

IBM System/23 Datamaster

MANAGEMENT SUMMARY

The System/23 has undergone some major changes since its introduction in 1981. Some changes have been made over the past year that are particularly noteworthy. One model of the system, Model 5322, has been dropped from the company's product line. Also, the Model 5246 diskette unit, which enabled the user to expand the diskette capacity of the system to 4.4MB, is no longer available.

The System/23 Datamaster is designed to address a wide variety of commercial applications in both small and large businesses by providing easy-to-use data processing and word processing functions. The Basic language provided with the system is compatible with IBM System/34 Basic.

A System/23 configuration can include up to four computer workstations. Each workstation has its own memory and diskette storage. Workstations function independently of each other; however, file sharing is provided by attaching a workstation to a disk storage unit.

The System/23 Datamaster's processing unit offers single or dual-integrated diskette drives. The diskette storage capacity is either 1.1 or 2.2 megabytes. The disk storage unit provides a maximum storage capacity of 30.8 megabytes. The CRT displays up to 1920 characters on a 12-inch screen. Also included is a typewriter-style keyboard with a 10-key numeric pad.

In addition to the disk storage unit, the System/23 offers a choice of three printer models and an optional magnetic card unit. Each computer workstation can include one or two printers in any combination.

Two of the printers available are bidirectional matrix printers; the third is a bidirectional daisywheel printer. The matrix printers, the 5241 and 5242, print at 80 and 160 cps, >

The IBM System/23 Datamaster is a compact system that provides a simple-to-use data processing system with word processing capability for the first-time computer user. System/23 supports file sharing by multiple workstations and also features an enhanced Basic interpreter.

MAIN MEMORY: 64K to 128K bytes
DISKETTE CAPACITY: 1.1 to 2.2MB
DISK CAPACITY: 15.4 and 30.8MB
WORKSTATION: 1 per CPU; 4 workstations can share up to 30.8MB of file storage.
PRINTERS: 40, 60, 80, and 160 cps.

CHARACTERISTICS

MANUFACTURER: International Business Machines Corporation, Old Orchard Road, Armonk, NY 10504. Contact your local IBM representative.

CANADIAN ADDRESS: IBM Canada Limited, Markham, 3500 Steeles Avenue East, Markham, Ontario, L3R 2Z1 Canada. Telephone (416) 474-2111.

DATA FORMATS

BASIC UNIT: 8-bit byte.

FIXED POINT OPERAND: Information unavailable from IBM.

FLOATING POINT OPERAND: Information unavailable from IBM.

INSTRUCTIONS: IBM has not released details on the format of individual System/23 Datamaster machine instructions, the number of instructions in the instruction set, or the classification of individual instructions. >



Datamaster, IBM's low-cost small-business computer system, features an optional four-CPU/workstation configuration which utilizes a separate 15.4- or 30.8-megabyte disk storage unit for file sharing. Each computer workstation provides up to 128K bytes of main memory and up to 2.2 megabytes of on-line diskette storage.

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CHART A. SYSTEM COMPARISON

MODEL	5342
SYSTEM CHARACTERISTICS	
Date of introduction	July 1981
Date of first delivery	July 1981
Operating system	None
Upgradable from	—
Upgradable to	—
MIPS	—
Relative performance	—
MEMORY	
Minimum capacity, bytes	64K
Maximum capacity, bytes	128K
Type	MOSFET
Cache memory	No
Cycle time, nanoseconds	975
Bytes fetched per cycle	1
INPUT/OUTPUT CONTROL	
Number of channels	4
High-speed buses	—
Low-speed buses	—
MINIMUM DISK STORAGE	
	2.2MB
MAXIMUM DISK STORAGE	
	30.8MB
NUMBER OF WORKSTATIONS	
	—
COMMUNICATIONS PROTOCOLS	
	Async or Binary Sync

➤ respectively. The 5217 bidirectional daisywheel printer is a compact, tabletop unit capable of printing at 60 cps. Also available on the 5217 are an optional automatic cut sheet feeding capability and continuous form feed device.

