQUAL Initialization request X'10'
		6(6) NDPFLAGS Flags	
		NDPFLAG1* Common NDPSA flags	7(7) NDPFLAG2*** Command-unique NDPSA flags
8(8) NDPLLRID Processor.LRID			
12(C) Reserved			
16(10) Reserved			
20(14) NDPSTST Station state X'A105'		22(16) Reserved	
24(18) NDPSEQN Sequence counter		26(1A) NDPRSVD Not transferred, Reserved	
28(1C) NDPNLRID NCP.LRID (Not transferred) (Used during NDP list cleanup processing to determine ODLIC resource) (Pointer to SCE)			

* Indicates a byte expansion follows.

*** NDPFLAG2 is not defined for this NDPSA.

Byte Expansions

Offset/Field Name	Bit Pattern/ Hex Value	Contents
6(6) NDPFLAG1		Common NDPSA flags
	1... ..	Command is to the processor
	.x... ..	1 = Command is to a line 0 = Command is to a PU
	..1.	Station state field is valid
	.... ..x	Reserved for CLDP use

NDPSA - Load/Dump Initialization Response

Program: NCP

Size in bytes: 32(20)

Function: To request that the processor respond to the adjacent link station's initialization mode setting command.

0(0)		NDPDPSAP Chain pointer to next NDPSA	
4(4)	NDPCMD Load/dump X'09'	5(5)	NDPQUAL Initialization response X'20'
		6(6)	NDPFLAGS Flags
		NDPFLAG1* Common NDPSA flags	7(7) NDPFLAG2* Command-unique NDPSA flags
8(8) NDPLLRID Processor.LRID			
12(C) Reserved			
16(10) Reserved			
20(14) NDPSTST Station state X'A105'		22(16) Reserved	
24(18) NDPSEQN Sequence counter		26(1A) NDPRSVD Not transferred, Reserved	
28(1C) NDPNLRID NCP.LRID (Not transferred) (Used during NDP list cleanup processing to determine ODLIC resource) (Pointer to SCE)			

* Indicates a byte expansion follows.

Byte Expansions

Offset/Field Name	Bit Pattern/ Hex Value	Contents
6(6) NDPFLAG1		Common NDPSA flags
	1...	Command is to the processor
	.x..	1 = Command is to a line 0 = Command is to a PU
	..1.	Station state field is valid
	.... ..x	Reserved for CLDP use

Offset/Field Name	Bit Pattern/ Hex Value	Contents
7(7) NDPFLAG2	x...	Command-unique NDPSA flags 1 = Load/dump initial indication rejected 0 = Load/dump initial indication accepted

NDPSA - Notify Station State Change

Program: NCP

Size in bytes: 32(20)

Function: To notify the processor that NCP has recognized a station state change.

0(0)		NDPDPSAP Chain pointer to next NDPSA	
4(4)	NDPCMD Notify X'0A'	5(5)	NDPQUAL Station state change X'10'
			7(7)
		NDPFLAG1* Common NDPSA flags	NDPFLAG2* Command-unique NDPSA flags
8(8)			
NDPLLRIID Processor.LRID			
12(C)			
Reserved			
16(10)			
Reserved			
20(14)		22(16)	
NDPSTST* Station state		Reserved	
24(18)		26(1A)	
NDPSEQN Sequence counter		NDPRSVD Not transferred, Reserved	
28(1C)			
NDPNLRID NCP.LRID (Not transferred) (Used during NDP list cleanup processing to determine ODLC resource) (Pointer to SCE)			

* Indicates a byte expansion follows.

Byte Expansions

Offset/Field Name	Bit Pattern/ Hex Value	Contents
6(6) NDPFLAG1		Common NDPSA flags
	1...	Command is to the processor
	.x..	1 = Command is to a line 0 = Command is to a PU
	..1.	Station state field is valid
	.... ...x	Reserved for CLDP use
7(7) NDPFLAG2		Command-unique NDPSA flags
	1...	Remote Power Off pending
20(14) NDPSTST		Station state
	X'A001'	Reset
	X'A103'	Monitor for XID
	X'0001'	Active
	X'2001'	Load/dump active

NDPSA - Notify Flow Control

Program: NCP

Size in bytes: 32(20)

Function: To send flow control information to the processor for the specified station.

0(0)		NDPDPSPAP Chain pointer to next NDPSA	
4(4)	NDPCMD Notify X'0A'	5(5)	NDPQUAL Flow control '20'
		6(6) NDPFLAGS Flags	
		NDPFLAG1* Common NDPSA flags	7(7) NDPFLAG2* Command-unique NDPSA flags
8(8)		NDPPLLRID Processor.LRID	
12(C) Reserved			
16(10) Reserved			
20(14)	NDPACKCT ACK count	21(15) Reserved	
24(18)		26(1A)	
NDPSEQN Sequence counter		NDPRSVD Not transferred, Reserved	
28(1C)			
NDPNLRID NCP.LRID (Not transferred) (Used during NDP list cleanup processing to determine ODLIC resource) (Pointer to SCE)			

* Indicates a byte expansion follows.

Byte Expansions

Offset/Field Name	Bit Pattern/ Hex Value	Contents
6(6) NDPFLAG1		Common NDPSA flags
	1...	Command is to the processor
	.x..	Command is to a line
		1 = Command is to a line 0 = Command is to a PU
	..1.	Station state field is valid
	.... ...x	Reserved for CLDP use
7(7) NDPFLAG2		Command-unique NDPSA flags
	xx..	Reserved
	..1.	Pacing response
	...1	Change window reply indicator
	.... 1...	Reset window indicator
	.... .1..	Stop to send data
	.... ..1.	Resume to send data
	.... ...1	Automatic resume

NDPSA - Notify Takeover

Program: NCP

Size in bytes: 32(20)

Function: To notify the processor that a takeover has been issued for a frame-relay LMI PU

0(0)		NDPDPSAP Chain pointer to next NDPSA	
4(4)	NDPCMD Notify X'0A'	5(5)	NDPQUAL Takeover X'50'
			7(7)
		NDPFLAG1* Common NDPSA flags	NDPFLAG2*** Command-unique NDPSA flags
8(8)		NDPLLRIID Processor.LRID	
12(C)		Reserved	
16(10)		Reserved	
20(14)		Reserved	
24(18)	NDPSEQN Sequence counter	26(1A)	NDPRSVD Not transferred, Reserved
28(1C)		NDPNLRID NCP.LRID (Not transferred) (Used during NDP list cleanup processing to determine ODLC resource) (Pointer to LME or LKE)	

* Indicates a byte expansion follows.

*** NDPFLAG2 is not defined for this NDPSA.

Byte Expansions

Offset/Field Name	Bit Pattern/ Hex Value	Contents
6(6) NDPFLAG1		Common NDPSA flags
	1...	Command is to the processor
	.x...	Command is to a line
		1 = Command is to a line 0 = Command is to a PU
	..1.	Station state field is valid
	.... ...x	Reserved for CLDP use

NDPSA - Notify Call Response

Program: NCP

Size in bytes: 32(20)

Function: To notify the TRA that the NCP cannot accept the call request.

0(0)		NDPPDSAP Chain pointer to next NDPSA	
4(4)	NDPCMD Notify X'0A'	5(5)	NDPQUAL Call response X'92'
			7(7)
		NDPFLAG1* Common NDPSA flags	NDPFLAG2*** Command-unique NDPSA flags
8(8)			
NDPLLRIID** Processor.LRID			
12(C)			
NDP1DATP Pointer to buffer with XID3 CV22 appended or 0 (Always zero currently)			
	NDPRSCD* Reason code		
16(10)			
Reserved			
20(14)			
Reserved			
24(18)		26(1A)	
NDPSEQN Sequence counter		NDPRSVD Not transferred, Reserved	
28(1C)			
NDPNLRID NCP.LRID (Not transferred) (Used during NDP list cleanup processing to determine ODLIC resource) (Pointer to LKE)			

* Indicates a byte expansion follows.

** NDPLLRIID will be the correlator field that was received in the Notify Call Indicate LDPSA.

*** NDPFLAG2 is not defined for this NDPSA.

Byte Expansions

Offset/Field Name	Bit Pattern/ Hex Value	Contents
6(6) NDPFLAG1		Common NDPSA flags
	1... ..	Command is to the processor
	.x... ..	1 = Command is to a line 0 = Command is to a PU
	..1.	Station state field is valid
	.... ...x	Reserved for CLDP use
12(C) NDPRSCD		Reason code
	X'01'	Resource not available
	X'02'	Resource in disconnect mode
	X'03'	Call in/out collision detected
	X'04'	Send RIM
	X'05'	Logical resources available
	X'06'	Logical resources not available

NDPSA - NPA Start

Program: NCP

Size in bytes: 32(20)

Function: To inform the processor to start collecting NPA statistics on the resource indicated.

0(0)			NDPDPSAP Chain pointer to next NDPSA		
4(4)	NDPCMD NPA X'0B'	5(5)	NDPQUAL Start X'10'	6(6)	NDPFLAGS Flags
					7(7)	NDPFLAG1* Common NDPSA flags	NDPFLAG2* Command-unique NDPSA flags
8(8)			NDPLLRIID Processor.LRID		
12(C)			Reserved		
16(10)			NDPCORRD Correlator data - to be returned in COLLECT LDPSA		
20(14)		22(16)		23(17)	
Reserved		NDPNPAF1* NPA interval flags 1		NDPNPAF2* NPA interval flags 2	
24(18)		26(1A)			
NDPSEQN Sequence counter		NDPRSVD Not transferred, Reserved			
28(1C)			NDPNLRID NCP.LRID (Not transferred) (Used during NDP list cleanup processing to determine ODLC resource) (Pointer to SCE or LKE)		

* Indicates a byte expansion follows.

Byte Expansions

Offset/Field Name	Bit Pattern/ Hex Value	Contents
6(6) NDPFLAG1		Common NDPSA flags
	1... ..	Command is to the processor
	.x... ..	1 = Command is to a line 0 = Command is to a PU
	..1.	Station state field is valid
	.... ..x	Reserved for CLDP use
7(7) NDPFLAG2		Command-unique NDPSA flags
	1... ..	CSS must include space for Transmission Priority Collection in the Collect resource records.
22(16) NDPNPAF1		NPA interval flags 1
	.... ..1.	Interval 10 (NDPNPAA)
	.... ...1	Interval 9 (NDPNPA9)
23(17) NDPNPAF2		NPA interval flags 2
	1... ..	Interval 8 (NDPNPA8)
	.1... ..	Interval 7 (NDPNPA7)
	..1.	Interval 6 (NDPNPA6)
	...1	Interval 5 (NDPNPA5)
	.... 1...	Interval 4 (NDPNPA4)
	.... .1..	Interval 3 (NDPNPA3)
	.... ..1.	Interval 2 (NDPNPA2)
	.... ...1	Interval 1 (NDPNPA1)

NDPSA - NPA Stop

Program: NCP

Size in bytes: 32(20)

Function: To inform the processor to stop collecting NPA statistics on the resource (or all resources) indicated.

0(0)			NDPDPSAP Chain pointer to next NDPSA		
4(4)	NDPCMD NPA X'0B'	5(5)	NDPQUAL* Qualifier	6(6) NDPFLAGS Flags	
				NDPFLAG1* Common NDPSA flags	7(7) NDPFLAG2* Command-unique NDPSA flags
8(8)			NDPLLRID Processor.LRID		
12(C)			Reserved		
16(10)			Reserved		
20(14)		Reserved		22(16)	23(17)
				NDPNPAF1* NPA interval flags 1	NDPNPAF2* NPA interval flags 2
24(18)		NDPSEQN Sequence counter		26(1A) NDPRSVD Not transferred, Reserved	
28(1C)			NDPNLRID NCP.LRID (Not transferred) (Used during NDP list cleanup processing to determine ODLIC resource) (Pointer to SCE or LKE if NDPQUAL=X'20') (Pointer to LME if NDPQUAL=X'22')		

* Indicates a byte expansion follows.

Byte Expansions

Offset/Field Name	Bit Pattern/ Hex Value	Contents
5(5) NDPQUAL		Qualifier
	X'20'	Stop for a specific resource
	X'22'	Stop for all resources

Offset/Field Name	Bit Pattern/ Hex Value	Contents
6(6) NDPFLAG1		Common NDPSA flags
	1...	Command is to the processor
	.x..	1 = Command is to a line 0 = Command is to a PU
	..1.	Station state field is valid
	.... ...X	Reserved for CLDP use
7(7) NDPFLAG2		Command unique NDPSA flags (defined when NDPQUAL=X'22')
	xxxx	Reserved
	.... xxxx	Protocol type
	.... 0000	All is the only valid type on this NDPSA
22(16) NDPNPAF1		NPA interval flags 1
	1111 1111	Stop All Intervals
	.... ..1.	Interval 10 (NDPNPAA)
	.... ...1	Interval 9 (NDPNPA9)
23(17) NDPNPAF2		NPA interval flags 2
	1111 1111	Stop All Intervals
	1...	Interval 8 (NDPNPA8)
	.1..	Interval 7 (NDPNPA7)
	..1.	Interval 6 (NDPNPA6)
	...1	Interval 5 (NDPNPA5)
	.... 1...	Interval 4 (NDPNPA4)
	.... .1..	Interval 3 (NDPNPA3)
	.... ..1.	Interval 2 (NDPNPA2)
	.... ...1	Interval 1 (NDPNPA1)

NDPSA - NPA Forward

Program: NCP

Size in bytes: 32(20)

Function: To inform the processor to forward the NPA statistics collected for all the resources in the interval indicated.

0(0)			
NDPDPSAP Chain pointer to next NDPSA			
4(4)	NDPCMD NPA X'0B'	5(5)	NDPQUAL Forward X'30'
			7(7)
		NDPFLAG1* Common NDPSA flags	NDPFLAG2* Command-unique NDPSA flags
8(8)			
NDPLLRID LRID = 0			
12(C)			
Reserved			
16(10)			
Reserved			
20(14)	21(15)	22(16)	23(17)
NPASEQN Sequence number	Reserved	NDPNPAF1* NPA interval flags 1	NDPNPAF2* NPA interval flags 2
24(18)		26(1A)	
NDPSEQN Sequence counter		NDPRSVD (Not transferred) Reserved	
28(1C)			
NDPNLRID NCP.LRID (Not transferred) (Used during NDP list cleanup processing to determine ODLIC resource) (Pointer to LME)			

* Indicates a byte expansion follows.

Byte Expansions

Offset/Field Name	Bit Pattern/ Hex Value	Contents
6(6) NDPFLAG1		Common NDPSA flags
	1...	Command is to the processor
	.x..	1 = Command is to a line 0 = Command is to a PU
	..1.	Station state field is valid
	.... ...x	Reserved for CLDP use
7(7) NDPFLAG2		Command-unique NDPSA flags
	xxxx	Reserved
	.... xxxx	Protocol type
	.... 0000	All is the only valid type on this NDPSA.
22(16) NDPNPAF1		NPA interval flags 1
	.... ..1.	Interval 10 (NDPNPAA)
	.... ...1	Interval 9 (NDPNPA9)
23(17) NDPNPAF2		NPA interval flags 2
	1...	Interval 8 (NDPNPA8)
	.1..	Interval 7 (NDPNPA7)
	..1.	Interval 6 (NDPNPA6)
	...1	Interval 5 (NDPNPA5)
	.... 1..	Interval 4 (NDPNPA4)
	.... .1..	Interval 3 (NDPNPA3)
	.... ..1.	Interval 2 (NDPNPA2)
	.... ...1	Interval 1 (NDPNPA1)

NDPSA - PIU

Program: NCP

Size in bytes: 32(20)

Function: To signal the processor to send a PIU(s) to the station indicated.

0(0)		NDPDPSAP Chain pointer to next NDPSA	
4(4)	NDPCMD PIU X'0C'	5(5)	NDPQUAL Qualifier X'01'
		6(6) NDPFLAGS Flags	
		NDPFLAG1* Common NDPSA flags	7(7) NDPFLAG2*** Command-unique NDPSA flags
8(8) NDPLLRIID Processor.LRID			
12(C) NDPIDATP Pointer to the PIU			
16(10) Reserved			
20(14)	NDPACKCT ACK count	21(15) Reserved	
24(18) NDPSEQN Sequence counter		26(1A) NDPRSVD Not transferred, Reserved	
28(1C) NDPNLRIID NCP.LRID (Not transferred) (Used during NDP list cleanup processing to determine ODLIC resource) (Pointer to SCE)			

* Indicates a byte expansion follows.

