NEW PRODUCT ANNOUNCEMENT

Sperry 2200 Series

PRODUCT DESCRIPTION

Sperry is touting the 2200/200 as a new category of computer: the "midframe." The new systems are said to offer the performance of a mainframe with the small size and ease of use of a minicomputer. The 2200/200 systems can be used as central computers, as departmental machines, or as special-purpose systems. No special flooring or air conditioning is required for the basic models.

The 2200/200 models are built around Sperry's new 256K-bit CMOS chip technology. They use the 1100 Series instruction set, including the Extended Instruction Set, and run the 1100 Operating System. Four models are available: the uniprocessor 2200/201, the dual-processor 2200/202, the three-processor 2200/203, and the four-processor 2200/204. The 2200/201 and 2200/202 are housed in the basic system cabinet. Adding the third and fourth processor requires an expansion cabinet. Main memory ranges from 4 megabytes to 48 megabytes, with the basic cabinet holding up to 24 megabytes.

The system cabinets also house the I/O Processor, integrated disk and tape drives, and various adapters and channel interfaces. A wide variety of peripherals and communications devices can be connected to the system.

Unlike most mainframe systems, the 2200/200 systems use a bus architecture. The System Bus (S-Bus) transfers instructions and data among the Instruction Processors (the central processors), the I/O Processors, and main memory. The I/O Processor uses a transfer bus (T-Bus) with interfaces to peripherals and communications devices. There is another bus, the L-Bus, that runs off the T-Bus and supports communications lines and a laser printer. ▷

PRODUCT ANNOUNCED: The 2200/200 systems are modular mid-range systems that use Sperry's 1100 Series instruction set and operating system. The systems can have up to four central processors housed in one or two desk-sized cabinets. Main memory ranges from 4MB to 48MB.

COMPETITION: Burroughs A 3; Digital Equipment 8200 and 8300; IBM 9370, System/38, and 4300 Series; and NCR 9800.

DATE ANNOUNCED: October 9, 1986.

SCHEDULED DELIVERY: December 1986.

BASIC SPECIFICATIONS

MANUFACTURER: Sperry Corporation, P.O. Box 500, Blue Bell, Pennsylvania 19424. Telephone (215) 542-4011. In Canada: Sperry, Inc., 55 City Centre Drive, Mississauga, Ontario.

MODELS: 2200/201, 2200/202, 2200/203, and 2200/204.

CENTRAL SYSTEM

TECHNOLOGY: The 2200 Series processors use Sperry's new 256K-bit CMOS/VLSI (Complementary Metal Oxide Semiconductor/Very Large-Scale Integration) chip set, which incorporates 1100 Series architecture. Six chips make up the basic 2200 Instruction Processor: the Arithmetic Logic Unit chip, which supports all arithmetic and logic functions; the Address Generator Unit chip, which performs basic and extended addressing; the Decode/Control chip, which performs the first level of decoding on instructions ▷
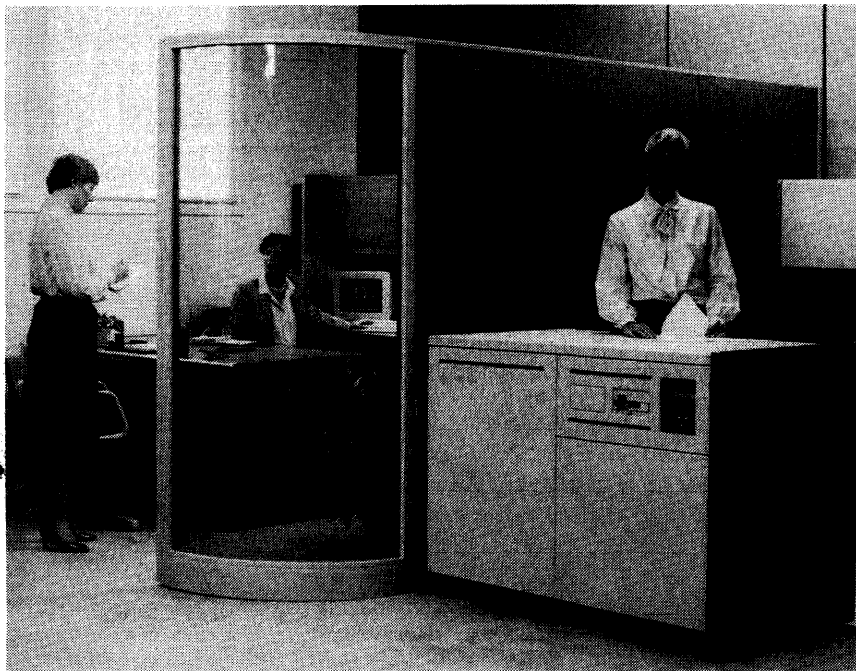
The 2200/201 is the entry-level model in Sperry's new 2200 Series of mid-range systems. The 2200/201 is equipped with 4 megabytes of main memory, expandable to 24 megabytes. Up to eight integrated disk drives can be added to the basic 2200/201 cabinet, which occupies only 10.5 square feet of floor space.

