

## IBM System/370

### New Product Announcement

Even though processor enhancements for the IBM System/370 may be things of the past, new peripherals and software are still being added to the product line. Recent hardware additions include new mass storage and printing capabilities and new modems. Recent software announcements brought new releases of TCAM and VTAM, an 8100 simulator package for building distributed networks, and a new support classification for SVS.

**PERIPHERAL EQUIPMENT:** The IBM 3880 Storage Control, announced with the IBM 4300 Series computers, will be available for future use with the System/370 Models 145, 145-3, 148, 155-11, 158, 158-3, 165-11, 168, and 168-3. IBM plans to make first deliveries in the first quarter of 1980. Drives attached to a System/370 processor via the 3880 can include the 3330/3333, the 3340/3344, and the 3350, but not the 3370. The 3350 is not supported in 333X Model 1 or Model 11 compatibility mode.

Each of the two storage directors of the 3880 attaches to a block multiplexer channel of the System/370 processor. Up to four strings of direct-access storage devices can be attached to each storage director. Strings of 3333/3330 DASD's can be mixed with 3350 strings in any combination. Within a 3333/3330 string, 3333 Models 1 or 11 can attach 3330 Models 1, 2, or 11 in any combination. The 3340/3344 cannot be intermixed on a storage director with 3330/3333 or 3350 drives. Storage directors may be attached to either a 1- or 2-megabyte block multiplexer channel.

The original 3880 announcement allowed for the attachment of a two-channel switch pair option. With this announcement, IBM has increased the number of switch pair options to two. A 3880 with both of the two-channel switch pair options installed allows up to four channels to be switched to each storage director. Therefore, a total of eight channels can have access to the 3880. Each two-channel switch pair may be connected to a configuration control panel via an optional remote switch attachment.

A maximum of four 3333 Model 1 or Model 11 and/or 3350 Model A2 units can be attached to each storage director. Each 3333 can attach up to three 3330's, Model 1, 2, or 11. Each 3350 Model A2 or A2F can attach up to three 3350's, Model B2, B2F, C2 or C2F. A storage director can attach up to four 3340 Model A2 units, and up to two of the 3340's can attach 3344's. If 3340's and 3344's are intermixed on a storage director, a maximum of 28 drives can be attached to that director; if only 3340's are attached, up to 32 drives are allowed.

The 3880 is supported under DOS/VSE, VM/370 Release 6, OS/VS1 Release 6.7 and Release 7.0, and OS/VS2 Release 3.8. The 3340/3344 is not supported under OS/VS2 when attached to the 3880.

The 3203 Model 5 Printer, introduced with the IBM 4300 Series computers, uses IBM's proven horizontal-train printing technology to produce high-quality printed output. The 3203 is an improved version of the 1403 Model N1 Printer and uses the same 1416 Interchangeable Train Cartridge. The 3203 Model 5 has a rated print speed of 1200 lpm with the standard 48-character set. The print speed can vary depending upon the frequency of character repetition on the cartridge. The Universal Character Set feature, with a 240-position buffer, is standard. There are 132 print positions. Horizontal spacing is 10 characters/inch, and vertical spacing is 6 or 8 lines/inch. Forms ranging from 3.5 to 20 inches in width and from 3 to 24 inches in length can be fed. Normal skipping speed is up to 24 inches/second, with high-speed skipping at up to 55 inches/second after 6 lines have passed. A power-assisted stacker is standard.

IBM's new microprocessor-controlled modems, the 3863, 3864, and 3865, will reportedly be capable of isolating transmission problems to a specific modem, line, or attached device and automatically reporting this information to a network operator.

IBM announced the new modem models concurrently with the announcement of new SNA networking software, scheduled for delivery beginning in mid-1980. The modems are designed for leased (non-switched) line attachment.

Scheduled for delivery in the first quarter of 1980, the Model 3863 and 3864 modems will support

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transmission at 2400 and 4800 bps, respectively. The 3865 will support transmission at up to 9600 bps on unconditioned lines and will be available during the second quarter of 1980. User savings on line conditioning costs could be significant.

**COMMUNICATIONS SOFTWARE:** IBM plans to release new versions of ACF/TCAM, (ACF/TCAM Version 2 R3), ACF/VTAM (ACF/VTAM/VS), NTO, and ACF/NCP (ACF/NCP/VS R3) beginning in mid-1980. The new versions will be available for users of the OS/VS1, MVS, and DOS/VSE operating systems. The aim of the new TCAM/VTAM versions is to provide increased flexibility through additional computer terminal links, improved reliability through user programming of alternate data paths, and enhanced functions in multiprocessor networks through greater latitude in the placement of points of control. Automatic use of alternate data paths is particularly valuable when unrecoverable error transmissions are encountered.