*** NDPFLAG2 is not defined for this NDPSA.

Byte Expansions

Offset/Field Name	Bit Pattern/ Hex Value	Contents
6(6) NDPFLAG1		Common NDPSA flags
	1... ..	Command is to the processor
	.x... ..	1 = Command is to a line 0 = Command is to a PU
	..1.	Station state field is valid
	.... ..x	Reserved for CLDP use

NDPSA - RAS Start Link Level 2 Test

Program: NCP

Size in bytes: 32(20)

Function: To signal the processor to start a link level 2 test for the indicated station

0(0)	NDPDPSAP Chain pointer to next NDPSA	
4(4)	NDPCMD RAS X'0D'	5(5) NDPQUAL Start LL2 X'10'
		6(6) Reserved
8(8)	NDPLLRID Processor.LRID	
12(C)	NDP1DATP Address of the first test control block (TCB) buffer	
16(10)	Reserved	
20(14)	Reserved	
24(18)	NDPSEQN Sequence counter	26(1A) NDPRSVD Reserved
28(1C)	NDPNLRID NCP.LRID (Used during NDP list cleanup processing to determine ODLC resource) (Pointer to SCE)	

NDPSA - RAS End Link Level 2 Test

Program: NCP

Size in bytes: 32(20)

Function: Tells the processor to stop link level 2 test for the indicated station.

0(0)		NDPDPSAP Chain pointer to next NDPSA	
4(4)	NDPCMD RAS X'0D'	5(5)	NDPQUAL End LL2 X'12'
		6(6) Reserved	
8(8)		NDPLLRIID Processor.LRID	
12(C)		Reserved	
16(10)		Reserved	
20(14)		Reserved	
24(18)		NDPSEQN Sequence counter	26(1A) NDPRSVD Reserved
28(1C)		NDPNLRID NCP.LRID (Used during NDP list cleanup processing to determine ODLC resource) (Pointer to SCE)	

NDPSA - RAS LPDA2 Test

Program: NCP

Size in bytes: 32(20)

Function: Tells the processor to run a solicited or unsolicited LPDA2 test on the indicated station.

0(0)		NDPDPSPAP Chain pointer to next NDPSA	
4(4)	NDPCMD RAS X'0D'	5(5)	NDPQUAL LPDA2 X'20'
6(6)		NDPFLAGS Flags	
8(8)			
NDPLLRIID Processor.LRID			
12(C)			
NDP1DATP Pointer to the LPDA2 data			
16(10)			
Reserved			
20(14)	NDPCSPTM Maximum allowable time (in 0.1 seconds) for LPDA2 test to complete	22(16)	Reserved
24(18)	NDPSEQN Sequence counter	26(1A)	NDPRSVD Reserved
28(1C)			
NDPNLRID NCP.LRID (Used during NDP list cleanup processing to determine ODLC resource) (Pointer to SCE)			

NDPSA - RAS Intensive Mode Start

Program: NCP

Size in bytes: 32(20)

Function: Tells the processor to enter intensive mode for the indicated station.

0(0)		NDPDPSAP Chain pointer to next NDPSA	
4(4)	NDPCMD RAS X'0D'	5(5)	NDPQUAL Intensive mode start X'40'
		6(6) Reserved	
8(8) NDPLLRIID Processor.LRID			
12(C) Reserved			
16(10) Reserved			
20(14)		22(16)	
NDPNRSD Number of records to send for intensive mode		Reserved	
24(18)		26(1A)	
NDPSEQN Sequence counter		NDPRSVD Reserved	
28(1C) NDPNLRID NCP.LRID (Used during NDP list cleanup processing to determine ODLC resource) (Pointer to SCE)			

NDPSA - RAS Intensive Mode Stop

Program: NCP

Size in bytes: 32(20)

Function: Tells the processor to stop intensive mode recording for the indicated station.

0(0)			NDPDPSPAP Chain pointer to next NDPSA			
4(4)	NDPCMD RAS X'0D'	5(5)	NDPQUAL Intensive mode stop X'42'	6(6)	Reserved	
8(8)						
NDPLLRID Processor.LRID						
12(C)						
Reserved						
16(10)						
Reserved						
20(14)	NDPSTRS* Stop reason	21(15)				Reserved
24(18)				26(1A)		
NDPSEQN Sequence counter				NDPRSVD Reserved		
28(1C)						
NDPNLRID NCP.LRID (Used during NDP list cleanup processing to determine ODLC resource) (Pointer to SCE)						

* Indicates a byte expansion follows.

Byte Expansions

Offset/Field Name	Bit Pattern/ Hex Value	Contents
20(14) NDPSTRS		Stop reason
	X'A7'	Intensive mode is being terminated because of a request from the host
	X'AB'	Intensive mode is being terminated because the NCP is in slowdown

NDPSA - RAS Start Wrap Test

Program: NCP

Size in bytes: 32(20)

Function: Requests the processor to start a wrap test on the designated line.

0(0)		NDPDPSAP Chain pointer to next NDPSA	
4(4)	NDPCMD RAS X'0D'	5(5)	NDPQUAL Start wrap X'50'
		7(7)	
		NDPFLAG1* Common NDPSA flags	NDPFLAG2* Command-unique NDPSA flags
8(8) NDPLLRID Processor.LRID			
12(C) NDP1DATP Pointer to the wrap information			
16(10) Reserved			
20(14) Reserved			
24(18) NDPSEQN Sequence counter		26(1A) NDPRSVD Reserved	
28(1C) NDPNLRID NCP.LRID (Used during NDP list cleanup processing to determine ODL resource) (Pointer to LKE)			

* Indicates a byte expansion follows.

Byte Expansions

Offset/Field Name	Bit Pattern/ Hex Value	Contents
6(6) NDPFLAG1		Common NDPSA flags
	xxxx xxxx	Reserved
7(7) NDPFLAG2		Command unique flags byte
	x...	0 = Normal leased line or data line of a dial/data pair 1 = Dial line of a switched dial/data line pair

NDPSA - RAS Stop Wrap Test

Program: NCP

Size in bytes: 32(20)

Function: Requests the processor to stop a wrap test that it is currently running.

0(0)	NDPDPSAP Chain pointer to next NDPSA	
4(4)	NDPCMD RAS X'0D'	5(5) NDPQUAL Stop wrap X'52'
		6(6) NDPFLAGS Flags
8(8)	NDPLLRIID Processor.LRID	
12(C)	Reserved	
16(10)	NDPNLRD NCP.LRID DMAed by processor	
20(14)	Reserved	
24(18)	NDPSEQN Sequence counter	26(1A) NDPRSVD Reserved
28(1C)	NDPNLRID NCP.LRID (Used during NDP list cleanup processing to determine ODLC resource) (Pointer to LKE)	

NDPSA - Receive Initial

Program: NCP

Size in bytes: 32(20)

Function: To initialize the line interface between the processor and NCP. Pointers to the receive buffer list and LDPSA list will be passed.

0(0)		NDPDPSAP Chain pointer to next NDPSA	
4(4)	NDPCMD Receive X'0E'	5(5)	NDPQUAL Initial X'10'
		6(6) NDPFLAGS Flags	
		NDPFLAG1* Common NDPSA flags	7(7) NDPFLAG2* Command unique NDPSA flags
8(8) NDPLLRIID Processor.LRID = 0			
NDPBUSZ NCP buffer size			
12(C)	NDPLDPCT LDPSA count	13(D) Reserved	
16(10) NDP2DATP Pointer to the first buffer in the receive list			
NDPRITHR Service request bytes threshold			
20(14) NDPFLD4 Pointer to the first LDPSA			
24(18) NDPSEQN Sequence counter		26(1A) NDPRSVD Not transferred, Reserved	
28(1C) NDPNLRIID NCP.LRID (Not transferred) (Used during NDP list cleanup processing to determine ODLIC resource) (Pointer to LKE, TRE or LME)			

* Indicates a byte expansion follows.

Byte Expansions

Offset/Field Name	Bit Pattern/ Hex Value	Contents
6(6) NDPFLAG1		Common NDPSA flags
	1... ..	Command is to the processor
	.x... ..	Command is to a line
		1 = Command is to a line 0 = Command is to a PU
	..1.	Station state field is valid
	.... ..x	Reserved for CLDP use
7(7) NDPFLAG2		Command unique NDPSA flags
	xxxx	Reserved
	.... xxxx	Protocol type
	.... 0000	All is the only valid type on this NDPSA.

NDPSA - Resource Definition Initial

Program: NCP

Size in bytes: 32(20)

Function: To pass line and station resource definition information to the processor.

0(0)		NDPDPSAP Chain pointer to next NDPSA	
4(4)	NDPCMD Resource definition X'0F'	5(5)	NDPQUAL Initial X'10'
		6(6) NDPFLAGS Flags	
		NDPFLAG1* Common NDPSA flags	7(7) NDPFLAG2*** Command unique NDPSA flags
8(8) NDPLLRIID Processor.LRID or correlator			
12(C) NDPIDATP Pointer to resource definition data buffers			
16(10) NDPNLRD Address of the NCP control block which corresponds to the resource being defined			
20(14)	NDPSTST* Station state	22(16) Reserved	
24(18)	NDPSEQN Sequence counter	26(1A) NDPRSVD Not transferred, Reserved	
28(1C) NDPNLRID NCP.LRID (Not transferred) (Used during NDP list cleanup processing to determine ODLIC resource) (Pointer to LKE or SCE)			

* Indicates a byte expansion follows.

*** NDPFLAG2 is not defined for this NDPSA.

Byte Expansions

Offset/Field Name	Bit Pattern/ Hex Value	Contents
6(6) NDPFLAG1		Common NDPSA flags
	1... ..	Command is to the processor
	.x... ..	1 = Command is to a line 0 = Command is to a PU
	..1.	Station state field is valid
	.... ...x	Reserved for CLDP use
20(14) NDPSTST		Station state field values
	X'0001'	Active
	X'2001'	Load/dump/RPO active
	X'A001'	Reset
	X'A103'	XID null
	X'A105'	SIM pending
	X'A109'	XID with data
	X'A141'	Contact pending
	X'A181'	Discontact pending
	X'A187'	Request disconnect
	X'A801'	LL2 active
	X'E101'	Free resource operation pending
	X'E1C1'	Contact and discontact pending
	X'E801'	LL2 end

NDPSA - Resource Definition Update

Program: NCP

Size in bytes: 32(20)

Function: To change selected fields in the line/station resource definition information.

0(0)		NDPDPSAP Chain pointer to next NDPSA	
4(4) NDPCMD Resource definition X'0F'	5(5) NDPQUAL Update X'20'	6(6) NDPFLAGS Flags	
		NDPFLAG1* Common NDPSA flags	7(7) NDPFLAG2*** Command unique NDPSA flags
8(8) NDPLLRID Processor.LRID			
12(C) NDPLDPCT Pointer to resource definition update buffers			
16(10) Reserved			
20(14) NDPSTST* Station state		22(16) Reserved	
24(18) NDPSEQN Sequence counter		26(1A) NDPRSVD (Not transferred) Reserved	
28(1C) NDPNLRID NCP.LRID (Not transferred) (Used during NDP list cleanup processing to determine ODLC resource) (Pointer to LKE or SCE)			

* Indicates a byte expansion follows.

*** NDPFLAG2 is not defined for this NDPSA.

Byte Expansions

Offset/Field Name	Bit Pattern/ Hex Value	Contents
6(6) NDPFLAG1		Common NDPSA flags
	1...	Command is to the processor
	.x...	1 = Command is to a line 0 = Command is to a PU
	..1.	Station state field is valid
	.... ...x	Reserved for CLDP use
20(14) NDPSTST		Station state field values
	X'0001'	Active
	X'2001'	Load/dump/RPO active
	X'A001'	Reset
	X'A103'	XID null
	X'A105'	SIM pending
	X'A109'	XID with data
	X'A141'	Contact pending
	X'A181'	Discontact pending
	X'A187'	Request disconnect
	X'A801'	LL2 Active
	X'E101'	Free resource operation pending
	X'E1C1'	Contact and discontact pending
	X'E801'	LL2 end

NDPSA - Resource Definition Modify

Program: NCP

Size in bytes: 32(20)

Function: To modify specific resource definition information

0(0)		NDPDPSAP Chain pointer to next NDPSA	
4(4)	NDPCMD Resource definition X'0F'	5(5)	NDPQUAL Modify X'30'
		6(6)	NDPFLAGS Flags
		NDPFLAG1* Common NDPSA flags	7(7) NDPFLAG2*** Command unique NDPSA flags
8(8)			
NDPLLRIID Processor.LRID or correlator			
NDPMTYP* Modify type			
12(C)			
NDP1DATP Pointer to resource definition data buffers			
NDPMACT* Modify action			
16(10)			
NDPNLRD Address of the NCP control block which corresponds to the resource being defined			
20(14)	NDPDLCI* DLCI (For modify type X'01' only)	22(16)	
Reserved		Reserved	
24(18)	NDPSEQN Sequence counter	26(1A)	
		NDPRSVD Not transferred, Reserved	
28(1C)			
NDPNLRID NCP.LRID (Not transferred) (Used during NDP list cleanup processing to determine ODLIC resource) (Pointer to LKE or SCE)			

* Indicates a byte expansion follows.

*** NDPFLAG2 is not defined for this NDPSA.

Byte Expansions

Offset/Field Name	Bit Pattern/ Hex Value	Contents
6(6) NDPFLAG1		Common NDPSA flags
	1... ..	Command is to the processor
	.x... ..	1 = Command is to a line 0 = Command is to a PU
	..1.	Station state field is valid
	.... ...x	Reserved for CLDP use
8(8) NDPMTYP		Modify type
	X'01'	Modify for a frame-relay DLCI
12(C) NDPMACT		Modify action
		For modify type of X'01'
	X'01'	Delete the DLCI given in NDPDLCI
	X'02'	Add the DLCI given in NDPDLCI
	X'03'	The DLCI in NDPDLCI is inactive (subarea resources only)
	X'04'	Query the adjacent DLCI status (in NDPDLCI) and set local DLCI status active if adjacent status indicates present (subarea resources only)
	X'05'	The DLCI in NDPDLCI is inactive (FHSP resources only)
	X'06'	The DLCI in NDPDLCI is active (FHSP resources only)
20(14) NDPDLCI		DLCI
	Byte 0	
	xxxx xx..	DLCI address (least significant bits)
	.... ..x.	Command/response indicator
	.... ...0	Extended address indicator (not last byte)
	Byte 1	
	xxxx	DLCI address (most significant bits)
	.... 1...	Forward explicit congestion notification
	.... .1..	Backward explicit congestion notification
	.... ..1.	Frame is eligible for discard
	.... ...1	Extended address indicator (last byte)

NDPSA - Station Delete

Program: NCP

Size in bytes: 32(20)

Function: To tell the processor to tear down the tower for the affected station.

0(0)		NDPDPSAP Chain pointer to next NDPSA	
4(4)	NDPCMD Station delete X'11'	5(5)	NDPQUAL X'00'
			7(7)
		NDPFLAG1* Common NDPSA flags	NDPFLAG2* Command unique NDPSA flags
8(8)		NDPLLRID Processor.LRID	
12(C)		Reserved	
16(10)		NDPNLRD NCP.LRID DMAed by the processor for the station being deleted	
20(14)		Reserved	
24(18)	NDPSEQN Sequence counter	26(1A)	NDPRSVD Not transferred, Reserved
28(1C)		NDPNLRD NCP.LRID (Not transferred) (Used during NDP list cleanup processing to determine ODLIC resource) (Pointer to SCE)	

* Indicates a byte expansion follows.

Byte Expansions

Offset/Field Name	Bit Pattern/ Hex Value	Contents
6(6) NDPFLAG1		Common NDPSA flags
	1... ..	Command is to the processor
	.X.. ..	1 = Command is to a line 0 = Command is to a PU
	..1.	Station state field is valid
	.... ..X	Reserved for CLDP use
7(7) NDPFLAG2		NDPSA unique flags
	1... ..	Station delete issued due to halt line force deactivate

NDPSA - Stop Line

Program: NCP

Size in bytes: 32(20)

Function: To inform the processor to stop operation on the line resource indicated.

