IBM System/370
New Product Announcement

In the late spring and early summer of 1976, IBM made a series of announcements that significantly altered the CPU model lineup and enhanced the price/performance of its System/370 computers. Details of these announcements follow, and the associated prices are fully reflected in the updated System/370 price list (Report 70C-491-05).

MOSFET MEMORY PRICE REDUCTIONS: In May 1976, IBM announced significant reductions in the purchase prices of its MOSFET memory. The memory price reductions affected the System/370 Model 115, 125, 158, and 168 systems, with the biggest incremental memory price cuts being made on the larger systems. The average price reduction for the Model 158 and 168 systems was about 35 percent, with one megabyte of incremental memory dropping from $263,000 to $170,000. On the Model 115 and 125 systems, 32K increments were reduced from $7,900 to $5,400, or about 32 percent.

In addition, the company reduced the purchase prices of several other products and product features used extensively with the System/370, including the 3704 and 3705-II Communications Controllers, the 1442 Card Read Punch, the 2560 Multi-Function Card Machine, the 2880 Block Multiplexer Channel, and the 1403, 5203, and 5213 Printers. Price reductions on these products ranged from 10 to 30 percent.

LARGER MEMORY CAPACITIES: Also in May 1976, shortly after announcing the reduced memory prices, IBM introduced new processing units for the System/370 Model 115-2 and 125-2 systems that offer expanded main memory capacities.

The 3115-2 processing unit, used with the Model 115-2 system, now offers an additional processor size of 384K bytes. The maximum memory capacity of the 3115-0 processing unit remains at 194K bytes.

The 3125-2 processing unit, used with the Model 125-2 system, is now available in two additional processor sizes of 384K and 512K bytes. The maximum memory capacity of the 3125-0 processing unit remains at 256K bytes.

The additional storage is available for installed models through field upgrades.

All I/O units and features which can be used on existing models are also available on the new models, and all programming support announced for the current System/370 Models 115 and 125 will also support the new models.

According to IBM, the increased processor storage sizes allow 3115-2 and 3125-2 users to:

● Implement an expanded DOS/VS DB/DC environment under CICS and DL/1 or an interactive environment under VSPC APL, FORTRAN, or BASIC, in addition to batch.

● Achieve throughput improvements in environments with heavy paging on the smaller processor storage sizes.

● Improve system utilization in environments formerly constrained from additional multiprogramming due to insufficient processor storage.

First customer shipment of the new 3125-2 models is scheduled for December 1976. Field-upgrading of installed systems to 384K and 512K will start in January 1977.

First customer shipment of the new 3115-2 model is scheduled for February 1977. Field-upgrading of installed systems to 384K will also start in February 1977.

MODELS 138 AND 148: On June 30, IBM announced the addition of two new CPU models to the System/370 family—the Model 138 and Model 148. The new models offer increases in internal performance of approximately 28 to 43 percent over their respective predecessors, the 370/135 and 370/145; yet the prices of the new systems are much lower than those of the Model 135 and 145 systems—about 45 percent less for purchase and some 22 percent less on rental.

MOSFET main memories and control stores are used in the new systems, whereas the 370/135 and 145 use bipolar memory technology. The reloadable control store in both the new systems is 128K bytes—five times the amount available in the 370/135 and four times that used in the 370/145.

The new System/370 Model 138 comes with either 524K or 1 million bytes of main memory, 128K bytes of reloadable control store, a 1920-character display console, one byte multiplexer channel, one block multiplexer channel, extended control-program support, and VS APL ▷

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▷ performance assists. IBM claims the Model 138 offers approximately a 29 to 36 percent internal performance increase over the System/370 Model 135.

The 524K version of the Model 138 leases for $8,730 a month under the four-year plan, and the 1-million-byte version for $11,415. Monthly rentals are $9,600 and $12,550, while the purchase prices are $350,000 and $435,000 respectively. The 1-million-byte systems are scheduled for delivery beginning in November 1976, and the 524K systems in January 1977.