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▷ Because the 2200/200 systems use the 1100 Operating System, they are completely compatible with all 1100 Series software. They also use many of the same peripherals, including the Uniservo 22, 24, 26, and 28 Magnetic Tape Subsystems and the 0776 Line Printers.

RELATIONSHIP TO CURRENT PRODUCT LINE: The 2200/200 effectively replaces the System 11/Mapper 10 system, Sperry's earlier 1100 Series-compatible small system. The 2200 now provides the entry to the 1100 family. It uses the same software and much of the same hardware as the 1100/60, 1100/70, and 1100/90 systems. Sperry has stated that the 2200/200 models are the first of a new integrated family. Future additions to the family are expected to provide a growth path for 1100/70 and 1100/90 users. Sperry needs a more powerful system than the 1100/90 if it is to compete against IBM in the large-scale mainframe market.

Performance of the new systems ranges from 1.2 MIPS (million instructions per second) for a 2200/201 to 4.2 MIPS for a 2200/204 in a mixed business/scientific environment. In a strictly scientific environment, the 2200/204 operates at 5.4 MIPS. In comparison, the 1100/60 and 1100/70 have MIPS ratings of 0.5 to 5.7, and the 1100/90 has a rating of 5 to 25 MIPS.

COMPETITIVE POSITION: One of the major competitors for the 2200/200 will be IBM's new 9370, which was announced two days prior to the 2200 Series announcement. Like the 2200/200, the 9370 is a mid-range system that uses mainframe architecture; in this case, System/370 architecture. IBM has billed the 9370 as a supermini.

The 9370 family includes four models, all of them uniprocessor models. According to Sperry, the 2200/200 will compete with the two high-end 9370 models. Main memory on the larger 9370 models ranges from 8 to 16 megabytes, compared to the 2200/200's 4 to 48 megabytes. IBM does not release MIPS ratings, so performance comparisons are difficult.

The 9370 is a rack-mounted, bus-oriented system that supports a wide variety of peripherals. Unlike the 2200/200, however, IBM does not include integrated peripherals and control units in the basic system. A 2200/201 system with 8 megabytes of main memory, 32K bytes of cache memory, two integrated hard disk drives, one integrated cartridge tape drive, and one I/O Processor sells for $153,340. The IBM 9375 Model 60 with 8 megabytes of main memory and a processor console costs $93,000, while a top-of-the-line 9377 Model 90 with 8 megabytes of main memory and a processor console costs $190,000. Other system components cost extra.

Sperry also has the advantage over IBM on delivery schedules. The 2200/200 systems are all scheduled for December 1986 delivery. The 9375 Model 60 won't be available until the third quarter of 1987; the 9377 Model 90, until the fourth quarter of 1977.

▶ and sends the starting microcode address to the other chips; the Cache Interface chip, which supports the system's cache memory; the Extended Instruction Set chip, which provides extensions to the basic 1100 Series instruction set; and the optional Multiply/Divide chip, which provides hardware acceleration for multiply and divide instructions.

The 2200 Series Instruction Processor provides a duplicate, mirror processor that checks each operation in parallel with the basic processor to ensure integrity and accuracy. If the Instruction Processor fails, the redundant processor can take over its functions.

