GCOS 8 SOFTWARE DESIGN SPECIFICATION

GLOBAL DATA MANAGEMENT

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ILLUSTRATIONS

SECTION 1

GLOBAL DATA MANAGEMENT DOMAIN

1.0 General Description

The Global Data Management Domain is a centralized system shared component of GCOS8 which performs global data management functions, such as opening and closing files, which apply to all access methods.

The functions included in this component are:

1. The Create Buffer Pool function creates and initializes a buffer pool with the input size and sharability attributes. The buffer pool can be referenced by a 12 character ASCII name.

2. The Delete Buffer Pool function deletes the buffer pool with the specified name.

3. The Reserve File function is called during file allocation. A shared file structure is created and, if the file is under concurrent access control, a Resource Control Block is associated with the file and it is enqueued on behalf of the requesting process.

4. The Remove File function is performed during file deallocation. The Resource Control Block associated with the file is dequeued for the requesting process and, if this is the last user of the file, the Resource Control Block and the shared file structure are deleted.

5. The Open function creates and initializes a File Access Domain for the requested access method. Thus the file may be opened for access by any of the access methods (IDS, UFAS, Buffer Management,...). An entry descriptor to the created File Access Domain is returned to the caller to permit access to the file through the access method domain.

6. The Close function terminates the use of a File Access Domain. The entry descriptor to the File Access Domain returned by the Open function is invalidated.

7. The Reserve Buffers function is intended for use by the access methods themselves. Buffers for a file may be reserved either when the file is opened or deferred until the caller is prepared to access the file. When the latter is desired, this function performs the reservation so that the file may be accessed.

8. The Remove Buffers function removes the reservation of buffers for a file or set of files and returns the buffers to the available list of the buffer pool.

9. The Global Flush function flushes all buffers for all the open files. This function is normally used at commitment points.

10. The Global Close function flushes the buffers and closes all the open files. It also will optionally reset the access method and/or buffer management currencies. This function is normally called at termination.

11. The Return File Information function returns attributes of the file and information about the usage of the file.

12. The Global Here-I-Go function calls each active IDS II domain at the Here-I-Go entry point to release IDS structures. It then removes the buffer reservations for every active buffer management domain.

13. The Set Control Interval Range function is used to specify which part of a file is to be controlled by concurrent access if the file is to be split.

2 Interface to the Data Management Domain

The Data Management Domain is entered via a CLIMB instruction with the function code selecting the particular function to be called. The first parameter that is passed always describes a command block; other parameters may be required depending on the function executed. A detailed description of the parameters and definition of the command block is provided along with the description of the individual functions.

2 Buffer Pool Functions

2.1.1 Buffer Pool Command Block (BPCB)

The BPCB is input to the Create and Delete Buffer Pool functions. These global symbols are defined by the DSY6.M macro.

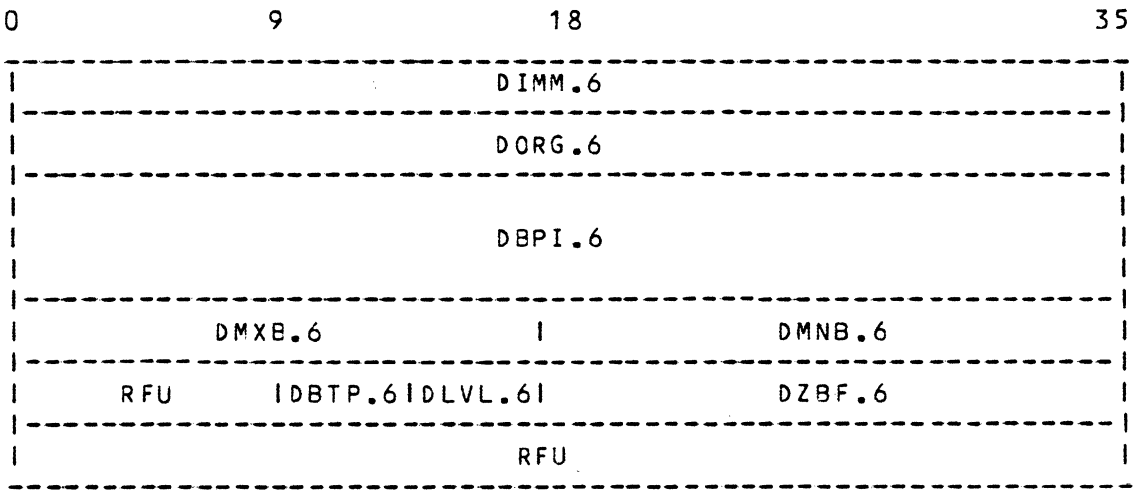


Figure 1.2-1. Buffer Pool Command Block

```
DIMM.6   Immediate status
DORG.6   Original status
DBPI.6   Buffer Pool Name (3 words)
DMXB.6   Maximum number of buffers in pool (18 bits)
DMNB.6   Minimum number of buffers in pool (18 bits)
DBTP.6   Buffer pool type (2 bits; bits 9-10)
       DPBZ.6   public buffer pool
       DPVZ.6   private buffer pool
DLVL.6   Buffer pool level (7 bits)
       DPRY.6   process level
       DWSY.6   work station level
       DSYY.6   system level
DZBF.6   Buffer size in words (18 bits)
```

2.2 Create Buffer Pool (DCBP.F)

This function creates a buffer pool with the specified sharability and size. The buffer pool may be public (any file can be assigned to it) or private (only certain, specified files can be assigned to it). The buffer pool will remain active until explicitly deleted by the Delete Buffer Pool function or until the working space in which it resides is freed.

