Burroughs B 867/B 877
System and Communications Processor

The B 867-1 System and Communications Processor accommo-
dates seven communications lines, and up to 114K bytes of main
memory. On the right is a dual cartridge disk drive.

Two members of the B 800 minicomputer
family especially designed as network nodes.
Capabilities supported include message
switching, data concentration, and batch
and interactive terminal control, as well as
interface to IBM or X.25 packet switching
networks.

The high-end B 877-2 can support up to
148K bytes of main memory, and up to 32
communications lines of mixed asynchro-
nous/synchronous, half/full-duplex, and
leased or switched lines. Software modules
are available which support SDLC/SNA
compatibility, IBM 2780/3780 and 3270
terminal emulation, and X.25 packet switch-
ing, as well as Burroughs BDLC and net-
working support.

A B 877-2 system with 72K bytes of control
and user memory, a 16-line DCP, and
interfaces for twelve asynchronous and four
synchronous lines can be leased for $1,020,
which includes maintenance but excludes
software. The same configuration can be
purchased for $31,280, with maintenance
available for $297 per month.

MANAGEMENT SUMMARY

From the time of first delivery of these Burroughs
communications processors in August 1977, until early in
1979, their application was limited to Burroughs
networking. In January 1979, however, Burroughs
announced a substantial library of new software products
which offer enhanced communications processing,
network versatility, and interconnectability with non-
Burroughs mainframes, networks and transmission
facilities.

The B 867/B 877 processors function as nodes in a
Burroughs network, remote to the host. Unlike the
remote nodes of other major vendors (many of which are
limited to data concentration functions), these specially-
modified B 800 computers are capable of performing a
wide range of functions. These include store-and-forward
message switching, batch and interactive data pre-
processing, terminal control, code and protocol
conversion, file creation and maintenance, program
development, and interface to other hosts and networks.
This unique combination of functions in a single
processor is not generally available from other major
vendors, and would typically require three different units;
a terminal control unit, a distributed processor, and a
communications controller. ▷

CHARACTERISTICS

VENDOR: Burroughs Corporation, Burroughs Place,
Detroit, Michigan 48232. Telephone (313) 972-7000.

DATE OF ANNOUNCEMENT: December 1976.

DATE OF FIRST DELIVERY: B 867-1, 2—August 1977;
B 877-2—August 1977.

NUMBER DELIVERED TO DATE: Information not
available.

SERVICED BY: Burroughs Corporation.

CONFIGURATION

The B 867/B 877 processor systems are specially tailored
members of the B 800 Series capable of supporting up to two
independent Data Communications Processors (DCP)
dedicated to performing the line handling function for a
maximum of 32 communications lines.

Depending on the model, the B 867/ B 877 system is
available with either a one-million-cycle-per-second
processor (1 MHz) or a faster, two-million-cycle-per-second
processor (2 MHz). Disk-stored data and all communica-
tions line data is transferred to and from memory by way of
a Direct Memory Access Bus, without processor interven-
tion. A physical maximum of nine I/O Channels are
provided for the attachment of all other peripherals, via
separate control units, to the I/O Bus. Data transfers over
the I/O Bus to and from memory are under processor
interrupt control. ▶

Burroughs B 867/B 877
System and Communications Processor

THE B 867/B 877 SYSTEM AND COMMUNICATIONS PROCESSORS

	Model		
	B 867-1	B 867-2	B 877-2
Processor Speed	1 MHz	2 MHz	2 MHz
Memory provided with Basic System—			
Control Memory I, bytes	49,152	24,576	24,576
Control Memory II, bytes	0	16,384	16,384
User Memory, bytes	24,576	0	0
Allowable Memory on fully expanded system—			
Control Memory I, bytes	49,152	32,768	32,768
Control Memory II, bytes	0	16,384	16,384
User Memory, bytes	65,536	65,536	98,304
Total Memory, bytes	114,688	114,688	147,456
Communications lines supported with Basic System	7	0	0
Communications lines supported on fully expanded system	7	7	32
Maximum I/O Channels	5	5	7
Basic system prices—			
Purchase	$19,325	$30,150	$21,160
1-yr. lease including maintenance	$745/mo.	$1,005/mo.	$705/mo.

▷ It should be noted that the B 867/B 877 family communicate with remote hosts only via communications lines. Another specially-modified B 800 computer, the B 874, is designed for channel-attached, front-end communications applications. While the software load will, of course, vary, the processor architecture is essentially the same, except that channel attachment for high-speed parallel data transfer to the Burroughs host(s) is also supported.