COMPONENTS: The basic 2200/201 system includes one Instruction Processor (IP) that operates at 1.2 MIPS (million instructions per second). The IP includes 32K bytes of cache memory. The basic system cabinet also contains one Main Storage Unit (MSU), the System Bus (S-Bus), the Input/Output Processor (IOP), two integrated hard disk drives, an integrated cartridge tape unit, and a Workstation Control Unit (WCU).

The MSU includes 0.5M words (4M bytes) of main memory, expandable to 4M words (12M bytes). Two MSUs with a total of 24M bytes of memory may be housed in the basic cabinet.

The S-Bus transfers instructions and data among system components at 29.6 megabytes per second. In addition to connecting the Instruction Processor, I/O Processor, and Main Storage Unit, the S-Bus has six expansion slots for attaching I/O channels.

The IOP uses a number of adapters and interfaces for connecting tape and disk drives, printers, and communications lines. The IOP is described in more detail in the "Input/Output Control" section of this report.

The integrated disk drives have a formatted capacity of 140 megabytes. Up to eight drives can be housed in the basic system cabinet. One cartridge tape drive is standard on the 2200 system, but a streaming tape drive or Uniservo 22 or 24 tape subsystem can be substituted for the cartridge tape. Two cartridge tape units fit into the basic cabinet. In addition, up to 7 WCUs, each supporting 16 terminals/workstations, can be housed in the basic cabinet.

The 2200 Series system can be expanded by adding additional components to the basic cabinet, by adding an expansion cabinet, and by adding external peripherals. The 2200/201 can be upgraded to a 2200/202 dual-processor system by installing a second Instruction Processor in the basic cabinet. Further expansion to a three-processor 2200/203 or four-processor 2200/204 requires an expansion cabinet. In addition to the third or fourth IP, the expansion cabinet can house an IOP, two MSUs, eight integrated disk drives, and two cartridge tape drives. Thus, a maximum 2200/204 system includes 48 megabytes of memory, 2 IOPs, 16 integrated disk drives, and 4 cartridge tape units.

External disk drives, tape drives, printers, and communications processors can be added through the various adapters and channels available for the 2200 Series systems. These are described below.

PHYSICAL SPECIFICATIONS: The basic 2200 system cabinet measures 50 inches in width, 38 inches in height, and 30 inches in depth. The cabinet weights 420 pounds. The 2200 operates at 50 or 60 hertz and has a heat dissipation rate of 7,200 Btus. The basic system cabinet does not require special flooring, electrical connections, or cooling.

INPUT/OUTPUT CONTROL

The integrated I/O Processor occupies one slot on the System Bus. The IOP uses a transfer bus (T-Bus) with five slots for the interfaces that connect peripherals and communications devices to the 2200 Series system. The integrated disk and tape units connect to the system through the Small Computer System Interface (SCSI) Host Adapter (SHA). The SHA occupies one slot on the T-Bus and supports six peripheral devices. The Byte Peripheral ▷ Adapter (BPA) provides the interface for the Uniservo 18 Stream- ▶

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▷ The 2200/200 systems will also compete with the Burroughs A 3, the Digital Equipment 8200 and 8300 systems, and the NCR 9800, which was introduced earlier this year. The new NCR systems are bus-oriented, multiprocessor systems designed for on-line transaction processing. According to NCR, the 9800 processors perform at 0.6 to 8.0 MIPS, depending upon the number of processors in the configuration. The 9800 systems include from one to eight application processors, which correspond to the central processor on other systems, and from one to four data storage processors that serve as file processors for main memory. Main memory ranges from 2 to 48 megabytes. Prices for the 9800 systems range from $41,220 for an entry-level system with one application processor to $340,508 for a system with eight application processors and 32 megabytes of memory. □

▶ ing Tape Subsystem, Uniservo 22 and 24 Tape Subsystems with integrated controllers, the 0789 Line Printer, and the DCP/10A and DCP/15 communications processors. The BPA has four drops and occupies one slot on the T-Bus. The L-Bus, which occupies another slot on the T-Bus, supports the Workstation Control Units, Model 47 Laser Printer, and communications lines.

