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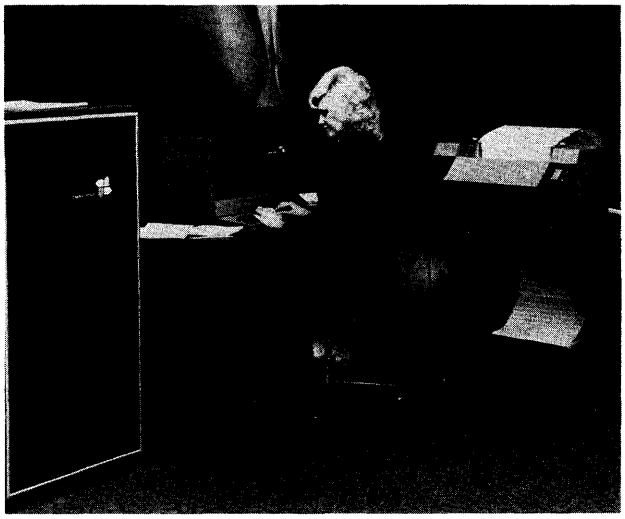
Basic/Four Series



Shown here is the Basic/Four Model 350, which includes a central processing unit with 8K bytes of core memory, a low-capacity disc drive containing 2.1 million bytes, a medium-speed matrix printer, and a video display terminal including desk. The base purchase price of the system is $32,400.

Basic/Four's business-oriented small computer systems are delivered on a "turnkey" basis with full application program support. Each Basic/Four model available from this systems house is based upon a popular minicomputer and features a disc operating system with one or more CRT user stations.

MANAGEMENT SUMMARY

With approximately 900 systems of all types installed since release of the Basic/Four family on June 1, 1971, these systems represent some of the earliest and most widely known minicomputer-based small business systems available today. The Basic/Four family includes Models 350, 400, and 500. Each is a disc-based system intended for interactive terminal-oriented use, employing CRT video display terminal(s) for user interface and a line printer for hard-copy output.

The distinctions between Models 350, 400, and 500 lie principally in the configuration rules: Model 350 can have one operator terminal; Model 400 can have up to four operator terminals; and Model 500 can have up to eight operator terminals. Basic/Four Corporation provides enhanced BASIC language programming capability and separately priced applications programs for accounts payable, payroll, sales analysis, inventory control, order entry, invoicing, accounts receivable, and general ledger.

Thus, in its appearance to the user, the Basic/Four computer can be a turnkey system that is prepared for customer delivery in a ready-to-run condition. Although many users confront the system at the turnkey business machine level, an increasing percentage of users are doing their own programming or contracting with independent organizations for applications programming. (Basic/Four is cautious about over-committing itself on applications program support, as it did early in the company's history through 1972).

CHARACTERISTICS

MANUFACTURER: Basic/Four Corporation (a wholly owned subsidiary of Management Assistance Inc.), 18552 MacArthur Boulevard, Irvine, California 92707. Telephone (714) 833-9530.

MODELS: Systems 350, 400, and 500 (based upon Microdata 1600/20 processor; earlier versions of the Basic/Four were based upon the upward-compatible Microdata 820).

(NOTE: The technical characteristics of the processor are largely transparent to the user unless he chooses to develop his own programs, in which case he uses business BASIC.)

BASIC UNIT: 8-bit byte.

FIXED-POINT OPERANDS: 8 bits, 16 bits, 24 bits, or 32 bits.

FLOATING-POINT OPERANDS: All operands are stored in decimal format; at the user's option, these may be in floating-point format.

INSTRUCTIONS: At either the microprocessor or the user level, there are five basic 16-bit instruction formats. "Literal" instructions can have either a 4-bit operation code, a 4-bit file register designator, and an 8-bit literal which is transferred as an operand; or an 8-bit operation code plus an 8-bit literal; or 24-bit operation code plus a 12-bit literal. "Operate" commands have a 4-bit operation code, a 4-bit file register designator, a 4-bit control field designator, a 1-bit file inhibit flag, and a 3-bit destination register. Lastly, the "generic" commands consist solely of an operation code that occupies all 16 bits. Up to 32K bytes of main memory can be directly addressed. With Business BASIC all functions can be performed with decimal numbers rather than at the bit level.

INTERNAL CODE: ASCII.

MAIN STORAGE

STORAGE TYPE: Magnetic core main memory, plus bipolar read-only memory (ROM) control memory.