0(0)		NDPDPSAP Chain pointer to next NDPSA	
4(4)	NDPCMD Stop X'12'	5(5)	NDPQUAL Line X'10'
			7(7)
		NDPFLAG1* Common NDPSA flags	NDPFLAG2*** Command unique NDPSA flags
8(8) NDPLLRID Processor.LRID			
12(C) Reserved			
16(10) Reserved			
20(14) Reserved			
24(18)		26(1A)	
NDPSEQN Sequence counter		NDPRSVD Not transferred, Reserved	
28(1C)			
NDPNLRID NCP.LRID (Not transferred) (Used during NDP list cleanup processing to determine OLDC resource) (Pointer to LKE)			

* Indicates a byte expansion follows.

*** NDPFLAG2 is not defined for this NDPSA.

Byte Expansions

Offset/Field Name	Bit Pattern/ Hex Value	Contents
6(6) NDPFLAG1		Common NDPSA flags
	1...	Command is to the processor
	.x...	1 = Command is to a line 0 = Command is to a PU
	..1.	Station state field is valid
	.... ...x	Reserved for CLDP use

NDPSA - Stop Station Immediate

Program: NCP

Size in bytes: 32(20)

Function: To inform the processor to stop operation on the station resource indicated.

0(0)		NDPDPSAP Chain pointer to next NDPSA	
4(4)	NDPCMD Stop X'12'	5(5)	NDPQUAL Station immediate X'20'
		6(6)	NDPFLAGS Flags
		NDPFLAG1* Common NDPSA flags	7(7) NDPFLAG2*** Command unique NDPSA flags
8(8)			
NDPLLRIID Processor.LRID			
12(C)			
NDP1DATP Pointer to buffer with LDPSA in error			
NDPRSCD* Reason code			
16(10)			
Reserved			
20(14)		22(16)	
NDPSTST* Station state		Reserved	
24(18)		26(1A)	
NDPSEQN Sequence counter		NDPRSVD Not transferred, Reserved	
28(1C)			
NDPNLRID NCP.LRID (Not transferred) (Used during NDP list cleanup processing to determine ODLIC resource) (Pointer to SCE)			

* Indicates a byte expansion follows.

*** NDPFLAG2 is not defined for this NDPSA.

Byte Expansions

Offset/Field Name	Bit Pattern/ Hex Value	Contents
6(6) NDPFLAG1		Common NDPSA flags
	1...	Command is to the processor
	.x..	1 = Command is to a line 0 = Command is to a PU
	..1.	Station state field is valid
	.... ...x	Reserved for CLDP use
12(C) NDPRSCD		Reason Code
	X'00'	SSI was issued as part of normal NCP processing (e.g. DISCONTACT from the SSCP)
	X'01'	SSI was issued as part of a protocol error between NCP and the CSS
20(14) NDPSTST		Station State
	X'E1C1'	Halt service seeking

NDPSA - Stop Station Soft

Program: NCP

Size in bytes: 32(20)

Function: To inform the processor to stop operation on the station resource indicated after performing a requested function.

0(0)		NDPDPSAP Chain pointer to next NDPSA	
4(4)	NDPCMD Stop X'12'	5(5)	NDPQUAL Station soft X'22'
		6(6) NDPFLAGS Flags	
		NDPFLAG1* Common NDPSA flags	7(7) NDPFLAG2*** Command unique NDPSA flags
8(8) NDPLLRID Processor.LRID			
12(C) Reserved			
16(10) Reserved			
20(14) Reserved			
24(18) NDPSEQN Sequence counter		26(1A) NDPRSVD Not transferred, Reserved	
28(1C) NDPNLRID NCP.LRID (Not transferred) (Used during NDP list cleanup processing to determine ODLC resource) (Pointer to SCE)			

* Indicates a byte expansion follows.

*** NDPFLAG2 is not defined for this NDPSA.

Byte Expansions

Offset/Field Name	Bit Pattern/ Hex Value	Contents
6(6) NDPFLAG1		Common NDPSA flags
	1...	Command is to the processor
	.x..	1 = Command is to a line 0 = Command is to a PU
	..1.	Station state field is valid
	.... ...x	Reserved for CLDP use

NDPSA - Trace Start

Program: NCP

Size in bytes: 32(20)

Function: To activate SIT trace for a line

0(0)			
NDPDPSAP Chain pointer to next NDPSA			
4(4)	NDPCMD Trace X'13'	5(5)	NDPQUAL Start X'10'
		NDPFLAGS Flags	
		NDPFLAG1* Common NDPSA flags	7(7) NDPFLAG2* Command unique NDPSA flags
8(8)			
NDPLLRID Processor.LRID			
NDPTRPTS* Trace points			
12(C)		13(D)	
NDPTRTIM Trace time		Reserved	
16(10)			
NDP2DATP Logical line or station control block address			
NDPTRBYT PIU bytes to trace			
20(14)		22(16)	23(17)
NDPMXTRC Maximum trace record size in bytes		NDPLIMAD Processor address for SIT trace	NDPRELNM Relative line number within the processor
24(18)		26(1A)	
NDPSEQN Sequence counter		NDPRSVD Not transferred, Reserved	
28(1C)			
NDPNLRID NCP.LRID (Not transferred) (Used during NDP list cleanup processing to determine ODLIC resource) (Pointer to TRE)			

* Indicates a byte expansion follows.

Byte Expansions

Offset/Field Name	Bit Pattern/ Hex Value	Contents
6(6) NDPFLAG1		Common NDPSA flags
	1... ..	Command is to the processor
	.x... ..	1 = Command is to a line 0 = Command is to a PU
	..1.	Station state field is valid
	.... ..x	Reserved for CLDP use
7(7) NDPFLAG2		Command unique NDPSA flags
	x... ..	0 = Physical 1 = Logical
	xxx	Reserved
	.... xxxx	Protocol type
	.... 0010	ESCA
	.... 0011	TRA
	.... 1000	Frame-relay
8(8) NDPTRPTS		Trace points
	X'01'	CBC trace point
	X'02'	Processor trace point
	X'08'	Suppress checkpoint data

NDPSA - Trace Stop

Program: NCP

Size in bytes: 32(20)

Function: To stop SIT trace on a line

0(0)			NDPDPSAP Chain pointer to next NDPSA			
4(4)	NDPCMD Trace X'13'	5(5)	NDPQUAL Stop X'20'	6(6)		NDPFLAGS Flags
				NDPFLAG1* Common NDPSA flags		7(7)	NDPFLAG2* Command unique NDPSA flags
8(8)			NDPLLRID Processor.LRID			
NDPTRPTS* Trace points						
12(C)						Reserved
16(10)						NDP2DATP Logical line or station control block address
20(14)			22(16)		23(17)	NDPRELNM Relative line number within the processor
Reserved			NDPLIMAD Processor address			
24(18)			26(1A)			NDPRSVD Not transferred, Reserved
NDPSEQN Sequence counter						
28(1C)						NDPNLRID NCP.LRID (Not transferred) (Used during NDP list cleanup processing to determine ODLC resource) (Pointer to TRE)

* Indicates a byte expansion follows.

Byte Expansions

Offset/Field Name	Bit Pattern/ Hex Value	Contents
6(6) NDPFLAG1		Common NDPSA flags
	1...	Command is to the processor
	.x..	1 = Command is to a line 0 = Command is to a PU
	..1.	Station state field is valid
	.... ..x	Reserved for CLDP use
7(7) NDPFLAG2		Command unique NDPSA flags
	x...	0 = Physical 1 = Logical
	xxx	Reserved
	.... xxxx	Protocol type
	.... 0010	ESCA
	.... 0011	TRA
	.... 1000	Frame-relay
8(8) NDPTRPTS		Trace points
	X'01'	CBC trace point
	X'02'	Processor trace point
	X'08'	Suppress checkpoint data

NDPSA - NOP

Program: NCP

Size in bytes: 32(20)

Function: Request the processor to respond with a NOP LDPSA.

0(0)		NDPDPSAP Chain pointer to next NDPSA	
4(4)	NDPCMD NOP X'14'	5(5)	NDPQUAL X'00'
		7(7)	
		NDPFLAG1* Common NDPSA flags	NDPFLAG2* Command-unique NDPSA flags
8(8)		NDPLLRID Processor.LRID	
12(C)		Reserved	
16(10)		Reserved	
20(14)		Reserved	
24(18)		NDPSEQN Sequence counter	26(1A) NDPRSVD Not transferred, Reserved
28(1C)		NDPNLRID NCP.LRID (Not transferred) (Used during NDP list cleanup processing to determine ODLC resource) (Pointer to LME or LKE)	

* Indicates a byte expansion follows.

Byte Expansions

Offset/Field Name	Bit Pattern/ Hex Value	Contents
6(6) NDPFLAG1		Common NDPSA flags
	1...	Command is to the processor
	.X..	Command is to a line
		1 = Command is to a line 0 = Command is to a PU
	..1.	Station state field is valid
	.... ..X	Reserved for CLDP use

Offset/Field Name	Bit Pattern/ Hex Value	Contents
7(7) NDPFLAG2		Command-unique NDPISA flags
	xxxx	Reserved
	.... xxxx	Protocol type
	.... 0000	All is the only valid type on this NDPISA

NDPSA - Link Configuration Data Information

Program: NCP

Size in bytes: 32(20)

Function: To inform the processor of frame-relay link configuration data

0(0)		NDPDPSAP Chain pointer to next NDPSA	
4(4) NDPCMD LCDI X'17'	5(5) NDPQUAL X'00'	6(6) NDPFLAGS Flags	
		NDPFLAG1* Common NDPSA flags	7(7) NDPFLAG2*** Command-unique NDPSA flags
8(8) NDPLLRIID Processor.LRID			
12(C) NDP1DATP Pointer to the buffer(s) containing the LCDI data			
16(10) Reserved			
20(14) NDPFLD4 Information entry length	21(15) Reserved		
24(18) NDPSEQN Sequence counter		26(1A) NDPRSVD Not transferred, Reserved	
28(1C) NDPNLRID NCP.LRID (Not transferred) (Used during NDP list cleanup processing to determine ODLC resource) (Pointer to LKE)			

* Indicates a byte expansion follows.

*** NDPFLAG2 is not defined for this NDPSA.

Byte Expansions

Offset/Field Name	Bit Pattern/ Hex Value	Contents
6(6) NDPFLAG1		Common NDPSA flags
	1...	Command is to the processor
	.x..	1 = Command is to a line 0 = Command is to a PU
	..1.	Station state field is valid
x	Reserved for CLDP use

Processor--NCP Parameter/Status Area Layouts

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Section 20. Processor--NCP Parameter/Status Area Layouts

The following layouts make it easier to determine the exact layout of each LDPSA. See Volume 1 Section 1, "Data Area Layouts," for the generic layout of all LDPSAs.

LDPSA - Activate Complete**Program:** NCP**Size in bytes:** 26(1A)**Function:** To notify the NCP that its ACTIVATE command is complete. The ACTIVATE could have been issued with an ENABLE, DIAL, or SAP qualifier.

0(0)			LDPDPSAP Chain pointer to next LDPSA		
4(4)	LDPCMD Activate complete X'01'	5(5)	LDPQUAL* Qualifier	6(6)	LDPFLAGS Flags
8(8)			LDPLLRID NCP.LRID Pointer to LKE		
LDPSAP** SAP field for activate/deactivate complete					
12(C)					
Reserved					
16(10)					
Reserved					
LDPLXBXS LXBEXTST field					
20(14)			22(16)		
LDPLXBST LXBSTAT field			Reserved		
24(18)					
LDPSEQN Sequence counter					

* Indicates a byte expansion follows.

** The LDPSAP field value is only valid when LDPQUAL = X'30'. The only valid value for the LDPSAP field is X'04'.

Byte Expansions

Offset/Field Name	Bit Pattern/ Hex Value	Contents
5(5) LDPQUAL		Qualifier
	X'10'	Enable
	X'20'	Dial
	X'30'	SAP

LDPDSA - Connect Confirm

Program: NCP

Size in bytes: 26(1A)

Function: To inform NCP of the completion status of a CONNECT REQUEST

0(0)		
LDPDPSAP Chain pointer to next LDPDSA in list		
4(4)	5(5)	6(6)
LDPCMD Connect confirm X'02'	LDPQUAL Qualifier X'00'	LDPFLAGS Flags
8(8)		
LDPLLRID NCP.LRID (Pointer to SCE)		
12(C)		
Reserved		
16(10)		
Reserved		
<div style="border: 1px solid black; padding: 2px; width: fit-content;"> LDPFRLMI* LMI flag (frame-relay LMI PU only) </div>		
20(14)	22(16)	23(17)
LDPLXBST* LXBSTAT field	LDPRDADR Received DLC address	Reserved
24(18)		
LDPSEQN Sequence counter		

* Indicates a byte expansion follows.

Byte Expansions

Offset/Field Name	Bit Pattern/ Hex Value	Contents
20(14) LDPLXBST	X'00BD'	UA received
	X'00B7'	DM received
	X'1096'	Connection error - LCDI invalid
16(10) LDPFRLMI		LMI flag
	X'00'	No LMI support
	X'01'	LMI supported

LDPSA - Connect Indication

Program: NCP

Size in bytes: 26(1A)

Function: To inform NCP that the processor has received a connection mode setting request from an adjacent link station.

0(0)			LDPDPSAP Chain pointer to next LDPSA in list		
4(4)	LDPDPSAP Connect indication X'03'	5(5)	LDPQUAL Qualifier X'00'	6(6)	LDPFLAGS Flags
8(8)					
LDP LLRID NCP.LRID (Pointer to SCE)					
12(C)					
Reserved					
16(10)					
Reserved					
20(14)	LDPLXBST* LXBSTAT field		22(16)	LDPRADDR Received DLC address	23(17)
			Reserved		
24(18)					
LDPSEQN Sequence counter					

* Indicates a byte expansion follows.

Byte Expansions

Offset/Field Name	Bit Pattern	Contents
20(14) LDPLXBST		LXBSTAT field
	X'00B3'	SNRM received
	X'00AF'	SNRME/SABME received

LDPDSA - Deactivate Complete

Program: NCP

Size in bytes: 26(1A)

Function: To notify the NCP that its DEACTIVATE command is complete.

0(0)			LDPDPSAP Chain pointer to next LDPDSA			
4(4)	LDPDPSAP** SAP	5(5)	LDPQUAL* Qualifier	6(6)	LDPFLAGS Flags	
8(8)			LDPNLRID NCP.LRID (Pointer to LKE)			
12(C)						Reserved
16(10)						Reserved
20(14)			22(16)			
LDPLXBST LXBSTAT field (X'009C' or Error status)			Reserved			
24(18)						LDPSEQN Sequence counter

* Indicates a byte expansion follows.

** The LDPDPSAP field value is only valid when the LDPQUAL = X'30'. The only valid value for the LDPDPSAP field is X'04'.

Byte Expansions

Offset/Field Name	Bit Pattern	Contents
5(5) LDPQUAL	X'00'	Qualifier For Link
	X'10'	For SAP

LDPSA - Disconnect Confirm

Program: NCP

Size in bytes: 26(1A)

Function: To inform NCP of the completion status of a DISCONNECT REQUEST.

0(0)			LDPDPSAP Chain pointer to next LDPSA in list		
4(4)	LDPDPSAP Disconnect confirm X'05'	5(5)	LDPQUAL X'00'	6(6)	LDPFLAGS Flags
8(8)					
LDPNLRID NCP.LRID (Pointer to SCE)					
12(C)					
Reserved					
16(10)					
Reserved					
20(14)			22(16)		
LDPLXBST* LXBSTAT field			Reserved		
24(18)					
LDPSEQN Sequence counter					

* Indicates a byte expansion follows.

Byte Expansions

Offset/Field Name	Bit Pattern/ Hex Value	Contents
20(14) LXBLXBST		LXBSTAT field
	X'00BD'	UA received
	X'00B7'	DM received

LDPDSA - Disconnect Indication**Program:** NCP**Size in bytes:** 26(1A)**Function:** To inform NCP that the processor has received a disconnect request from an adjacent link station.