Two types of I/O channels are also available. The Disk Controller Channel II (DCC II) supports up to four external Model 8451 Disk Subsystems. The 8451 drives each provide 400 megabytes of formatted storage. The DCC II occupies one slot on the S-Bus. Five DCC IIs can be housed in each 2200 system cabinet. The Block Multiplexer Channel (BMC) supports up to eight non-disk peripherals, including the Uniservo 26 and 28 Tape Subsystems, the 0716 Card Reader, the 0776 Line Printer, the Hyperchannel, the DCP/20 and DCP/40 communications processors, and the Interprocessor Channel Coupler. The BMC has eight drops and occupies one slot on the S-Bus. Four BMCs can be housed in one system cabinet, but the system maximum is six. The DCC II and BMC are mutually exclusive.

PERIPHERALS

The 2200 Series supports a wide variety of peripheral devices. Integrated 140-megabyte, 5¼-inch fixed-disk drives are housed in the processor cabinet. Freestanding 400-megabyte Model 8451 fixed-disk drives can be added. The 2200 Series supports Model 4071 Cartridge Tape Drives and the Uniservo 18, 22, 24, 26, and 28 Magnetic Tape Subsystems. The following printers can be used with the system: the 640 line-per-minute (lpm) 0789 Line Printer, the 1200-lpm 0776 Line Printer, and the 19 page-per-minute Model 47 Laser Printer.

Workstations for the 2200 Series can be UTS 20L display terminals, SVT-1121 display terminals, or PC/microIT personal computers. The UTS 20L has a 12-inch screen, while the SVT-1121 has a 14-inch screen. The PC/microIT is available with either a monochrome or color display and a 12- or 14-inch screen. The 2200 Series does not require a dedicated system console.

COMMUNICATIONS

The integrated Workstation Control Unit (WCU) provides for the attachment of up to 16 UTS 20L, SVT-1121, or PC/microIT workstations to a single 250K bit-per-second coaxial cable directly connected to the system. The WCU connects to an L-Bus Adapter, which has eight ports and occupies one slot on the T-Bus of the I/O Processor. Up to seven WCUs can be housed in the basic 2200 Series cabinet. The WCU can be used to offload the Distributed Communications Processor (DCP) in a communications network.

The Programmable Line Module (PLM) is a single-board communications processor that can be integrated into the basic cabinet of a

2200 Series system and connected to the L-Bus Adapter. The PLM provides one megabyte of storage, a host interface, and two RS-232-C interfaces. Line speeds of 19.2K bits per second are supported. Three PLMs can be housed in each 2200/200 system cabinet.

The Distributed Communications Processors are front-end and network processors. Four models are available: the DCP/10A, DCP/15, DCP/20, and DCP/40. The DCP/15 is a new model that was introduced along with the 2200 Series. The other models are described in our reports on the 1100 Series. The DCP/15, an entry-level model that supersedes the DCP/10A, supports up to 52 full-duplex communications lines. It connects to the 2200/200 system through the Byte Peripheral Adapter. The DCP/15 includes the processor, from two to four megabytes of memory, integrated diskette, integrated hard disk, and communications line modules.

The Central Support Interface Line Module (CSI LM) provides connection through a modem to a Sperry computer located in the Sperry Support Center. The CSI LM provides remote diagnostics and transfer of diagnostic information and data files.

Also available are the Hyperchannel and Interprocessor Channel Coupler (IPCC), two freestanding units that link multiple 2200 Series systems to each other and to Sperry 1100 Series systems via a high-speed channel.

SOFTWARE

The 2200/200 systems use the 1100 Operating System and all 1100 Series software, including Mapper, Universal Data System, Interactive Processing Facility, Transaction Interface Package, and Communications Management System 1100. The 2200 Series can also use SX 1100, Sperry's implementation of Unix System V. Programming languages supported include Cobol, Fortran, and RPG II.

Standard system software for the 2200 Series comes in a pregenerated form called the General Purpose Typical Executive (GPTE). GPTE is ready to use and requires minimal site tailoring. For sites requiring more tailoring, Mixed Mode Executive, a symbolic form of the standard software, is available. The Mixed Mode Executive permits traditional system generation and maintenance.

Shield is a new package that enables Sperry PC users to access a 2200/200 system without special training in data processing. Shield is a menu-driven system that performs file administration, security and accounting, and session management functions.