CYCLE TIME: 1.0-microsecond main memory; 200-nanosecond control memory (ROM).

CAPACITY: 8K to 64K 8-bit bytes, in 8K increments for all models (maximum 48K bytes available for user programs exclusive of operating system requirements); 16K 16-bit words of ROM control storage.

CHECKING: None.

STORAGE PROTECTION: Hardware power failure circuitry senses voltage reductions and triggers a software power fail routine. When the proper voltage level is restored, a message alerts the user to the fact that a power failure has occurred. No action need be taken, however, and operation of the current program may continue since neither the data, program, nor operating system is destroyed.

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For application development, Basic/Four supports BASIC language programming. Also, extensive program development support is available from the manufacturer of the central processor (Microdata), although the use of Microdata's systems software calls for a considerable degree of expertise by the user. (See Note at beginning of Characteristics.)

In either case, the system is generally operated by the user's existing clerical staff after just a few days of the training provided by Basic/Four. In addition, applications can be programmed to display step-by-step operator instructions on the CRT screen as an aid to operation of the equipment and to reduce further the skill levels required by the operator.

Users contacted by Datapro reported reactions to the system that correlate roughly to the degree of sophistication of the user, as is generally the case with any data processing system: the more sophisticated the user, the greater the degree of satisfaction. On the other hand, the less sophisticated user, unable to define his application requirements properly, is less likely, on the whole, to arrive at a satisfactory solution to those requirements. Unfortunately, while the degree of data processing awareness among users is generally on the rise, it happens all too often at the small business system level—where minicomputer systems such as Basic/Four can best be utilized —that unprepared users are encountered.

Cognizant of this fact, Basic/Four has established branch education centers and a customer training program to provide relevant computer information to all levels of users (operators, programmers, and management). Those who have availed themselves of this service (or similar training) are generally more likely to be rewarded with successful installations than unsophisticated users who have not done so.

In competitive situations, the Basic/Four computer is often compared against NCR's 399, Burroughs' B 700 and L 8000, IBM's System/3 Model 6, and a variety of other minicomputer-based systems from an ever-growing number of systems houses, such as Qantel, Eldorado, and Ultimacc. In this latter category are to be counted other minicomputer manufacturers themselves, such as Digital Equipment Corporation with its DEC Datasystem 500 Series.

Thus, for the alert small business that is ready to use computers to solve the typical applications listed above, the Basic/Four with its Sorbus maintenance network (both of these firms, incidentally, are subsidiaries of Management Assistance Inc.) can well be an effective solution.

Generally, a prospective Basic/Four user must assure himself that he is either able to develop his own applications or is able to communicate his processing requirements to Basic/Four or an independent software

CENTRAL PROCESSOR

GENERAL: The processor used in the Basic/Four systems is fully microprogrammable, with a large number of registers, multi-level stack processing, ROM control memory, standard power failure/automatic restart, real-time clock, and built-in bootstrap loader in non-volatile ROM. (It is based on a Microdata 1600 processor.)

REGISTERS: Six operational registers, including 16-bit accumulator (A), 16-bit auxiliary accumulator (B), 16-bit index register (X), 15-bit program counter (P), 1-bit overflow register (O), and 2-bit word length control register (W).

INDIRECT ADDRESSING: Yes, to one level.

INSTRUCTION REPERTOIRE: 105 instructions including 16 control, 12 multi-bit arithmetic and logical shift, 17 conditional jumps, 6 I/O, 19 inter-register, 8 stack control, 5 character string manipulation, 2 decimal arithmetic (add/subtract), and 20 memory reference instructions including jump, compare, and variable word length operations. (See Programming below for Business BASIC instructions.)

INSTRUCTION TIMINGS: All times are given in microseconds for one-word fixed-point operands.

Move:	20.24
Add/Subtrace:	10.56/11.0
Multiply/Divide:	73.15/101.57
Compare & Branch:	11.44

INTERRUPTS: From 2 to 32.

CONTROL STORAGE: Yes.

INPUT/OUTPUT CONTROL

I/O CHANNEL: All I/O is byte-oriented. A direct memory access (DMA) channel supports data transfers at up to 1 million bytes/second to/from the disc storage unit.