0(0)			LDPDPSAP Chain pointer to next LDPDSA in list		
4(4)	LDPDPSAP Disconnect indication X'06'	5(5)	LDPQUAL X'00'	6(6)	LDPFLAGS Flags
8(8)					
LDPNLRID NCP.LRID (Pointer to SCE)					
12(C)					
Reserved					
16(10)					
Reserved					
20(14)			22(16)		
LDPLXBST* LXBSTAT field			Reserved		
24(18)					
LDPSEQN Sequence counter					

* Indicates a byte expansion follows.

Byte Expansions

Offset/Field Name	Bit Pattern/ Hex Value	Contents
20(14) LDPLXBST		LXBSTAT field
	X'00A9'	DISC received
	X'00B5'	RD received

LDPSA - Halt Line FD Complete

Program: NCP

Size in bytes: 26(1A)

Function: To inform the NCP operation on the line resource indicated has been stopped as requested.

0(0)		LDPDPSAP Chain pointer to next LDPSA in list	
4(4)	LDPCMD Halt X'07'	5(5)	LDPQUAL Line complete X'10'
		6(6)	LDPFLAGS Flags
8(8)		LDPNLRID NCP.LRID (Pointer to LKE)	
12(C)		Reserved	
16(10)		Reserved	
20(14)	LDPLXBST LXBSTAT field (X'009C' Disabled)	22(16)	Reserved
24(18)	LDPSEQN Sequence counter		

LDPSA - ID**Program:** NCP**Size in bytes:** 26(1A)**Function:** To inform NCP that an XID has been received from the adjacent link station.

0(0)			LDPDPSAP Chain pointer to next LDPSA in list		
4(4)	LDPCMD ID X'08'	5(5)	LDPQUAL X'00'	6(6)	LDPFLAGS Flags
8(8)			LDPNLRID NCP.LRID (Pointer to SCE)		
LDPNMBUS Number of buffers used					
12(C)			LDP1DATP Pointer to first data		
LDPOFSD Offset to first data					
16(10)			LDP2DATP Pointer to second data		
LDPBYCT Residual byte count					
20(14)		22(16)		23(17)	
LDPLXBST LXBSTAT field (X'00BF' XID receive)		LDPRDADR Received DLC address		Reserved	
24(18)			LDPSEQN Sequence counter		

LDPSA - Load/Dump Initialization Complete

Program: NCP

Size in bytes: 26(1A)

Function: To inform NCP of the completion status of a LOAD/DUMP request.

0(0)		
LDPDPSAP Chain pointer to next LDPSA in list		
4(4)	5(5)	6(6)
LDPCMD Load/dump X'09'	LDPQUAL Initialization complete X'10'	LDPFLAGS Flags
8(8)		
LDPNLRID NCP.LRID (Pointer to SCE)		
12(C)		
Reserved		
16(10)		
Reserved		
20(14)	22(16)	23(17)
LDPLXBST LXBSTAT field X'00BD'	LDPRDADR Received DLC address	Reserved
24(18)		
LDPSEQN Sequence counter		

LDPSA - Load/Dump Initialization Indication**Program:** NCP**Size in bytes:** 26(1A)**Function:** To inform NCP that the processor has received an initialization mode setting command from an adjacent link station.

0(0)			LDPDPSAP Chain pointer to next LDPSA in list		
4(4)	LDPCMD Load/dump X'09'	5(5)	LDPQUAL Indication X'20'	6(6)	LDPFLAGS Flags
8(8)					
LDPNLRID NCP.LRID (Pointer to SCE)					
12(C)					
Reserved					
16(10)					
Reserved					
20(14)			22(16)		
LDPLXBST LXBSTAT field (X'00B9' SIM received)			Reserved		
24(18)					
LDPSEQN Sequence counter					

LDPSA - Load/Dump Required Indication

Program: NCP

Size in bytes: 26(1A)

Function: To inform NCP that the processor has received a request for initialization from an adjacent link station.

0(0)		
LDPDPSAP Chain pointer to next LDPSA in list		
4(4)	5(5)	6(6)
LDPCMD Load/dump X'09'	LDPQUAL Required indication X'30'	LDPFLAGS Flags
8(8)		
LDPNLRID NCP.LRID (Pointer to SCE)		
12(C)		
Reserved		
16(10)		
Reserved		
20(14)	22(16)	
LDPLXBST LXBSTAT field (X'00AD' RIM received)	Reserved	
24(18)		
LDPSEQN Sequence counter		

LDPSA - Notify - Status Sent**Program:** NCP**Size in bytes:** 26(1A)**Function:** To signal CLDP that the last status sent by ESCA after the final positive or negative response given by CLDP has been accepted by the Host.

0(0)	LDPDPSAP Chain pointer to next LDPSA in list	
4(4)	LDPCMD Notify X'0A'	5(5) LDPQUAL Status sent X'10'
6(6)	LDPFLAGS Flags	
8(8)	LDPNLRID CLDP.LRID	
12(C)	Reserved	
16(10)	Reserved	
20(14)	Reserved	
24(18)	LDPSEQN Sequence counter	

LDPSA - Notify - NACK

Program: NCP

Size in bytes: 26(1A)

Function: To signal the NCP that the processor is having trouble getting PIUs acknowledged by the station indicated. Currently, only required for SA link stations for which NCP provides MLTG support.

0(0)		LDPDPSAP Chain pointer to next LDPSA in list	
4(4)	LDP CMD Notify X'0A'	5(5)	LDPQUAL Nack X'15'
6(6)		LDPFLAGS Flags	
8(8)		LDPNLRID NCP.LRID (Pointer to SCE)	
12(C) Reserved			
16(10) Reserved			
20(14)	LDPACKCT Ack count	21(15) Reserved	
24(18)		LDPSEQN Sequence counter	

LDPDSA - Notify Flow Control**Program:** NCP**Size in bytes:** 26(1A)**Function:** To pass flow control information to NCP.

0(0)			LDPDPSAP Chain pointer to next LDPDSA in list
4(4)	5(5)	6(6)	LDPFLAGS* Flags
LDPACKCT Ack count		LDPQUAL Flow control	
X'0A'		X'20'	
8(8)			
LDPNLRID NCP.LRID (Pointer to SCE)			
12(C)			
Reserved			
16(10)			
Reserved			
20(14)		21(15)	
LDPACKCT Ack count		Reserved	
24(18)			
LDPSEQN Sequence counter			

* Indicates a byte expansion follows.

Byte Expansions

Offset/Field Name	Bit Pattern/ Hex Value	Contents
6(6) LDPFLAGS		Flags
	Byte 0	Common LDP flags
	1...	Service request is for the processor
	.1..	Service request is for a line
	Byte 1	Command-unique flags
	xx..	Reserved
	..1.	Pacing response
	...1	Change window reply indicator
	.... 1...	Reset window indicator
	.... .1..	Stop to send data
	.... ..1.	Resume to send data
	.... ...1	Automatic resume

LDPSA - Notify - NDPSA Error

Program: NCP

Size in bytes: 26(1A)

Function: Notify the NCP that the processor has received an NDPSA that could not be processed

0(0)			LDPDPSAP Chain pointer to next LDPSA in list		
4(4)	LDPCMD Notify X'0A'	5(5)	LDPQUAL NDPSA error X'30'	6(6)	LDPFLAGS* Flags
8(8)					
LDPNLRID NCP.LRID (Pointer to LKE, SCE, or, for the processor, X'000000')					
LDPNMBUS Number of buffers used					
12(C)					
LDP1DATP Pointer to first data (NDPSA in error)					
LDPOFSD Offset to data					
16(10)					
LDP2DATP Pointer to second data					
LDPRBYCT Residual byte count					
20(14)	LDPLXBST* LXBSTAT field	22(16)	Reserved		23(17) LDPOFFER Offset to error
24(18)	LDPSEQN Sequence counter				

* Indicates a byte expansion follows.

Byte Expansions

Offset/Field Name	Bit Pattern/ Hex Value	Contents
6(6) LDPFLAGS		Flags
	Byte 0	Common LDP flags
	1...	Service request is for the processor
	.1..	Service request is for a line
	Byte 1	Command-unique flags (Defined when the LDPSA flows on a processor slot)
	xxxx	Reserved
	.... xxxx	Protocol type
	.... 0000	All
	.... 0010	ESCA
	.... 0011	TRA
	.... 1000	Frame-relay
20(14) LDPLXBST		LXBSTAT field
	X'00EC'	Equipment check - probable cause equals CSS
	X'00FF'	Program failure - probable cause equals NCP

LDPSA - Notify Statistical Counters

Program: NCP

Size in bytes: 26(1A)

Function: To send to NCP statistics related to the identified link or station.

0(0)			LDPDPSAP Chain pointer to next LDPSA in list
4(4)	LDPNMBUS Number of buffers used	5(5)	LDPQUAL Statistical counters X'50'
		6(6)	LDPFLAGS* Flags
8(8)			
LDPNLRID NCP.LRID (Pointer to LKE or SCE)			
12(C)			
LDP1DATP Pointer to statistics			
16(10)			
LDP2DATP Pointer to last buffer used			
20(14)			
Reserved			
24(18)			
LDPSEQN Sequence counter			

* Indicates a byte expansion follows.

Byte Expansions

Offset/Field Name	Bit Pattern/Hex Value	Contents
6(6) LDPFLAGS		Flags
	Byte 0	Common LDP flags
	x... ..	Command is to the processor 0 = Service request is for the processor 1 = Service request is for a line
	Byte 1	Command-unique flags
	..x.	0 = Generic alert subvectors 1 = Link_event subvectors
	.... x...	0 = Statistics counters associated with station resource 1 = Statistics counters associated with link resource
	.x.. .xx.	Reserved
	.... ...1	An unsolicited test is required (LDPLUTR)

LDP SA - Notify Permanent Station Error Statistics

Program: NCP

Size in bytes: 26(1A)

Function: To send to NCP statistics related to the identified link or station.

0(0)		LDPDPSAP Chain pointer to next LDP SA in list	
4(4)	LDP CMD Notify X'0A'	5(5)	LDP QUAL Permanent station error statistics X'51'
6(6)		LDP FLAGS* Flags	
8(8)		LDP NLRID NCP.LRID (Pointer to SCE or LKE)	
LDP NMBUS Number of buffers used			
12(C)		LDP1DATP Pointer to statistics	
LDP OFSD Offset to first data			
16(10)		LDP2DATP Pointer to last buffer used	
LDP RBYCT Residual byte count			
20(14)		Reserved	
24(18)		LDP SEQN Sequence counter	

* Indicates a byte expansion follows.

Byte Expansions

Offset/Field Name	Bit Pattern/ Hex Value	Contents
6(6) LDPFLAGS		Flags
	Byte 0	Common LDP flags
	x...	Command is to the processor 0 = Service request is for the processor 1 = Service request is for a line
	Byte 1	Command-unique flags
	..x.	0 = Generic alert subvectors 1 = Link_event subvectors
	.... x...	0 = Statistics counters associated with station resource 1 = Statistics counters associated with link resource
	.x.. .xx.	Reserved
	.... ...1	An unsolicited test is required (LDPLUTR)

LDPSA - Notify Permanent Line Error Statistics

Program: NCP

Size in bytes: 26(1A)

Function: To send to NCP statistics related to the identified link or station.

0(0)		LDPDPSAP Chain pointer to next LDPSA in list	
4(4)	LDPNMBUS Notify X'0A'	5(5)	LDPQUAL Permanent line error statistics X'52'
6(6)		LDPFLAGS* Flags	
8(8)			
LDPNLRID NCP.LRID (Pointer to LKE or SCE)			
LDPNMBUS Buffers used count			
12(C)			
LDP1DATP Pointer to statistics			
LDP1DATP Offset to first data			
16(10)			
LDP2DATP Pointer to last buffer used			
LDP2DATP Residual byte count			
20(14)			
Reserved			
24(18)			
LDPSEQN Sequence counter			

* Indicates a byte expansion follows.

Byte Expansions

Offset/Field Name	Bit Pattern/ Hex Value	Contents
6(6) LDPFLAGS		Flags
	Byte 0	Common LDP flags
	x...	Command is to the processor 0 = Service request is for the processor 1 = Service request is for a line
	Byte 1	Command-unique flags
	..x.	0 = Generic alert subvectors 1 = Link_event subvectors
	.... x...	0 = Statistics counters associated with station resource 1 = Statistics counters associated with link resource
	.x.. .xx.	Reserved
	.... ...1	An unsolicited test is required (LDPLUTR)

LDPISA - Notify CMIP Statistics

Program: NCP

Size in bytes: 26(1A)

Function: To send to NCP statistics related to the identified link or station.

0(0)		LDPDPSAP Chain pointer to next LDPISA in list	
4(4)	LDPAMD Notify X'0A'	5(5)	LDPQUAL CMIP statistics X'53'
6(6)		LDPFLAGS* Flags	
8(8)		LDPNLRID NCP.LRID (Pointer to SCE or LKE)	

LDPNMBUS Number of buffers used			
12(C)		LDP1DATP Pointer to statistics	

LDPOFSD Offset to first data			
16(10)		LDP2DATP Pointer to last buffer used	

LDPBYCT Residual byte count			
20(14)		Reserved	
24(18)		LDPSEQN Sequence counter	

* Indicates a byte expansion follows.

Byte Expansions

Offset/Field Name	Bit Pattern/ Hex Value	Contents
6(6) LDPFLAGS		Flags
	Byte 0	Common LDP flags
	x... ..	Command is to the processor 0 = Service request is for the processor 1 = Service request is for a line
	Byte 1	Command-unique flags
	..x.	0 = Generic alert subvectors 1 = Link_event subvectors
	.... x...	0 = Statistics counters associated with station resource 1 = Statistics counters associated with link resource
	.x... .xxx	Reserved

LDPSA - Notify Alert Statistics

Program: NCP

Size in bytes: 26(1A)

Function: To send to NCP alert data related to the identified link or station

0(0)		LDPDPSAP Chain pointer to next LDPSA in list	
4(4)	LDPDPSAP Notify X'0A'	5(5)	LDPQUAL Alert X'54'
		6(6)	LDPFLAGS* Flags
8(8)		LDPNLRID NCP.LRID (Pointer to SCE or LKE)	
LDPNMBUS Number of buffers used			
12(C)		LDP1DATP Pointer to statistics	
LDP1OFSD Offset to first data			
16(10)		LDP2DATP Pointer to last buffer used	
LDP2RBYCT Residual byte count			
20(14)		Reserved	
24(18)		LDPSEQN Sequence counter	

* Indicates a byte expansion follows.

Byte Expansions

Offset/Field Name	Bit Pattern/ Hex Value	Contents
6(6) LDPFLAGS		Flags
	Byte 0	Common LDP flags
	x... ..	Command is to the processor 0 = Service request is for the processor 1 = Service request is for a line
	Byte 1	Command-unique flags
	..x.	0 = Generic alert subvectors 1 = Link_event subvectors
	.... x...	0 = Statistics counters associated with station resource 1 = Statistics counters associated with link resource

LDPDSA - Notify Link Configuration Data Statistics

Program: NCP

Size in bytes: 26(1A)

Function: To send to NCP link configuration data

0(0)			LDPDPSAP Chain pointer to next LDPDSA in list		
4(4)	LDP CMD Notify X'0A'	5(5)	LDP QUAL Link configuration data X'55'	6(6)	LDP FLAGS* Flags
8(8)					
LDPNLRID NCP.LRID (Pointer to SCE or LKE)					
LDPNMBUS Number of buffers used					
12(C)					
LDP1DATP Pointer to statistics					
LDPOFSD Offset to first data					
16(10)					
LDP2DATP Pointer to last buffer used					
LDP RBYCT Residual byte count					
20(14)					
Reserved					
24(18)					
LDP SEQN Sequence counter					

* Indicates a byte expansion follows.

Byte Expansions

Offset/Field Name	Bit Pattern/ Hex Value	Contents
6(6) LDPFLAGS		Flags
	Byte 0	Common LDP flags
	x...	Command is to the processor 0 = Service request is for the processor 1 = Service request is for a line
	Byte 1	Command-unique flags
	.... x...	0 = Statistics counters associated with station resource 1 = Statistics counters associated with link resource

LDPSA - Notify/Intensive Mode Record

Program: NCP

Size in bytes: 26(1A)

Function: Provides the NCP with intensive mode record information for the indicated station.