Format

```
XCALL segid,n,DCBP.F,error-exit
```

where n = 1 if the buffer pool is public and
n = 2 if the buffer pool is private

Parameters

- descriptor 0 : frames the Buffer Pool Command Block (BPCB)
- descriptor 1 : frames the private file list

Buffer Pool Command Block (BPCB) Parameters

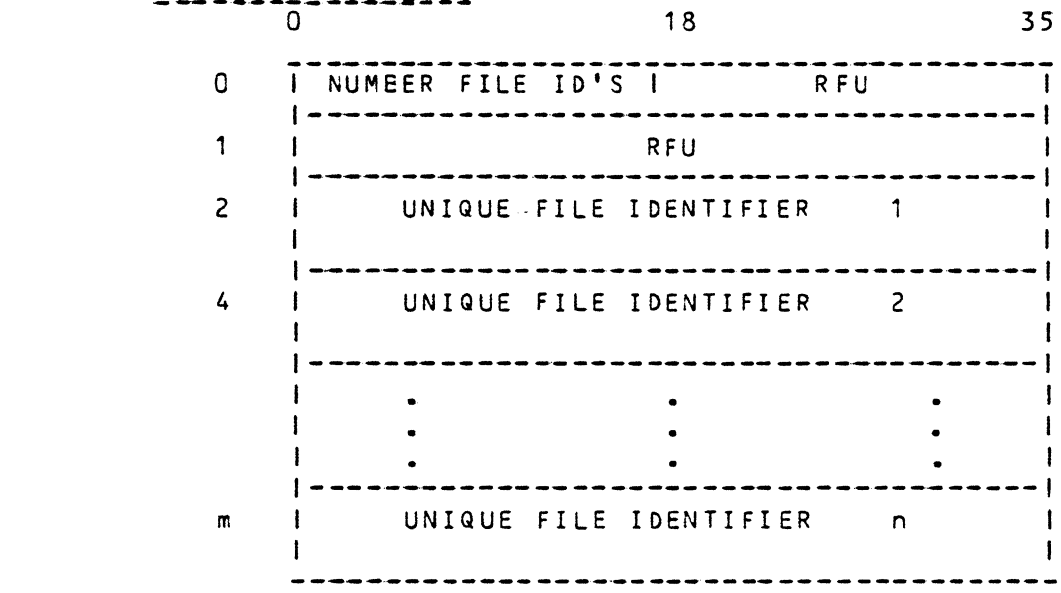
Input

DBPI.6	Name of the buffer pool to be created
DMXB.6	Maximum number of buffers in pool
DMNB.6	Minimum number of buffers in pool
DBTP.6	Buffer pool type (public or private)
DLVL.6	Buffer pool level (process, workstation or system)
DZBF.6	Buffer size in words

Output

DIMM.6	Immediate status
DORG.6	Original status

Private_File_List



Function

If the buffer pool name is unique, the control structures which describe the buffer pool are created. Space is allowed for the pool to grow to reach the maximum number of buffers that was specified. The minimum number of buffers specified are created and initialized in the pool.

If this is a private buffer pool, file control structures for each of the input files is created and associated with the buffer pool.

NOTE : PRIVATE BUFFER POOLS ARE NOT SUPPORTED IN SR 1000.

2.3 Delete Buffer Pool (DDBP.F)

This function deletes the buffer pool with the specified name. All files must have been "removed" that were associated with the buffer pool.

Format

```
XCALL segid,1,DDBP.F,error-exit
```

Parameters

- descriptor C : frames the Buffer Pool Command Block

Buffer Pool Command Block (BPCB) Parameters

Input

DBPI.6	Buffer pool name
DLVL.6	Buffer pool level (process, work station, system)

Output

DIMM.6	Immediate status
DORG.6	Original status

Function

The buffer pools are searched for a match on the input name and a check made to insure that all files associated with the buffer pool are inactive.

If the buffer pool is private, the file control structures for the files assigned to the buffer pool are deleted.

The buffers and buffer pool control structures are then deleted.

2 File Reservation Functions

2.2.1 File Reservation Command Block (FRCB)

The FRCB is input to the Reserve and Remove File Functions. These global symbols are defined by the DSY3.M macro.

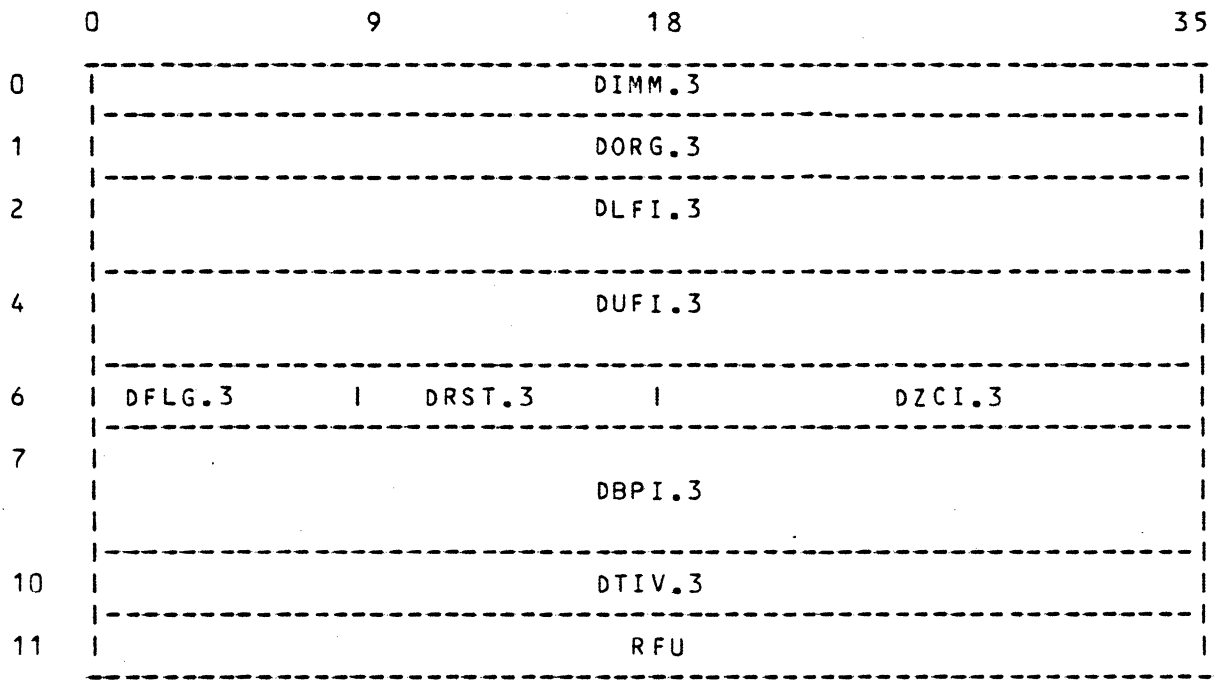


Figure 1.2-2. File Reservation Command Block

```
DIMM.3   Immediate Status
DORG.3   Original Status
DLFI.3   Local File Identifier (2 words)
         SCT address (1 word)
         sector number of FD (1 word)
DUFI.3   Unique File Identifier (2 words)
         creation date and time
DFLG.3   Flags (9 bits)
      DSHZ.3   if on, file is sharable
      DBFZ.3   if on, file is protected by before journalization
      DAFZ.3   if on, file is protected by after journalization
      DDUZ.3   if on, file is protected by duplicate file
      DPMZ.3   if on, file is a permanent file
      DCAZ.3   if on, copy A of duplicate file is defective
      DCBZ.3   if on, copy B of duplicate file is defective
DRST.3   Reservation type (9 bits)
      DNOY.3   no concurrent access
      DEFY.3   exclusive access at file level
      DSFY.3   shared access at file level
      DSEY.3   shared access to file, both shared and exclusive
```

access to CI's

DSCY.3 shared access to file, shared access to CI's

DECY.3 shared access to file, exclusive access to CI's

DZCI.3 Control Interval size in words (18 bits)

DBPI.3 Buffer Pool Name (3 words)

DTIV.3 Timer value to be used when reserving the file; in units of 1/64 milliseconds

2.2 Reserve File (DRSF.F)

This function creates a structure which describes the file, allocates a Resource Control Block for the file (if under concurrent access control), and enqueues or reserves the file for the specified process. This function must be executed for a protected file before that file can be opened. Non-protected files will be "reserved" as part of the Open File function.

