Amdahl 470 Systems

► (P/OS) throughput with VM/370 that could be 94 to 97 percent of the MVS native-state throughput. The percentages are based on a 12-megabyte 470V/7 with dedicated MVS channels and no other virtual machine activity.

VM/PE implements a new dispatching interface, P/OS handling of its dedicated channel I/O operations, a restart facility for VM/370 after a control program termination without disturbing the P/OS virtual machine executive within VM/PE, and more accurate P/OS CPU time accounting. VM/PE provides increased P/OS performance by eliminating the management of shadow page tables, most privileged instruction simulation, and VM/370 control program handling of P/OS virtual machine I/O operations. VM/PE masks I/O interrupts for P/OS dedicated channels while VM/370 is in control. VM/PE Release 2.0 adds support of dedicated channel I/O masking to reduce control changes between the P/OS and VM/370. Release 2.0 also provides improved logic to reduce page zero swap overhead and a new function for the VM/370.

INDICATE command. This new function allows display on the system console of performance, timing, and load balancing information including the time interval since the last display, page zero swaps per second during the interval, P/OS-dedicated SIOs per second during the interval, VM/PE elapsed time, VM/PE total CPU usage, VM/PE CPU usage and total virtual CPU usage. VM/PE Release 2.1 adds performance measurement aids. VM/PE provides support for the following software product releases:

Product & Release	VM/PE 1.2	VM/PE 2.0	VM/PE 2.1
VM/370 Release:	5	5 or 6	6
PLC	11 or 12	12 or 3	3
VM/BSE Release:	1.1	1.1 or 2.0	2.0
VM/SE Release:	1.0	1.0	2.0
MVS	3.7	3.7 or 3.8	3.7 or 3.8
MVS/SE	1.0	1.0	1.0 or 2.0
MVS/SEA	1.0	1.0	1.0
SVS	—	1.7	1.7

MVS/SE ASSIST: This software package is designed to emulate the microcoded MVS enhancements IBM provided in its 303X processors. MVS/SE Assist operates on all 470 processors without modifications to CPU hardware or the MVS/SE code and requires about 1500 bytes of main memory. Benchmarks performed by Amdahl on an eight megabyte 470V/6-II with MVS Release 3.7 plus MVS/SE and RMF-11 indicate a 13 percent drop in supervisor state execution and a 12 percent improvement in throughput with MVS trace on. With trace off, throughput gained by 10 percent and supervisor state execution time dropped off by 11 percent.

MVS/SE Assist is activated upon execution of a System/370 extended instruction by the 470. This is done by installing an MVS/SE Assist routine to precede the program check first-level interrupt handler. This routine intercepts the operation exception program check so that the program check PSW can be analyzed to determine the type of operation requested. MVS/SE Assist normally replaces the interrupted instruction with a branch to an appropriate routine for simulation of the proper microcode.

AMDAHL INTERNALLY DEVELOPED SOFTWARE (AIDS) is a class of software designed to improve system performance and productivity of the DP staff. Software is developed for the AIDS program by Amdahl employees as software solutions to particular customer problems crop up. All AIDS programs must meet the established criteria of improving performance and or productivity, and must meet Amdahl standards for maintenance, ease of installation, and quality of documentation and coding. The program's author or representative remains responsible for product support for one year after announced program availability. AIDS products are provided "as is" without warranty either expressed or implied.

IMS/VS HDAM OPTIMIZER. The IMS/VS HDAM Optimizer is the first AIDS software released by Amdahl. It was designed to improve performance when using IMS/VS HDAM data bases. The IMS/VS HDAM Optimizer determines the optimal placement of data during normal data base reorganization, thus reducing the number of physical I/O operations necessary to process a HDAM data base. Amdahl estimates that the number of I/O requests is reduced by 10 to 15 percent. The Optimizer supports all presently existing IMS/VS options and requires no source code modifications to any presently existing IMS/VS routines, user routines, or control blocks.

In addition, the Optimizer quantitatively measures the effectiveness of various HDAM configurations. The analysis includes the randomizer, root addressable area size, and the number of root anchor points. From the analysis, the Optimizer selects the configuration with the lowest I/O estimate. IMS/VS HDAM Optimizer operates under OS/VS1, SVS, and MVS with IMS/VS releases 1.1.1 through 1.1.5.

PRICING

The Amdahl 470 systems are offered for purchase or for lease under two- or four-year operating lease plans. Leases may be renewed for 12-month periods. Lease payments must be made monthly in advance. Lease payments include the lessee charge, property taxes, and insurance, but not maintenance charges. The minimum lease term for a system upgrade is 12 months. Leases can be terminated after two years upon payment of 30 percent of the total remaining rental payments. A 90-day written notice is required for cancellation. For users wishing to purchase leased equipment, purchase credits of 50 percent of each monthly payment are allowed to a maximum aggregate credit of 50 percent of the purchase price. The purchase credit applies either to the original leasee or the current leasee.