0(0)			LDPDPSAP Chain pointer to next LDPSA in list		
4(4)	LDP CMD Notify X'0A'	5(5)	LDPQUAL* Qualifier	6(6)	LDPFLGS Flags
8(8)			LDPNLRID NCP.LRID (Pointer to SCE)		
LDPNMBUS Number of buffers used					
12(C)			LDP1DATP Pointer to the intensive mode record information		
LDP OFSD Offset to first data					
16(10)			LDP2DATP Pointer to last buffer used		
LDP RBYCT Residual byte count					
20(14)	LDPSTRS** Stop reason	21(15) Reserved			
24(18)			LDPSEQN Sequence counter		

* Indicates a byte expansion follows.

** Field is valid only for IM record type = X'72', has the same value as was passed by RAS/IM Stop command.

Byte Expansions

Offset/Field Name	Bit Pattern/ Hex Value	Contents
5(5) LDPQUAL		Qualifier
	X'70'	Normal intensive mode record
	X'71'	Count of records originally requested has been exhausted.
	X'72'	NCP in slowdown or terminate intensive mode recording request received

LDPSA - Notify Station Contacted**Program:** NCP**Size in bytes:** 26(1A)**Function:** To signal the NCP that the processor has successfully CONTACTED the adjacent link station.

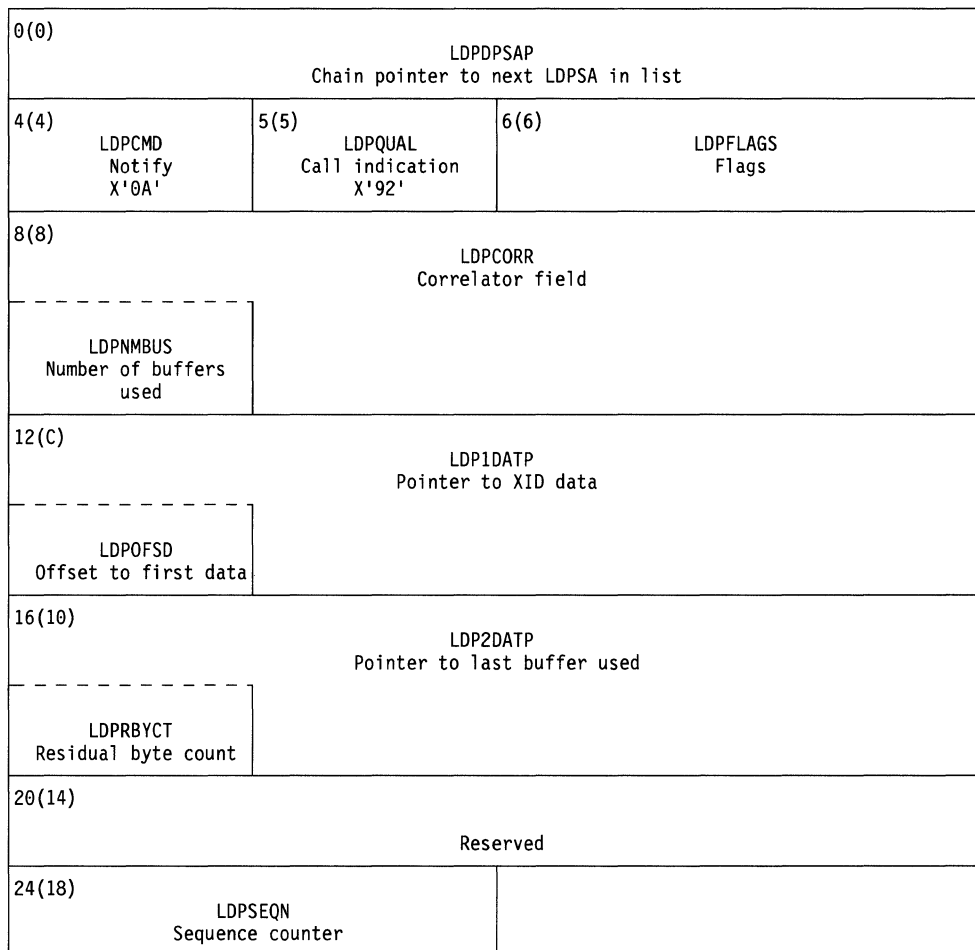
0(0)		LDPDPSAP Chain pointer to next LDPSA in list	
4(4)	LDPCMD Notify X'0A'	5(5)	LDPQUAL Station contacted X'90'
		6(6)	LDPFLAGS Flags
8(8)		LDPNLRID NCP.LRID (Pointer to SCE)	
12(C)		Reserved	
16(10)		Reserved	
20(14)	LDPLXBST LXBSTAT field X'001D'	22(16) Reserved	
24(18)		LDPSEQN Sequence counter	

LDPSA - Notify Call Indication

Program: NCP

Size in bytes: 26(1A)

Function: To signal the NCP that a ring station is trying to establish a connection



LDPSA - Notify CSS Congestion Status

Program: NCP

Size in bytes: 26(1A)

Function: To signal the NCP that the congestion status of a processor or the CBC has changed.

0(0)			LDPDPSAP Chain pointer to next LDPSA in list		
4(4)	LDPCMD Notify X'0A'	5(5)	LDPQUAL Congestion X'A0'	6(6)	LDPFLAGS* Flags
8(8)					
LDPNLRID NCP.LRID (X'000000' for the processor)					
LDPGCSNF* Congestion flags					
12(C)					
Reserved					
16(10)					
Reserved					
20(14)					
Reserved					
24(18)					
LDPSEQN Sequence counter					

* Indicates a byte expansion follows.

Byte Expansions

Offset/Field Name	Bit Pattern	Contents
6(6) LDPFLAGS		Flags
	Byte 0	Common LDP flags
	1...	Service request is for the processor
	.1..	Service request is for a line
	Byte 1	Command-unique flags
	xxxx	Reserved
	.... xxxx	Protocol type
	.... 0000	All is the only valid type on this LDPSA

Offset/Field Name	Bit Pattern	Contents
8(8) LDPCGSNF		Congestion flags
	x...	0 = Ultimate congestion exited 1 = Ultimate congestion entered
	.x..	0 = Critical congestion exited 1 = Critical congestion entered
	..x.	0 = Limited_2 congestion exited 1 = Limited_2 congestion entered
	...x	0 = Limited_1 congestion exited 1 = Limited_1 congestion entered

LDPSA - Notify CSS Line Congestion Status

Program: NCP

Size in bytes: 26(1A)

Function: To inform the NCP of a change in the state of congestion of a CSS physical line

0(0)		
LDPDPSAP Chain pointer to next LDPSA in list		
4(4)	5(5)	6(6)
LDPCMD Notify X'0A'	LDPQUAL Physical line congestion X'A2'	LDPFLAGS* Flags
8(8)		
LDPNLRID NCP.LRID Pointer to LKE of congested line		
LDPCGSNF* Congestion flags		
12(C)		
Reserved		
16(10)		
Reserved		
20(14)		
Reserved		
24(18)		
LDPSEQN Sequence counter		

* Indicates a byte expansion follows.

Byte Expansions

Offset/Field Name	Bit Pattern/ Hex Value	Contents
6(6) LDPFLAGS		Flags
	Byte 0	Common LDP flags
	1... ..	Service request is for the processor
	.1... ..	Service request is for a line
	Byte 1	Command-unique flags
	xxxx xxxx	Reserved
8(8) LDPCGSNF		Congestion flags
	x... ..	1 = Ultimate congestion entered 0 = Ultimate congestion exited
	.x... ..	1 = Critical congestion entered 0 = Critical congestion exited
	..x.	1 = Limited_2 congestion entered 0 = Limited_2 congestion exited
	...x	1 = Limited_1 congestion entered 0 = Limited_1 congestion exited
	.... xxxx	Reserved
	X'F0'	CSS in ultimate congestion (LDPCGUL)
	X'70'	CSS in critical congestion (LDPCGCR)
	X'30'	CSS in limited_2 congestion (LDPCGL2)
	X'10'	CSS in limited_1 congestion (LDPCGL1)
	X'00'	Normal CSS congestion (LDPCGNO)

LDPSA - Notify Trace Aborted

Program: NCP

Size in bytes: 26(1A)

Function: Notifies the NCP that the SIT trace running on the special LNVT SIT slot that is associated with this LDPSA has been aborted by the processor because of an internally detected error.

0(0)			LDPDPSAP Chain pointer to next LDPSA in list			
4(4)	LDPDPSAP Notify X'0A'	5(5)	LDPQUAL Trace abort X'B0'	6(6)	LDPFLAGS Reserved	
8(8)						
LDPNLRID NCP.LRID (X'000000' for the processor)						
12(C)						
Reserved						
16(10)						
Reserved						
20(14)	LDPABTRS* Abort reason	21(15)				Reserved
24(18)		LDPSEQN Sequence counter				

* Indicates a byte expansion follows.

Byte Expansions

Offset/Field Name	Bit Pattern	Contents
20(14) LDPABTRS		Abort reason
	X'00'	Internal error
	X'01'	Possible NCP error
	X'02'	Possible CBC error
	X'04'	Logical line trace deactivated because station has been deleted

LDP SA - Notify Permanent Link Error

Program: NCP

Size in bytes: 26(1A)

Function: To signal the NCP that the processor has detected LINK INOP condition.

0(0)		LDPDPSAP Chain pointer to next LDP SA in list	
4(4)	LDPDPCMD Notify X'0A'	5(5)	LDPQUAL Permanent link error X'C0'
8(8)		LDPNLRID NCP.LRID (Pointer to LKE)	
12(C) Reserved			
16(10) Reserved			
LDPLXBXS LXBEXTST field			
20(14)		22(16)	
LDP LXBST LXBSTAT field		Reserved	
24(18)			
LDPSEQN Sequence counter			

* Indicates a byte expansion follows.

Byte Expansions

Offset/Field Name	Bit Pattern	Contents
6(6) LDPFLAGS		Flags
	Byte 0	Common LDP flags
	1... ..	Service request is for the processor
	.1... ..	Service request is for a line
	Byte 1	Command-unique flags
	1... ..	Logical outage - associated physical resource failed

LDPESA - Notify Permanent Station Error

Program: NCP

Size in bytes: 26(1A)

Function: To signal the NCP that the processor has detected STATION INOP condition.

0(0)			LDPDPSAP Chain pointer to next LDPESA in list		
4(4)	LDPAMD Notify X'0A'	5(5)	LDPQUAL Permanent station error X'D0'	6(6)	LDPFLAGS* Flags
8(8)					
LDPNLRID NCP.LRID (Pointer to SCE)					
12(C)					
Reserved					
16(10)					
Reserved					
20(14)			22(16)		
LDPLXBST LXBSTAT field			Reserved		
24(18)					
LDPSEQN Sequence counter					

* Indicates a byte expansion follows.

Byte Expansions

Offset/Field Name	Bit Pattern	Contents
6(6) LDPFLAGS		Flags
	Byte 0	Common LDP flags
	1...	Service request is for the processor
	.1..	Service request is for a line
	Byte 1	Command-unique flags
	1...	Logical outage - associated physical resource failed
	.1..	CSS station tower destroyed

LDPSA - NPA Start Complete

Program: NCP

Size in bytes: 26(1A)

Function: To inform the NCP that the NPA START command has been accepted and collection started unless completion status indicates something to the contrary.

0(0)			LDPDPSAP Chain pointer to next LDPSA in list			
4(4)	LDP CMD NPA X'0B'	5(5)	LDP QUAL Start X'10'	6(6)	LDP FLAGS* Flags	
8(8)						
LDP NLRID NCP.LRID (Pointer to LKE or SCE)						
12(C)						
Reserved						
16(10)						
Reserved						
20(14)	LDP CPLCB* Completion code		22(16)	LDP NPAF1* NPA interval flags 1	23(17)	LDP NPAF2* NPA interval flags 2
24(18)			LDP SEQN Sequence counter			

* Indicates a byte expansion follows.

Byte Expansion

Offset/Field Name	Bit Pattern	Contents
6(6) LDP FLAGS		Flags
	Byte 0	Common LDP flags
	x... ..	Command is to the processor 0 = Service request is for the processor 1 = Service request is for a line
	Byte 1	Command-unique flags
	xxxx	Reserved
	.... xxxx	Protocol type
	.... 0000	ALL is the only valid type on this LDPSA

Offset/Field Name	Bit Pattern	Contents
20(14) LDPCPLCB		Completion code
	X'0000'	Collection started.
	X'0001'	NPA START NDPSA received for a resource that is not eligible for NPA data collection.
	X'0002'	NPA START NDPSA contained invalid NPA interval flags.
	X'xxxx'	All conditions which prevent data collection from being started will be reported with a non-zero status.
22(16) LDPNPAF1		NPA interval flags 1
	1111 1111	All intervals started
	.... ..1.	Interval 10 started
	.... ...1	Interval 9 started
23(17) LDPNPAF2		NPA interval flags 2
	1111 1111	All intervals started
	1...	Interval 8 started
	.1..	Interval 7 started
	..1.	Interval 6 started
	...1	Interval 5 started
	.... 1...	Interval 4 started
	.... .1..	Interval 3 started
	.... ..1.	Interval 2 started
	.... ...1	Interval 1 started

LDPSA - NPA Stop Complete

Program: NCP

Size in bytes: 26(1A)

Function: To inform the NCP that the NPA STOP command has been accepted and NPA collection has been stopped for the resource(s) indicated. If the STOP NDPSA was for 'all' resources, this LDPSA will be on the processor slot.

0(0)			LDPDPSAP Chain pointer to next LDPSA in list		
4(4)	LDP CMD NPA X'0B'	5(5)	LDPQUAL* Qualifier	6(6)	LDPFLAGS* Flags
8(8)			LDPNLRID NCP.LRID (Pointer to LKE, SCE or, for the processor, X'000000')		
12(C)			Reserved		
16(10)			Reserved		
20(14)		22(16)		23(17)	
Reserved		LDPNPAF1* NPA interval flags 1		LDPNPAF2* NPA interval flags 2	
24(18)			LDPSEQN Sequence counter		

* Indicates a byte expansion follows.

Byte Expansions

Offset/Field Name	Bit Pattern/ Hex Value	Contents
5(5) LDPQUAL		Qualifier
	X'20'	Stop for a specific resource
	X'22'	Stop for all resources
6(6) LDPFLAGS		Flags
	Byte 0	Common LDP flags
	1...	Service request is for the processor
	.1...	Service request is for a line
	Byte 1	Command-unique flags
	xxxx	Reserved
	.... xxxx	Protocol type
	.... 0000	All is the only valid type on this LDPSA
22(16) LDPNPAF1		NPA interval flags 1
	0000 0000	No intervals are started
	.... ..1.	Interval 10 is still started
	.... ...1	Interval 9 is still started
23(17) LDPNPAF2		NPA interval flags 2
	0000 0000	No intervals are started
	1...	Interval 8 is still started
	.1...	Interval 7 is still started
	..1.	Interval 6 is still started
	...1	Interval 5 is still started
	.... 1...	Interval 4 is still started
	.... .1..	Interval 3 is still started
	.... ..1.	Interval 2 is still started
	.... ...1	Interval 1 is still started

LDPSA - NPA Collect

Program: NCP

Size in bytes: 26(1A)

Function: To inform the NCP that these are the NPA statistics collected for the resources at the time the NPA FORWARD command was received or at the time the resource is deactivated.

0(0)			
LDPDPSAP Chain pointer to next LDPSA in list			
4(4)	LDPNMBUS NPA X'0B'	5(5)	LDPQUAL Collect X'30'
		6(6)	LDPFLAGS* Flags
8(8)			
LDPNLRID NCP.LRID (X'000000' for the processor)			
LDPNMBUS Number of buffers used			
12(C)			
LDP1DATP Pointer to NPA data			
LDP1DATP Offset to first data			
16(10)			
LDP2DATP Pointer to last buffer used			
LDP2DATP Residual byte count			
20(14)	LDPFLD3 Sequence number	21(15)	Reserved
		22(16)	LDPNPAF1* NPA interval flags 1
		23(17)	LDPNPAF2* NPA interval flags 2
24(18)			
LDPSEQN Sequence counter			

* Indicates a byte expansion follows.