The new software for these processors has been collectively termed the Computer Management Distributed Information Software (CMDIS) system. The software is modular, and packages are available for IBM batch emulation (2780/3780), IBM 3270 interactive terminal emulation, IBM SNA compatibility, and X.25 packet switching interface compatibility.

Other modules support functions as nodes in the Burroughs network. A module termed SYCOM supports program-to-program communications and file transfer between the node and remote hosts, as well as message concentration. Another software product, ODESY, supports data entry, editing and error correction for up to eight terminals simultaneously. Another module, CANDE, primarily handles file creation/update, as well as on-line program development. Finally, for users desiring multiple modules operating concurrently, there is the Transaction Distribution System (TDS), which integrates several of these.

USER REACTION

From the fall 1978 survey of communications processors, Datapro identified four B 870 users. Their ratings represented a total of ten processors, all of which were front-ending Burroughs mainframes (B 4800, B 4700 and B 3800).

The front ends, B874 processors, had been in operation an average of 29 months each. Each was controlling an ▷
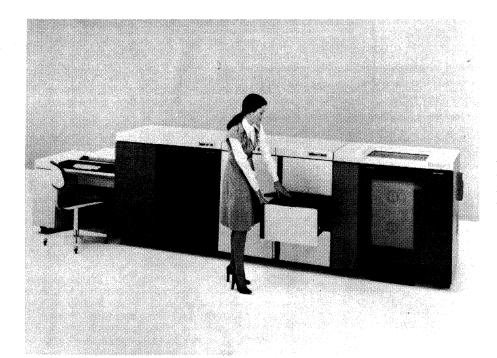
▶ The DCP can support up to 16 lines and, like the central processor, has microcoded logic. Unlike the central processor, the DCP does not have coding stored in a user accessible memory; its function is microcoded in 6144 words of 12-bit "micromemory." Line Adapters, which attach a communications line to the system, are selected on the basis of the type of link to be supported. The Line Adapters are electrically connected to the Line Base feature by the Line Expander feature. The Line Base, which provides the interface with the DCP's data transfer bus, is selected, dependent on the communications mode (full- or half-duplex).

Main memory for the central processor is divided into two functional sections. The Control Memory section holds the Burroughs-supplied operating system and its related routines. The User Memory section holds the application programs. Within the 1 MHz system, both control and user memory are physically identical MOS modules with a cycle time of 1 microsecond and a word size of 16 bits. The MOS control memory is called Control Memory I. The 2 MHz system replaces 16K of Control Memory I with 16K of Control Memory II, a bipolar memory with 16 bit word and cycle time of 0.07 microseconds. The maximum size Control Memory required (and allowed) to operate Burroughs software is 49,152 bytes.

Presently, three basic systems are offered: B867-1, B 867-2, and B 877-2.

The basic B 867-1 system includes the 1 MHz processor, 48K bytes of MOS Control Memory, 24K bytes of MOS User Memory, a 7-line Data Communications Processor, 4-line Group Expander, 145-millisecond Dual Disk Catridge Drive/Control with 4.6 megabytes of storage, a real-time clock, a disk expansion control switch, and 5 I/O channels for attachment of various peripherals. From a communications standpoint, only a Line Base and Line Adapters need to be added to the basic system to support up to four lines. To support more than four lines (maximum of seven) a 3-Line Line Expander would be required.

The basic B 867-2 includes the 2 MHz processor, 32K bytes of Control Memory I (MOS), 16,384 bytes of Control Memory II (bipolar), 5 I/O Channels, a real-time clock, and 24K bytes of User Memory. The seven-line DCP can be attached to the system, as with the B 867-1. All of the other features described for the B 867-1 are also applicable. ▶

Burroughs B 867/B 877
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The B 877-2 System and Communications Processor accommodates up to 32 communications lines and up to 541 million bytes of disk storage.

▷ average of 15.6 lines, with an average of three remote terminals per line. Two of the respondents were government agencies. The four users rated these Burroughs front ends as follows:

	Excellent	Good	Fair	Poor	WA*
Overall satisfaction	3	1	0	0	3.8
Ease of installation	1	1	2	0	2.8
Throughput	2	2	0	0	3.5
Hardware reliability	4	0	0	0	4.0
Promptness of mfr's maintenance	2	1	0	1	3.0
Quality of mfr's maintenance	1	2	0	1	2.8
Manufacturer's software	1	3	0	0	3.3
Manufacturer's technical support	0	2	1	1	2.3

*Weighted Average based on a scale of 4.0 for Excellent.