Format

XCALL segid,1,DRSF.F,error-exit

Parameters

- descriptor C : frames the File Reservation Command Block (FRCB)

File Reservation Command Block (FRCB) Parameters

Input

DLFI.3	Local file identifier	
DUFI.3	Unique file identifier	
DFLG.3	Flags	
	DSHZ.3	sharable
	DBFZ.3	before journal
	DAFZ.3	after journal
	DDUZ.3	duplicate file
	DPMZ.3	permanent file
	DCAZ.3	copy A defective
	DCBZ.3	copy B defective
DRST.3	Reservation type	
DZCI.3	CI size; if zero, this parameter must be supplied to the Open File function.	
DBPI.3	Buffer Pool Name; if zero a buffer pool will be chosen automatically when the file is opened.	
DTIV.3	Maximum length of time the process is willing to wait for the concurrent access reservation.	

Output

DIMM.3	Immediate Status
DORG.3	Original Status

Function

A search for the file structure is made based on DLFI.3 and DUFI.3. If not found, the file structure is created and, if concurrent access is desired, a Resource Control Block is allocated for the file and the file is reserved (RCB is enqueued).

If DBPI.3 is specified, then the file is associated with the buffer pool with the specified name.

2.3 Remove_File_(DRMF.F)

This function removes the file from the reservation list for the calling process. It is called at process termination for all files reserved or allocated by the process. This function must be preceded by a Commit function.

Format
XCALL segid,1,DRMF.F,error-exit

Parameters
- descriptor C : frames the FRCB

File_Reservation_Command_Block_(FRCB)_Parameters

Input

DLFI.3	Local file identifier
DUFI.3	Unique file identifier

Output

DIMM.3	Immediate status
DORG.3	Original status

Function
A search for the file structure is made based on DLFI.3 and DUFI.3. The count of the outstanding reservations against the file is decremented and, if zero, the Resource Control Block is deallocated and the file structures deleted.

2.3 Open File Function

2.3.1 Open Command Block (OPCB)

The OPCB is input to the Open File function.
These global symbols are defined by the DSY1.M macro.

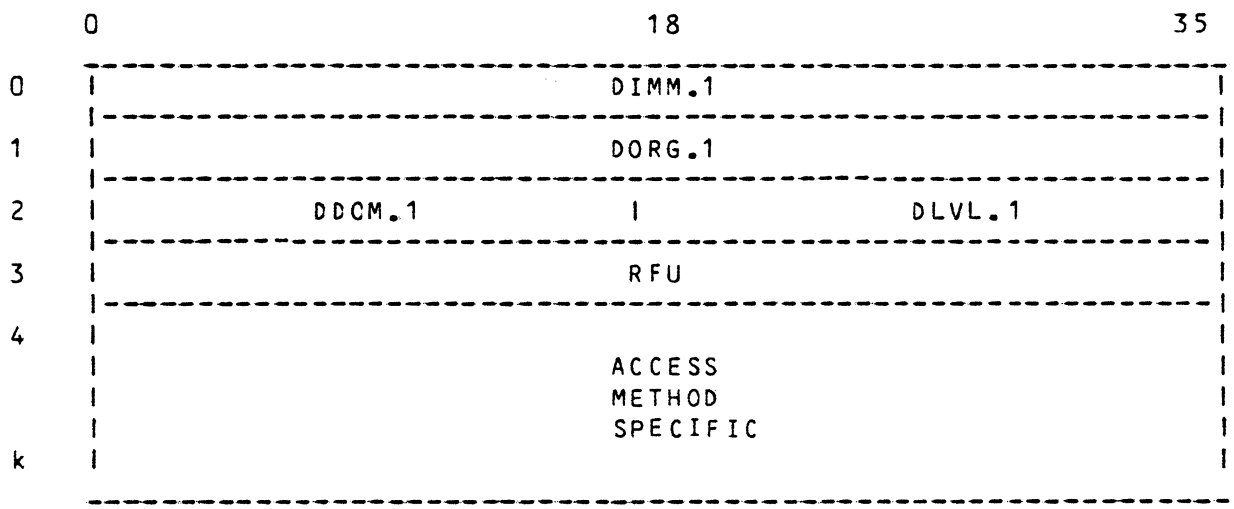


Figure 1.2-3. Open-Close Command Block

```
DIMM.1   Immediate Status
DORG.1   Original Status
DDOM.1   Desired access method domain (18 bits)
     DBMY.1   Buffer Management
     DUFY.1   UFAS
     DIDY.1   IDS
     DBJY.1   Before Journal
     DIXY.1   Indexed Access
DLVL.1   Level of Access (18 bits)
     DPRY.1   process
     DWSY.1   work station
     DSYY.1   system
```

Words 4 - k of the OPCB are defined based on the access method chosen by specifying DDOM.1.

2.2 Open File (DOPN.F)

The Open File function creates and initializes a file access domain through which the caller can access the file. The particular type of domain depends on the access method chosen through specification of DDOM.1.

Format

XCALL segid,n,DOPN.F,error-exit

where n = the number of descriptors passed on the Argument/Parameter stack :

Parameters

- descriptor 0 : frames the OPCB
- descriptor 1 : frames the identifier of the calling domain
- descriptor 2 : frames an area of the caller's domain where the Open File function will store an entry descriptor (T=11) to the created file access domain
- descriptors 3-n : Access Method Specific

2.2.1 Buffer_Management_Open

The Buffer Management Open is selected by setting DDOM.1 = DBMY.1

Parameters

No additional descriptors on the Argument/Parameter Stack are required by Buffer Management.