A variety of applications are available from IBM for the System/23. The word processing option integrates text and data processing. An enhanced offering, Word Processing II, has the same functions as the original word processing program, but provides more features, such as multipage document preparation.

The Basic computer language used by the System/23 is highly compatible with the Basic available on IBM's System/34. Typically, with some small amount of modification, System/23 programs can be migrated to System/34. Modifications may be more extensive in programs where file sharing and error recovery logic are more heavily used.

The IBM Basic Conversion Aid licensed program is also available for the System/23. This program is designed to assist the experienced 5110/5120 Basic application programs to System/23 Basic. This program can reduce, but not totally eliminate, the need to recode Basic application programs.

BRADS III, also a licensed program, provides the facility for a nonprogrammer to define, create, and maintain files and to build file inquiries and create reports from the file data. BRADS III is an IBM-enhanced version of the field-developed BRADS II program used on the IBM 5110/5120.

IBM also offers the System/23 Binary Synchronous Communications licensed programs. Using the Binary Synchronous Communications protocol, the System/23 can transmit batch data, receive batch data, and inquire into a host system. Using IBM 3741 protocol, the System/23 can communicate with another System/23, and with some

➤ **INTERNAL CODE: EBCDIC.**

MAIN STORAGE

TYPE: MOSFET (metal oxide semiconductor field-effect transistor).

CYCLE TIME: 975 nanoseconds per 1-byte access.

CAPACITY: Main memory capacities range from 64K bytes to 128K bytes.

CHECKING: Internal parity checking.

STORAGE PROTECTION: System/23 Datamaster enables users to achieve the level of protection best suited to their needs. This ability is provided by the following features:

- Language facilities that prevent inadvertent modification of data and programs
- Programs can be locked to run, but not listed
- Programming techniques are available which prevent critical data from appearing on the CRT screen or the printer
- Station Address and Terminal Identification is provided for systems which operate in certain communications environments
- Block checking is performed on all data transmitted or received over BSC communications channels

RESERVED STORAGE: 12K bytes are permanently allocated for use by the Basic language interpreter.

CENTRAL PROCESSOR

GENERAL: The 5324 Computer is a separate unit which contains the processor logic and memory, power supply, optional integrated diskettes, and space for other optional features. The keyboard/CRT are separate modules.

CONTROL STORAGE: Information unavailable from IBM.

REGISTERS: Information unavailable from IBM.

ADDRESSING: Information unavailable from IBM.

INTERRUPTS: Information unavailable from IBM.

OPERATING ENVIRONMENT: Designed for customer set-up, a 120 VAC, 1-phase 60 Hz power supply is required. A non-locking plug, a 2.4 m (8 ft.) power cord, and a 6 m (19.8 ft.) modem cable for the communication feature are standard.

INPUT/OUTPUT CONTROL

I/O CHANNELS: A direct memory access channel is a standard feature. One printer attachment is standard and two special-feature slots are available on the data processing model.

SIMULTANEOUS OPERATIONS: Transparent data file sharing between workstations is managed in the Read Only Storage (ROS) of each computer. Application transparency will also allow programs written for a multiple workstation system to operate on a single 5324 with no modification required.

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➤ other IBM systems, including the System/34, System/38, and the Series/1.

Using the Asynchronous Communications Program, the System/23 can communicate with System/370 Models 135-168, 3031, 3032, 3033, 3081, 4331, and 4341. The program consists of communications access method support, a set of communications customer support functions, and a facility for user-written communications programs using System/23 Basic.

The Business Management Accounting System, available for both disk- and diskette-based systems, is a set of licensed applications packages which perform business accounting, billing, and inventory accounting, as well as providing general ledger, accounts payable, and accounts receivable packages. Datamaster allows users to automatically update information between application programs.

COMPETITIVE POSITION

The System/23 has the advantage of integrating the functions of data processing and word processing in one entry-level system. Furthermore, the Basic language used by the System/23 is highly compatible with System/36 Basic, offering the user the potential for growth within the IBM family. However, other systems, such as the Burroughs B90 and the Hewlett-Packard HP 250 offer more growth potential spanning several different systems.