The user's overall satisfaction rating of 3.8 was considerably higher than the average for other vendors' front ends resulting from the same survey. The users were clearly pleased with the hardware reliability (4.0) and throughput (3.5) of their communications controllers. Contrarily, the users were apparently less pleased with the vendor's technical support and quality of maintenance.

Two of the users stated that software, both host and front end, had been the cause of difficulties, but the 3.3 rating of software would indicate that either their problems had been resolved, or are not very significant.□

▶ The basic B 877-2 is functionally similar to the B 867-2. Expansion capabilities make the difference. One or two 16-line DCP's can be added to support up to 32 communications lines. Fully expanded control memory is the same as in the B 866-2. User Memory is expandable to 98,304 bytes. With the I/O Expansion feature, the number of I/O

Channels can be physically increased to a total of nine. With this feature attached, only one 16-line DCP can be attached; the second DCP is limited to the 4-line unit.

For all systems, Control Memory I and User Memory are expanded in 8192-byte increments. Control Memory II, restricted to the 2 MHz systems, is available only in a single 16,384-byte increment.

CONNECTION TO HOST COMPUTER: The B 867/B 877 systems can be attached to other computers only through communications lines. The system does not support special adapters for high speed parallel transfer to a host.

TRANSMISSION SPECIFICATIONS

Line Bases, Line Expanders, and Line Adapters are selected based upon the DCP utilized and the type of communications lines. Line Bases support either four or seven lines.

The 7-Line Line Base is used exclusively in the 7-Line DCP. (The half-duplex version of the 7-line Line Base is half the price of the full-duplex verison and is used in a system employing only half-duplex lines; the full-duplex version will support any mix of full- and half-duplex lines.)

The 4-Line Line Base, or multiples thereof, are used in the 4-line, and the 16-line DCP. The 4-Line Line Base can also be used in the 7-line DCP when only four lines are to be attached.

Each 4-Line Line Base requires the 4-Line Line Expander irrespective of the mode-type of Line Base used. Each 7-Line Line Base requires one 4-Line Line Expander and one 3-Line Line Expander. The basic B 866-1 includes the 7-Line Line Base and only the 4-Line Line Expander.

Each line attached to the system requires its own Line Adapter. The adapters available are listed in Table 1 and includes support for asynchronous lines up to 1800 bps, synchronous lines up to 64,000 bps, Burroughs Direct Interface, two-wire direct interface, and BDLC protocol.

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▶ Table 1. B 867/B 877 LINE ADAPTERS

Line Interface Type	Line Speed, bps	Number Feature
RS-232 C, Asynchronous	1,800	B 658-12
RS-232 C, Synchronous	9,600	B 658-13
RS-232 C, Synchronous	56,000	B 658-3
Burroughs Direct Interface	19,200	B 658-2
BDLC Protocol	9,600	B 658-5
Two-wire Direct Interface	9,600	B 658-11
Auto Dial-out for B 358-4, 16	—	B 658-4
Auto Dial-out for B 358-7	—	B 658-6

SOFTWARE

The B 867/B 877 Systems utilize Burroughs' standard Master Control Program (MCP) for their operating system. MCP provides multiprogramming, virtual memory, job scheduling and other features noted for their ease of use.

The Network Definition Language allows the user's specific network configuration to be specified through parameters. These parameter statements generate the Network Control Program, a compilation of tables and coding needed for line control.

The Message Processing Language is used to generate the Message Control System which can perform security, scheduling, validation, reformatting, routing, and other functions as data passes between the application programs and the Network Control Program. The Message Control System permits a single line and/or a single station to input transactions to multiple application programs. The Generalized Message Control System is available to permit rapid creation of a Message Control System through a parameter-driven generation.

All of the above plus the COBOL/RPG Interpreter are required for the B 867/ B 877 system when used as a data communications processor. Collectively, the software is called the Burroughs Computer Management System (CMS). CMS is resident in Control Memory. The major modules occupy memory as follows:

Master Control Program (MCP)	16,500 bytes
MCP Data Communication Module	4,800
MCP Date/Time Module	800
Index Sequential Module (for use with MPL and/or COBOL)	5,100
MPL Interpreter*	6,000
COBOL/RPG Interpreter*	10,000

*The MPL and COBOL/RPG modules are resident in Control Memory II, when available.

Application programs are written either in COBOL or RPG.