Buffer_Management_Specific_OPCB_for_Open

In addition to the four words defined for the OPCB in the general Open File function, Buffer Management requires the following:

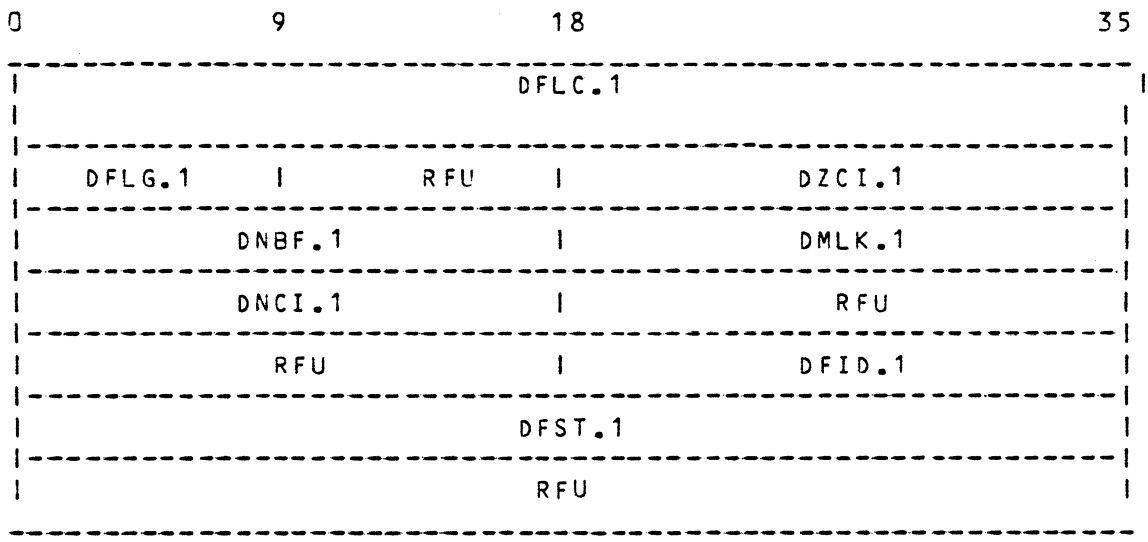


Figure 1.2-4. Buffer Management Specific Section of CPCB

Open_Command_Block_(OPCB)_Parameters

Input

DFLC.1 File code; 8 ASCII characters, left justified, blank filled
DFLG.1 Flags (9 bits)
- DSQZ.1 if on, file is sequential
- DFSZ.1 if on, file is member of file set
- DBRZ.1 if on, buffer reservation is to be deferred
- DLDZ.1 if on, open is for load mode (tape)

DZCI.1 Control Interval size in words (18 bits)
DNBF.1 Number of buffers desired for this file set
DMLK.1 Maximum number of buffers that can be locked at any one time for this file set (18 bits)
DNCI.1 Number of CI's per buffer (18 bits)
DFST.1 File set identifier; input only if this file is a member of a file set (DFSZ.1=1). When opening the

first file of a file set, this parameter should be zero. It will be returned as an output parameter.

Output

DFID.1 File identifier; this parameter is required input to other Buffer Management functions when the file is a member of a file set.

DFST.1 File set identifier; this parameter is required input to some other global Data Management functions

DZCI.1 Control Interval size; if zero on input, the correct value for CI size will be returned.

Function

1. If the file has already been opened by this user, increment the count of the number of opens for this user and return the entry descriptor to the existing Buffer Management domain.

2. Search for the Peripheral Allocation Table (PAT) based on the input file code. Construct a local file identifier from the SCT address and sector number of the FD from the PAT. Find the file structure created by the File Reserve function, if protected file. If not found, create file structure by executing Reserve File function.

3. If the file has not yet been assigned to a buffer pool, then find a pool with buffers of the correct size. If one cannot be found, create a new buffer pool.

4. If deferred buffer reservation is not desired (DBRZ.1=0), then reserve the desired number of buffers for the file.

5. Return an entry descriptor to the Buffer Management domain for this file.

2.4 Close File Function

2.4.1 Close Command Block (CLCB)

The CLCB is input to the Close File function. These global symbols are defined by the DSY2.M macro.

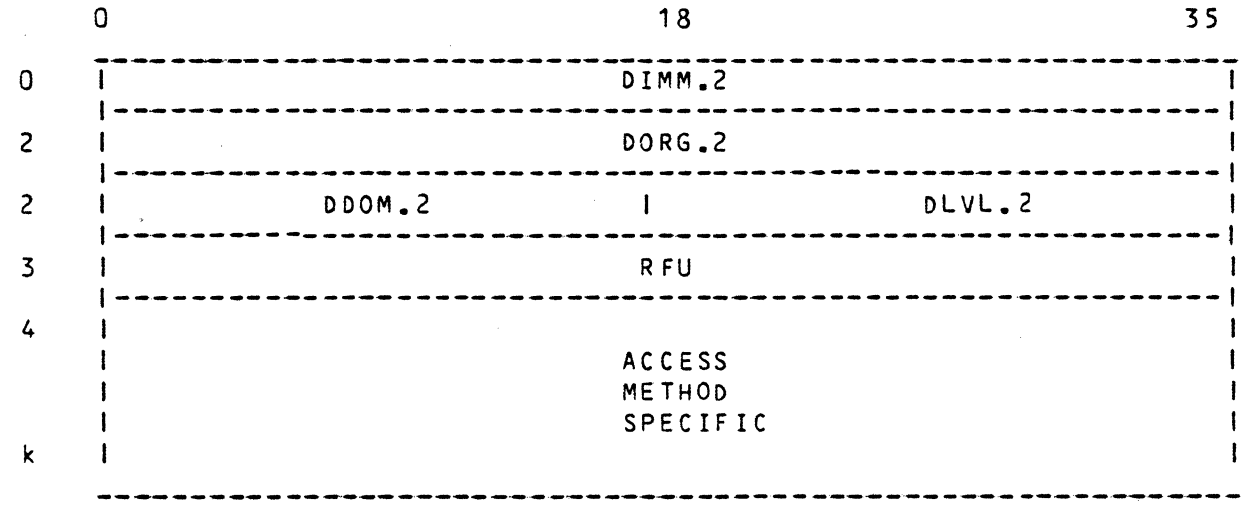


Figure 1.2-5. Close Command Block

```
DIMM.2   Immediate Status
DORG.2   Original Status
DDOM.2   Desired access method domain (18 bits)
     DBMY.2   Buffer Management
     DUFY.2   UFAS
     DIDY.2   IDS
     DBJY.2   Before Journal
     DIXY.2   Indexed Access
DLVL.2   Level of Access (18 bits)
     DPRY.2   process
     DWSY.2   work station
     DSYY.2   system
```

Words 4 - k of the CLCB are defined based on the access method chosen by specifying DDOM.2.