CONFIGURATION RULES: All Basic/Four models have a standard 2.1MB direct access storage system (one fixed and one removable disc), a medium-speed matrix printer, and at least one CRT terminal. The model 350 can have only one CRT; Model 400 can have up to four CRT's; and Model 500 can have up to eight CRT's.

MASS STORAGE

2250 DISC STORAGE: Provides 4.2 MB (million bytes) of direct access storage on one fixed and one removable disc cartridge. Up to four dual-cartridge drives can be added for a total of up to 16.8 MB per subsystem. Average access time is 35 milliseconds, with a data transfer rate of 195 KB per second. (The 2100 discs are built around Iomec units and are available only as part of a minimum system.)

INPUT/OUTPUT UNITS

See Peripherals/Terminals table.

COMMUNICATIONS CONTROL

8100 COMMUNICATION INTERFACE: Provides low-speed communications for terminals at speeds up to 1200 bits/second.

SOFTWARE

OPERATING SYSTEM: A BASIC Operating System Software (BOSS) package is provided for the Basic/Four models. BOSS includes a monitor, real-time executive, and the Business BASIC Interpreter. BOSS uses 16KB of main memory for dynamic segment residence. Each partition and/or additional work station requires approximately 8K bytes of additional main memory.

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organization so that a system can be tailored to his needs. Further, Basic/Four users (like computer system users in general) are well advised to define their applications carefully and to talk to existing Basic/Four users who are currently handling similar applications workloads. □

An Assembler for microprogramming the processor exists, but Basic/Four does not make this assembler available to customers.

PROGRAMMING: All user programming on Basic/Four is done in Business BASIC, an enhanced version of BASIC, supported by system-oriented I/O control, formatted I/O, data file management, and decimal arithmetic subroutines. The 50 Business BASIC instructions include 28 control, 11 I/O, 6 file handling, and 5 data handling instructions. Ten arithmetic operators may be used in conjunction with the 5 data handling instructions.

APPLICATIONS: Basic/Four provides a number of packages for accounts payable, payroll, sales analysis, inventory control, order entry and invoicing/accounts receivable. A separate charge is made for each of these packages, and each is customized to individual user requirements.

PRICING

POLICY: Basic/Four systems are avialable for purchase or on third-party leases, with separate charges for maintenance. Unlimited usage of the system is permitted at no additional maintenance charge. Applications software is separately priced, as is the foreground/background "multiprogramming" feature that allows a single terminal to initiate both a foreground task and a background task for concurrent operation.

SUPPORT: Maintenance is provided by more than 900 service representatives located in more than 100 U.S. cities through Sorbus, another MAI subsidiary.

EQUIPMENT: The following typical purchase prices include controllers and adapters.

SMALL SINGLE-USER SYSTEM: Consists of an 8K-byte Model 350, 2.1MB disc drive, one CRT, and medium-speed matrix printer. Purchase price is $32,400.

TYPICAL MEDIUM-SCALE MULTIPLE USER SYSTEM: Consists of a 16K-byte Model 400 with two CRT's, 4.2MB of disc storage, and a medium-speed printer. Purchase price is $46,300.

LARGE-SCALE MULTIPLE-USER SYSTEM: Consists of a 48K-byte Model 500 with foreground/background processing, six CRT's, 8.4MB of disc storage, one industry-compatible magnetic tape unit, a high-speed printer, and an 80/96-column card reader. Purchase price is $115,700. ■

PERIPHERALS/TERMINALS

DEVICE	DESCRIPTION	SPEED
MAGNETIC TAPE UNITS		
6100	Industry Compatible, 12.5 ips, 9-trk (800 bpi)	10KBS
6200	Industry Compatible, 12.5 ips, 7-trk (800 bpi)	10KBS
PRINTERS		
3101/3102	132-position, 64-character	165 cps
3401	132-position, 64 or 96-character	200 lpm
CARD EQUIPMENT		
4100	Reader, 80-column	300-400 cpm
4200	Reader, 80/96-column	300-400/ 600-800 cpm
PAPER TAPE EQUIPMENT		
5110	Reader, 1-inch, 5-8 channel	300 cps
5120	Reader, 7/8-inch, 6 channel	300 cps
5200	Punch, 11/16-1-inch 5-8 channel	75 cps
5210	Punch, 7/8-inch, 6-7 channel	75 cps
TERMINALS		
7200	Alphanumeric CRT, 27 lines x 74 chars./line	240 cps
7300	ASR-33 Accounting Terminal	10 cps
7301	KSR-33 Accounting Terminal	10 cps
7400	Alphanumeric CRT, 16 lines x 32 chars./line	240 cps