ADVANTAGES AND RESTRICTIONS

The System/23 is an easy-to-use system targeted for the first-time-user market. However, on April 3, 1984, IBM announced a new version of its System/36, which it says is also aimed at the first-time user. The System/36 offers a number of languages and a larger memory capacity than the System/23. This announcement, combined with the fact that one model of the System/23 is no longer available, seems to indicate that the Datamaster will soon be dropped from IBM's product line.

USER REACTION

A total of 13 System/23 users responded to Datapro's 1984 Computer System User Survey. The industries represented in the survey included retail/wholesale businesses (three), public accounting/consulting firms (two), manufacturing installations (two), and health care/medical facilities (one). The systems had been installed for an average of 36 months. The principal applications that the System/23 performed were accounting/billing (92 percent), payroll/personnel (62 percent), and sales/distribution (31 percent). Programs were provided by independent suppliers (46 percent), in-house personnel (38 percent), packaged programs from the manufacturer (38 percent), and contract programmers (15 percent). The number of local workstations/terminals was between 6 and 15 per site. Main memory capacity for the majority of users was 128KB. The majority of users had less than 10MB of disk storage. Only three of those polled use a data base management system, and only one uses a communications monitor; four have

► CONFIGURATION RULES

GENERAL: Each System/23 includes a 5324 computer with 64K or 128K bytes of main memory.

WORKSTATIONS: Each workstation functions as a total system and operates independently of the other.

DISK STORAGE: The 5247 disk storage unit is a floor-standing fixed disk unit. The 5247 is available in two models: Model 011 has a storage capacity of 15.4 megabytes. Average access time is 40 ms. Model 012 has a storage capacity of 30.8 megabytes. Average access time is 40 ms. Standard 5247 Models 011 and 012 may attach to one or two Datamasters. An adapter extension (#3700) allows a third and fourth System/23 computer to be attached to the 5247. Three Datamasters may be located up to 1000 feet in distance; one computer must remain adjacent to the 5247 for servicing use. The 5247 is file format compatible with System/23 Datamaster diskettes.

MAGNETIC TAPE: None currently available from IBM.

PRINTERS: Up to two 5217, 5241, or 5242 printers in any combination can be attached to each unit.

MASS STORAGE

For information on available mass storage devices for System/23, please refer to Chart B, Mass Storage Devices.

INPUT/OUTPUT UNITS

The 5231 Magnetic Card Unit, which uses OPD track magnetic cards, reads at up to 20 seconds per card and records at up to 30 seconds per card.

For information on available printers, please refer to Chart D, Printers.

COMMUNICATIONS CONTROL

GENERAL: The Communications Adapter Feature includes communications interface hardware and licensed programs that enable the System/23 to communicate using either asynchronous or binary synchronous protocol. The physical interface for asynchronous communication is EIA RS-232-C/CCITT V.24-V.28 and transfer data is via ASCII code. The physical interface for binary synchronous communication is EIA RS-232-C/CCITT V.24-V.28 with clocking supplied by the modem. Transfer of data is in EBCDIC and EBCDIC transparency modes at speeds up to 4800 bps. One of the IBM modems, 3863 (2400 bps), 3864 (4800 bps), 3872 (2400 bps), or 3874 (4800 bps), can be attached to the Communications Adapter Feature.

SOFTWARE

OPERATING SYSTEM: The System/23 Datamaster does not have an operating system in the usual sense. Its system control functions are integrated into the 112K bytes of Read Only Storage (ROS). System control functions are primarily concerned with coordinating the interface between the user programs, the Basic language interpreter, the Word Processing Licensed program, and the peripheral devices.

DATABASE MANAGEMENT SYSTEM: None currently available from IBM

LANGUAGES: The only language currently available for the System/23 is Basic. The System/23 Basic interpreter is highly compatible with the Basic available on IBM's System/34.

