# NAS AS/VL Series

## PRODUCT DESCRIPTION

NAS has responded to the introduction of new IBM 4381 systems with the announcement of the NAS AS/VL Series of Hatachi-based, intermediate-scale mainframes. The NAS AS/VL Series consists of four models, the AS/VL 40, 50, and 60, all single processors, and the AS/VL 80, a dyadic system. The new models use 1-megabit, dynamic random access memory components and, except for the AS/VL 40, make use of high-speed Dynamic Working Storage, a memory facility positioned between buffer storage and main memory. Main memory ranges from 32 megabytes to a maximum of 256 megabytes on the top-end AS/VL 80 system. Channel capacity on each model ranges from 8 to 32 channels. Up to 31 channels on any system can be configured as 3-megabyte-per-second block multiplexer channels.

The AS/VL 60 has 3.5 to 4.2 times the internal execution rate of the AS/6660 equipped with the High-Speed Arithmetic feature. The AS/VL 50 has 0.65 to 0.75 times the internal execution rate of the AS/VL 60 and the AS/VL 40 has 0.45 to 0.60 times the internal execution rate of the AS/VL 60. The AS/VL 80 has 1.7 to 1.9 times the performance of the AS/VL 60. The processors are all field upgradable to larger systems. AS/VL models can transfer data at 6 megabytes per second when attached to the NAS 7900 Semiconductor Disk Subsystem or the NAS 7480 Cartridge Tape Subsystem. The AS/VL models are the first such intermediate systems currently on the market that feature this transfer capability.

**RELATIONSHIP TO CURRENT MODEL LINE:** The NAS AS/VL Series replaces the medium-range NAS AS/66X0 Series and the NAS AS/80X3 Series, two model lines that competed against older models of the IBM 4381 Series as well as the defunct IBM 308X Series. The 66X0 is now out of production, while the 80X3 is available only in very limited quantities. The latest NAS product line has greater performance than the 66X0 Series and overlaps the performance of the 80X3 Series as well.

The new AS/VL replacement products deliver more power, use the latest chip technologies, and feature greater maximum memory and channel capacities. The new processors, for instance, use one-megabit memory chip technologies, while the old model lines use a combination of 64K-bit and 256K-bit chips. Up to 256 megabytes of main memory is now available on the AS/VL Series compared to the 16 megabytes of maximum memory available with the 66X0 Series and the 128 megabytes of maximum memory available with the 80X3 Series. The 66X0 family can be configured with up to 10 channels and the 80X3 family can be configured with up to 32 channels, compared to the 32 channels available for each AS/VL processor.

Similar to the older model lines, the AS/VL Series is compatible with all the major IBM operating environ- ➤

**PRODUCT ANNOUNCED: The four-processor NAS AS/VL Series, the apparent replacement for the NAS AS/66X0 Series and AS/80X3 Series, is an intermediate processor line offered as a price/performance alternative to the IBM 4381 line of medium-scale mainframes.**

**COMPETITION: Amdahl 580 Series and low end of the Amdahl 5890 Series, Honeywell Bull DPS 8000, the IBM 4381 Series and the low end of the IBM 3090 Series.**

**DATE ANNOUNCED: July 1987.**

**SCHEDULED DELIVERY: Models 40, 50, and 60, third quarter 1987; Model 80, fourth quarter 1987.**

## BASIC SPECIFICATIONS

**MANUFACTURER: National Advanced Systems, 750 Central Expressway, P.O. Box 54996, Santa Clara, California 94043-0996. Telephone (408) 970-1000. Canadian address: NAS, Two Lansing Square, Suite 1101, Willowdale, Ontario M2J 4P8. Telephone (416) 494-4114.**

**MODELS: AS/VL 40, AS/VL 50, AS/VL 60, all single processor models, and the AS/VL 80, a dyadic processor.**

**CONFIGURATION: The AS/VL Series features three single-processor models and a top-end, dyadic processor model. Main memory ranges from 32 megabytes to 256 megabytes, depending on model, and channel capacity ranges from 8 to 32 channels for each model. Up to four channels on any given model can be configured as byte multiplexer channels. The Model 40 also features 32 kilobytes of high-speed buffer (HSB) storage, but does not come with Dynamic Working Storage (DWS). The Model 50 features 32 kilobytes of HSB storage and 256 kilobytes of DWS. The Model 60 features 64 kilobytes of HSB storage and 512 kilobytes of DWS. The dyadic Model 80 features 64 kilobytes of HSB storage per processor and 512 kilobytes of DWS.**