Monthly maintenance charges are not included in lease charges. Maintenance is provided for 24 hours per day and 7 days per week.

Amdahl maintains a Software Systems Support (SSS) group in Sunnyvale, California that supplies its own versions of the supported IBM systems releases to Amdahl users. The SSS group also issues Amdahl corrections to the IBM Program Temporary Fix (PTF) tapes.

The Field Support center (FSC), also located in Sunnyvale, California, helps insure a smooth transition at installation time. The FSC also is chartered to analyze and correct problems in supported operating systems.■

Amdahl 470 Systems

EQUIPMENT PRICES

		Purchase Price	Monthly Maint.*	2-Year Lease**	4-Year Lease**
PROCESSORS AND MAIN MEMORY					
470V/5	CPU Complex; includes 16K-byte buffer storage, console with maintenance processor, and power distribution unit; main memory and channels as indicated below.				
	With 4,194,304 bytes of main memory and:				
	8 channels	$1,472,000	$ 8,500	$ 54,350	$ 45,500
	12 channels	1,622,000	9,000	61,975	51,650
	16 channels	1,772,000	9,500	69,600	57,800
	With 6,291,456 bytes of main memory and:				
	8 channels	1,572,000	9,450	61,500	51,275
	12 channels	1,722,000	9,950	69,125	57,425
	16 channels	1,872,000	10,450	76,750	63,575
	With 8,388,608 bytes of main memory and:				
	8 channels	1,672,000	10,400	68,650	57,050
	12 channels	1,822,000	10,900	76,275	63,200
	16 channels	1,972,000	11,400	83,900	69,350
470V/5-II	CPU Complex; includes 32K-byte buffer storage, console with maintenance processor and power distribution unit; main memory and channels as indicated below.				
	With 4,194,304 bytes of main memory and:				
	8 channels	1,572,000	8,600	57,575	48,150
	12 channels	1,722,000	9,100	65,200	54,300
	16 channels	1,872,000	9,600	72,825	60,450
	With 6,291,456 bytes of main memory and:				
	8 channels	1,672,000	9,550	64,725	53,925
	12 channels	1,822,000	10,050	72,350	60,075
	16 channels	1,972,000	10,550	79,975	66,225
	With 8,388,608 bytes of main memory and:				
	8 channels	1,772,000	10,500	71,875	59,700
	12 channels	1,922,000	11,000	79,500	65,850
	16 channels	2,072,000	11,500	87,125	72,000
A70V/6	CPU Complex; includes 16K-byte buffer storage, console with maintenance processor, and power distribution unit; main memory and channels as indicated below.				
	With 4,194,304 bytes of main memory and:				
	8 channels	1,702,000	8,750	61,750	51,700
	12 channels	1,852,000	9,250	69,375	57,850
	16 channels	2,002,000	9,750	77,000	64,000
	With 6,291,456 bytes of main memory and:				
	8 channels	1,802,000	9,700	68,900	57,475
	12 channels	1,952,000	10,200	76,525	63,625
	16 channels	2,102,000	10,700	84,150	69,775
	With 8,388,608 bytes of main memory and:				
	8 channels	1,902,000	10,650	76,050	63,250
	12 channels	2,052,000	11,150	83,675	69,400
	16 channels	2,202,000	11,650	91,300	75,550
A70V/6-II	CPU Complex; includes 32K-byte buffer storage, console with maintenance processor, and power distribution unit; main memory and channels as indicated below.				
	With 4,194,304 bytes of main memory and:				
	8 channels	1,802,000	8,850	64,975	54,350
	12 channels	1,952,000	9,350	72,600	60,500
	16 channels	2,102,000	9,850	80,225	66,650
	With 6,291,456 bytes of main memory and:				
	8 channels	1,902,000	9,800	72,125	60,125
	12 channels	2,052,000	10,300	79,750	66,275
	16 channels	2,202,000	10,800	87,375	72,425
	With 8,388,608 bytes of main memory and:				
	8 channels	2,002,000	10,750	79,275	65,900
	12 channels	2,152,000	11,250	86,900	72,050
	16 channels	2,302,000	11,750	94,525	78,200
A70V/7B	CPU Complex; includes 32K-byte buffer storage, console with maintenance processor, and power distribution unit; main memory and channels as indicated below.				
	With 4,194,304 bytes of main memory and:				
	8 channels	1,450,000	8,800	62,350	50,350
	12 channels	1,600,000	9,300	69,975	56,500
	16 channels	1,750,000	9,800	77,600	62,650