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CHART B. MASS STORAGE

MODEL	Integrated Diskette	5247 011 Disk Unit	5247 012 Disk Unit
Type	Diskette	Fixed	Fixed
Controller model	Int: Dskt. Cntr. #3780	3770	3770
Drives per subsystem/controller	up to 2	1	1
Formatted capacity per drive, megabytes	1.1/2.2	15.4	30.8
Number of usable surfaces	—	—	—
Number of sectors or tracks per surface	—	30,123	60,247
Bytes per sector or track	—	—	—
Average seek time	—	—	—
Average rotational/relay time	—	—	—
Average access time	—	—	40 ms
Data transfer rate	31.2/62.5KB/sec	—	—
Supported by system models	5342	5342	5342
Comments			

▷ integrated office automation functions on the System/23, and three plan to do so in 1984.

The 13 users rated their System/23 as shown in the table below:

	Excellent	Good	Fair	Poor	WA*
Ease of operation	4	7	0	2	3.00
Reliability of mainframe	5	7	1	0	3.31
Reliability of peripherals	4	7	1	0	3.25
Maintenance service:					
Responsiveness	3	8	2	0	3.08
Effectiveness	3	8	2	0	3.15
Technical support:					
Troubleshooting	2	7	2	1	2.83
Education	2	3	5	2	2.42
Documentation	1	8	2	1	2.75
Manufacturers software:					
Operating system	4	6	0	2	3.00
Compiler & assemblers	3	6	1	1	3.00
Application programs	3	3	2	2	2.70
Ease of programming	4	5	1	2	2.92
Ease of conversion	3	4	3	2	2.67
Overall satisfaction	3	5	1	3	2.67

*Weighted Average on a scale of 4.0 for Excellent.

Overall, 10 of the 13 vendors (77 percent) said that the system did what they expected it to do, and 9 (69 percent) said they would recommend the system to another user.

Datapro contacted several of the respondents to the User Survey to get a better understanding of their experience with their System/23. Described below are some of the more typical responses.

A health care facility in New York told us that it was pleased overall with its system's performance. It was very displeased, however, with the follow-up support its received. It said that the system was delivered with a box of manuals and it was left on its own as far as set-up and training were concerned.

A hardware/software vendor in California said that it, too, was pleased with the overall performance of the system. It was, however, very displeased with the fact that the System/23 can't communicate with the IBM PC. It also said that conversion was not as easy as it had expected, and had required rewriting some software. □

► **COMMUNICATIONS:** Two licensed programs, Asynchronous Communications and Binary Synchronous Communications, allow the System/23 to communicate with selected IBM systems and devices. Both consist of communications access method support, a set of communications customer support functions, and a facility for user-written communications programs using System/23 Basic.

In conjunction with the communications access method, the Asynchronous Communication Terminals customer support function provides the user with an interactive interface to perform asynchronous communications. Features of the Asynchronous Communications Program include:

- A data transfer function, making System/23 TTY compatible. This function uses start-stop discipline and permits the user to transfer data using the ASCII translate table and the Asynchronous Communication Terminal function of the licensed program.
- A code translation table is provided to convert Datamaster internal EBCDIC code to/from ASCII code. Other tables may be built by the user.
- Provides the operator with an ease-of-use interactive function that leads the user through a step-by-step procedure using prompts and responses for defining and establishing communications and for performing other TTY functions.
- The input/output devices supported are the keyboard display and printer.
- Provides a facility for the execution of Basic language user-written programs to perform data transfers.

Communications with the following IBM systems is supported:

- 1) System/370, Models 135-168, 3031, 3032, 3033, 3081, 4331, and 4341 via VM/370 (full-duplex, switched facilities)
- 2) Series/1 (EDX, RPS) (half-duplex, switched facilities)
- 3) Datamaster (full and half duplex, switched and non-switched)

The communications customer support functions can perform the following data transfer functions using the Binary Synchronous Communications Protocol in conjunction with the communications access method:

- Transmit batch data
- Receive batch data
- Inquire into a host system and receive batch data

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► **UTILITIES:** A diskette sort is optionally available with the System/23 that features full record sorting or record address sorting, a sort key that can contain up to 10 sort fields, the ability to store control statements on diskette or enter them from the keyboard via prompting messages, and a record select/omit feature. In addition, IBM customer support functions include providing a loader for machine updates, diskette preparation, alternative collating sequence, diskette-to-diskette copy, diskette recovery, index file generation, and label display.