2.2 Close_File_(DCLS.F)

The Close File function terminates the usage of a file access domain. The domain is deleted so that the file is no longer accessible through it.

Format

```
XCALL segid,n,DCLS.F,error-exit
```

where n is the number of descriptors passed on the Argument/Parameter stack:

Parameters

- descriptor 0 : frames the CLCB
- descriptor 1 : frames the domain identifier of the caller
- descriptor 2: frames the entry descriptor of the file access domain returned by the Open File function
- descriptor 3 - n : access method specific

2.2.1 Buffer Management Specific Close

The Buffer Management Close is selected by setting
DDOM.2 = DBMY.2

Parameters
No additional descriptors are required by Buffer Management other than the three passed on the Argument/Parameter stack described in the general Close File function.

Buffer Management Specific CLCB
The following access method specific portion of the Close Command Block is required by Buffer Management.

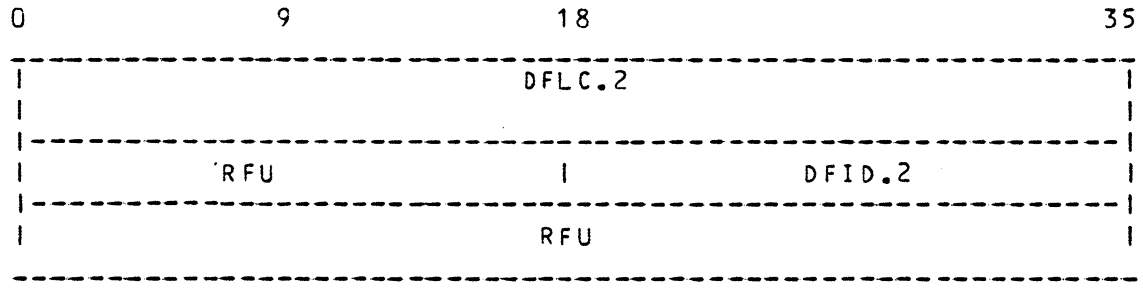


Figure 1.2-6. Buffer Management Specific CLCB

OPCB Parameters

Input

DFLC.2 File code; 8 ASCII characters; left justified, blank filled

DFID.2 File identifier; returned by the Open File function (18 bits)

Function
1. Search for Buffer Management file access domain based on input file code (DFLC.2). Check the input entry descriptor for validity.

2. Decrement the number of times this domain has been opened. If zero, then flush the buffers and delete the local user-related structures.

3. If all files of the file set have been closed, release the buffers and delete the Buffer Management domain.

2.5 Buffer Reservation Functions

2.5.1 Reserve-Remove Buffers Command Block (RBCB)

This block is input to both the Reserve and Remove Buffers functions. These global symbols are defined by the DSY7.M macro.

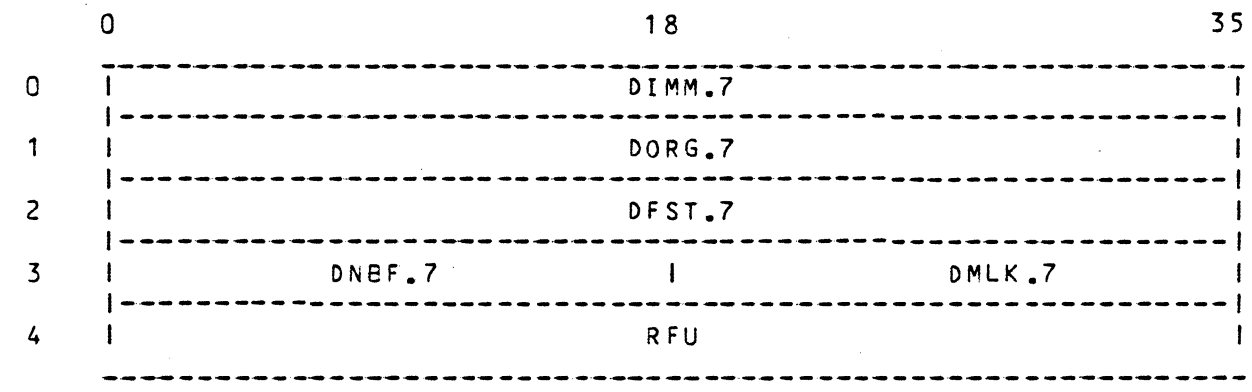


Figure 1.2-7. Reserve-Remove Buffers Command Block

DIMM.7 Immediate status
DORG.7 Original status
DFST.7 File set identifier
DNBF.7 Number of buffers desired for the file set (18 bits)
DMLK.7 Maximum number of buffers that can be locked at any one time for the file set (18 bits)

2.2 Reserve Buffers (DRSB.F)

This function reserves or allocates the required number of buffers from the buffer pool for a given file set. This function is designed to be used when the "deferred buffer reservation" option of the Open File function is specified at Buffer Management level.

Format
XCALL segid,1,DRSB.F,error-exit

Parameters
- descriptor 0 : frames the RBCB

RBCB Parameters
Input

DFST.7	File set identifier for which the buffers are to be reserved; returned by the Open File function
DNBF.7	Desired number of buffers for the file set.
DMLK.7	Maximum number of buffers that can be locked for the file set.

Output

DIMM.7	Immediate status
DORG.7	Original status

Function
1. If the input values for DNBF.7 and DMLK.7 are greater than those previously specified (via an Open File furction or another Reserve Buffers function), then use the input values.

2. If the required number of buffers has not yet been reserved, then decrement the "available number of buffers" count for the buffer pool, if necessary creating new buffers up to the maximum number of buffers for the buffer pool.

3. If the required number of buffers are not available, wait the process on a semaphore associated with the buffer pool. If the buffers are still not available after a pre-determined elapsed time, then return an error to the caller.

4. When the file is accessed via the Get Control Interval (BGCI.F) function of Buffer Management and the buffers have not yet been reserved, Buffer Management will call this function to reserve the number of buffers specified when the file was opened.

.3 Remove_Buffers_(DRMB.F)

This function removes buffers from the reservation list and returns them to the buffer pool as available buffers.

Format
XCALL segid,1,DRMB.F,error-exit

Parameters
-descriptor 0 : frames the RECB

RBCB_Paramters

Input

DFST.7	File set identifier

Output

DIMM.7	Immediate status
DORG.7	Original status

Function
The buffers that have been reserved for the specified file set are returned to the buffer pool as available buffers.

