

## IBM System/370 New Product Announcement

On March 31, 1975, just two weeks after IBM disclosed the demise of Future Systems as the name—if not the architecture—of its future product line, the company announced new versions of the System/370 Model 158 and Model 168, featuring improved internal performance, some additional reliability features, and—for the Model 158—more flexible multiprocessor configurations and expanded subchannel capabilities on both the byte multiplexer and block multiplexer channels. Concurrently, IBM announced Release 3 of its OS/VS2 operating system.

On April 15, IBM introduced the 3800 Printing Subsystem, a high-speed, non-impact printer for on-line use with virtual storage System/370 computers. Please see Report 70D-491-51 for details on the 3800.

### MODELS 158-3 AND 168-3

The internal performance improvements for both the new Model 158-3 and Model 168-3 have been achieved primarily through doubling the size of the High-Speed Buffer (or “cache”) on both processor models. In Model 158-3 processors, the High-Speed Buffer has been expanded from 8,192 to 16,384 characters, while in the new Model 168-3, the High-Speed Buffer has been expanded to 32,768 characters from the former 8,192 or 16,384 characters. Both buffers use high-density bipolar circuitry with a density of 1024 bits per chip. In Model 158-3 processor models only, the Instruction Fetch Buffer has been doubled from 64 to 128 words; and in both new central processors, the execution of selected instructions (notably those affecting system performance and interrupt handling) has been improved through the use of microprogramming and faster buffer speeds.

In total, the processor enhancements should result in improved throughput with the IBM virtual storage operating systems. IBM measurements indicate that the 158-3 offers performance improvements ranging from 5 to 11 percent over the original Model 158 in processing commercial jobs in a batch environment. Model 168-3 systems operating under OS/VS2 or VM/370 provide instruction execution rates from 5 to 13 percent faster than a Model 168 equipped with the optional 16,384-byte buffer.

Leased and purchased Model 158 and 168 systems can be field-upgraded to the new processor models, and the new Models 158-3 and 168-3 will replace the older models in IBM's current product line, with rental increases that roughly parallel their percentage improvement in internal performance (see prices below).

The new central processor models are upward-compatible with current System/370 Model 158 and Model 168 systems. Moreover, in multiprocessor installations, Models 168 and 168-3 and Models 158 and 158-3 processors can be interconnected. In addition, a newly announced asymmetric storage capability provides additional flexibility in configuring multiprocessing Model 158-3 configurations. The Model 158-3 permits multiple systems with varying main memory sizes to be intermixed in tightly coupled multiprocessing configurations, with the capability to power down one central processor while maintaining its associated main memory on-line for access by the remaining central processor.

Other Model 158-3 processor enhancements include expansion of the number of shared and unshared subchannels in the block multiplexer channels, doubling of the number of I/O devices that can be attached to a control unit on a shared subchannel from 16 to 32, and improved console performance and on-line maintenance and diagnostic capability for the 3213 Console Printer.

The Model 168-3 also includes a new Service Processor that logs data on both recoverable and non-recoverable errors to expedite on-line error analysis and includes a communications interface for the Remote Service Facility.

Model 158-3 systems are scheduled for initial customer delivery in September 1975, while deliveries of the new Model 168-3 will begin in June 1975. Field upgrades to the new models will begin in October 1975 for the Model 168 and in November for the Model 158. Field conversions for multiprocessing installations are scheduled to begin in December 1975.

### OS/VS2 RELEASE 3

Released concurrently with the new Model 158 and 168 processor models, OS/VS2 Release 3 contains significant enhancements in multiprocessing capabilities, plus enhancements for VSAM, VTAM, TSO, and support for the 3660 Finance Terminals. The JES2 Multi-Access Spool feature allows from two to seven systems to share input, job, and output streams, eliminating the master/slave relationship that previously characterized System/370 multiprocessing systems, and also provides capabilities to isolate an individual processor in the configuration for specialized processing. TSO enhancements include an expanded and more flexible Command Procedure Facility. BTAM host support for the 3660 terminals is available in Release 3, while VTAM 3660 support is scheduled for OS/VS2 in August 1976.