Byte Expansions

Offset/Field Name	Bit Pattern	Contents
6(6) LDPFLAGS		Flags
	Byte 0	Common LDP flags
	1... ..	Service request is for the processor
	.1.. ..	Service request is for a line
	Byte 1	Command-unique flags
	x... ..	0 = Not the last COLLECT 1 = Last COLLECT for the active FORWARD
	.x.. ..	0 = Solicited COLLECT 1 = Unsolicited COLLECT
	..xx ..	Reserved
	.... xxxx	Protocol type
	.... 0000	All is the only valid type on this LDPSA
22(16) LDPNPAF1		NPA interval flag 1
	.... ..1.	Interval 10
	.... ...1	Interval 9
23(17) LDPNPAF2		NPA interval flag 2
	1... ..	Interval 8
	.1.. ..	Interval 7
	..1.	Interval 6
	...1	Interval 5
	.... 1...	Interval 4
	.... .1..	Interval 3
	.... ..1.	Interval 2
	.... ...1	Interval 1

LDPSA - PIU Indicate

Program: NCP

Size in bytes: 26(1A)

Function: To signal the NCP that a PIU was received from the station indicated.

0(0)			LDPDPSAP Chain pointer to next LDPSA in list		
4(4)	LDPAMD PIU X'0C'	5(5)	LDPQUAL X'00'	6(6)	LDPFLAGS* Flags
8(8)			LDPNLRID NCP.LRID (Pointer to SCE)		
LDPNMBUS Number of buffers used					
12(C)			LDP1DATP Pointer to PIU		
LDP0FSD Offset to first data					
16(10)			LDP2DATP Pointer to last buffer used		
LDPBYCT Residual byte count					
20(14)	LDPACKCT Ack count	21(15)	Reserved	22(16)	LDPTPIUL Total PIU length
24(18)			LDPSEQN Sequence counter		

* Indicates a byte expansion follows.

Byte Expansion

Offset/Field Name	Bit Pattern/ Hex Value	Contents
6(6) LDPFLAGS		Flags
	Byte 0	Common LDP flags
	1... ..	Service request is for the processor
	.1... ..	Service request is for a line
	Byte 1	Command-unique flags
	1... ..	Pacing request
	.1... ..	End of window indicator
	..1... ..	Pacing response
	...1... ..	Change window reply indicator
	.... 1...	Reset window indicator
	.... .xxx	Reserved

LDPSA - RAS Complete / Link Level 2 Test

Program: NCP

Size in bytes: 26(1A)

Function: To notify the NCP that link level 2 test has completed for the specified station and to pass back the test results to the NCP.

0(0)		LDPDPSAP Chain pointer to next LDPSA in list	
4(4)	LDPAMD RAS complete X'0D'	5(5)	LDPQUAL LL2 X'10'
6(6)		LDPFLAGS Flags	
8(8)		LDPNLRID NCP.LRID (Pointer to SCE)	
LDPNMBUS Number of buffers used			
12(C)		LDP1DATP Pointer to the buffer that contains the TCB with test results	
LDPDPOFSD Offset to first data			
16(10)		LDP2DATP Pointer to last buffer used	
LDPDRBYCT Residual byte count			
20(14)		Reserved	
24(18)		LDPSEQN Sequence counter	

LDPSA - RAS Complete / LPDA2 Test**Program:** NCP**Size in bytes:** 26(1A)**Function:** Notifies the NCP that an LPDA2 test has completed.

0(0)		LDPDPSAP Chain pointer to next LDPSA in list	
4(4)	LDPAMD RAS complete X'0D'	5(5)	LDPQUAL LPDA2 X'20'
		6(6)	LDPFLAGS* Flags
8(8)		LDPNLRID NCP.LRID (Pointer to SCE)	
LDPNMBUS Number of buffers used			
12(C)		LDP1DATP Pointer to the first LPDA2 test results buffer	
LDPOFSD Offset to first data			
16(10)		LDP2DATP Pointer to the last LPDA2 test results buffer	
LDPBYCT Residual byte count			
20(14)		22(16)	
LDPLXBST* LXBSTAT field		Reserved	
24(18)			
LDPSEQN Sequence counter			

* Indicates a byte expansion follows.

Byte Expansions

Offset/Field Name	Bit Pattern/ Hex Value	Contents
6(6) LDPFLAGS		Flags
	Byte 0	Common LDP flags
	1... ..	Service request is for the processor
	.1... ..	Service request is for a line
	Byte 1	Command-unique flags
	xxxx xxxx	Reserved
20(14) LDPLXBST		LXBSTAT field
	X'006B'	SV 50 is received
	X'0080'	Timeout
	X'0000'	SV 7D is returned to the NCP, test cannot be started

LDPSA - RAS Complete / Start Wrap Test**Program:** NCP**Size in bytes:** 26(1A)**Function:** To inform the NCP that its start wrap test request has been accepted or not.

0(0)			LDPDPSAP Chain pointer to next LDPSA in list		
4(4)	LDPDPSAP RAS complete X'0D'	5(5)	LDPQUAL Start wrap X'50'	6(6)	LDPFLAGS* Flags
8(8)					
LDPNLRID NCP.LRID (Pointer to LKE)					
12(C)					
Reserved					
16(10)					
Reserved					
20(14)			22(16)		
LDPDPSAP* Completion code			Reserved		
24(18)					
LDPSEQN Sequence counter					

* Indicates a byte expansion follows.

Byte Expansions

Offset/Field Name	Bit Pattern/ Hex Value	Contents
6(6) LDPFLAGS		Flags
	Byte 0	Common LDP flags
	1... ..	Service request is for the processor
	.1.. ..	Service request is for a line
	Byte 1	Command-unique flags
	xxxx xxxx	Reserved
20(14) LDPDPSAP		Completion code
	X'0000'	The requested wrap test has been activated
	X'00D2'	Command rejected
	X'00D4'	Wrap test already active

LDPSA - RAS Complete / Stop Wrap Test

Program: NCP

Size in bytes: 26(1A)

Function: To tell the NCP the results of its stop wrap request.

0(0)			LDPDPSAP Chain pointer to next LDPSA		
4(4)	LDPCMD RAS complete X'0D'	5(5)	LDPQUAL Stop wrap test X'52'	6(6)	LDPFLAGS Flags
8(8)			LDPNLRID NCP.LRID (Pointer to LKE)		
12(C)			Reserved		
16(10)			Reserved		
20(14)		LDPCPLCB* Completion code		22(16) Reserved	
24(18)		LDPSEQN Sequence counter			

* Indicates a byte expansion follows.

Byte Expansions

Offset/Field Name	Bit Pattern/ Hex Value	Contents
20(14) LDPCPLCB		Completion code
	X'0000'	Wrap test has been stopped
	X'00D2'	Command rejected

LDPSA - RAS Complete / Wrap Test**Program:** NCP**Size in bytes:** 26(1A)**Function:** To pass the wrap test results to the NCP.

0(0)			LDPDPSAP Chain pointer to next LDPSA in list		
4(4)	LDPCMD RAS complete X'0D'	5(5)	LDPQUAL Wrap test X'54'	6(6)	LDPFLAGS Flags
8(8)			LDPNLRID NCP.LRID (Pointer to LKE, SCE or, for the processor, X'000000')		
LDPNMBUS Number of buffers used					
12(C)			LDP1DATP Pointer to first wrap results buffer		
LDPOFSD Offset to first data					
16(10)			LDP2DATP Pointer to last buffer wrap results buffer		
LDRBYCT Residual byte count					
20(14)			Reserved		
24(18)		LDPSEQN Sequence counter			

Offset/Field Name	Bit Pattern/Hex Value	Contents
20(14) LDPCPLCB		Completion code
	X'00'	The resource definition data was accepted
	X'01'	Duplicate resource definition was received for the specified resource
	X'02'	An error exists in the resource definition data
	X'03'	A configuration mismatch has occurred or an unsupported protocol type has been specified
	X'04'	No stations are available (ESCA, token-ring or frame relay)
	X'05'	The resource definition was not accepted because the LIC is under concurrent maintenance
	X'06'	The resource definition was not accepted because of a microcode usage tier mismatch
	X'07'	The resource definition was not accepted because a DMA error occurred while attempting to read the RDI data
	X'08'	The resource definition was not accepted because of an internal processor problem
	X'09'	The station did not respond to a TEST command frame (token-ring or frame-relay)
	X'0A'	Reserved
	X'0B'	The resource definition was not accepted because the ring was in a beacon state
	X'0C'	There is no established path for stations IPL ports
	X'0D'	The resource definition was not accepted because the processor was congested
	X'0E'	The resource definition was not accepted because there is no ESCC enable by the operator at the TSP console for this line
	X'0F'	The resource definition was not accepted because it would have exceeded the resource limit for this communication line adapter
	X'10'	The resource definition was not accepted because a hardware error was detected at TIC initialization
	X'11'	The resource definition was not accepted because a duplicate MAC address was specified
	X'12'	The resource definition was not accepted because the token-ring was congested—request parameters fails during open (TRA)
	X'13'	The resource definition was not accepted because a microcode error was detected during TIC open
	X'14'	The resource definition was not accepted because a lobe media error was detected during TIC open
	X'15'	The resource definition was not accepted because a token-ring failure detected was detected during TIC open
	X'16'	The resource definition was not accepted because a parameters server error was detected during TIC open
	X'17'	The resource definition was not accepted because an abnormal signal was detected on the token-ring during TIC open
	X'18'	The resource definition was not accepted because the token-ring was congested
	X'19'	The resource definition was not accepted because the adjacent DLCI is not active when the SSCF is X'A801' (link level 2 test) or X'A105' (IPLINIT) (frame-relay)
	X'1A'	The resource definition was not accepted because the adjacent DLCI is not present (frame-relay)
	X'1B'	Reserved
	X'1C'	The resource definition was not accepted because a connection already exists for this DLCI (frame-relay)

LDPSA - Resource Definition Update Complete

Program: NCP

Size in bytes: 26(1A)

Function: To notify the NCP that the resource update has been rejected.

0(0)			LDPDPSAP Chain pointer to next LDPSA in list		
4(4)	LDPCMD Resource definition complete X'0F'	5(5)	LDPQUAL Update X'20'	6(6)	LDPFLAGS Flags
8(8)			LDPNLRID NCP.LRID (Pointer to LKE or SCE)		
LDPNMBUS Number of buffers used					
12(C)			LDP1DATP Pointer to first resource definition update buffer		
LDPOFSD Offset to 1st data					
16(10)			LDP2DATP Pointer to last resource definition update buffer		
LDPRBYCT Residual byte count					
20(14)	LDPCPLCB* Completion code	21(15) Reserved		23(17) LDPOFFER Offset to error	
24(18)			LDPSEQN Sequence counter		

* Indicates a byte expansion follows.

Byte Expansions

Offset/Field Name	Bit Pattern/ Hex Value	Contents
20(14) LDPCPLCB		Completion code
	X'02'	An error exists in the resource definition data
	X'03'	A configuration mismatch exists
	X'04'	Reserved for CLDP
	X'05'	Reserved for RDI failure
	X'06'	Reserved for RDI failure
	X'07'	The resource definition was not accepted because a DMA error occurred while attempting to read the RDU data

LDPDSA - Resource Definition Modify Complete

Program: NCP

Size in bytes: 26(1A)

Function: To notify the NCP that a particular field as indicated by the type has been modified

0(0)			LDPDPSAP Chain pointer to next LDPDSA in list		
4(4)	LDPAMD Resource definition complete X'0F'	5(5)	LDPQUAL Modify X'30'	6(6)	LDPFLAGS Flags
8(8)					
LDPNLRID NCP.LRID (Pointer to LKE or SCE)					
LDPMTYP* Modify type					
12(C)	LDPMACT* Modify action	13(D) Reserved			
16(10)					
Type specific information					
LDPMCC* Completion code					
20(14)					
Type specific information					
24(18)					
LDPSEQN Sequence counter					

* Indicates a byte expansion follows.

Byte Expansions

Offset/Field Name	Bit Pattern/ Hex Value	Contents
8(8) LDPMTYP		Modify type
	X'01'	Modify for a frame-relay DLCI
12(C) LDPMACT		Modify action
		For modify type of X'01'
	X'01'	Modify was to delete the DLCI
	X'02'	Modify was to add the DLCI
	X'03'	Modify was to set the DLCI inactive
	X'04'	Modify was to set the DLCI active
	X'05'	Modify was to set FHSP DLCI inactive
	X'06'	Modify was to set FHSP DLCI active

Offset/Field Name	Bit Pattern/ Hex Value	Contents
16(10) LDPMCC		Completion code
	X'00'	The resource definition modify was accepted
	X'01'	The resource definition modify was not accepted because the modify indicated an active status for a DLCI whose adjacent DLCI status was not present for the LMI PU
	X'02'	The resource definition modify was not accepted because the modify indicated an add status for a DLCI whose adjacent DLCI status was not present for the LMI PU
	X'03'	The resource definition modify was not accepted because the modify indicated a delete status for a DLCI which was not present for the LMI PU
	X'04'	The resource definition modify was not accepted because adding the requested DLCI to the interface would have exceeded the number of DLCIs supported by the current configuration
	X'05'	The resource definition modify was not accepted because the action code indicated was identical to the previous one sent for the same FHSP DLCI

LDP SA - Station Delete Complete

Program: NCP

Size in bytes: 26(1A)

Function: To notify the NCP that its STATION DELETE command is complete.

0(0)		
LDPDPSAP Chain pointer to next LDP SA in list		
4(4)	5(5)	6(6)
LDP CMD Station delete complete X'11'	LDP QUAL X'00'	LDP FLAGS* Flags
8(8)		
LDP NLRID NCP.LRID (Pointer to SCE)		
12(C)		
Reserved		
16(10)		
Reserved		
20(14)	22(16)	
LDP CPLCB* Completion code	Reserved	
24(18)		
LDP SEQN Sequence counter		

* Indicates a byte expansion follows.

Byte Expansions

Offset/Field Name	Bit Pattern/ Hex Value	Contents
6(6) LDP FLAGS		Flags
	Byte 0	Common LDP flags
	1...	Command is to the processor
	.1...	Command is to a line
	..1.	Station state field is valid
	.... ...x	Reserved for CLDP use
	Byte 1	Command-unique flags
	xxxx xxxx	Reserved
20(14) LDP CPLCB		Completion code
	X'0000'	The requested station deletion has completed successfully.
	X'0001'	The requested station deletion has been rejected.

LDPSA - Stop Line Complete

Program: NCP

Size in bytes: 26(1A)

Function: To inform the NCP operation on the line resource indicated has been stopped.

0(0)			LDPDPSAP Chain pointer to next LDPSA in list		
4(4)	LDPCMD Stop X'12'	5(5)	LDPQUAL Line complete X'10'	6(6)	LDPFLAGS Flags
8(8)					
LDPNLRID NCP.LRID (Pointer to LKE)					
12(C)					
Reserved					
16(10)					
Reserved					
20(14)			22(16)		
LDPLXBST LXBSTAT field (X'008C')			Reserved		
24(18)					
LDPSEQN Sequence counter					

LDPSA - Stop Station Immediate Complete

Program: NCP

Size in bytes: 26(1A)

Function: To inform NCP operation for the station resource indicated has been stopped.

0(0)		LDPDPSAP Chain pointer to next LDPSA in list	
4(4)	LDPCMD Stop X'12'	5(5)	LDPQUAL Station immediate complete X'20'
		6(6)	LDPFLAGS Flags
8(8)		LDPNLRID NCP.LRID (Pointer to SCE)	
12(C)		Reserved	
16(10)		Reserved	
20(14)	LCPLXBST LXBSTAT field (X'0096' Poll stop)	22(16)	Reserved
24(18)	LDPSEQN Sequence counter		

LDPSA - Stop Station Soft Complete

Program: NCP

Size in bytes: 26(1A)

Function: To inform NCP operation on the station resource indicated after performing the requested function has been stopped.