The standard Model 148 configuration consists of either 1 or 2 million bytes of main memory, 128K bytes of control store, a display console, one byte multiplexer channel, four block multiplexer channels, a word buffer, extended control-program support, and VS APL performance assists. The 148 promises an approximate 28 to 43 percent internal performance improvement over the System/370 Model 145.

The 1-million-byte 148 system leases for $17,280 per month under the four-year plan, and the 2-million-byte system for $22,900. Purchase prices are $689,000 and $859,000, respectively. Deliveries of the 1-million-byte systems will begin in January 1977, while first customer shipments of the 2-million-byte systems are scheduled for March 1977.

The System/370 Models 138 and 148 both have a 1920-character input/output display console and keyboard for operator communications. In addition, the 3286-2 Printer may be added for hard-copy output. The CRT can accommodate 24 80-character lines of information.

Three console modes are available: a Printer-Keyboard mode, a Display mode, and a 115/125 Console-Display-Emulation mode.

In Printer-Keyboard mode, the display console uses the keyboard for input and the CRT and a recommended, but optional, 3286-2 Printer for output. The CRT, keyboard, and printer appear to the system as a 3215 Console Printer-Keyboard. This mode is supported by DOS, DOS/VS, OS/360, OS/VS, and VM/370.

In Display mode, the keyboard is used for input and the CRT (with 24 lines of 80 characters) for output. DOS/VS does not support the Display mode. The optional 3286-2 Printer has a separate address and requires MCS support or equivalent. When present, the printer appears to the system as a 3213 Console Printer.

In the 115/125 Console-Display-Emulation mode, the keyboard is used for input and the CRT for output; the CRT displays twelve 56-character lines of information. The 3286-2 Printer is optional. When present, the printer emulates a 5213-1 Printer and acts as a slave unit to the display console. That is, the 3286-2 is not separately addressable. This mode is available in DOS/VS Release 28 and above.

Both new systems provide native attachment capability for one or two 3203 Model 4 Printers. The 3203-4 is a stand-alone version of the 1200-lpm 3203 Model 2 Printer currently used with System/370 Models 115 and 125.

All I/O units that can be attached to a System/370 Model 135 are also available on the Model 138 with the exception of the 3210 and 3215 Console Printer-Keyboards. Attachment of the 2319 disk storage units is available only as part of a 2314 Series B Direct Access Storage Facility.

All I/O units that can be attached to a System/370 Model 145 are also available on the Model 148 with exception of the 3210 and 3215 Console Printer-Keyboards.

Extended control-program support is a hardware assist that reduces the CPU time needed to execute certain frequently used supervisor functions in both VM/370 and OS/VS1. IBM states that this new feature can reduce the amount of VM/370 supervisor-state time by up to 55 percent, and that a reduction of 13 to 18 percent in OS/VS1 supervisor-state time has been measured on a Model 138, and 9 to 20 percent on a Model 148.

Both new systems also provide an APL assist. This feature is, in effect, an APL emulator that replaces functions performed by the APL software interpreter to provide improved performance for applications when running in conjunction with the VS APL Program Product.

UPGRADED 135 AND 145 SYSTEMS: At the same time that IBM introduced the new Model 138 and 148 systems, it also announced that existing Model 135 and 145 systems can be upgraded to "the internal performance levels" of the new systems, although they will not have all of the features. ▷

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▷ Users with System 370/135's or 370/145's can field-upgrade their systems to what IBM calls "accelerated" System/370 Model 135's and 145's. Designated the 370/135-3 and 370/145-3, respectively, the new models will offer essentially the same internal performance as the new Model 138 and Model 148, but no general throughput statement can be made in comparing a 135-3 to a 138 or a 145-3 to a 148, according to IBM.

The enhanced models will provide many of the features found in the new systems, but not all. Included will be the extended control-program support, 128K bytes of control memory, and APL assist. The 3270-type display console and the 3286 Model 2 printer, however, are not available with the upgraded systems.

Field-upgrading to the Model 135-3 will begin in February 1977, and to the 145-3 in April 1977. Any 370/135 can be upgraded to a 135-3 of the same memory size for $120,000, and the basic price for upgrading a 145-2 to a 145-3 is $190,000.

