DEC VAX SYSTEMS

Product Enhancement

Determined to capture an even larger share in the computer market, Digital Equipment Corporation has revamped its VAX family of 32-bit systems with the announcement of the 8200, 8300, and 8800 systems. Also announced at the same time was the VAXBI I/O bus. In addition, Digital recently announced the VAX 8650. Other recent announcements include new versions of VAX software for information systems managers and applications developers, packaged VAX Information Architecture software, and software engineering tools for large- and small-scale development.

The new generation of VAX systems, including the VAX 8200, 8300, 8650, and 8800, significantly expands Digital's price and performance range. For example, the VAX 8200 provides 11/780 performance in a small, economical package. The VAX 8300 offers the performance of the 11/785 but is marketed for compute-intensive applications. The VAX 8650 expands the performance range of the general purpose 8600. And the VAX 8800 is Digital's highest performance VAX system offered to date.

Although Digital has not made this official, the recent announcements make the older VAX models, with the exception of the VAX 11/785, effectively obsolete. (This does not mean, however, that Digital will abandon its support of the older VAX models.) The new generation of VAX systems, which includes the new models, as well as the MicroVAX II, the 8600, and the VAX 11/785, is geared toward a variety of markets.

For example, the MicroVAX II is marketed not only as a technical workstation, but also as a system within the business, office, and general purpose markets. The VAX 8200 and VAX 11/785 are marketed in the general purpose computer marketplace. The VAX 8300 and top-of-the-line VAX 8800 systems are well-positioned for the compute-intensive marketplace. The VAX 8600 and 8650 are designed for business and office applications, as well as for general purpose applications.

VAX 8200

The mid-range VAX 8200 is positioned between the MicroVAX II and the 8300. Relative to the VAX 11/780, the 8200 delivers 11/780 performance for one third the size at half the price. Designed for growing departments, the VAX 8200 can be used for office, manufacturing, commercial, and scientific applications. The VAX 8200 has also been designed to complement the MicroVAX II by providing users with expansion capabilities and features not available on the MicroVAX II. The VAX 8200's CPU is similar in design to the VAX-11/780 but is available on one 9-inch by 8-inch module, compared to 24 modules on the 11/780. Integral to the CPU is an 8KB cache memory and hardware accelerator for 32- and 64-bit floating point math operations.

The VAX 8200 can support up to 16MB of main memory and 3.6GB of disk storage. The system also supports the new 32-bit VAXBI system bus. Both the processor module and the individual memory arrays plug into the VAXBI, which acts as the memory interconnect to the VAX 8200. The VSX 8200's system elements, including the processor, memory modules, VAXcluster adapter, and KDB50 disk adapter/controller, exchange data over the VAXBI bus among themselves and support Digital's standard storage peripherals.

Digital's Unibus is also included as an I/O bus for selected peripherals. The Unibus permits linking many VAX-supported Unibus peripheral devices to the VAX 8200.

The VAX 8200 is housed in a CPU cabinet that is 22 inches wide, 42 inches high, and 30 inches deep. The cabinet includes the 12-slot VAXBI backplane cage and associated power supply, the RX50 dual diskette drive, connector panels, and space for the optional battery backup unit. The VAXBI/Unibus adapter, VAXcluster adapter, and disk and tape storage devices are housed in separate cabinets of the same size.

The VAX 8200 is also available in rack-mount packaging designed primarily for OEM firms and government contractors. The rack-mount VAX 8200 is packaged in a 10.5-inch high, 19-inch wide rack enclosure.

Both the VAX 8200 and VAX 8300 run under the VMS operating system and support the full VAX instruction set and VMS layered software products. Support for Digital's Ultrix-32 Unix operating system is expected to be announced shortly.

According to Digital, the VAX 8200, as well as the VAX 8300, are highly competitive with the IBM 4361 Model 5. The 8200 and 8300 also compete with Data General's MV/8000. ▷

DEC VAX SYSTEMS

Product Enhancement

▷ The VAX 8200 is priced at $79,000 for a basic system with 4MB of main memory. Complete system prices for VAX 8200 systems range from $127,000 to $154,000. The VAX 8200 can be upgraded to the VAX 8300; no price was given for the upgrade package.

VAX 8300

The VAX 8300 uses the same technologies as the VAX 8200 but delivers higher performance in compute-intensive applications by using tightly coupled dual 8200 processors. The VAX 8300 supports up to 16MB of main memory and 7.2GB of disk storage. Each CPU contains an 8KB cache memory; main memory is shared through the high-performance VAXBI bus.

According to Digital, the mid-range VAX 8300 provides up to 1.9 times the power (2 MIPS) of the VAX 8200 or VAX-11/780 and is designed for compute-intensive applications such as simulation, image processing, and computer-aided design.

The VAX 8300 is priced from $122,000 with 12MB of main memory. Complete systems for the VAX 8300 range from $160,000 to $190,000.

VAX 8650

Performing at 6.4 MIPS, the VAX 8600 is 44 percent more powerful than the VAX 8600 and up to six times more powerful than the older VAX 11/780. The VAX 8650, which is functionally equivalent to the VAX 8600, runs the complete line of VAX/VMS software.

The VAX 8650 has been designed to allow Digital to further penetrate the office automation, computer integrated manufacturing, commerical data processing, information management systems, and transaction processing markets, as well as strengthen Digital's share in its traditional scientific, engineering, and research markets.