0(0)			LDPDPSAP Chain pointer to next LDPSA in list		
4(4)	LDPDPSAP Stop X'12'	5(5)	LDPQUAL Station soft complete X'22'	6(6)	LDPFLAGS Flags
8(8)					
LDPNLRID NCP.LRID (Pointer to SCE)					
12(C)					
Reserved					
16(10)					
Reserved					
20(14)			22(16)		
LDPLXBST LXBSTAT field (X'009C' Poll stop)			Reserved		
24(18)					
LDPSEQN Sequence counter					

LDPSA - Trace Start Complete

Program: NCP

Size in bytes: 26(1A)

Function: To tell the NCP that SIT trace has been started or not for the line in question. This LDPSA is passed using one of the special LNVT SIT slots.

0(0)		
LDPDPSAP Chain pointer to next LDPSA in list		
4(4)	5(5)	6(6)
LDPCMD Trace X'13'	LDPQUAL Start complete X'10'	LDPFLAGS Flags
8(8)		
LDPNLRID NCP.LRID (For the trace X'000000')		
12(C)		
Reserved		
16(10)		
Reserved		
20(14)	22(16)	
LDPCLCB* Completion code	Reserved	
24(18)		
LDPSEQN Sequence counter		

* Indicates a byte expansion follows.

Byte Expansions

Offset/Field Name	Bit Pattern	Contents
20(14) LDPCLCB		Completion code
	X'0000'	The requested SIT trace has been activated with no problems
	X'0001'	Command rejected
	X'0002'	Trace already active
	X'0003'	Maximum number of line traces active within the processor or CBC
	X'0004'	Error detected

LDPSA - Trace Stop Complete**Program:** NCP**Size in bytes:** 26(1A)**Function:** To notify the NCP that SIT trace has been stopped for the line in question. This LDPSA is passed using one of the special LNVT SIT slots.

0(0)			LDPDPSAP Chain pointer to next LDPSA in list		
4(4)	LDPAMD Trace X'13'	5(5)	LDPQUAL Stop complete X'20'	6(6)	LDPFLAGS Flags
8(8)					
LDPNLRID NCP.LRID (For the trace X'000000')					
12(C)					
Reserved					
16(10)					
Reserved					
20(14)			22(16)		
LDPCLCB* Completion code			Reserved		
24(18)					
LDPSEQN Sequence counter					

* Indicates a byte expansion follows.

Byte Expansions

Offset/Field Name	Bit Pattern	Contents
20(14) LDPCLCB		Completion code
	X'0000'	SIT trace has been stopped with no problems
	X'0001'	Command rejected

LDPSA - Trace Record Indicate

Program: NCP

Size in bytes: 26(1A)

Function: To transfer SIT trace information to the NCP. This LDPSA is passed using one of the special LNVT SIT slots.

0(0)			LDPDPSAP Chain pointer to next LDPSA in list		
4(4)	LDPCMD Trace X'13'	5(5)	LDPQUAL Record indicate X'30'	6(6)	LDPFLAGS Flags
8(8)					
NCP.LRID (For the trace X'000000')					
LDPNMBUS Number of buffers used					
12(C)					
LDP1DATP Pointer to first buffer used					
LDPOFSD Offset to first data					
16(10)					
LDP2DATP Pointer to last buffer used					
LDPLBFRC Last buffer residual count					
20(14)					
Reserved					
24(18)					
LDPSEQN Sequence counter					

LDPSA - NOP**Program:** NCP**Size in bytes:** 26(1A)**Function:** Inform NCP that a NOP NDPSA was received and the processor is functioning properly.

0(0)	LDPDPSAP Chain pointer to next LDPSA in list	
4(4)	LDPCMD NOP X'14'	5(5) LDPQUAL X'00'
6(6)	LDPFLAGS* Flags	
8(8)	LDPNLRID NCP.LRID (Pointer to LKE or, for the processor, X'000000')	
12(C)	Reserved	
16(10)	Reserved	
20(14)	Reserved	
24(18)	LDPSEQN Sequence counter	

* Indicates a byte expansion follows.

Byte Expansions

Offset/Field Name	Bit Pattern/ Hex Value	Contents
6(6) LDPFLAGS		Flags
	Byte 0	Common LDP flags
	1... ..	Service request is for the processor
	.1.. ..	Service request is for a line
	Byte 1	Command-unique flags
	xxxx ..	Reserved
	.... xxxx	Protocol type
 0000	All is the only valid type on this LDPSA

Acronyms, Abbreviations, and Bibliography

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List of Acronyms and Abbreviations

Acronym	Meaning		
AAB	achain anchor block	BGS	background save area
AARR	allow additional register range	BH	buffer prefix
AB	abort call	BHD	block handler driver table
ABN	abend control block	BHR	block handler routine
ABNX	abend control block extension	BHS	block handler set
ACB	adapter control block	BISSQ	boundary inbound session started queue
ACF	Advanced Communications Function	BLU	basic link unit
ACK	acknowledgment	BOQ	boundary out queue
ACR	Abandon Call and Retry	BOSSQ	boundary outbound session started queue
ACT	ACB trace control block	BPB	destination boundary pool (BPOOL) block
ACU	auto call unit	BPT	boundary function processor address table
AEB	achain element block	BSB	boundary session block
All	adapter ID index	BSC	binary synchronous communication
AIO	adapter input/output	BST	block handler set table
AIT	adapter information table	BTT	branch trace table
ALC	airline line control	BTU	basic transmission unit
ALCA	airline line control adapter	BUE	switched backup extension to the DVB
ALS	adjacent link station	BXI	boundary session block extension
ANS	automatic network shutdown	CA	channel adapter
APPN	advanced peer-to-peer networking	CAB	channel adapter control block
ASC	auto-selection chain	CAC	character address counter
ASCII	American National Standard Code for Information Interchange	CACM	channel adapter concurrent maintenance
AST	adapter status table	CADS	channel adapter data streaming
ATB	address trace block	CAP	channel adapter parameter table
ATO	attention timeout	CAT	channel adapter trace select table
ATT	ACB trace table control block	CAVT	channel adapter vector table
AVB	address vector control block	CBB	committed buffers block
AXB	adapter control block extension	CBC	Controller bus coupler
BAR	buffer address register	CBT	conditional branch trace
BB	begin bracket	CCB	character control block
BCA	Boundary channel attachment	CCBX	character control block general purpose extension
BCC	Block Check Character	CCLID	called/calling line identifier
BCT	BFSESSINFO PIU control table	CCP	communication control program
BCU	block control unit		
BER	box event record		
BF	boundary function		

CCT	character control block for trace	CSW	channel status word
CCU	communication control unit	CTB	communication line timer and RAS control table
CCW	channel command word	CTS	Clear to Send
CDDO	cycle-steal dynadump data out queue	CTT	table of CNVT pointers
CDRM	Cross-domain Resource Manager	CUB	common physical unit block
CDS	configuration data set	CUC	cycle utilization counter
CE	channel end	CV	control vector
CER	channel adapter error recovery procedure control block	CWI	change window indicator
CFI	call failure indication	CWRI	change window reset indicator
CGP	cluster general poll control block extension to the DVB	CXB	common physical unit block extension
CHCB	channel control block	CXI	common physical unit block extension for embedded blocks
CHVT	channel vector table	DA	destination address
CICP	communication interrupt control program	DAE	device addressing extension
CIE	call-in extension	DAF	destination address field
CIOT	channel adapter IOH trace table	DCD	data carrier detect
CLAB	channel and line attachment board	DCE	data communication equipment
CLDP	controller load/dump program	DCF	data count field
Cmd. Tbl.	command table	DDB	dummy data buffer
CNM	communications network management	DE	device end
COE	callout extension	DEF	destination element address
COS	Call Originator Status or class of service	DFC	data flow control
CP	control point	DGP	general poll extension
CPIT	control program information table	DIA	device input area
CPM	control point manager	DLC	data link control or delayed call
CPN	control point notification queue	DLE	data link escape
CPS	call progress signal	DLO	data line occupied or Deactivate Line Orderly
CRB	commit request block	DM	disconnect mode
CRC	cyclic redundancy check	DMA	direct memory access
CRP	check record pool	DPR	Digit Present
CRQ	Call Request	DPT	dispatch priority table
CSGC	cycle steal grant chain	DQB	dispatch queue block
CSP	communication scanner processor	DR	dynamic reconfiguration
CSPA	communication scanner processor address	DRS	Data Rate Select or display/refresh/select table
CSS	Connectivity subsystem, 3746 Model 900	D/S	data/status
CSTAT	command status	DSA	destination subarea address
		DSAP	destination service access point
		DSI	data service in

DSP	dispatch table	ESA	extended subarea addressing
DSR	data set ready	ESC	emulator subchannel
DTE	data terminal equipment	ESCA	ESCON Channel Adapter
DTG	date and time generation control block	ESCON	Enterprise Systems Connection
DTL	DLCI to LLB table	ET	engaged tone
DTQ	dynadump timer queue	ETB	End of Text Block
DTR	Data Terminal Ready	ETX	End of Text
DVB	device base control block	FAE	fixed ARP entries table
EB	end bracket	FAX	fullword direct addressable extension
EBCDIC	extended binary-coded decimal interchange code	FC	forbidden call
EC	engineering change	FCT	flow control parameter table
ECB	event control block	FDX	full duplex
ECDT	EBCDIC Character Decode Displacement	FES	front end scanner
ECO	Ethernet counters overlay	FESA	front end scanner adapter
ECT	statistical counters control block	FID	format identification
EF	Ethernet frame	FIGS	figures shift
EFH	Ethernet frame header	FLB	multilink transmission group (fat link) control block
EFST	Ethernet frames supported table	FM	function manager
EIA	external interface adapter	FMD	function management data
EIB	End of Intermediate Block	FMT	function management table
ELCS	extended line communication status	FNA	free network address
ENI	Ethernet interface control block	FRH	frame relay frame header
EML	ER-to-VR mapping list	FRMR	frame reject
ENA	extended network addressing	FVT	function vector table
ENQ	enquiry	GCB	group control block
EOB	End of Block	GCBB	group control block for the boundary channel attachment
EOM	End of Message	GPA	generic pool anchor block
EOR	End of Reception	GPB	generic pool block
EOT	End of Transmission	GPT	generalized PIU trace
EP	Emulation Program	GRW	gateway RNAA workarea
EPINITAB	EP initialization table	GVT	gateway vector of tasks
EQB	event queue block	GW	gateway
ER	explicit route	HDLC	high-level data link control
ERB	explicit route broadcast queue	HDX	half duplex
ERN	explicit route number	HEB	hash entry control block
ER OP	Explicit Route Operative	HPTSS	high-performance transmission subsystem
ERP	error recovery procedure	HRE	host route entry
ERRCN	error cause	HRT	host route table control block

HSB	half session block	IPC	Internet protocol congestion control block
HSH	Token-ring hashing table	IPH	Internet protocol datagram header
HTAB	hashing table	IPS	Internet protocol router statistics control block
HW	halfword	IPT	internal PIU trace
HWE	extended halfword direct addressable control block	IPX	IP router statistics control block extension
HWX	extended halfword direct addressable control block extension	ITB	intermediate text block
IAR	instruction address register	I/O	input/output
ICC	interface control card	LA	line adapter
ICE	initial command execution or initial command execution routing address table	LAA	lookahead buffer
ICP	interface control program	LACB	processor-NCP ODLC adaptor control block
ICS	initial control sequence	LAE	local address entry control block
ICT	incident count refresh table	LAN	local area network
ICW	initial control word	LAR	lagging address register
IDDT	interface disconnect dispatcher table	LAT	local address table control block
IDE	identification list entry	LATO	link activity time-out
IDL	identification list header	LCB	line control block (BSC/SS)
IDQ	Internet protocol datagram queue control block	LCC	channelization extension
IEEE	Institute of Electrical and Electronics Engineers	LCD	line control definition
IFD	Interface Disconnect	LCDI	logical connections device input
IGR	Internet protocol gateway routes table	LCP	lost control point block
IIT	Internet protocol interface initialization table	LCS	line communication status
IM	intensive mode	LCST	line control selection table
IMD	Internet protocol message protocol message data area	LDA	logical unit block extension data area
IMH	Internet protocol message protocol message header	LDP	processor-NCP dynamic PSA
INC	incoming call	LDPSA	Processor to NCP dynamic parameter status area
INH	IP/token-ring frame header	LFR	LMI frame formats
INOP	inoperative	LGT	line group table
INV	invalid	LH	link header
IOB	input/output block	LIBQ	link inbound queue
IOC	input/output controller	LIC	line interface coupler
IOH	input/output halfword	LIT	line interface coupler
IOHI	input/output halfword immediate	LIQ	link inbound queue
IOP	Internet protocol option data format	LKB	line control block (SDLC)
		LKC	channelization extension
		LKE	line control block extension
		LL	logical link
		LLB	logical link control block

LLBAT	logical link block address table	LUX	logical unit block extension
LLC	logical link control	LXB	link XIO control block
LLUA	logical link adapter control block	LXC	logical link block common extension
LLX	logical link block extension	LXL	LLB LMI extension
LL2	link test level 2	L1B	level-1 control block
LMB	processor control block	L1X	level-1 control block extension
LME	processor control block extension	L4B	level-4 router control block
LMET	processor control block extension table	MAC	medium access control
LNB	logical unit network address control block	MAU	multistation access unit
LND	dependent logical unit control block	MBF	MOSS buffer format
LNID	line identifier	MBX	MOSS mailbox
LNK	NCST link session control block	MCT	machine configuration table
LNVT	line vector table	MDR	miscellaneous data recorder
LOBQ	link outbound queue	MIA	MAC interface area
LOSQ	link outstanding queue	MIB	NMVT information block
LPB	link problem buffer	MIF	MOSS interface control block
LPDA	link problem determination aid	MIT	MOSS interface table
LPR	LPDA2 response buffer layout	MLT	SSCP monitor mode link table
LPX	LPDA2 command (transmit) buffer layout	MMIO	memory mapped input/output
LPSA	processor-NCP parameter/status area control block	MMVT	NMVT major vector table
LQP	line quiesce pending queue	MOSS	maintenance and operator subsystem
LRB	logical unit routing block	MPT	modem parameter table
LRC	link resource control	MSCT	NMVT command and subfunction router table
LRVT	logical resource vector table	MSLA	multi-subchannel line access
LSA	link services architecture	MTA	multiple terminal access
LSP	LU-LU session pacing criteria	MTF	mailbox trace facility
LSS	low-speed scanner	MUX	multiplexer
LT	line trace	NACB	NCP-processor ODLC adapter control block
LTCB	line trace control block	NAK	negative acknowledgment
LTR	line trace return address save area	NAS	NTRI action scheduler
LTRS	letters shift	NAU	network addressable unit
LTS	line test control block	NAUN	nearest active upstream neighbor
LTVT	line trace vector table	NC	network control
LTX	logical unit terminal node extension	NCP	Network Control Program
LU	logical unit	NDB	NPM data block
LUB	logical unit control block	NDP	NCP-processor dynamic PSA
LUNT	logical unit block NETID table	NDPSA	NCP to processor dynamic parameter status area
LUV	logical unit vector table	NDR	NPM DR history control block

NED	node element descriptor	NRQ	NCP-NCPROUTE timer processing queue
NEO	network enhancement option	NRT	network route Table control block
NEOG	network enhancement option global control block	NRZI	non-return to zero inverted recording
NEOR	network enhancement option router control block	NS	network services
NEQ	node element qualifier	NSA	network performance analyzer session accounting block
NET	NCP-activated explicit routes table	NSC	network performance analyzer session counters
NETID	network identifier	NSP	network performance analyzer sequence number and pacing control block
NGA	NPA gateway accounting control block	NSQ	nonsequential queue
NIA	NMVT interface area control block	NSX	network performance monitor session counter extensions block
NIB	network interconnect control block	NT	answer tone not detected
NIQ	NCP-RIP inactive interface lit queue	NTN	NPA takeover notification control block
NIX	network interconnect extension	NTO	Network Terminal Option
NLB	programmed resource logical unit block	NTRI	NCP/token-ring interconnection
NLX	programmed resource logical unit block extension	NVT	network vector table
NMVT	network management vector transport	NVX	network vector table extension
NNNA	non-native network attachment	OAF	origin address field
NNT	network names table	OAX	owe ANS exchange
NPA	network performance analyzer	OCB	output QCB control block
NPB	programmed resource physical unit block	ODA	owners data area
NPDA	Network Problem Determination Aid	ODLC	Outboard data link control
NPF	network performance facility	OLT	online test
NPM	network performance monitor	OLTT	Online Terminal Test
NPSA	NCP-processor parameter/status area control block	OLTTCB	online terminal test control block
NPSI	Network Control Program Packet-Switching Interface	OLU	peripheral LU
NQB	network performance analyzer counter queue block	OP	operand
NQE	network performance analyzer counter queue element	PAC	physical address card
NQX	NPA counter queue element extension	PAD	pad character
N(R)	next receive sequence number	PAT	port address table
NRE	Network route entry	PBID	pseudo bid
NRF	Network Routing Facility	PCB	panel control block
NRP	NCP-NCPROUTE processing control block	PCF	primary control field
		PCI	program controlled interrupt
		PCID	procedure correlation identifier
		PDF	parallel data field
		PDSTAT	problem determination statistics