The purchase price for a 135-3 or 145-3 is more than twice the price of an equivalent Model 138 or 148. The purchase price of a 500K 135-3, for example, would be $721,500 and the monthly rental would be $16,040 a month, while the same size Model 138 can be purchased for $350,000 and rented for $9,600 a month.

To upgrade a 370/135, a new gate is attached with the new instruction execution unit, the prerequisite extended floating-point feature (if not already installed by the user), and the increased reloadable control store. In addition, some new power units are installed. Two gates must be added to a 145 for an upgrade, IBM said, and they contain the instruction execution unit, the larger-capacity control store and power components, plus the prerequisite word buffer, clock comparator, and CPU timer if these have not already been added as options.

NEW MAINTENANCE PRICES AND SERVICE RATES: On August 16, IBM announced maintenance agreement charge adjustments, including both increases and decreases, that affected about one-third of the products marketed by the Data Processing Division. The increases ranged from 5 to 15 percent, and the decreases from 5 to 20 percent. Among the products whose maintenance prices were increased were the System/370 Model 115 and 125 Processing Units and a number of processor features. The decreased maintenance charges became effective immediately, while the increased charges will take effect on November 16, 1976. The September System/370 equipment price list (Report 70C-491-05) reflects these changes.

Also on August 16, IBM increased its rates for both Field Engineering/Customer Engineering hourly (per call) services and for DPD Systems Engineering services by approximately 15 percent. The new rate for DPD Systems Engineering services is $45.25 per hour. For FE/CE services, the new hourly rates during normal working hours are $38.00 for Class 1 equipment, $44.75 for Class 2, and $50.75 for Class 3. For FE/CE services outside normal working hours, the new hourly rates are $49.25 for Class 1 equipment, $58.00 for Class 2, and $66.00 for Class 3. □

ANALYSIS: These latest moves by IBM, particularly the introduction of the new Models 138 and 148, caused quite a stir in the industry. The sum total of the moves created a complex picture, and both users and competing equipment vendors called "time out" to figure out their next move.

Independent add-on memory makers were affected because IBM indicated that design changes in the new and enhanced systems might affect the operation of non-IBM memory. The independents must wait until the new systems are delivered before they can begin to design the interfaces necessary to enable them to offer competitive memory products. Even the market for add-on memory for larger systems, such as the Model 158 and 168, is bound to be affected. Users of these systems who are considering add-on memory will feel compelled to delay their decision—at least for a while—until they see what IBM's next moves are and how they may be affected.

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The announcements naturally caused anxious strategy meetings among IBM's competitors. Univac Burroughs, and Honeywell all market systems that compete directly against the IBM 370/135 and 145, and now against the new systems, while NCR, with its recently introduced Criterion 8570 system, competes against the 370/135 and the new 138.

With the new pricing structure from IBM, the pricing edge previously claimed by the competition was either completely erased or drastically reduced. Thus, there was little doubt that there would be prompt countermoves by the competing mainframe vendors.

Burroughs was the first to respond. Within three weeks after the IBM 370/138 and 148 announcement, Burroughs introduced the B 6807, B 6811, and B 6821 systems. These new systems are in the same size range as the 370/138 and 148, and although Burroughs has declined to release detailed CPU and memory prices to date, all indications are that they will be in the same price range also.

Univac was probably most surprised by the IBM announcement. Just three weeks earlier, at the NCC, Univac had introduced the 90/80 system, the largest member of its 90 Series family, and had stated that the new system was aimed at IBM 135 and 145 users who were thinking of upgrading to a Model 158. The new Models 138 and 148 suddenly offered these users new alternatives and made the 90/80 far less appealing. Univac's response to this challenge came less than two months later when the company extensively revamped its own 90/60, 90/70, and 90/80 product line (see Report 70C-877-06).

Thus, an otherwise relatively quiet summer was disrupted by the men from Armonk; and while these moves were certainly significant in themselves, most people in the industry feel they were only the first steps in a series of important moves yet to be made. □