Digital Equipment Corporation
VAX-11/750

New Product Announcement

VAX-11/750: This new complement to the successful VAX-11/780 offers improved price/performance benefits while extending full software compatibility to a new market base. The VAX-11/750 is billed as having 60 percent of the VAX-11/780 performance for less than 40 percent of its CPU price. This is accomplished through the use of gate array technology which reduces the number of interconnects by a factor of five. This advantage provides an increase in reliability with a decrease in power consumption for a system which is smaller both in physical dimensions and in the size of its price tag.

The VAX-11/750 uses the same architecture, operating system and language processors as the VAX-11/780 to offer another setup in DEC's 32-bit virtual memory system progression. A brief comparison of the systems is shown here.

HARDWARE	VAX-11/750	VAX-11/780
Word length:	32 bits	32 bits
Virtual Address Space:	4.3 gigabytes	4.3 gigabytes
Maximum Program Size:	2 gigabytes	2 gigabytes
Circuit Technology:	Low power bipolar Schottky	TTL Schottky
Implementation:	Gate array (488 logic gates per chip)	Integrated circuits (MSI)
Memory Type:	16K ECC MOS RAM	16K ECC MOS RAM
Memory Capacity:	256KB—2MB	256KB—8MB*
Cache Memory:	Integral bipolar, 4KB	Integral bipolar, 8KB
User Control Store:	1K RAM, 80-bit words (optional)	1K RAM, 99-bit words (optional)
Buses:	UNIBUS (standard) MASSBUS (optional, up to 3)	UNIBUS (1 standard, 3 more optional) MASSBUS (optional, up to 4)
I/O Bandwidth:	5.0MB/sec	13.3MB/sec
Instruction Set:	244 instructions, 9 address modes, 6 data types	Same as VAX-11/750
Access Control:	4 hierarchical protection modes	Same as VAX-11/750

*12MB in multiprocessor configurations including two MA780 shared memory subsystems.

The systems also share such features as sixteen 32-bit general registers, 32 priority interrupt levels (16-hardware; 16-software), mini addressing modes, and four hierarchical protection modes, each with read/write access control. The VAX-11/750 also features a cartridge tape drive for software updates; a UNIBUS interface for terminals, serial devices and medium-speed peripherals; and up to three optional MASSBUS adapters for up to 24 high speed disk and tape units. A real-time clock is also a standard feature, as is a time-of-year clock with battery backup to enable automatic restart even after extended power failures.

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Options include a writable user control store of 1K 80-bit words for unique, user-defined code. A memory battery backup unit is also available to sustain two megabytes of memory for ten minutes. There is provision made for field installation of a floating point accelerator hoped to be announced within a year.

Due to this standard architecture approach, the VAX-11/780 and -11/750 are fully software compatible. The VAX/MS operating system forms the basis for this compatibility. The following programming languages are shared between the two systems:

VAX-11 FORTRAN	VAX-11 PASCAL
VAX-11 FORTRAN IV-PLUS	VAX-11 CORAL 66
VAX-11 COBOL	VAX-11 BLISS-32
VAX-11 COBOL-74	VAX-11 MACRO (assembly language)
VAX-11 PL/I	PDP-11 languages and utilities (compatibility mode)
VAX-11 BASIC	

The compatibility extends to the utility and package level as shown here:

DECnet-VAX (network software)
DATATRIEVE (file inquiry, update and reporting language)
VAX RMS (data management system)
VAX-11 FMS (forms management system)

The RM80, DEC's first Winchester-type disk drive, was designed for use with MASSBUS-equipped VAX-11/780 and -11/750. The 124 megabyte disk is controlled by an integral microprocessor which handles all the major drive functions including servo adjustment and diagnostic procedures. The drive has an average seek time of 25 msec and an average access time of 33 msec. Available with either single or optional dual port access, a mixture of up to eight RM80 and other disk products (RM03, RM05) can operate on a single MASSBUS controller. Macrodiagnostics are used to verify drive functions on startup and to isolate faults to the field-replaceable unit level.

The VAX-11/750 continues DEC's emphasis on improved reliability and maintainability. The gate array technology improves reliability by a factor of four due to the decrease in the number of components and connections required. On startup, the system automatically indicates a diagnostics run to verify the hardware integrity. The VAX/VMS operating system automatically maintains error and consistency checks during all data transfer operations. The error correction code used in main memory corrects all single-bit errors and detects all double-bit errors. The VAX-11/750 accommodates an optional module for DEC's Remote Computerized Diagnosis to allow problem diagnosis, performance assessment and prevention maintenance lists to be handled remotely by Digital engineers. This service is available 24 hours a day, seven days a week.

The increase in performance, reliability, and maintainability when related to the price, size, and power decreases allow the VAX-11/750 to move into areas not open to the larger VAX-11/780 system. The product OEMs have a powerful, compact unit to incorporate into larger systems. Educational, governmental, and medical applications are now well within the reach of a VAX-11/750. The software compatibility and DECnet convenience will allow larger companies another level in their distributed processing hierarchy.

System prices are shown here although no maintenance pricing is available yet.

VAX-11/750 CPU, 512K bytes of ECC MOS memory, two 28-megabyte RK07 disk
drives, LA38 DECwriter IV terminal, and VAX/VMS operating system $89,900

Monthly maintenance $568

VAX-11/750 CPU, 1 megabyte of ECC MOS memory, 1600-bpi TS11 magnetic tape
drive, 124 megabyte RM80 disk drive, and VAX/VMS operating system $200,000

Volume OEM prices for the VAX-11/750 start at $47,000 for a CPU with 512K bytes of memory, a communications multiplexer for eight EIA terminals, and a LA DECwriter IV terminal.

Volume delivery of RK07-equipped VAX-11/750 systems will begin in April 1981. Systems equipped with RM80 disk drives will be available in volume in June 1981.