Another new software package is PLM 1100, which runs the Programmable Line Modules on the 2200 Series systems. PLM 1100 is contained in main storage within the PLM. It incorporates Sperry's Distributed Communications Architecture (DCA).

The 2200 Series also supports the Distributed System Services (DSS), a group of software packages that provide library and document distribution facilities among Sperry 2200 Series, 1100 Series, 5000 Series, 7000 Series, and personal computers. Future releases will support IBM's Distributed Office Support Systems (DISOSS), permitting a 2200 Series system to transfer files to an IBM system. Current DSS program products for 2200 Series users include Distributed Data Processing (DDP) 1100 and Distributed Information Services (DIS) 1100. DDP 1100 enables 2200 Series systems to exchange data and files and to conduct program-to-program communications. DIS 1100 permits the use of the 2200 system as a central library for holding and distributing documents to a variety of systems.

PRICING

The 2200/200 systems are available for purchase or on a one-year or five-year lease. All software except the operating system is unbundled. Hardware prices are listed in the "Equipment Prices" section of this report. Detailed software prices were not available at press time, but the software listed in our 1100 Series reports also runs on the 2200/200 systems. ▶

Sperry 2200 Series

EQUIPMENT PRICES

| | | | Monthly Charges* | |
	Purchase ($)	Monthly Maint. ($)	1-Year Lease ($)	5-Year Lease ($)
PROCESSORS & FEATURES				
3088-98 2200/201 System; consists of one basic cabinet containing one Instruction Processor, one Main Storage Unit (MSU) with 1M words (4M bytes) of main memory, 32KB of cache memory, one Input/Output Processor (IOP), two 4113 Disk Drives, and one 4071 Cartridge Tape Subsystem	133,100	585	5,546	3,697
3088-96 2200/202 System; same as 2200/201, but includes two Instruction Processors	233,530	940	9,730	6,487
3088-95 2200/203 System; includes a basic 2200/201 System and an expansion cabinet that contains the same components, plus an additional Instruction Processor to form a three-processor system	343,090	1,335	14,295	9,530
3088-94 2200/204 System; includes the same components as the 2200/203, plus one additional Instruction Processor to form a four-processor system	415,690	1,590	17,320	11,547
3089-00 Expansion Cabinet; can contain two Instruction Processors, two MSUs, one IOP, eight 4113 Disks, and two 4071 Cartridge Tape Units	36,960	140	1,540	1,027
F4111-99 Instruction Processor Expansion; maximum of two per cabinet and four per system	72,600	255	3,025	2,017
F4080-99 IOP Expansion; maximum of one per cabinet and two per system	13,200	60	550	367
F4073-00 Main Storage Unit; includes control and 0.5M words (2MB) of memory; maximum of two per cabinet and four per system	17,710	60	738	492
F4076-00 MSU Expansion; 0.5M words (2MB) of memory; maximum of 10 per cabinet and 20 per system	10,120	40	422	281
1974-01 Peripheral Cabinet	1,606	8	67	45
F4257-00 Disk Controller Channel (DCC II); supports the attachment of up to four 8451 Disk Subsystems with up to four disk drives each; maximum of 5 DCC IIs per cabinet and 10 per system	10,863	50	453	302
K3652-01 Block Multiplexer Channel (BMC); mutually exclusive with DCC II; maximum of four per 2200 system cabinet	9,350	65	390	260
F4369-00 BMC Conversion	1,650	7	69	49
F4223-01 Nonimpact Printer Control Unit (NIPCU); required to support the Model 47 Laser Printer	3,312	17	138	92
F4077-00 Byte Peripheral Adapter (BPA); provides for the connection of 0789 Printers, Universo 18, 22, and 24 Magnetic Tape Subsystems, and DCP/10A and DCP/15 communications processors	3,080	10	128	86
F4078-00 L-Bus Adapter (LBA); provides for the connection of workstations and Programmable Line Modules	4,400	25	183	122
F4612-00 L-Bus Expansion Module	550	—	23	15
F4079-01 SCSI Host Adapter (SHA-2); provides for the connection of additional integrated disks and cartridge tape units	4,290	25	179	119
F4079-02 SHA-3; provides third SCSI Host Adapter	4,070	25	170	113
F4079-03 SHA-4; provides fourth SCSI Host Adapter; requires expansion cabinet	4,510	25	188	125
F4079-05 SHA-6; provides fifth or sixth SCSI Host Adapter; requires expansion cabinet	4,070	25	170	113
F4270-00 Power Supply Expansion, First	2,640	15	110	73
F4270-01 Power Supply Expansion, Maximum	6,050	30	252	168
F4378-00 Power Supply, +12V DC	1,210	10	50	34
F4549-00 Dayclock Auxiliary Battery	660	4	28	18
K3728-01 Subsystem Power Control (SPC); provides remote power control	16,000	34	667	444
F3729-00 SPC Interface Expansion; provides additional control unit interfaces	1,600	3	64	48
MASS STORAGE				
F4113-01 Disk Formatter II and 140MB Disk Drive; fits into system cabinet; supports one additional disk drive	7,700	35	321	214
F4115-01 Disk Drive Expansion, 140MB; maximum of 8 disks per cabinet	6,600	30	275	183
8451-00 8451 Disk Subsystem; includes integrated controller and 400MB disk drive; maximum of 4 drives per Disk Subsystem cabinet and 4 subsystems per 2200 Series system	38,266	171	1,594	1,063
F4329-00 8451 Disk Drive Expansion	12,900	65	538	358
F4332-00 Dual Access Feature	4,850	28	202	135
MAGNETIC TAPE UNITS				
F4071-00 Tape Formatter III and Cartridge Tape Drive; fits into 2200 system cabinet; maximum of two per cabinet	4,400	25	183	122
2014-99 Uniservo 18 Streaming Tape Unit; first drive	8,900	89	271	223
K3782-01 Uniservo 18 Streaming Tape Unit; additional drive; maximum of four drives per BPA	8,600	87	260	215