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### EQUIPMENT PRICES

		<u>Purchase Price</u>	<u>Monthly Maint.</u>	<u>Rental (short-term lease)*</u>
<b>3158-3 Uniprocessor Models:</b>				
Model U31	524,288 bytes	1,897,200	2,170	40,670
Model U32	1,048,576 bytes	2,023,700	2,245	43,530
Model U33	1,572,864 bytes	2,150,200	2,310	46,390
Model U34	2,097,152 bytes	2,276,700	2,375	49,250
Model U35	3,145,728 bytes	2,583,500	2,675	56,060
Model U36	4,194,304 bytes	2,836,500	2,815	61,780
<b>3158-3 Multiprocessor Models:</b>				
Model M31	524,288 bytes	2,082,200	2,275	44,450
Model M32	1,048,576 bytes	2,208,700	2,340	47,310
Model M33	1,572,864 bytes	2,335,200	2,405	50,170
Model M34	2,097,152 bytes	2,461,700	2,470	53,030
Model M35	3,145,728 bytes	2,768,500	2,770	59,840
Model M36	4,194,304 bytes	3,021,500	2,900	65,560
<b>3168-3 Uniprocessor Models:</b>				
Model U31	1,048,576 bytes	3,175,500	4,755	62,210
Model U32	2,097,152 bytes	3,428,500	4,885	73,930
Model U33	3,145,728 bytes	3,692,400	5,200	79,870
Model U34	4,194,304 bytes	3,945,400	5,325	85,590
Model U35	5,242,880 bytes	4,252,200	5,610	92,440
Model U36	6,291,456 bytes	4,505,200	5,770	98,160
Model U37	7,340,032 bytes	4,758,200	5,900	103,880
Model U38	8,388,608 bytes	5,011,200	6,030	109,600
<b>3168-3 Multiprocessor Models:</b>				
Model M31	1,048,576 bytes	2,262,900	4,765	70,010
Model M32	2,097,152 bytes	3,515,900	4,895	75,730
Model M33	3,145,728 bytes	3,779,800	5,210	81,670
Model M34	4,194,304 bytes	4,032,800	5,340	87,390
Model M35	5,242,800 bytes	4,339,600	5,650	94,240
Model M36	6,291,456 bytes	4,592,600	5,780	99,960
Model M37	7,340,032 bytes	4,845,600	5,910	105,680
Model M38	8,388,608 bytes	5,098,600	6,040	111,400
7850	Integrated Printer Attachment; for 3212 Printer	2,335	2	70

### MODEL UPGRADE PURCHASE PRICES

From Model 3158 (listed down) to Model 3158-3 (listed across):

	U31	U32	U33	U34	U35	U36
I	\$118,000	\$244,500	\$371,000	\$497,000	\$804,300	\$1,057,300
J	—	118,000	244,500	371,000	677,800	930,800
JI	—	—	118,000	244,500	551,300	804,300
K	—	—	—	118,000	424,800	667,800
KJ	—	—	—	—	118,000	371,000
L	—	—	—	—	—	118,000

From Model 3168 (listed down) to Model 3168-3 (listed across):

	U31	U32	U33	U34	U35	U36	U37	U38
J	\$298,300	\$551,300	\$815,200	\$1,068,200	\$1,375,000	\$1,628,000	\$1,881,000	\$2,134,000
K	—	298,300	562,200	815,200	1,122,000	1,375,000	1,628,000	1,881,000
KJ	—	—	298,300	551,300	858,100	1,111,100	1,364,100	1,617,100
L	—	—	—	298,300	605,100	858,100	1,111,100	1,364,100
LJ	—	—	—	—	298,300	551,300	304,300	1,057,300
LK	—	—	—	—	—	298,300	551,300	804,300
LKJ	—	—	—	—	—	—	298,300	551,300
M	—	—	—	—	—	—	—	298,300

Note: Space does not permit a listing of the upgrade prices for the multiprocessor (M) models of the 3158-3 and 3168-3; these are available from Datapro upon request.