In January 1979, Burroughs announced numerous software packages for the B 867/B 877 family, which included a new, modular, communications handling system collectively termed the Computer Management Distributed Information Software (CMDIS) system. The CMDIS system provides enhanced distributed operating for data entry and message handling over the original CMS system.

CMDIS is comprised of three modules which may operate individually, or collectively with the addition of a fourth module. The System Communications Module (SYCOM) provides for program-to-program communications, and permits, for example, data maintained by one computer to be accessed by a program running on another computer. Similarly, SYCOM permits a terminal operator of one computer to converse with an interactive program running on another system in the network. It controls the transfer of data files between two local or remote computers, and also handles message concentration and interface between the B 867/B 877 and the larger central Burroughs host.

The second module, the On-Line Data Entry System (ODESY), controls data entry to the B 867/B 877 from up to eight terminals simultaneously. ODESY audits, checks, formats and verifies the entered data to insure that it is as error-free as possible before transmission to the host.

A third module, the Command-AND-Edit language (CANDE), permits terminal operators at remote sites to create and update files, and conduct on-line program development.

The last module, the Transaction Distribution System (TDS), provides the control required for the concurrent operation of these three modules, plus other network interface modules and user application programs. It includes a message control system to supervise communications flow, and a tailored version of the Network Definition Language (NDL).

Numerous packages are available which permit the B 867/B 877 to function as a remote batch terminal to both Burroughs and IBM hosts. Two Burroughs packages are available; one supporting batch input to a B 2000, B 3000 and B 4000 systems, and the other supporting RJE to B 6000 and B 7000 systems. For remote input to IBM hosts, three packages are available which respectively control HASP, IBM 2780/3780 batch, and IBM 3270 interactive terminal emulation.

Two other software packages were among the announcements of January 1979 which significantly increased the interconnectability of the B 867/B 877 with other networks. One of the packages offers network compatibility with IBM SDLC/SNA networks; the other offers X.25 interface compatibility, and permits the remote B 867/B 877 node to access remote processors via packet-switched carriers such as Telenet and Tymnet

A store and forward message switching package is also available, although primarily for use with the B 877-2.

OTHER PERIPHERALS

Line printers are offered with speeds of 85, 160, 250, 400, or 750 lpm. All models provide 132 print positions per line.

Magnetic tape units include a 10 inch/sec. cassette drive and a 10K bytes/sec., NRZ, 9-channel, 800 bps unit.

Dual disk cartridge drives with 4.6 million byte capacity are offered in two models; one has an average head positioning time of 80 milliseconds, and the other, of 145 milliseconds. A 9.2 million-byte dual drive is also offered, it has an average head positioning time of 100 milliseconds.

Single spindle Fixed Media Disk Drives are available in 9.4 and 18.8 million byte capacities. Two Dual spindle versions of the single spindle drives are available with double the capacities. All versions have an average head positioning time of 55 milliseconds.

One- and two-megabyte Burroughs Super Mini-Disk Drives are also offered.

A 65.2 and a 130.4 million byte Dual Drive for disk packs are available with the latter capable of being expanded to 521.6 million bytes. The Disk-Pack Drives have direct memory access; average access time, including head movement and rotational delay, is 33 milliseconds.

A 1920 character display/keyboard or 60 cps printer/keyboard operator console is available. ▶
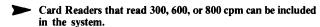
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Configuration

B 866/B 876 System

Central (1) Processor	I/O Bus	I/O Channel	Peripheral Control	
		I/O Channel	Peripheral Control	Up to 5 or 7 peripheral devices (3)
Control (2) Memory & User Memory	Memory Bus	DMA Bus	DCP (4) — Line Base (5) & Expander — LA (6), LA, LA; Line Base & Expander — LA, LA	
			DCP — Line Base & Expander — LA, LA; Line Base & Expander — LA, LA	Up to 7 or 32 communications lines
		I/O Channel	Disk Control	
		I/O Channel	Disk Control	Disk Controller and/or Drives

Up to 521.6 megabytes

(1) Central Processor available in 1 MHz (B 867-1) or 2 (B 867-2 and B 877-2) MHz speeds.
(2) Up to 49,152 bytes of MOS Control Memory; 16,384 bytes can be bipolar in 2 MHz systems.
(3) B 867/877 includes 5 I/O Channels for attachment of peripheral controls. B 877-2 can support 7 I/O Channels with I/O Expansion feature; with I/O Expansion, only one DCP can be a 16-line DCP.
(4) One or two DCP's are available to support 4 lines or 16 lines each Basic B 867-1 allows only a 7-line DCP.
(5) Line Bases are available in half-duplex or full- and half-duplex versions to support 4 or 7 lines each. The 4-line Base requires the 4-line Line Expander. The 7-line Line Base requires both the 4-line and the 3-line Line Expander.
(6) A Line Adapter is required for each communications line.