2 Global Flush Function

2.6.1 Global Flush Command Block

This command block is input to the Global Flush Function. These global symbols are defined by the DSY4.M macro.

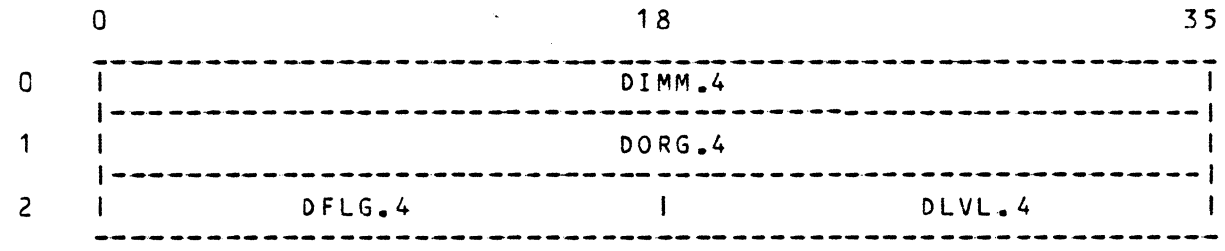


Figure 1.2-8. Global Flush Command Block

```
DIMM.4    Immediate Status
DORG.4    Original Status
DFLG.4    Flags (18 bits)
     DBFZ.4    Delete Buffer Currencies
     DPJZ.4    Physically journalize after images
     DRBZ.4    Delete record and buffer currencies
DLVL.4    Access level (18 bits)
     DPRY.4    process
     DWSY.4    work station
     DSYY.4    system
```

2.2 Global_Flush_(DGFL.F)

This function flushes all buffers of all open files at the specified access level.

Format

```
XCALL segid,1,DGFL.F,error-exit
```

Parameters

-descriptor 0 : frames the GFCB

GFCB_Parameters

Input

DFLG.4 Flags
- DBFZ.4 delete buffer currencies
- DPJZ.4 physically journalize after images
- DRBZ.4 delete record and buffer currencies

DLVL.4 Access level

Output

DIMM.4 Immediate status

DORG.4 Original status

Function

For each open file at the specified level the following functions are performed:

1. if buffer currencies are to be deleted, the access method domain is called to destroy its copy of the buffer currencies and, if DRBZ.4 is set, also destroy its record currencies.

2. the buffer management domain is called to flush the buffers.

3. if the currencies are to be deleted (DBFZ.4 or DRBZ.4 = 1), then the Reservation Entry associated with this file is released, thus allowing use of the file by a different process.

2.7 Global Close Function

2.7.1 Global Close Command Block

This command block is input to the Global Close Function. These global symbols are defined by the DSY5.M macro.

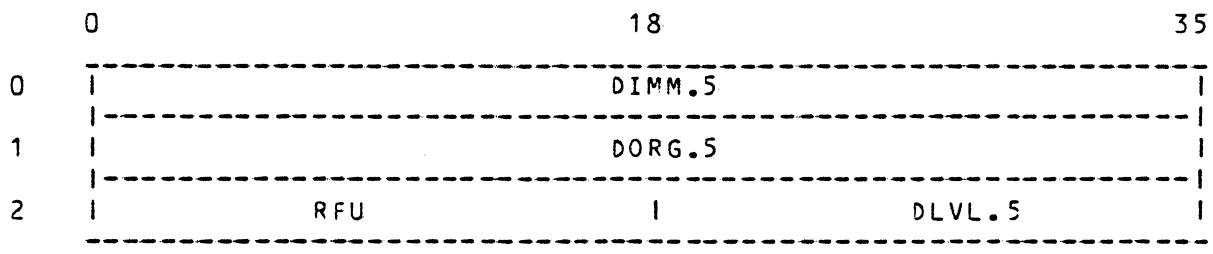


Figure 1.2-9. Global Close Command Block

DIMM.5 Immediate Status
DORG.5 Original Status
DLVL.5 Access level (18 bits)
- DPRY.5 process
- DWSY.5 work station
- DSYY.5 system

2.5.2 Global Close (DGCL.F)

This function flushes the buffers and closes all files that are open at the specified access level.

Format

```
XCALL segid,1,DGCL.F,error-exit
```

Parameters

-descriptor 0 : frames the GFCB

GFCB Parameters

Input

DLVL.5	Access level

Output

DIMM.5	Immediate status
DORG.5	Original status

Function

For each file that is open at the specified access level, the corresponding access method domain is called to close the file.

2 Global Here-I-Go Function

2.8.1 Global Here-I-Go Command Block

This command block is input to the Global Here-I-Go Function. These global symbols are defined by the DSYO.M macro.

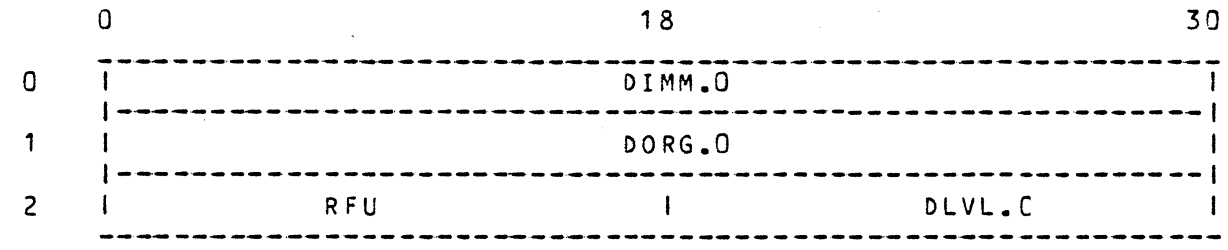


Figure 1.2-1C. Global Here-I-Go Command Block

```
DIMM.O    Immeciate Status
DORG.O    Original Status
DLVL.O    Access level (18 bits)
     DPRY.O    process
     DWSY.O    work station
     DSYY.O    system
```

2.2 Global_Here-I-Go_(DGHG.F)

This function calls each active IDS II domain for the specified access level at the Here-I-Go entry point.

Format
XCALL segid,1,DGHG.F,error-exit

Parameters
- descriptor 0 : frames the Global Here-I-Go Command Block

GHCB_Parameters

Input

DLVL.0	Access Level

Output

DIMM.0	Immediate Status
DORG.0	Original Status

Function
Each of the active IDS II domains will be deactivated by this command until another Here-I-Am command is executed. IDS releases local structures such as the DBCB (see IDS documentation). Then for each open Buffer Management comain for the level, a Remove Buffers function is executed.

