AT&T 3B Computer Family

Product Enhancement

▶ AT&T Information Systems has both altered and added to its 3B Computer line, consolidating the 3B5 subfamily, introducing the 3B15—which runs a new version of Unix System V—and adding communications products for IBM interconnection, C language compilers, and a plotter.

3B5 and 3B15 Computers

AT&T has streamlined the 3B5 supermini grouping by bringing out Models 101, 201, and 301; these three models replace Models 100, 200, and 300, which had been available in almost a score of packages. Like previous 3B5 models, the three new ones are all based on AT&T's full 32-bit WE 32000 microprocessor. The 3B5/101 has a 7.2MHz WE 32000 CPU, while the CPUs for the 3B5/201 and 3B5/301 employ 10MHz WE 32000s. AT&T quotes MIPS rates of 0.8 for Model 101 and 1.0 for Models 201 and 301. Model 101 can be upgraded to either of the other two 3B5 models. All models feature an 8KB cache memory. The three new models run under AT&T's Unix System V, Release 2.0.

AT&T claims that the new models better the performance of previous 3B5 systems. According to the vendor, Model 101 now supports up to 32 simultaneous users, while the 201 and 301 support up to 48; the previous recommended maximum for 3B5 systems was 24. (The maximum number of terminals that can be physically connected to any of the models is 128.) In addition, a high-speed memory controller reportedly boosts 3B5 system performance by 30 percent over previously attainable levels; an improved disk file controller subsystem reportedly increases disk I/O by a factor of five.

The 3B5/101 supports up to 8MB of main memory; the 3B5/201 and 301 provide up to 16MB. Each core system comes with 2MB of main memory, expandable in 1MB or 2MB increments. All three models support 134MB and 279MB fixed disk drives; Models 101 and 201 also support a 40MB fixed/removable drive. Models 101 and 301 permit attachment of up to four disk drives in any combination, for a maximum of 1.1GB of auxiliary storage. Model 201 supports up to eight drives, to a maximum of 2.2GB. According to AT&T, Model 301 will support up to eight drives later in 1985. Models 101 and 201 support up to four tape drives; Model 301 currently supports two, and will be able to accommodate four later in the year.

Available for the 3B5 systems is a Math Acceleration Unit (MAU), which employs AT&T's WE 32106 chip. The MAU reportedly provides a 137-fold performance increase for math-intensive applications. AT&T has stated that in the fourth quarter of 1985, it will make available for the 3B5/201 and 301 a new central processor card, incorporating both a 10MHz WE 32100 CPU (a more powerful version of the WE 32000) and the WE 32106 MAU. The 3B5/101 will be upgradable to either processor. The 3B5 systems can be upgraded to the new 3B15 through a migration kit (discussed below).

According to AT&T, the 3B5 plugs into a standard office electrical outlet and requires 117 VAC and 20 amp of current; it consumes about 1.36 kilowatts. The vendor recommends a 20-amp circuit breaker. The basic cabinet of the 3B5/101 and 201 measures 31¼ inches high, 30 inches wide, and 31¼ inches deep; the 3B5/301 comes in a cabinet 67½ inches high, 31¾ inches wide, and 28 inches deep. Growth cabinets can be added.

The three new models of the 3B5 are currently available. Excluding disk, tape, and I/O options, the 3B5/101 is priced at $34,500; Models 201 and 301 are priced at $44,500.

The 3B15 Computer, a supermini, employs a 14MHz WE 32100 microprocessor; the CPU card also contains a WE 32106 MAU. As with the 3B5, three models of the 3B15 are available: 101, 201, and 301. Each model can reportedly deliver up to 40 percent greater performance than a comparable 3B5 model, up to 1.4 MIPS.

The 3B15 runs a new version of Unix System V, Release 2.1, providing demand paged memory management (as opposed to the swapping method used in Release 2.0), mandatory record/file locking, simplified system administration, and enhanced file hardening with dynamic bad block handling.

Each 3B15 model supports up to 16MB of ECC RAM main memory; each core system provides 2MB, which can be expanded in 2MB increments. All models have an 8KB cache memory. Models 101 and 201 support 40MB fixed/removable and 134MB and 279MB fixed disk drives; Model 301 supports only the fixed drives. Up to four drives can be configured on Model 101, for 1.1GB of storage; up to eight drives can be attached to Models 201 and 301, for maximum storage of 2.2GB. Up to 128 workstations can be connected to 3B15 Computers; up to 48 can be simultaneously active on Model 101, and up to 60 on Models 201 and 301. Each 3B15 model permits attachment of up to four tape drives, either single-density 1600 bpi or dual-density 1600/6250 ▷ bpi.

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▷ A basic 3B15/101 provides five I/O, two general-purpose, and four memory card slots, along with mounting space for two 40MB fixed/removable disk drives; the Model 101 can be expanded by adding a card cage providing physical space for 14 more feature cards. The 3B15/201 and 3B15/301 provide 15 I/O, four general-purpose, and eight memory card slots, with mounting space for two disk drives in any combination permissible on the specific model. A card cage providing space for 14 more feature cards can be added to either the 3B15/201 or 301.

According to AT&T, the 3B15 needs no special power equipment; it plugs into a standard office electrical outlet and requires 120 VAC and 15 amp of current, typically consuming 1.36 kilowatts. The dimensions of the basic 3B15 cabinets are the same as those for the 3B5.