The VSX 8650 (as well as the 8600) are capable of supporting 68MB of memory, expandable in 4MB and 16MB increments. (This more than doubles the 8600's previous support of 32MB of memory.) The 8650 also supports up to 160GB of disk storage and 512 direct communications lines, with even more lines supported through terminal servers.

The VAX 8650 incorporates the advanced design features inaugurated with the VAX 8600: the customized Emmitter Coupled Logic (ECL) semiconductor technology; a dedicated memory bus; write-back cache; and pipelined operation.

Seven of the VAX 8600's 17 CPU boards have been changed for the 8650, thereby decreasing CPU cycle time from 80 to 55.5 nanoseconds.

The increase in main memory capacity results from the use of surface mount technology that allows more memory chips to reside in a given area. The controller logic for the memory boards is mounted on a main board, and 256KB memory chips are mounted on subassemblies attached to the main board. The new memory subsystem can hold one 16MB board in the space formerly needed for two 4MB boards. The 68MB maximum supported is achieved by configuring up to four 16MB boards and one 4MB board.

Purchase prices for the VAX 8650 begin at $475,000. A field-installable upgrade kit for VAX 8600 systems is priced at $125,000.

VAX 8800

Rounding out the product line is the VAX 8800, Digital's highest performing computer to date, which features dual processors that share 32MB of main memory. Each tightly coupled processor has 64KB of high-speed cache memory and an integral floating point accelerator; processor cycle time is 45 nanoseconds. The top-of-the-line VAX 8800 utilizes a new 60MB per second memory interconnect for high-speed processor and memory transfers; up to four of the new VAXBI busses can be used for up to 30MB per second input/output transfers. Also included as standard features on the VAX 8800 are VAXcluster and Ethernet ports. The new system occupies only 15.5 square feet of floor space. The VAX 8800 also contains a total of 28 custom ▷ designed ECL chips.

DEC VAX SYSTEMS

Product Enhancement

▷ In applications with compute-intensive environments, the VAX 8800 reportedly delivers up to 12.7 MIPS—that is, 12 times the power of the VAX-11/780 and twice that of the VAX 8650. The VAX 8800 is specifically designed for use in such areas as seismic analysis, image processing, artificial intelligence, circuit design, high-energy physics, simulation, and econometric modeling.

All VAX 8800 systems include the following as standard features: battery backup for the memory system; Ethernet for connection into Digital's LAN; two processors and system console; 32MB of memory; Unibus for user migration; two VAXBI channels; and a 12-month warranty.

According to Digital, competition for the VAX 8800 comes from IBM's 4381 Model III and 308X Series processors. Digital claims that a cluster of three 8800s has the same computational power as an IBM 3090 (Sierra) system. Other competition comes from the dyadic processor model of Data General's MV/20000. Although the VAX 8800 is almost doubled the price of DG's 10 MIPS MV/20000, it is only 20 percent faster.

The VAX 8800 is priced from $650,000 and includes 32MB of main memory and the VAXcluster interface.

VAXBI

The VAXBI bus, Digital's VAX Bus Interconnect, was introduced for implementation with the VAX 8200, 8300, and 8800 computers. The VAX 8200 and 8300 systems use the VAXBI as the system bus; the 8800 uses it for multiple I/O channels. The VAXBI bus was designed to support multiprocessing and extend Digital's interconnect strategy.

The BIIC, a single ZMOS interface chip, is the primary interface between the VAXBI bus and the user interface logic on each node. The BIIC implements the VAXBI bus protocol. The VAXBI chip interface, the BCI, is a synchronous interface bus that provides for all communications between the BIIC and the user interface.

The VAXBI provides connection for up to 16 VAXBI nodes. A VAXBI node consists of one or more VAXBI modules. Nodes can be a mix of processors, memories, and adapters. Processor nodes execute machine instructions, access memory, and control the action of adapters. Memory nodes store instructions and data for processors and adapters. Adapter nodes transfer data to and from memory and accept control from processors. Types of VAXBI adapters include mass storage, bus, and communications adapters.

The VAXBI bus is synchronous, with all arbitration, address, and data transmissions multiplexed over its 32 data lines. The maximum data transfer rate, as implemented by the BIIC, is 13.3MB per second for 16-byte transfers.

Single processors can use the VAXBI bus as a combination memory and I/O bus. These systems typically include at least one mass-storage adapter and one communications node, in addition to the CPU and memory. VAXBI multiprocessing systems with two CPUs and a shared memory node can use the VAXBI bus as a memory bus.

VAX Software

The new versions of VAX software are as follows: DBMS V3.0 (enhanced for operation in VAXcluster and DECnet environments); Rdb/VMS V2.0; ACMS V2.0 (enhanced for VAXclusters); CDD V3.2 (supporting VAX RPG II and 8-bit characters); Datatrieve V3.3 (including support for Rdb/VMA segmented string data type); and TDMS V1.5.

The three VAX Information Architecture packages include the latest versions of VAX software. VAXinfo I, II, and III all include VAX CDD, Datatrieve, and TDMS. VAXinfo I also includes Rdb, and is intended for departmental and commercial applications on small-to-medium systems where ad hoc query and reporting are required. VAXinfo II, which includes Rdb and ACMS, is targeted for small- to medium-size production applications in networks and VAXclusters. VAXinfo III incorporates DBMS and ACMS; it is targeted for intensive, interactive transaction processing.

VAXinfo licenses range from $10,612 to $37,992, depending upon the computer system and configuration. Digital claims that the packages represent a savings of 10 to 25 percent over purchases of individual components. ▷