2.9 File Information Function

2.9.1 File Information Control Block (FICB)

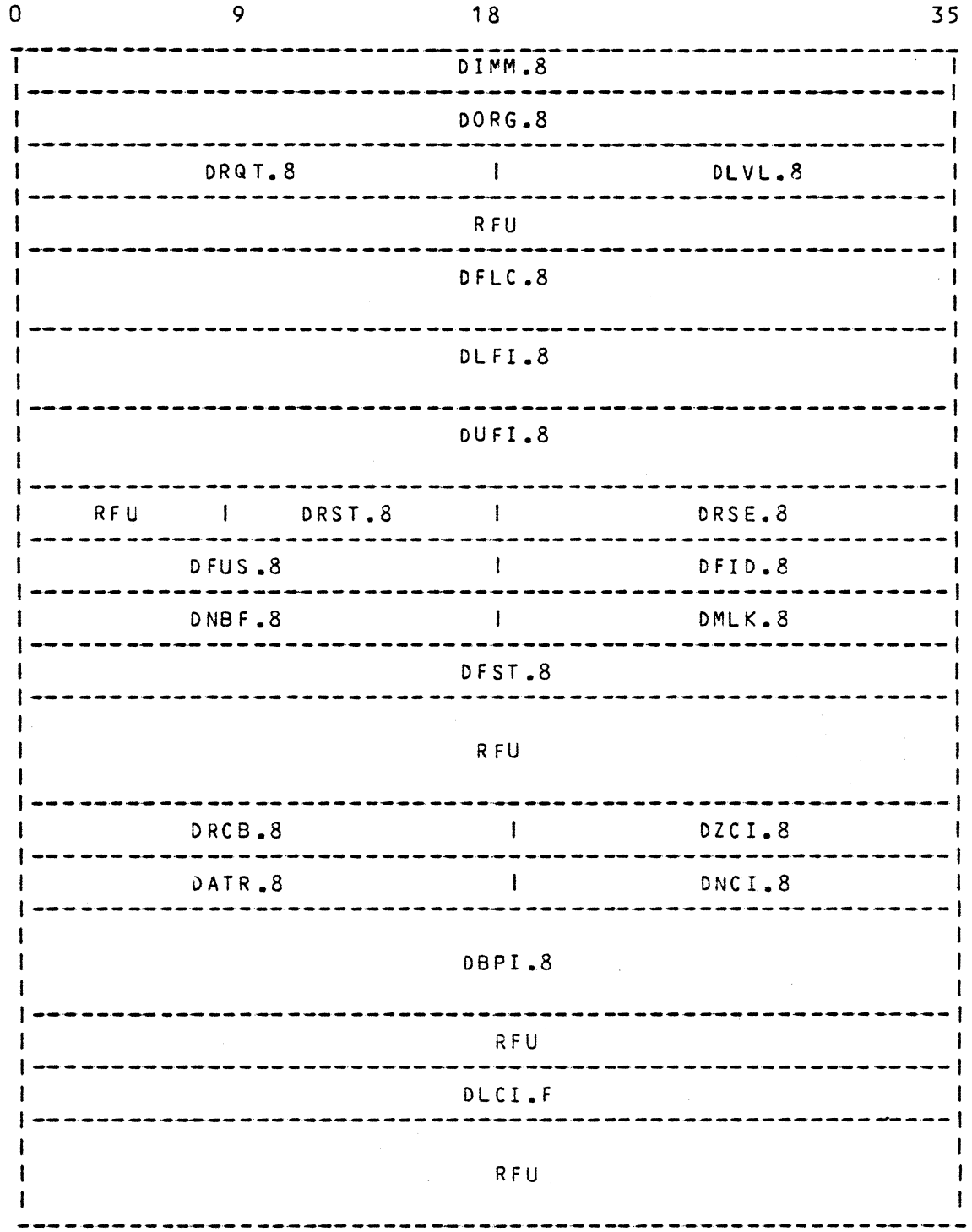


Figure 1.2-11. File Information Control Block (FICB)

2.2 Return File Information (DRFI.F)

This function returns information about the file that is maintained in the Global Data Management domain. Five versions of the function govern the specific information returned as well as the manner of identifying the file on input.

Format

```
XCALL segid,1,DRFI.F,error-exit
```

Parameters

- descriptor 0 : frames the FICB

FICB Parameters

Input

DRQT.8 Function type; this parameter determines which version of the function is executed:
- =1 DFLC.8 is input; Groups I,II,III,IV are output
- =2 DLFI.8 is input; Groups II,III are output
- =3 DLFI.8 is input; Groups I,II,III,V are output
- =4 DUFI.8 is input; Groups II,IV are output
- =5 DUFI.8 is input; Groups I,II,IV,V are output

DLVL.8 Access Level (18 bits)
- DPRY.8 process
- DWSY.8 work station
- DSYY.8 system

DFLC.8 File code; eight ASCII characters, left justified, blank filled

DLFI.8 Local file identifier;
- SCT address (1 word)
- sector number of FD (1 word)

DUFI.8 Unique file identifier (2 words)

Output

DIMM.8 Immediate status

DORG.8 Original status

Group I (File Usage Information)

DRST.8 Reservation type (9 bits)

DRSE.8 Reservation Entry for file (18 bits)

DFUS.8 File Usage State (18 bits)
- DRFZ.8 if on, file has been reserved
- DOPZ.8 if on, file has been opened
- DFSZ.8 if on, file is a member of a file set
- DEVZ.8 if on, the file is a tape file anc the current position is at the end of volume
- DERZ.8 if on, an unrecoverable error has been encountered

DFID.8 Buffer Management file identifier (18 bits)
DNBF.8 Number of buffers desired for file set (18 bits)
DMLK.8 Maximum number of buffers that can be locked at any one time (18 bits)
DFST.8 Buffer Management file set identifier

Group II (File Information)
DRCB.8 Resource Control Block associated with file (18 bits)
DZCI.8 Control Interval size (18 bits)
DATR.8 File attributes (18 bits)
DSHZ.8 if on, file is sharable
DBFZ.8 if on, file is protected by before journalization
DAFZ.8 if on, file is protected by after journalization
DDUZ.8 if on, file is protected by duplicate file
DPMZ.8 if on, file is permanent
DTPZ.8 if on, file is assigned to tape
DCAZ.8 if on, copy A of duplicate file is defective
DCBZ.8 if on, copy B of duplicate file is defective
DNCI.8 Number of Control Intervals per buffer(18 bits)
DBPI.8 Buffer pool name assigned to file (3 words)
DLCI.8 Last Control Interval number for the file.