OFFICE AUTOMATION: The System/23 Datamaster word processing option integrates text and data processing. In a typical application, the system can use its own data processing files to print individualized business letters for mass mailing to all customers or to specified groups. The word processing program provides a training package for basic document entry, editing, and standard letter personalization. It assembles business documents from letter descriptions and data processing file data.

For text processing, the display scale line shows margins, tabs, paper edges, center point, and shadow cursor. Vertical and horizontal segmenting allow the operator to review all parts of the stored page. Word processing can also be used to create, revise, delete, duplicate, print, store, and retrieve documents. Text manipulation is facilitated by block movement of text, stored formats, auto carrier return, line adjust, paginate functions, and an interactive find function. The word processing function requires at least 64K bytes of memory and 1.1 megabytes of disk storage.

IBM Word Processing II for Datamaster is designed for operation Model 5324 Computers with word processing, 128K bytes of user storage, and 1.1M bytes of diskette storage or the 5247 Disk Unit. IBM recommends that a minimum of two diskette drives be configured for the Word Processing II. The word processing program includes a spelling verification and English language dictionary for 130,000 words. In addition, the program provides room for a list of approximately 500 user-defined terms. An automatic hyphenation function uses the dictionary for spelling and verification assistance. The program also provides synonym assistance with an IBM-supplied thesaurus of English language words. The words are organized by parts of speech (i.e., noun, verb, adjective, etc.) and are displayed to the user in lists. This function can be initiated only during document creation or editing.

IBM Word Processing II has the same functions as the previously announced Word Processing Program. However, additional capabilities have been added to enhance stand-alone word processing, word/data processing, and multipage document preparation. Many functions also include an additional operator ease-of-use capability. Text that has been processed and stored on diskette by the IBM Datamaster Word Processing program can be used by the new program. Users may also upgrade their existing programs to IBM Word Processing II.

APPLICATIONS: IBM currently offers six cross-industry accounting applications packages for the IBM System/23 Datamaster Diskette and six packages for the Datamaster Disk. Both sets of programs are identical in accounting functions and consist of user interfaces. The Datamaster accounting and applications packages include general ledger, accounts payable, accounts receivable, payroll, inventory accounting, and billing. Highlights of these packages include:

- Applications feature either standalone or coresident installation with other IBM System/23 Business Management Accounting Systems Applications

- Built-in auditability and control characteristics through the use of familiar five-column journals, interapplication data integrity and sequential journal numbering
- Applications are interrelated through the passing of summarized transaction data between applications where appropriate and desired
- Program documentation is designed to promote customer self-sufficiency during installation and operation
- Ease-of-use enhanced through menu-driven task selection, consistent data entry programs and procedures for all applications, common file maintenance techniques including user-defined field defaults, use of generally acceptable accounting terminology, installation-time tailoring options that allow the user to select key functions and perform file sizing
- An improved program-update procedure is provided to aid the operator in applying program fixes provided by IBM
- Optional security code application
- Multiple-company support by installations on separate diskettes
- File sharing capability supporting concurrent operations when two IBM 3524s are connected via a shared diskette unit (5246 Model 22)

Another application package available from IBM is the Business Report/Application Development System (BRADS III), which enables users to develop and install their own applications. BRADS III can be used to:

- Create, maintain, and update files
- Create screen-driven data entry programs
- Retrieve data from files using a simple query
- Create formatted reports using prompted report generation screens
- Develop complete applications using BRADS III in conjunction with System/23 Basic
- Create additional queries and reports for the Business Management Accounting System
- Obtain extensive documentation
- Produce forecasts showing expected revenue
- Investigate alternative plans using spreadsheet data
- Produce reports that examine the differences (variances) between plans or between plans and actual performance
- Produce reports showing percentage relationships between rows or between columns
- Consolidate plans and evaluate performance of separate operating entities
- Combine historical and predictive data together