Lease prices do not include maintenance.

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		Purchase ($)	Monthly Maint. ($)	Monthly Charges*	
				1-Year Lease ($)	5-Year Lease ($)

MAGNETIC TAPE UNITS (Continued)

		Purchase ($)	Monthly Maint. ($)	1-Year Lease ($)	5-Year Lease ($)
0876-71	Uniservo 22 Tape Subsystem; includes one 1600/800 bpi tape drive and control for up to three additional U22 or U24 tape drives; maximum of four subsystems per BPA	26,690	160	1,112	741
0876-75	Uniservo 22 Tape Drive	19,190	110	690	460
0876-69	Uniservo 24 Tape Subsystem; includes one 1600/800 bpi tape drive and control for up to three additional U24 or U22 tape drives; maximum of four subsystems per BPA	28,010	183	1,167	778
0876-73	Uniservo 24 Tape Drive	20,510	133	737	491
5055-99	Uniservo 26/28 Control; provides control for up to eight U26 and U28 tape drives, as well as U22 and U24 drives, in any combination	22,700	140	635	470
0884-00	Uniservo 26 Tape Drive; 1600/6250 bpi	22,000	180	595	440
0884-02	Uniservo 28 Tape Drive; 1600/6250 bpi	24,750	190	675	500
F2451-00	9-Track NRZI Feature for 5055 Control	3,170	16	82	63
F3737-00	Dual Access Feature for 5055 Control	900	5	27	20
F3738-00	Dual Channel Feature for 5055 Control	1,000	4	34	25
F3739-00	Translation Feature; ASCII to/from EBCDIC	3,600	18	94	72