Group III
DUFI.8 Unique file identifier (2 words)

Group IV
DLFI.8 Local file identifier (2 words)

Group V
DFLC.8 File code (2 words)

Function
Depending on the type of request (DRQT.8), the caller identifies the file by inputting either the file code (DFLC.8), the local file identifier (DLFI.8), or the unique file identifier (DUFI.8). Information about the file and about the usage of the file by the current process is returned in the FICB.

2.10 Set Control Interval Range Function

2.10.1 Set Control Interval Range Command Block

This command block is input to the Set Control Interval Range function. These global symbols are defined by the DSY9.M macro.

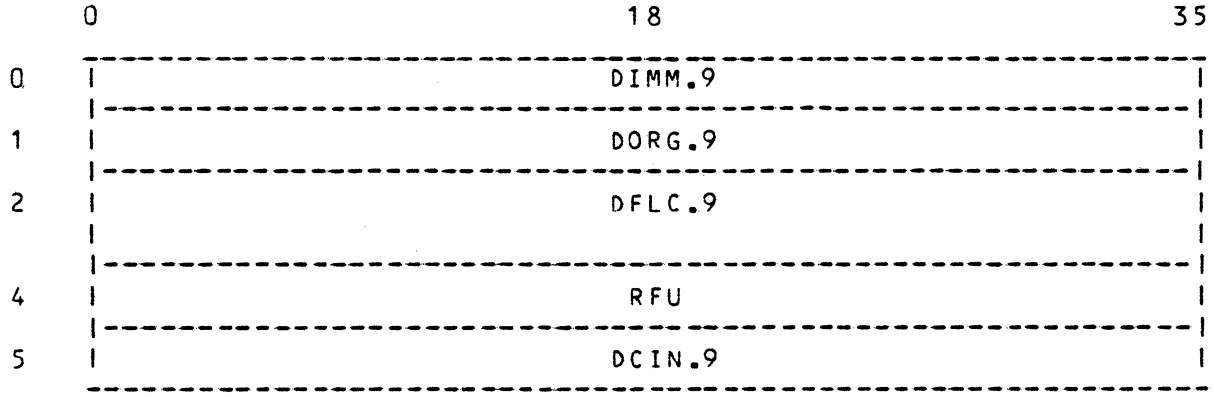


Figure 1.2-12. Set Control Interval Range Command Block

DIMM.9 Immediate Status
DORG.9 Original Status
DFLC.9 File Code (2 words)
DCIN.9 Control Interval Number

2.10.2 Set Control Interval Range (DCIR.F)

This function is used to specify which part of the file is to be controlled by concurrent access when the file is split into two parts: one controlled by concurrent access control and one not. The control intervals beginning with the input number to the end of the file will be under concurrent access control.

Format

```
XCALL segid,1,DCIR.F,error-exit
```

Parameters

-descriptor 0 : frames the Set CI Range Command Block

Command Block Parameters

Input

DFLC.9	File Code (ASCII left justified)
DCIN.9	The first Control Interval number to be under concurrency control.

Output

DIMM.9	Immediate Status
DORG.9	Original Status

Function

The file identified by the input file code is found ard the dynamic file structures modified to include the input CI number. All Control Intervals with numbers equal to or greater than the input number will be under concurrency control; those with numbers less than the input number will not. Note that the file must have been either opened or reserved by the process executing this command.

3.0 Appendix A - Status Codes

The status codes output by Global Data Management confcrm to the return code standard for GCOS 8 modules. The lower half word, of both the immediate and original status, is broken up into two parts: a major status of 10 bits and a minor status of 8 bits. The definitions are:

MAJOR	MINOR	MEANING
1	1	Illegal Command Block Definition
1	2	Illegal Domain Identifier input
1	3	Illegal Access Level input
1	4	Illegal File Code input
1	5	Illegal File Set Identifier input
1	6	Illegal Control Interval Size input
1	7	Illegal Entry Descriptor input
1	10	Permission to access file in this mode is not granted.
1	11	Input File Attributes conflict with those previously specified
1	12	Illegal Buffer Pool Name
1	13	File has not been reserved
1	14	An illegal function was requested
1	15	Buffer size is too large
2	0	Error return from another domain; check the original status
2	1	Illegal device is assigned to the file
2	2	File not allocated to the process
2	3	Buffer space is not available
2	4	Control structure space is not available
2	5	File control structures are inconsistent
2	6	The file is not open
2	7	File is already assigned to a different buffer pool
2	10	The file is not closed
2	11	Buffers are not available
2	12	An I/O error was encountered when writing buffers or journalizing
2	13	Vicarious Fault
3		Error Status from opening a Before Journal
3	0	Wrong scope or level
3	1	Error from Create Linkage Segment
3	2	Error from Retrieve Linkage Segment template
3	3	Error from Build Entry Descriptor
3	4	Error from Build Buffer Descriptor

3	5	Error from Build Operand Table
3	6	Error from Build Tenant Table
3	7	Error from Before Journal slave open
3	10	Error from XGAT call

The following tables define the return codes that are output by each function. A separate table is given for each of the Major Status codes. The Minor Status codes are presented horizontally and the functions vertically. An "x" indicates that the function can return that value for return code.

Major Status = 1

	Minor Status												
	1	2	3	4	5	6	7	10	11	12	13	14	15
DCBP.F	x		x							x		x	x
DDBP.F	x		x							x		x	
DRSF.F	x			x					x	x			
DRMF.F	x										x		
DOPN.F	x	x	x	x	x	x		x					x
DCLS.F	x	x	x				x					x	
DRSB.F	x				x								
DRMB.F	x				x								
DGFL.F	x		x										
DGCL.F	x		x										
DGHG.F	x		x										
DRFI.F	x			x							x		
DCIR.F	x			x									

Major Status = 2

	Minor Status											
	0	1	2	3	4	5	6	7	10	11	12	13
DCBP.F	x			x	x	x						x
DDBP.F	x					x			x			x
DRSF.F	x				x	x		x				x
DRMF.F	x					x			x			x
DOPN.F	x	x	x	x	x	x				x		x
DCLS.F	x					x	x				x	x
DRSB.F	x			x	x	x				x		x
DRMB.F	x					x					x	x
DGFL.F	x					x					x	x
DGCL.F	x					x					x	x
DGHG.F	x					x					x	x
DRFI.F						x	x					x
DCIR.F						x	x					x