PEP	Partitioned Emulation Program	RCV	receive
PIB	NCST LU-SSCP session control block	RD	request disconnect
PIO	programmed input/output	RD	Receive Data
PIU	path information unit	RDA	routing data area control block
PL	physical link	RDF	routing data area for fragmentation control block
PLB	physical link control block	RDL	resource definition for an SDLC line, or token-ring line, or an ESCA line
PLBAT	physical link block address table	RDM	routing data area for fragment reassembly
PLM	physical link manager	RDO	routing data area for options processing
PLOBQ	physical link outbound queue	RDS	resource definition for an SDLC station, or token-ring station, or ESCA station
PLU	primary LU	REFCFS	record formatted maintenance statistics
PLUA	physical link adapter control block	RECMS	record maintenance statistics
PLX	physical link block extension	RECTRD	record trace data request/response unit
PMF	performance measurement facility	REJ	Reject
PN	peripheral node	REQMS	request maintenance statistics
PN	peripheral node	REX	route extension
PND	present next digit	RH	request/response header
PNK	NCST PU session control block	RI	routing information
PRB	physical unit routing block	RIB	route interface control block
PRI	program requested interrupt	RIM	Request Initialization Mode
PRID	procedure identifier	RLN	relative line number
PRM	parameter list	RLSD	receive line signal detect
PS	presentation services	RLWI	request larger window indicator
PSA	parameter/status area or parameter/status area control block	RMB	route management block
PSB	physical services control block	RNAA	request network address assignment
PSD	port swap data	RNR	Receive Not Ready
PSI	product set identifier	RPO	Remote Power Off
PSTA	port swap trace table (3745)	RQD	request disconnect
PU	physical unit	RR	Receive Ready
PUV	physical unit vector table	RRT	resource resolution table
PWI	Power Indicator	RSP	required space character
QAB	queue anchor block	RST	route status table
QAN	queue anchor block for a network	RT	ring tone
QAX	queue anchor block extension	RTS	Request to Send
QCB	queue control block	RU	request/response unit
QPB	queue pointer block	RVB	resource vector control block
RAS	reliability, availability, serviceability		
RAT	route activation table		
RCB	resource connection block		
RCQ	route control queue		

RVDT	receive data	SOH	Start of Header
RVI	Reverse Interrupt	SON	session outage notification
RVT	resource vector table	SOQ	service out queue
RWI	reset window indicator	SOT	service order table
RXLIS	receive or transmit list control block	SPC	session path control block
SA	source address	SPLU	session partner logical unit
SABME	Set Asynchronous Balanced Mode Extended	SRE	subnetwork route entry
SC	session control	SRT	subnetwork route table control block
SCB	station control block or system command block (TRSS only)	SS	start-stop
SCE	station control block extension	SSA	set session address
SCF	secondary control field	SSAP	source service access point
SCT	SNA-IP interface counters control block	SSB	system status block
SDF	serial data field	SSC	service-seeking control block
SDLC	synchronous data link control	SSCP	system services control point
SEB	search element control block	SSI	SNA-IP session interface control block
SES	secondary ending status	SSP	System Support Programs
SGE	switched line group entry	SST	subareas serviced table
SGT	switched line group table	STE	selection table entry
SHB	search tree header control block	STX	Start of Text
SIB	NCST PLU-SLU session control block	SVC	supervisor call
SID	send identifier	SVT	subarea vector table
SIM	Set Initialization Mode	SWT	SMMF switched table
SIR	session information retrieval	SXB	station control block extension
SIT	scanner interface trace or subarea index table	SYN	synchronous idle
SLB	ESCA link control block	SYSGEN	system generation
SLU	secondary logical unit	TA	tag address
SM	status modifier	TAT	token-ring logical station address table
SMB	set mode control block	TCB	test control block
SMM	SSCP monitor mode control block	TCC	transmit correlation counter
SMMF	SSCP monitor mode function	TET	timer extension table
SNA	Systems Network Architecture	TD	tag data
SNAP	SNAP trace table for ODL	TG	transmission group
SNI	SNA network interconnect	TGB	transmission group control block
SNP	SSCP-NCP session control block	TGN	transmission group number
SNRM	Set Normal Response Mode	TH	transmission header
SNRM	Set Normal Response Mode (extended)	TI	Test Indicator
		TIC	token-ring interface coupler
		TIO	test input/output
		TKO	takeover

TLB	token-ring line block extension	UTS	usage tier status block
TLNVT	trace line vector table	VAT	virtual route access table or virtual route subarea index table
TND	time and date control block	VC	virtual circuit
TON	takeover notification	VIT	virtual route access table
TPF	transmission priority field	VLB	programmed resource virtual line block
TPS	two-processor switch	VOS	virtual route out-of-sequence or virtual route out-of-sequence block
TRA	token-ring adapter	VR	virtual route
TRB	trace control block	VRB	virtual route control block
TRE	trace control block extension	VRC	vertical redundancy check character or virtual route control
TRLA	token-ring line adapter	VRID	virtual route identifier
TRPL	token-ring physical line table	VRL	virtual route activation work list
TRM	token-ring multiplexer	VRN	virtual route number
TRSS	token-ring subsystem	VRPRS	virtual route pace response
TRT	transit routing table	VRQ	virtual route congested alert task AAB
TRX	trace ACB extension	VST	virtual route status table
TSB	token-ring logical station block extension	VTQ	virtual route congested alert timer queue
TSS	transmission subsystem	VTAM	Virtual Telecommunications Access Method
TTY	teletypewriter	VTS	vector table of SNPs
TVS	time value select table	VVT	virtual route vector table
TWA	two-way alternating	WACK	weak acknowledgment
TWS	two way simultaneous	WCB	wrap control block
TWX	teletypewriter exchange service	WRP	wrap manager control block
UA	unnumbered acknowledgment	WTTY	world trade teletypewriter
UAB	user adapter control block for the BCA	XAP	transport access point table
UACB	user adapter control block	XDA	word direct addressable storage control block
UAQ	user accounting notification queue	XDB	byte direct addressable storage control block
UAT	user accounting notification table	XDH	halfword direct addressable storage control block
UBO	undefined but operative block	XI	X.25 SNA interconnection
UC	unit check	XID	Exchange Identification or exchange identification data block
UCTT	table of UCNVT pointers	XID3	XID type 3
UIB	unit information block	XIO	transfer input/output
UIC	user interface control block	XOFF	transmitter off
ULVT	user line vector table	XON	transmitter on
UMD	user datagram protocol message data area		
UMH	user datagram protocol message header		
UNP	Unnumbered Poll or Unnumbered Poll Response		
USCCB	unassigned subchannel control block		

X/R transmit/receive
XRF extended recovery facility

XUA physical link adapter control block
extension

Bibliography

NCP, SSP, and EP Library

The following paragraphs briefly describe the library for NCP, SSP, and EP. The other books dealing with the networking systems products—VTAM, NPSI, the NetView program, and NPM—are listed without the accompanying descriptions.

NCP V7R2, SSP V4R2, and EP R12 Library Directory (SC31-6259)

This book helps users locate information on a variety of NCP, SSP, and EP tasks. It also provides a high-level understanding of NCP, SSP, and EP and summarizes the changes to these products and to the library for NCP V7R2, SSP V4R2, and EP R12.

NCP V7R2 Migration Guide (SC31-6258)

This book helps users migrate an NCP generation definition from an earlier release to NCP V7R2. It also describes how to add new functions for NCP V7R2.

NCP, SSP, and EP Resource Definition Guide (SC31-6223)

This book helps users understand how to define NCP and EP (in the PEP environment) using SSP. It describes functions and resources and lists the definition statements and keywords that define those functions and resources.

NCP, SSP, and EP Resource Definition Reference (SC31-6224)

This book helps users code definition statements and keywords to define NCP and EP (in the PEP environment) using SSP. It also provides a quick reference of definition statement coding order and keyword syntax.

NCP, SSP, and EP Generation and Loading Guide (SC31-6221)

This book provides detailed explanations of how to generate and load NCP and EP (in the PEP environment) using SSP. It contains information for generating and loading under MVS, VM, and VSE.

NCP and SSP Customization Guide (LY43-0031)

This book helps users who are familiar with the internal logic of NCP and SSP to modify these products. It describes how to change NCP and SSP to support stations that IBM-supplied programs do not support.

NCP and SSP Customization Reference (LY43-0032)

This book supplements the *NCP and SSP Customization Guide*. It describes the resources and macroinstructions provided by IBM for customizing NCP and SSP.

NCP, SSP, and EP Messages and Codes (SC31-6222)

This book is a reference book of abend codes issued by NCP and EP in the PEP environment, and messages issued by the system support programs associated with NCP.

NCP, SSP, and EP Diagnosis Guide (LY43-0033)

This book helps users isolate and define problems in NCP and EP (in the PEP environment) using SSP. The primary purpose of the book is to help the user interact with the IBM Support Center to resolve a problem. In addition, it explains some of the diagnostic aids and service aids available with SSP.

NCP, SSP, and EP Diagnosis Aid (LK2T-1999, diskettes)

The Diagnosis Aid is an OS/2 application used to diagnose NCP, SSP, and EP problems. This tool has all the information contained in the NCP, SSP, and EP Diagnosis Guide.

NCP and EP Reference (LY43-0029)

This book describes various aspects of the internal processing of NCP and EP in the PEP environment. It provides information for customization and diagnosis.

NCP and EP Reference Summary and Data Areas (LY43-0030)

This two-volume book provides quick access to often-used diagnostic and debugging information about NCP and EP in the PEP environment.

Other Networking Systems Products Libraries

The following books provide cross-product information for VTAM, NPSI, NetView, and NPM. For detailed information about these products refer to the library for each.

Networking Systems Library

The following list shows the books in the Networking Systems library.

Planning for NetView, NCP, and VTAM (SC31-7122)

Planning for Integrated Networks (SC31-7123)

Planning Aids: Pre-Installation Planning Checklist for NetView, NCP, and VTAM (SX75-0092)

IBM Networking Systems Softcopy Collection Kit
(CD-ROM, SK2T-6012)

IBM Online Libraries: Softcopy Collection Kit User's Guide (GC28-1700)

VTAM Library

The following list shows the books in the VTAM V4R2 library.

VTAM Migration Guide (GC31-6416)

VTAM Release Guide (GC31-6441)

Estimating Storage for VTAM (SK2T-2006)

VTAM Network Implementation Guide (SC31-6419)

VTAM Resource Definition Reference (SC31-6427)

VTAM Resource Definition Samples (SC31-6428, book and diskettes)

VTAM Customization (LY43-0048)

VTAM Operation (SC31-6420)

VTAM Operation Quick Reference (SX75-0201)

Using IBM CommandTree/2 (SC31-7013)

VTAM Messages and Codes (SC31-6418)

VTAM Licensed Program Specifications (GC31-6417)

VTAM Programming (SC31-6421)

VTAM Programming Quick Reference (SX75-0202)

VTAM Programming for LU 6.2 (SC31-6425)

VTAM Diagnosis (LY43-0051)

VTAM Diagnosis Quick Reference (SX75-0203)

VTAM Data Areas for MVS (LY43-0049)

NPSI Library

The following list shows the books in the NPSI Version 3 library.

X.25 NCP Packet Switching Interface General Information (GC30-3469)

X.25 NCP Packet Switching Interface Planning and Installation (SC30-3470)

X.25 NCP Packet Switching Interface Host Programming (SC30-3502)

X.25 NCP Packet Switching Interface Diagnosis, Customization, and Tuning (LY30-5610)

X.25 NCP Packet Switching Interface Data Areas
(LY43-0034)

X.25 NCP Packet Switching Interface Master Index
(GC31-6206)

NTune Library

The following list shows the publications in the NTune library.

NTune User's Guide (SC31-6247)

NTuneNCP Reference (LY43-0035)

NetView Library

The following list shows the books in the NetView V2R4 library.

NetView General Information (GC31-7098)

Learning about NetView (SK2T-6017, diskettes)

Learning about NetView Graphic Monitor Facility
(SK2T-6018, diskettes)

NetView Graphic Monitor Facility Reference Poster
(SX75-0100)

NetView Automation Planning (SC31-7083)

NetView Storage Estimates (SK2T-6016, diskette for a PS/2 or a PS/55)

NetView Installation and Administration Guide
(SC31-7084 for MVS)

NetView Installation and Administration Facility/2 Guide
(or *NIAF/2 Guide*, SC31-7099)

NetView Administration Reference (SC31-7080)

NetView Bridge Implementation (SC31-6131)

NetView Tuning Guide (SC31-7079)

NetView Automation Implementation (LY43-0016)

NetView Customization Guide (SC31-7091)

NetView Customization: Writing Command Lists
(SC31-7092)

NetView Customization: Using PL/I and C (SC31-7093)

NetView Customization: Using Assembler (SC31-7094)

NetView Operation (SC31-7086)

NetView Graphic Monitor Facility User's Guide
(SC31-7089)

NetView Command Quick Reference (SX75-0090)

NetView Messages (SC31-7096)

NetView Resource Alerts Reference (SC31-7097)

NetView Application Programming Guide (SC31-7081)

*NetView Resource Object Data Manager Programming
Guide* (SC31-7095)

NetView Problem Determination and Diagnosis
(LY43-0101)

NPM Library

The following list shows the books in the NPM V2 library.

NetView Performance Monitor at a Glance (GH19-6960)

NetView Performance Monitor Concepts and Planning
(GH19-6961)

NetView Performance Monitor User's Guide
(SH19-6962)

NetView Performance Monitor Messages and Codes
(SH19-6966)

NetView Performance Monitor Graphic Subsystem
(SH19-6967)

*NetView Performance Monitor Installation and
Customization* (SH19-6964)

*NetView Performance Monitor Reports and Record
Formats* (SH19-6965)

NetView Performance Monitor Diagnosis (LY19-6381)

NetView Performance Monitor Desk/2 User's Guide
(SH19-6963)

Related Publications

The following publications, though not directly related to NCP, may be helpful in understanding your network.

IBM 3745 Communication Controller Publications

The following list shows selected publications for the IBM 3745 Communication Controller.

*IBM 3745 Communication Controller Introduction for the
3745-210, 3745-310, 3745-410, 3745-610* (GA33-0092)

*IBM 3745 Communication Controller Introduction for the
3745-130, 3745-150, 3745-170* (GA33-0138)

*IBM 3745 Communication Controller Configuration
Program* (GA33-0093)

IBM 3745 Principles of Operation (SA33-0102)

SNA Publications

The following publications contain information on SNA.

Systems Network Architecture Concepts and Products
(GC30-3072)

Systems Network Architecture Technical Overview
(GC30-3073)

*Systems Network Architecture Format and Protocol Ref-
erence Manual: Management Services* (SC30-3346)

Systems Network Architecture Formats (GA27-3136)

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Reference Summary and Data Areas
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NCP Version 7 Release 2
EP Release 12
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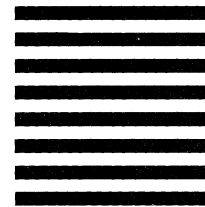
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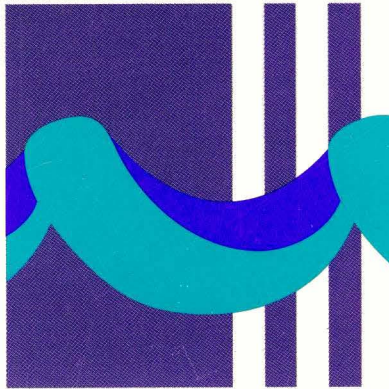


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