PRICING

POLICY: The System/23 Datamaster is a purchase-only system. The IBM Pilot Test Plan Agreement applies, allowing the customer to try the system prior to purchase. A separate maintenance contract is available. The Pilot Test Plan Agreement contract period is three months, with a

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CHART D. PRINTERS

MODEL	5217 Model CO2	5241 Model 1	5242 Model 2
Type	Daisywheel	Serial	Serial
Speed	60 cps	80 cps	40 or 160 cps
Bidirectional printing	Standard	Standard	Standard
Paper size	to 15.4"	3 to 14"	3 to 14"
Character formation	Daisywheel	8 x 4 matrix	8 x 4 matrix
Horizontal character spacing (char./inch)	10, 12, or 15	10 or 15	10 or 15
Vertical line spacing (lines/inch)	4 to 24	1 to 12	1 to 12
Character set	96	96	96
Controller/Interface	Second Printer Attachment #6350	—	—
No. of printers per controller/interface	1	1	1
Printer dimensions, in. (h x w x d)	8 x 26 x 23	26 x 17 x 9	26 x 17 x 9
Graphics capability	No	No	No
Comments			

► **three-month extension period. Payment for the entire period is due at the commencement of the contract period or extension. Customers may purchase installed machines at any time during the contract period or extension period by executing the Agreement for Purchase. IBM maintenance coverage is included in the contract period unit charges and the extension unit charge. The plan carries a purchase option payment with 70 percent accrued monthly. No refund is given if the customer terminates the contract.**

The standard 10-percent Educational Allowance applies to the System/23 Datamaster. It also qualifies for volume purchase discounts.

IBM software for the System/23 is separately licensed and available for the monthly license fees or the one-time charges listed in the "Software Prices" section that follows.

SUPPORT: The System/23 is in IBM maintenance group D. Prime-shift maintenance is provided for any consecutive nine-hour period between 7 a.m. and 6 p.m., Monday through Friday. The premium for extended maintenance coverage is expressed in the table below as a percentage of the prime-shift maintenance charges, which are shown in the accompanying price list.

	<u>Consecutive hours</u>				
	10	12	14	16	18
Monday-Friday (until 8:00 a.m. Saturday)	10	12	14	16	18
Saturday (until 8:00 a.m. Sunday)	4	5	7	8	9
Sunday (until 8:00 a.m. Monday)	5	7	9	11	12

For users without a maintenance contract, the System/23 is maintained under per-call class 2. The per-call charge for service regular hours is \$105 per hour, and during off hours the charge is \$123 per hour.

IBM's Atlanta-based Installation Support Center is staffed by systems and applications specialists who will answer customer questions about all aspects of the System/23 Computing System and the System/23 Accounting Applications by means of a toll-free "hot line." The hot line hours are 8:30 a.m. to 5:00 p.m., Eastern Time, on Monday through Friday. After hours, customers may leave recorded messages which will be answered the next business day.

The hourly rate for IBM systems engineering services is \$57. SE services are offered on an "as available" basis.

TRAINING: IBM "Professional Courses" are individually priced. System Feature Instruction is offered to users of IBM data processing equipment at no charge. Customer Executive Seminars, Industry Seminars, and Promotional Seminars are offered at no charge by IBM invitation.

TYPICAL CONFIGURATION: The following is a typical System/23 Datamaster configuration:

5324 423	System Unit with 64KB main memory, 1.1MB diskette storage	\$4,565
5324 1000	Display module	610
5324 1020	Keyboard Module	375
5241 001	Matrix Printer 80 cps	2,040
5241 3250	Document Insertion Device	105
5241 5600	Switch and Cable Assembly	195
Total Price		\$7,890