Automatic rerouting is an attractive feature of the packet-switched public networks (such as Telenet and Tymnet) that was previously unavailable with SNA networking. This, along with the other new features, may be seen as an effort by IBM to meet the needs of large-volume communications users who have been considering a move to the X.25-supported networks. IBM has not yet offered any communications support of the X.25 packet communications protocol.

Other features of the new TCAM and VTAM releases will add enhanced monitoring of network activity, error recording, and operator alert for possible problem areas.

The new Network Control Program release, ACF/NCP/VS R3, operating in conjunction with ACF/TCAM Version 2 R3 and ACF/VTAM/VS, will reportedly enhance networking of 370X nodes and provide facilities for specializing communications lines and incorporating multiple data routes. Networking of 370X nodes is enhanced by the ability of up to eight IBM computers to control interconnected controllers and terminals. IBM claims that one or more computers or controllers can be taken out of service and returned with a minimum disruption to data communications during the transition. With specialized lines, users would select a data path depending on the type of traffic (i.e., interactive, batch, etc.). Extensive interconnection between hosts and nodes includes parallel links between 3705 controllers and provides network backup if one node should fail. These two features should increase network efficiency and reliability.

The NTO Release 2 program product offers IBM large-system users a significant enhancement: support for start-stop terminals. The terminals supported include the IBM 2740 and 2741 and other teletypewriter devices. Since NTO Release 2 will be supported by CICS/VS, some terminals currently supported by BTAM can now also be supported by ACF/TCAM Version 2 R3, ACF/VTAM/VS, and ACF/NCP/VS R3. An intermediate release, ACF/NCP/VS R2.1, in conjunction with the IBM Network Problem Determination Application (NPDA), will provide facilities to collect and organize error statistics from the network.

**8100 SIMULATOR SOFTWARE:** A new IBM software aid is the Distributed Product Development System (DPDS), an 8100 simulator that runs on the System/370 computers. DPDS is an MVS (Release 3, modification level 7 or later) and TSO productivity aid that runs as a problem program on a System/370 MVS host. Application areas where DPDS could be used include program development of extensions to DPPX, program development of special I/O support (including unsupported hardware devices), and program development of new system applications and command processors intended to operate in the DPPX environment.

DPDS provides three interrelated facilities. The first, PL/DS, is a high-level programming language and macro language compiler that provides access to DPPX system services for distributed processing. The second, a program development simulator, includes an 8100 process simulator and interactive debugging facilities for PL/DS-developed programs. The final facility is a linkage editor, for input to the program simulator. The host system must provide the OS/VS2 assembler and linkage editor. Although DPDS can be executed in batch mode, it is intended primarily for use in an interactive mode.

**SVS CLASSIFICATION:** SVS support classification will change to Class C effective December 31, 1979.□

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#### EQUIPMENT PRICES

		<u>Purchase Price</u>	<u>Monthly Maint.</u>	<u>Rental* (short-term lease)</u>	<u>Rental* (2-year lease)</u>
3880	Storage Controller, Model 1	\$62,350	\$160	\$1,704	\$1,450
6148	Remote Switch Attachment	NC	NC	NC	NC
6149	Remote Switch Attachment, Additional	NC	NC	NC	NC
8170	Two-Channel Switch Pair	6,450	35	176	150
3203	Model 5 Printer; 1200 lpm with 48-character set	38,320	340	1545	1,255
3863	2400-bps Modem	2,135	—	71	60
3864	4800-bps Modem	3,500	—	123	105
3865	9600-bps Modem	5,300	—	194	165

\*Rental and lease charges include equipment maintenance.

#### SOFTWARE PRICES

	<u>Monthly License Charge</u>	<u>Date Available</u>
ACF/VTAM/VS Release 3 under MVS	\$240	4th qtr. 1980
Under OS/VS1	240	2nd qtr. 1981
Under DOS/VSE	85	1st qtr. 1981
ACF/VTAM/VS Release 3 Networking feature under MVS	600	4th qtr. 1980
Under OS/VS1	600	2nd qtr. 1981
Under DOS/VSE	160	1st qtr. 1981
ACF/TCAM/Version 2 R3 under MVS	450	4th qtr. 1980
Under OS/VS1	450	1st qtr. 1981
ACF/TCAM/Version 2 R3 Networking feature under MVS	800	4th qtr. 1980
Under OS/VS1	800	1st qtr. 1981
ACF/NCP/VS R2.1	120	2nd qtr. 1980
ACF/NCP/VS R3	120	2nd qtr. 1981
NTO Release 2	100	1st qtr. 1981
NPDA	32	3rd qtr. 1980
Support programs for installation of NCP programming	35	—
DPDS Under MVS on System/370	500	July 1979
MVS/System Extensions	1,250	—
VM/370 System Extensions	1,200	—