▶ Card Readers that read 300, 600, or 800 cpm can be included in the system.

PRICING

The B 867/B 877 systems are available for purchase or on a one-, three-, or five-year lease. Lease prices include prime-shift maintenance and permit unlimited use of the equipment.

There is an initial charge for the software packages and either a monthly or annual license fee. Certain packages can be obtained for a limited time (five years) on a monthly fee basis instead of the initial fee and license fee. ▶

Burroughs B 867/B 877
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		Monthly Lease*		Purchase Price	Monthly Maint.
		1-yr.	5-yr.		
B 867-1	1 MHz Processor; 49,152 bytes Control Memory I, 24,576 bytes User Memory, Dual Disk Cartridge Drive and Control (9.2 megabytes), DCP with 7-line and 4-line group expander, real-time clock, 1 MB Inbuilt Super Mini-Disk	$745	$596	$19,325	$175.92
B 867-2	2 MHz Processor; 32,768 bytes Control Memory I, 16,384 bytes Control Memory II, 24,576 bytes User Memory; otherwise same as B 867-1	1,005	804	30,150	269.42
B 877-2	2 MHz Processor; 32,768 bytes Control Memory I, 16,384 bytes Control Memory II, 24,576 bytes User Memory; equipped only with real-time clock and 16-line DCP with 4-line group expander	705	564	21,160	240.08
Memory Options					
B 7-8	8,192 bytes Memory for User Memory or Control Memory I	46	36	1,020	17.10
B 31-9	16,384 bytes Control Memory II	314	258	9,538	65.00
Printers					
B 243-3	Control for B 9249-1, 2, 3	21	15	644	7.70
B 244-7	ASCII Control for B 9247-12, 13	41	36	1,236	7.70
B 244-8	EBCDIC Control for B 9247-12, 13	41	36	1,236	7.70
B 9249-1	85 lpm Printer	335	268	8,755	82.90
B 9249-2	160 lpm Printer	381	304	9,270	96.60
B 9249-3	250 lpm Printer	525	412	12,875	130.00
B 9948-1	12-Channel Format Tape Reader for B 9249-1, 2, 3	41	26	618	16.10
B 9247-12	400 lpm Printer, 12-channel Format Tape Reader	803	633	19,158	209.00
B 9247-13	750 lpm Printer, 12-Channel Format Tape Reader	1,056	850	28,840	284.00
Data Communications Processors					
B 358-4	4-line Processor	144	118	4,429	30.50
B 358-7	7-line Processor and 4-line Expander	93	77	2,575	18.90
B 358-16	16-line Processor	185	155	5,150	48.30
Line Bases and Expanders					
B 358-20	Half-duplex, 4 lines	15	10	361	3.40
B 358-21	Full-, half-duplex, 4 lines	26	21	721	6.90
B 358-23	Full-, half-duplex, 7 lines	26	21	721	6.90
B 358-24	Line Expander, 4 lines	15	10	361	1.40
B 358-25	Line Expander, 3 lines	15	10	350	3.00
Line Adapters					
B 658-12	Asynchronous, 1800 bps	15	12	400	3.00
B 658-13	Synchronous, 9600 bps	15	12	400	3.00
B 658-2	Burroughs Direct Interface, 19,200 bps	26	21	680	2.96
B 658-3	Broadband, 64,000 bps	93	77	2,678	13.83
B 658-5	BDLC, 9600 bps	31	26	865	4.85
B 658-11	Two-wire Direct Interface	15	12	400	3.00
B 658-4	Auto Dial-out for B 358-4, 16	15	10	386	1.60
Operator Consoles and Direct Data Entry Devices					
B 347-1	Control for B 9348-4	31	21	721	4.60
B 346-4	Control for B 9346-2	21	15	700	4.60
B 9348-4	Operator Console, Display/Keyboard	144	118	3,965	33.20
B 9346-2	Operator Console, Printer/Keyboard; 60 cps	165	139	5,253	31.75
B 9347-2	Direct Data Entry Terminal	88	129	3,515	20.92
Card Readers					
B 115-1	Control for B 9115, 6, 7	31	21	906	10.80
B 9115	300 cpm Reader	254	191	7,808	43.10
B 9116	600 cpm Reader	323	244	9,845	60.40
B 9117	800 cpm Reader	366	281	11,214	74.00
Magnetic Tape					
B 393-1	Control for B 9491-4	77	62	2,295	17.40
B 394-1	Control for B 9490-25	31	26	824	4.73
B 395-1	Control for B 9491-1	41	31	1,288	14.40
B 9490-25	10 IPS Magnetic Tape Cassette	69	56	1,689	8.90
B 9491-2	10 KB Tape Unit, NRZ, 9 Channel, 800 BPI	283	232	9,167	29.70
B 9491-4	Magnetic Tape Unit	465	375	12,600	55.00

