
Amdahl 5890/5990 Series

Product Enhancement

Analysis

Departing from its role as strictly an IBM plug-compatible mainframe (PCM) supplier, in November 1989 Amdahl Corporation introduced a processor line dedicated exclusively to the UTS operating system. UTS is Amdahl's implementation of UNIX System V.

In response to the announcement of new IBM ES/3090 J models, Amdahl also enhanced its high-end 5990 IBM-compatible mainframe line. Enhancements include the introduction of a new entry-level multiprocessor, additional memory capacity, performance improvements, and new Multiple Domain Feature (MDF) functionality.

Processors Dedicated to UNIX

The dedicated UNIX-based processors consist of the 7300-150 uniprocessor and the 7300-250 dual processor. The new machines are aimed at UNIX workstation and mini users who have outgrown these environments but are not ready to migrate to Amdahl's large 5890/5990 mainframe environments. Because Amdahl's large-scale mainframes also run UTS, Amdahl 7300 users can ultimately migrate UTS applications to any 5890 or 5990 processor without rewriting software. The 7300

can also be configured as a LAN server, storing larger amounts of data within one environment.

The 7300 Series features 32 to 256 megabytes of main memory and 16-way memory interleaving to improve throughput and reduce memory contention. For additional storage capacity, the 7300 supports the Amdahl 6380 Direct Access Storage Device (DASD), the 6100 Storage Processor, the 6110 High Performance Storage Subsystem, and other compatible devices.

A basic system also features 16 channels, expandable to 32 channels. Under system configuration rules, one channel must be a byte multiplexer channel, while the others can be either byte or block multiplexer channels. Up to eight block multiplexer channels can transfer data at 4.5 megabytes per second. The remaining block multiplexer channels can transfer at 3 megabytes per second.

The air-cooled 7300s have a 24-square-foot footprint (79 square feet when service clearances are added) and use standard 208 V AC, three-phase power at 50/60 Hz.

Benchmarks

The 7300 line approaches the performance of low-end Amdahl 5990 models. The 7300-150, running UTS Release 2.0, has 0.40 to 0.45 times the processing power of a 5990-350 uniprocessor running the same UTS work load. The Model 250 dual processor has 1.60 to 1.75 times the processing power of the Model 7300-150, also running the same work load.

Amdahl obtained the measurements running office automation and program development applications. The Model 150 supported more than 250 active users, and the Model 250 supported more than 400 active users.

The introduction of processors dedicated to UNIX and its IBM plug-compatible products complete Amdahl's product line. Amdahl's IBM-compatible machines support the IBM MVS family of operating systems, the de facto proprietary mainframe operating system standard. UNIX, meanwhile, will become the operating system of choice among vendors and users supporting open standards at performance levels ranging from PCs to mainframes. Amdahl has offered a mainframe implementation of UNIX since the early 1980s, long before its mainframe rivals showed any interest. Should UNIX take off within the medium- and large-scale environments during the 1990s, Amdahl will have an advantageous position.

Amdahl Responds to IBM

In addition to the 7300 Series, Amdahl announced a string of 5990 enhancements to keep pace with the recent IBM ES/3090 announcements. In October 1989, IBM replaced its ES/3090 S models with J models. The ES/3090 J models (180J and larger) provide 7 to 14 percent more throughput in an MVS environment than the previous S models.

Only a month later, Amdahl responded to the IBM moves with an additional 5990 model and enhancements to an existing model. Amdahl improved the performance and throughput of the 5990-500 dual processor by 10 percent.

The new 5990-790 is an entry-level, two-way multiprocessor. It has about the same power as the 5990-700 dual processor but offers up to twice the memory and channels. A company spokesperson said the larger configuration will appeal to users running the MVS/ESA operating system with its enhanced storage management features.

Fully configured, the 5990-790 supports up to 512 megabytes of main storage, 2 gigabytes of Expanded Storage, and 128 channels. Operating in partitioned mode, the Model 790 has twice the throughput of a 5990-350 uniprocessor in single image mode. In addition, the Model 790 has up to 98 percent of the throughput of a 5990-700 dual processor.

Chip Switch

In the main memory area, Amdahl announced that it plans to switch from 256K-bit to 1M-bit static random access memory (SRAM) chips by the fourth quarter of this year. The new chips will allow the company to double the main memory available on five 5990 models. Up to a gigabyte of memory will be available on the three multiprocessor models and up to 512 megabytes for the dual processors.

In response to a similar IBM 1989 announcement, Amdahl introduced asymmetrical configuration capabilities. This newest option encourages users to purchase additional memory and channels. Users can now configure main storage, Expanded Storage, and channels asymmetrically on all 5990 multiprocessors. The asymmetrical option means memory and channels no longer have to balance on either side of a partitionable multiprocessor.

For users who need to add Expanded Storage, Amdahl announced plans to reduce minimum configuration requirements. Beginning in the second quarter of this year, users will be able to add the first 512 megabytes of Expanded Storage in 64- rather than 128-megabyte increments, providing a more gradual upgrade path to larger configurations as users' requirements increase. Beyond 512 megabytes, increments of 128 megabytes can be added to a maximum of 1 gigabyte on uniprocessors and dual processors and 2 gigabytes on multiprocessors.

Multiple Domain Feature enhancements make it easier to reallocate processing time and channels among domains, giving users the ability to dynamically adjust performance to changing work loads to optimize throughput. Another improvement allows customers running the Transaction Processing Facility (TPF) in multiple domains to synchronize time-of-day clocks, producing consistent time stamps for records written from different domains. A new MDF Performance Tool helps

users monitor and tune the system and supports capacity planning functions and domain adjustments.

All MDF enhancements will be available by the second quarter, except for the MDF Performance Tool, which will be available by the fourth quarter. The enhancements are available at no additional charge.

A basic 5990-790 configuration with 128 megabytes of memory and 64 channels sells for \$7.5 million. Deliveries began in February.

The enhanced 5990-500 dual processor, which also became available in February, continues to sell for \$4,620,000.

The 7300-150 and -250, announced for the U.S. market only, became available in January. ■