PRINTERS & CARD READERS

		Purchase ($)	Monthly Maint. ($)	1-Year Lease ($)	5-Year Lease ($)
0447-93	Model 47 Laser Printer (with fiber optic link); 19 ppm; requires NIPCU on the L-Bus	27,262	239	1,136	757
0447-95	Model 47 Laser Printer (with RS-232 interface); 19 ppm; requires NIPCU on the L-Bus	25,262	227	1,053	702
F4164-XX	Character Font Cartridge	175	—	8	5
0776-00	Line Printer and Control; 760 lpm with 48-character set	36,570	284	1,006	803
0776-02	Line Printer and Control; 900 lpm	41,340	340	1,134	907
0776-04	Line Printer and Control; 1200 lpm	48,000	388	1,431	1,145
F2217-00	Speed Upgrade; 0776-00 to 0776-02	4,770	56	128	104
F2245-00	Expanded Character Set Control; required for character sets with more than 64 characters	1,910	5	50	40
F2215-XX	Printer Cartridge	1,270	—	34	26
F2216-XX	Printer Cartridge	1,440	—	34	26
0789-20	Line Printer; 640 lpm	15,650	156	417	313
F3321-XX	Initial Print Band	225	—	—	—
F3608-XX	Replacement Print Band	184	—	—	—
0716-89	Card Reader and Control; 80 columns	16,545	179	445	322
F1487-00	Short Card Feature; 51 columns	1,968	17	45	32
F1487-01	Short Card Feature; 66 columns	1,968	17	45	32

COMMUNICATIONS

		Purchase ($)	Monthly Maint. ($)	1-Year Lease ($)	5-Year Lease ($)
0986-0X	Interprocessor Channel Coupler (IPCC)	20,000	55	440	375
F3950-00	IPCC Module	20,000	55	440	375
F4325-01	Programmable Line Module (PLM); provides integrated communications processor, host interface, and RS-232 interfaces; maximum of three PLMs per 2200 system cabinet	6,600	30	275	183
F3955-01	Workstation Control Unit (WCU); provides connections for up to 16 workstations/consoles	2,750	13	115	76
F4712-00	Fiber Optic Cable, 100 feet	420	—	—	—
F4712-01	Fiber Optic Cable, 250 feet	690	—	—	—
F4712-02	Fiber Optic Cable, 500 feet	1,140	—	—	—
F4712-03	Fiber Optic Cable, 750 feet	1,590	—	—	—
F4712-04	Fiber Optic Cable, 1,000 feet	2,040	—	—	—
F4712-05	Fiber Optic Cable, 2,000 feet	3,840	—	—	—
F8290-03	RS-232 Duplex Cable; PVC-coated, 20 feet	64	—	—	—
F8290-06	RS-232 Duplex Cable; PVC-coated, 50 feet	78	—	—	—
F8291-03	RS-232 Duplex Cable; Teflon-coated, 20 feet	86	—	—	—
F8291-06	RS-232 Duplex Cable; Teflon-coated, 50 feet	132	—	—	—
F3165-02	Multiline Asynchronous Line Module	2,880	14	120	80
F3837-01	Multiline Synchronous Line Module	2,880	14	120	80
F3163-05	Medium-Speed Communications Adapter; RS-232-C	1,275	8	53	36
F3163-06	Medium-Speed Communications Adapter; X.21	2,500	14	104	69
F3842-98	Central Support Interface; provides interface to Sperry remote service center	3,080	12	128	86
1986-67	Data Communications Processor/15 (DCP/15); includes processor with 2MB of memory; connects to the 2200 system via the BPA	15,125	50	630	420
1986-63	DCP/15; includes processor with 2MB of memory and 20MB of integrated disk storage	17,125	70	714	476

*Lease prices do not include maintenance.

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		Purchase ($)	Monthly Maint. ($)	Monthly Charges* 1-Year Lease ($)	5-Year Lease ($)

COMMUNICATIONS (Continued)

Model	Description	Purchase ($)	Monthly Maint. ($)	1-Year Lease ($)	5-Year Lease ($)
1986-65	Expanded DCP/15; includes 4MB of memory	23,320	55	972	648
1986-61	Expanded DCP/15; includes 4MB of memory and 20MB of integrated disk storage	25,320	75	1,055	703
F4158-01	Integrated Disk Drive; 20MB	2,000	20	83	56
8441-78	8441 Disk Subsystem; 30MB	4,200	28	175	116
F4228-98	Additional 8441 Disk Drive; 30MB	2,710	26	112	75
3612-95	SVT-1121 Keyboard/Display Terminal	895	10	—	—
2523-00	Line Switch Module; supports unattended operation of the communications system	28,750	112	748	597
8590-00	Remote Control Module; supports unattended operation in remote environments	13,526	61	355	280

*Lease prices do not include maintenance. ■