OCTOBER 1979

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		Monthly Lease*		Purchase Price	Monthly Maint.
		1-yr.	5-yr.		
Disk Cartridge Drives					
B 383-1	Control for B 9480-12, 22, B 9481-12	46	36	1,339	12.20
B 9480-12	4.6 MB Dual Cartridge Drive, 80 ms	427	335	11,330	83.92
B 9480-22	4.6 MB Dual Cartridge Drive, 145 ms	340	268	9,270	79.08
B 9481-12	9.2 MB Dual Cartridge Drive, 100 ms	520	422	13,390	114.00
Fixed Media Disk Drives					
B 384-1	Universal System Disk Control; Cartridge, Fixed or Mini	63	57	1,875	14.20
B 9493-9	9.4 MB Single Spindle, 55 ms	317	270	9,527	86.08
B 9493-18	188.8 MB Single Spindle, 55 ms	374	317	11,227	92.42
B 9493-28	28.2 MB Dual Spindle, 55 ms	517	439	15,347	113.00
B 9493-37	37.6 MB Dual Spindle, 55 ms	615	522	18,437	131.00
Disk Exchange Switch Control					
B 489-4	Disk Exchange (1x4); for Cartridge Drives B 383-1	37	31	1,189	5.80
B 383-2	Disk Exchange (1x4); for Universal Control B 384-1	15	14	495	5.27
Mini-Disk Drives					
B 9489-11	1 MB Super Mini-Disk, Free-standing	100	95	3,605	30.33
B 9489-12	2 MB Super Mini-Disk, Free-standing	175	154	5,150	60.75
Disk-Pack Drives					
B 387-1	Control for B 9387-11, 12	72	57	2,060	14.20
B 9387-11	65.2 MB Dual Drive and Controller	1,060	780	35,020	115.00
B 9387-12	130.4 MB Dual Drive and Controller	1,434	1,056	47,380	115.00
B 9484-5	130.4 MB Dual Drive Increment (3 max.)	1,114	817	31,827	85.00

*Monthly lease prices include maintenance.

SOFTWARE

		Initial Charge	Monthly License Fee
CM 800 MCP	Master Control Program	$ 2,500	$ 72
CM 800 NDL	Network Defintion Language	—	26
CM 800 MPL	Message Processing Language	—	26
CM 800 COB	COBOL	—	52
CM 800 RPG	Report Program Generator	—	52
CM 800 UTL	Utilities	—	15
CM 800	Combined CMDIS Package; includes SYCOM, CANDE, ODESY and TDS	16,360	160

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		Initial Charge	Annual Fee	Limit Time Plan, 5-year
CM 800 GMC	Generalized Message Control System	$ 4,120	$ 412	$132/mo.
B 800 R41	Remote Terminal Program (RJE to B 4000, B 3000, B 2000 Systems)	1,300	180	32
B 800 R61	Remote Terminal Program (RJE to B 7000, B 6000 Systems)	1,300	180	32
B 800 HSP	Remote Terminal Program (360/20 Look-Alike RJE to IBM HASP)	1,300	180	32
B 800 MSS	Store and Forward Message Switch Module	20,600	1,030	659
CM 800 CDA	CANDE—Command and Edit	600	175	19
CM 800 DE2	ODESY—On-Line Data Entry System	2,400	240	77
CM 800 SYC	SYCOM—System Communication Module	2,000	200	64
CM 800 TDS	TDS—Transaction Distribution System	600	175	19
CM 800 R32	IBM 3270 Emulation Package	2,500	250	80
CM 800 R37	IBM 2780/3780 Emulation Package	1,260	175	40
CM 800 X25	X.25 Interface Module	2,000	200	48
CM 800 SNA	SNA/SDLC Compatibility Module	5,000	500	160■