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EQUIPMENT PRICES

		Purchase Price (\$)	Monthly Maint. (\$)
► PROCESSORS			
5324	Computer; includes processor unit, 1920-character adjustable display module, keyboard module, space for storage of up to two diskette units, secondary storage attachment, communications feature, additional printer attachment, the Basic language interpreter, and main memory and diskette storage as follows:		
The following units are data processing models:			
120	With 64K bytes of main memory	2,700	24.50
123	With 64K bytes of main memory and 1.1 megabytes of diskette storage	4,065	37.50
124	With 64K bytes of main memory and 2.2 megabytes of diskette storage	5,430	50.50
140	With 128K bytes of main memory	3,325	30.50
143	With 128K bytes of main memory and 1.1 megabytes of diskette storage	4,690	43.50
144	With 128K bytes of main memory and 2.2 megabytes of diskette storage	6,055	56.50
The following units are data processing and word processing models:			
420	With 64K bytes of main memory	3,200	42.50
423	With 64K bytes of main memory and 1.1 megabytes of diskette storage	4,565	55.50
424	With 64K bytes of main memory and 2.2 megabytes of diskette storage	5,930	68.50
440	With 128K bytes of main memory	3,825	48.50
443	With 128K bytes of main memory and 1.1 megabytes of diskette storage	5,190	61.50
444	With 128K bytes of main memory and 2.2 megabytes of diskette storage	6,555	74.50
1000	Display Module	610	9.00
1020	Keyboard Module	375	7.00
PROCESSOR OPTIONS			
2550	Communications Adapter	340	6.00
3770	5247 Disk Adapter	365	3.00
5246	Diskette Controller	420	1.00
3780	Integrated Diskette Controller	290	1.00
6300	Disk(ette) Sort	25	—
6350	Second printer attachment	290	1.00
RPQ 8N5008	8N5008 Extended 5246 controller	780	1.00
MASS STORAGE			
5247 011	15.4MB disk storage unit	7,010	57.00
5247 012	30.8MB disk storage unit	8,810	69.00
5247 3700	Adapter Extension	385	1.00
5247 3710	Cable Assembly—4 m	120	1.00
5247 3715	Cable Assembly—15 m	165	1.00
5247 3720	Cable Assembly—30 m	120	1.00
5247 3725	Cable Assembly—150 m	670	1.00
5247 3730	Cable Assembly—300 m	1,340	1.00
PRINTERS			
5217 C02	Daisywheel Printer, 60 cps	4,425	52.50
5217 5600	Printer Switch and Cable Assembly	195	1.00
5217 7850	Continuous form feed	325	8.00
5217 7860	Cut Sheet Feed Device	1,850	25.00
5241 001	Matrix Printer, 80 cps	2,040	38.00
5241 3250	Document Insertion Device	105	1.00
5241 5600	Switch and Cable Assembly	195	1.50
5242 002	Matrix Printer, 40/160 cps	2,975	61.00
5242 3250	Document Insertion Device	105	1.00
5242 5600	Switch and Cable Assembly	195	1.50

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SOFTWARE PRICES

		Purchase Price (\$)
5715-AC1	Asynchronous Communication	600
5715-BC1	Binary Synchronous Communication	850
5715-CA1	Client Accounting	230
5715-CV1	5110/5120 Basic to System/23 Conversion Aid	875
5715-RG2	System/23 BRADS III	1,245
5715-SP1	Print Spool	175
5715-WP1	Word Processing	500
5715-WP2	Word Processing II	850
5715-XX2	BMAS General Ledger—Diskette	1,115
5715-XX3	BMAS Accounts Payable—Diskette	1,115
5715-XX4	BMAS Accounts Receivable—Diskette	1,115
5715-XX5	BMAS Payroll—Diskette	1,115
5715-XX6	BMAS Inventory Accounting—Diskette	1,115
5715-XX7	BMAS Billing—Diskette	1,115
5715-XZ2	BMAS General Ledger—Disk	1,630
5715-XZ3	BMAS Accounts Payable—Disk	1,630
5715-XZ4	BMAS Accounts Receivable—Disk	1,630
5715-XZ5	BMAS Payroll—Disk	1,630
5715-XZ6	BMAS Inventory Accounting—Disk	1,630
5715-XZ7	BMAS Billing—Disk	1,630