*Includes maintenance for 24 hours, 7 days per week

Amdahl 470 Systems

EQUIPMENT PRICES

		Purchase Price	Monthly Maint.*	2-Year Lease**	4-Year Lease**
PROCESSORS AND MAIN MEMORY (Continued)					
	With 8,388,608 bytes of main memory and:				
	8 channels	1,650,000	10,700	76,650	61,900
	12 channels	1,800,000	11,200	84,275	68,050
	16 channels	1,950,000	11,700	91,900	74,200
470V/7A	CPU Complex; includes 32K-byte buffer storage, console with maintenance processor, and power distribution unit; main memory and channels as indicated below.				
	With 4,194,304 bytes of main memory and:				
	8 channels	1,750,000	9,000	68,150	55,000
	12 channels	1,900,000	9,500	75,775	61,150
	16 channels	2,050,000	10,000	83,400	67,300
	With 8,388,608 bytes of main memory and:				
	8 channels	1,950,000	10,900	82,450	66,550
	12 channels	2,100,000	11,400	90,075	72,700
	16 channels	2,250,000	11,900	97,700	78,850
	With 12,582,912 bytes of main memory and:				
	8 channels	2,150,000	12,800	96,750	78,100
	12 channels	2,300,000	13,300	104,375	84,250
	16 channels	2,450,000	13,800	112,000	90,400
	With 16,777,216 bytes of main memory and:				
	8 channels	2,350,000	14,700	111,050	89,650
	12 channels	2,500,000	15,200	118,675	95,800
	16 channels	2,650,000	15,700	126,300	101,950
A70V/7	CPU Complex; includes 32K-byte buffer storage, console with maintenance processor, and power distribution unit; main memory and channels as indicated below.				
	With 4,194,304 bytes of main memory and:				
	12 channels	2,350,000	9,600	82,875	66,900
	16 channels	2,500,000	10,100	90,500	73,050
	With 8,388,608 bytes of main memory and:				
	12 channels	2,550,000	11,500	97,175	78,450
	16 channels	2,700,000	12,000	104,800	84,600
	With 12,582,912 bytes of main memory and:				
	12 channels	2,750,000	13,400	111,475	90,000
	16 channels	2,900,000	13,900	119,100	96,150
	With 16,777,216 bytes of main memory and:				
	12 channels	2,950,000	15,300	125,775	101,550
	16 channels	3,100,000	15,800	133,400	107,700
A70V/8	CPU Complex; includes 64K-byte buffer storage console with maintenance processor, and power distribution unit; main memory and channels as indicated below.				
	With 4,194,304 bytes of main memory and:				
	12 channels	2,550,000	10,050	89,425	72,150
	16 channels	2,700,000	10,550	97,050	78,300
	With 8,388,608 bytes of main memory and:				
	12 channels	2,750,000	11,950	103,725	83,700
	16 channels	2,900,000	12,450	111,350	89,850
	With 12,582,912 bytes of main memory and:				
	12 channels	2,950,000	13,850	118,025	95,250
	16 channels	3,100,000	14,350	125,650	101,400
	With 16,777,216 bytes of main memory and:				
	12 channels	3,150,000	15,750	132,325	106,800
	16 channels	3,300,000	16,250	139,950	112,950
MEMORY					
	2-Megabyte Memory Increment for 470V/5, 470V/5-II, 470V/6, and 470V/6-II	100,000	950	7,865	6,350
	4-Megabyte Memory Increment for 470V/7 Series and 470V/8	200,000	1,900	15,730	12,650

*Includes maintenance for 24 hours, 7 days per week

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EQUIPMENT PRICES

PROCESSOR OPTIONS AND UPGRADES

	Purchase Price	Monthly Maint.*	2-Year Lease**	4-Year Lease**
Channel to Channel Adapter for all processors	32,500	—	1,000	900
Two-Byte Interface for all processors	1,400	—	50	40
Field Upgrade 470V/5 to 470V/5-II	125,000	100	3,550	2,900
470V/6 to 470V/6-II	125,000	100	3,550	2,900
470V/5 to 470V/6	330,000	250	8,150	6,825
470V/5-II to 470V/6-II	330,000	250	8,150	6,825
470V/5 to 470V/6-II	455,000	350	11,700	9,725
470V/7B to 470V/7A	325,000	200	6,400	5,125
470V/7B to 470V/7	—	—	14,200	11,625
470V/7A to 470V/7	475,000	100	7,800	6,500
470V/7 to 470V/8	250,000	450	7,200	5,775
Four Channel Group for all 470 systems	175,000	500	8,400	6,775
Hardware Monitor Interface for 470V/7B through 470V/8	40,000	150	1,865	1,400

*Includes maintenance for 24 hours, 7 days per week

SOFTWARE PRICES

LEASE OR LICENSE ONLY PRODUCTS

	Monthly Lease Fee	Monthly License Fee	Comments
VM/Performance Enhancement			
Release 2.0	—	$1,750	per installed system
Release 2.1	—	1,750	per installed system
470/Accelerator Hardware	$1,800	—	for 20 meter hours plus $90 for each additional hour
MVS/SE Assist	—	250	per installed system
Amdahl Internally Developed Software (AIDS) IMS/VS HDAM	—	225	per installed system for 24 months