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EQUIPMENT PRICES

		Purchase Price	66-Mo. Lease	Monthly Maint.	Total Monthly Rental
PROCESSOR PACKAGES					
Model 350	Single-User Video Display Terminal System, including 8K bytes of memory, a 2.1MB disc, a printer, and one CRT	$32,400	$745	$183	$928
Model 400	Multiple-User System, including same as 350 with support for up to four CRT's	34,900	803	186	989
Model 500	Multiple-User System, including same as 350 with support for up to eight CRT's	37,900	872	189	1,061
MEMORY/PROCESSOR OPTIONS					
902*	Factory Modification, Low Capacity to High Capacity	2,000	46	12	58
905*	Line Printer Modification (200 lpm) for Medium-Speed Printer	5,950	137	16	153
1000	Foreground/Background Option	2,000	46	–	46
1102	Memory – additional 8,192 bytes	4,450	102	31	133
MASS STORAGE					
2250	Disc Storage	9,950	229	60	289
2900	Disc Cartridge	175	4	–	4
MAGNETIC TAPE					
6100, 6200	Magnetic Tape Drives (10.0 KBS)	7,950	183	68	251
PRINTERS					
3101	Medium-Speed Printer, Peripheral Controller (all systems)	6,450	148	50	198
3102	Medium-Speed Printer, Terminal Controller (Models 400 & 500 only)	6,450	148	50	198
3103	Cable Kit for Remote Printer, Medium Speed (Terminal Controller required by 3102)	200	5	–	5
3401	High-Speed Printer, (200 lpm)	9,950	229	66	295
CARD EQUIPMENT					
4100	Card Reader, 80-column, 400 cpm	4,450	102	57	159
4200	Card Reader, 80/96-column, 400-800 cpm	4,950	114	57	171
PUNCHED PAPER TAPE EQUIPMENT					
5110/5120	Reader, 300 cps (std feed/adv feed)	4,450	102	26	128
5200/5210	Punch, 75 cps (5, 8 chan/6, 7 chan)	4,450	102	26	128
TERMINALS					
7200	Video Display Terminal, 1,998 char.	4,950	114	23	137
7202	Desk	235	6	–	6
7210	Video Display Terminal Keyboard	695	16	–	16
7212	Video Display Terminal Desk	270	6	–	6
7300	Send/Receive – Accounting Machine Terminal	2,500	58	24	82
7301	Auto-Send/Receive – Accounting Machine Terminal	3,000	69	24	93
7400	Executive Display Terminal	2,450	56	20	76
7900	Terminal Cable	50¢/foot	–	–	–
7910	Cable Kit for Remote Terminal	200	4	–	4
COMMUNICATIONS					
8100	Interface, 300 to 1200 bps	1,950	45	14	59
8110	Field modification, interface for foreign devices	1,500	–	–	–
SOFTWARE					
S101	Travel Agency Applications	5,500	–	–	–
S102	Property Management Package	6,000	–	–	–
FIELD MODIFICATIONS					
9100	Field Modification, Model 350 to Model 400	5,200	120	3	123
9101	Field Modification, Model 350 to Model 500	7,200	165	6	171
9200	Field Modification, Model 400 to Model 500	5,200	120	3	123
9215	Field Modification, Model 3100 printer paper rack	120	3	–	3
9230	Field Modification from medium-speed printer to remote printer	500	35	–	35
9300	Field Modification, high-speed processor option	1,950	45	–	45
9310	Field Modification, real-time clock option	950	22	–	22
9400	Field Modification, low-capacity disc to high-capacity	4,000	92	20	112
SUPPLIES					
3900	Ribbons (Medium-Speed Printer 3100)	7 ea./72 doz.			
3901	Ribbons (High-Speed Printer 3200 or 3300)	7 ea./72 doz.			
3902	Ribbons (High-Speed Printer 3400)	5 ea./52 doz.			
3920	Additional 64-character Gothic print chain for 3400 series printer	500			
3921	Additional 96-character Courier print chain for 3400 series printer	500			
6900	Magnetic Tape	16			

*The cost of these substitutions reflects the credit of the item for which the substitution was made. In addition, the maintenance price list reflects the difference between the maintenance price of the item being substituted for and the item being substituted.