As previously mentioned, the 3B5 can be converted to the 3B15 with a hardware/software migration kit consisting of two replacement circuit packs for the central controller and cache and Unix System V, Release 2.1. The conversion reportedly requires little or no change in application programs. The company states, however, that large and complex multitasking applications may experience some correctable timing differences, due to the faster run time of the 3B15. AT&T states that the 3B15 is object code compatible with the company's 3B2 supermicrocomputers, and source code compatible with the 3B20 supermini systems.

The 3B15 is scheduled for general availability in March 1986, along with the 3B5-to-3B15 migration kit. Model 101 is priced at $54,500, while Models 201 and 301 are priced at $64,500. (The quoted prices exclude disk, tape, and I/O options.) The 3B5-to-3B15 migration kit costs $20,000.

Compilers

The two C compilers are C Programming Language Utilities, Issue 3 and CFP+ Programming Language Utilities, Issue 1. The C Programming Language Utilities product comprises a C compiler and associated programming tools for producing and debugging code. It provides IEEE P754 draft 10 floating point support, automatically making use of the WE 32106 MAU. The CFP+ package, also comprising a C compiler and tools, works with the MAU to increase floating point performance to a reported maximum of 225K Whetstones per second. The C language products are currently available. C Programming Language Utilities, Issue 3, is priced at $340. AT&T did not quote a price for the CFP+ package.

Communications Products

The family of Host Connectivity products, for AT&T/IBM networking, includes a hardware product, the Communication Processor, and three software packages: SNA/3270 Emulator+, BSC/3270 Emulator+, and 3270 Application Program Interface.

The Communication Processor provides support for multiple 3B Computers. It is a node on an AT&T 3BNet network, and links the 3Bs on the network to IBM hosts for 3270 emulation services. Employing its own processor, disk drive, memory, special feature cards, and operating system, the Communication Processor manages protocol conversions between the asynchronous 3B Computer environment and the IBM SNA/SDLC continuum. Two models of the Communication Processor are available. Model 1 emulates a channel or local connection to the IBM host; Model 2, designed for remote applications, emulates a 3270-type cluster controller. The Communication Processor, priced at $27,000, is scheduled for general availability in the first quarter of 1986.

AT&T SNA/3270 Emulator+ allows an ASCII terminal user to access an SNA network and use the resources available to a 3278 display station user. The package emulates a remote 3274 cluster controller Model 51C, 3278 information display stations Model 2, and 3287 printers. AT&T BSC/3270 Emulator+ is functionally the same as the SNA/3270 emulator, except it emulates bisynchronous protocol for the same devices in the 3270 family. Both emulators use the interface between the IOA (Input-Output Accelerator) and SDLI (Synchronous Data Link Interface) on 3B5 and 3B15 computers. Both 3270 Emulator+ packages are currently available and are priced at $1,500 each.

AT&T 3270 Application Program Interface (API) provides virtual terminal facilities, allowing the user of an ASCII terminal to access 3270 applications on a mainframe through a C-language-callable interface. The API appears to the mainframe as a 3278 display station. The 3270 API does not interface at the protocol level, so there is no SNA or BSC protocol-specific code; thus, the API can be used with both the SNA/3270 and BSC/3270 Emulator+ products. The 3270 API, priced at $250, is currently available. ▷

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Model 435 Plotter

▷ The AT&T 435 Plotter, designed for color graphics, uses the HPGL graphics protocol. The 435 has a six-pen carousel that can plot on 8½-by-11-inch or 11-by-17-inch paper or on 8½-by-11-inch glossy presentation paper and transparency film. The smallest addressable step size is 0.001 inch. Repeatability with a given pen is 0.004 inch; pen-to-pen repeatability is 0.008 inch. The plotter employs an RS-232-C interface. The 435 Plotter is compatible with software from Graphics Software Systems. The 435 is scheduled for availability in the fourth quarter of 1985 and is priced at $1,898.

Analysis

AT&T's product introductions are significant in two principal respects, affecting both the structure of the 3B Computer family and the product line's ability to compete against comparable systems. On the first score, the addition of the 3B15 plugs a gap in the product line between the 3B5 computers and the upper-end 3B20 grouping, which has processor power ranging up to 1.8 MIPS and can support up to 256 workstations. The reduction of the 3B5 systems to three basic core configurations, compared to the 19 previously offered, spares users the choice among a plethora of bewilderingly similar packages and provides them with a bit more latitude in custom system building.

In the matter of competition, the new communications products are very important, for they give the 3B computers access to IBM mainframes. Such access is critically important if the AT&T systems are to be credible competitors in the marketplace for superminis, which is increasingly emphasizing those types of systems as department-level links to corporate mainframes, many of which are IBM machines. Initially, AT&T offered only AT&T-connectivity products for the 3B systems. With the IBM-access products, AT&T can at least begin to hold its own with supermini rivals like DEC, Wang, and Data General, which offer even more sophisticated gateways to IBM environments.

The addition of the WE 32106 MAU as a standard feature for the 3B15 and as an option for the 3B5 is a wise move. It provides those systems with the number-crunching capabilities they must have to perform computation-intensive applications, and, thus, to compete in the scientific/engineering/technical arena against supermini systems from DEC, Data General, Prime, Harris, and Perkin-Elmer. □