**CENTRAL PROCESSOR AND MEMORY: The AS/VL Series uses very-large-scale integration (VLSI) circuitry and also makes use of one-megabit memory chips. The basic processor unit uses emitter coupled logic (ECL) components, featuring 2,000 and 5,000 logic gates per chip. Switching speed can reach a maximum of 200 trillionths of a second (picoseconds). The input/output processor uses high-density, complementary metal-oxide silicon (CMOS), VLSI circuits containing 40,000 gates per chip. While main memory uses one-megabit CMOS memory chips, DWS uses 64K-bit Bi CMOS chips. DWS is positioned between buffer storage and main memory and is designed to improve system throughput.**

**PHYSICAL CHARACTERISTICS: AS/VL models are air-cooled systems and operate within 50 degrees to 89 degrees Fahrenheit at a relative humidity of between 8 and 80 percent. In standby mode, they operate within a temperature range of from 39 degrees to 109 degrees Fahrenheit. Heat output is rated at 27,800 Btus per hour. Power consumption is rated at 9.5 kVA. Each system CPU measures 84 inches wide, 29 inches deep, and 58 inches high, and weighs 2,094 pounds.** ➤

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ments. In addition, VSE users will still be able to run the VSE operating system on the new AS/VL processors as a guest under VM with or without the High Performance Option.

**COMPETITIVE POSITION:** The AS/VL models are positioned above the NAS AS/66X0 and are an apparent response to the four new IBM 4381 processors announced in May. With a rated power range of 5 to 17 MIPS (millions of instructions per second), the new NAS models overlap the power range of the new IBM 4381 Model Groups 21, 22, 23, and 24 systems and the low end of the IBM 3090 Series. The new IBM 4381s are rated at 2.3 MIPS for the low-end Model Group 21 to 7.8 MIPS for the dual-processor Model Group 24. The IBM systems come with a maximum main memory capacity of 64 megabytes compared to the NAS systems which have a maximum capacity of 256 megabytes.

The NAS single-processor systems became available during the third quarter of this year, while the top-end Model 80 will be available by the fourth quarter. The new IBM 4381 models will be available by first quarter 1988. □

**INPUT/OUTPUT SUBSYSTEM: Each AS/VL model is configured with one input/output processor which has a capacity ranging from 8 to 32 channels. Up to four channels can be configured as byte multiplexer channels. Users can obtain a maximum data transfer rate of 6 megabytes per second when channels are attached to an NAS 7900 Semiconductor Disk Subsystem or an NAS 7480 Cartridge Tape Subsystem.**

**SOFTWARE: The AS/VL Series is compatible with the major IBM System/370 operating systems. These include MVS VS1, MVS/SE, MVS/SP, MVS/XA, VM/SP, and VM/XA. Additionally, NAS offers several productivity facilities, which include a 4300-type ECPS:VM system facility that reduces operating system overhead to improve efficiency; SIE; System/370 Extended Facility; and the High-Speed Arithmetic (HSA) feature, which speeds up the processing time of floating-point and fixed-point arithmetic instructions. Other standard features include Virtual Machine Assist, S/370 XA, DF Sort Assist, Preferred Machine Assist, 3033 Extension, and ROCF.**

**PRICING: Purchase prices and maintenance charges are listed in the price list which follows. The maintenance charges appearing in the price list cover an 11-hour period from Monday to Friday.**

## EQUIPMENT PRICES

| | | Purchase Price ($) | Maint.* Price ($) |
|---|---|---|---|
| **PROCESSORS** | | | |
| AS/VL 40 | Single-processor system; features 32 megabytes of main memory and eight channels | 638,000 | 712 |
| AS/VL 50 | Single-processor system; features 32 megabytes of main memory and eight channels | 891,000 | 1,511 |
| AS/VL 60 | Single-processor system; features 32 megabytes of main memory and eight channels | 1,276,000 | 3,056 |
| AS/VL 80 | Dyadic-processor system; features 32 megabytes of main memory and eight channels | 2,156,000 | 3,408 |
| **PROCESSOR UPGRADES** | | | |
| | AS/VL 40 to AS/VL 50 | 253,000 | 799 |
| | AS/VL 50 to AS/VL 60 | 385,000 | 1,545 |
| | AS/VL 60 to AS/VL 80 | 880,000 | 1,897 |
| **PROCESSOR OPTIONS** | | | |
| | Additional 32 megabytes of main memory | 207,000 | 225 |
| | Additional eight-channel group | 117,000 | 145 |
| | Six-megabytes-per-second channel feature | NC | NA |
| | Additional Console Display | 29,000 | 215 |
| | Channel-to-Channel Adaptor | 14,000 | 40 |

*NA—Not applicable.*
*NC—No charge.*
**Listed maintenance charges cover five days per week, 11 hours per day.* ■