Introducing the VAX-11/730

digital

Meet the small computer with big computer architecture and software.

Start with size. The new VAX-11/730 packaging technology produces a complete system only 41.8 inches high (106.2 cm), which means it can fit easily into existing office or laboratory space.

And price. The VAX-11/730 is available for less than half the price of the VAX-11/750. This means that if you're looking for VAX capability in a smaller package and at a lower price—or for a bridge between 16- and 32-bit processors—you need look no further.

Most important, the VAX-11/730 combines low price and small size without sacrificing any of the architectural features that have made VAX the preeminent 32-bit computer family of the 80s. It uses the VAX/VMS operating system and provides over two billion bytes of program space for each user. All VAX programming languages are available on the VAX-11/730, and programs developed on one VAX system can be run on any other VAX system without conversion.

The VAX-11/780 and the VAX-11/750 narrowed the gap between mainframe and minicomputer applications. The recently announced VAX-11/782 expanded their already impressive power and capacity. The VAX-11/730 now brings VAX capability a giant step closer to the end user. In short, the new entry-level VAX-11/730 means business.

VAX 11/780

It brings VAX capability down to job level for a wide range of applications.

Despite its small size, the VAX-11/730 can do just about anything the larger VAXes can do. The only differences lie in raw processing power and attachment capabilities. It is equally as versatile as the other VAX family members in general data processing, timesharing, and realtime environments. But the low price of the VAX-11/730 means that you can now apply VAX capability to your applications work at a much more basic level than ever before. It's the ideal system for use as a node in a distributed processing network or as a department-level host.

There is a place for the VAX-11/730 in countless industry, government, and general business environments. It can be used for data acquisition and analysis, online experimental control, engineering simulation and design, and theoretical analysis in applications ranging from earthquake prediction to aerospace simulation, from agricultural and medical research to laser physics and VLSI design. Acting as a network node at the job level, the VAX-11/730 can collect and preprocess data before passing it on to larger VAXes or to a mainframe computer. Final processing results are then returned over the network and are directly accessible where the job originated.

For particularly demanding or specialized applications, the VAX-11/730 offers the right combination of price and performance, whether you use it as a front-end machine, as a remote concentrator, or for dedicated program development. For smaller jobs, the VAX-11/730 is an affordable standalone computer that offers small engineering houses the chance to complete jobs inhouse that would otherwise have to be sent out for processing.

For commercial and business applications, a VAX-11/730 and attached terminals (up to 24 per system) can help you perform a wide range of clerical, professional, and managerial tasks. It can handle interactive distribution, accounting, and inventory control for a small business as well as investment analysis and econometric modeling for a financial institution. It can provide educational resources for a school or a university department, financial records and accounting functions for a bank, or full text library capabilities for electronic or standard publishing applications.

As a departmental machine used in conjunction with DECnet software and Digital's office products, the VAX-11/730 can help coordinate and control all your information management tasks at the office level. The multiple functions of word processing, electronic mail, graphics, data retrieval, statistics, and applications programming are all available through the VAX-11/730 to help your office staff access data from across the organization, communicate ideas, analyze business decisions, and create letters, documents, or memos. In conjunction with the VAX information architecture software, it even allows the nontechnical end user to act as programmer and create solutions to specific tasks in ways previously unavailable at this level.

The same combination of VAX features and low price also means that the already large number of OEM-developed special systems will grow still larger. Particularly in such areas as process control, CAD/CAM, simulation, and seismic applications, the VAX-11/730 promises a widely expanded market for low-cost special purpose systems.

RLO2

The VAX-11/730 presents a full implementation of VAX family architecture and software in a very small system.

The VAX-11/730 computer incorporates all the architectural features of the larger VAX family members. Like them, it provides over two billion bytes of program space for each user. It uses the same VAX/VMS operating system to provide flexible priority, management, security, and accounting controls. There's a single set of commands for both batch and interactive jobs and a symbolic debugger for all languages. Different program modules can be written in different languages, system services can be called in any language, and any language can be called by any other language.

Program development and performance are further enhanced by a standard floating-point instruction set and an optional floating-point accelerator. In addition, you have available all the VAX industry-standard programming languages: BASIC, BLISS, C, COBOL, CORAL 66, DIBOL, DSM (Digital Standard Mumps), FORTRAN, Digital's own MACRO assembly language, PASCAL, and PL/I. Since there is no need to rewrite applications or routines when moving programs from one VAX system to another, your software investment is protected.

The VAX information architecture can help simplify the tasks of both programmers and end users by providing a unified modular system for storing and retrieving information.

These information management tools offer professionals and managers in office, manufacturing, engineering, laboratory, or other environments a variety of easy-to-use data resources.

Using the VAX-11 Common Data Dictionary (CDD), a product such as VAX-11 DATATRIEVE, for example, uses simple prompted instructions to provide high-level data query and reporting for both local and remote sites. It gives you fast, transparent access via DECnet to data on any VAX system, no matter how or where that data is stored. And it enables you to display complex information in the clearest, most meaningful fashion in tables, lists, or graphs.

The VAX-11 Forms Management System (FMS) further simplifies applications development. Powerful function-key editing operations help you develop and perfect even the most complex forms in only a few minutes. These information management modules and the others—the VAX-11 Record Management System (RMS) and the VAX-11 Data Base Management System (DBMS)—can be implemented all at once or in stages, as you need them.

Much of the applications software you may need is already available from our own software library or from independent vendors. Either way, any of the programs developed on the 6,000 VAX systems sold since 1978—VAX-11/782s, VAX-11/780s, and VAX-11/750s—can be run on the VAX-11/730. There is complete transportability of software, without conversion, among all members of the VAX family.

In distributed processing, smaller means bigger.

The VAX-11/730 can help you begin a distributed processing network or extend an existing one. Its small size means that distributed computers can be precisely matched to distributed applications. VAX satellite networks, using VAX-11/730s as local workstations, give you the opportunity to decentralize the interactive portions of your applications and to increase general purpose timesharing.

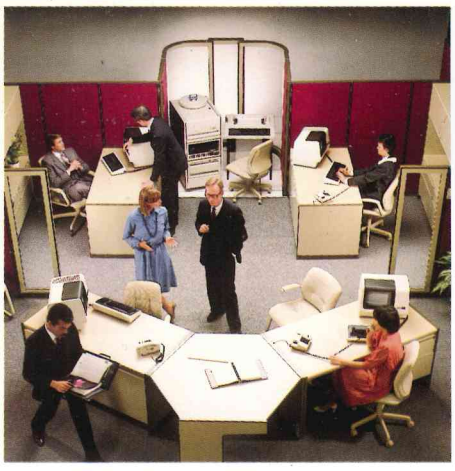
Large VAX systems support large programs and a large number of users. The VAX-11/730 can support equally large programs but a smaller number of users. All of these systems and programs, large and small, can be connected via DECnet to share resources and save program development, maintenance, and transfer costs.

The Digital Network Architecture (DNA) includes networking software for communication with other Digital systems, with mainframes, and over public networks. DECnet links Digital's 16-bit PDP-11 systems, 32-bit VAX systems, and 36-bit DECSYSTEM-20s. Internet software can connect Digital systems with other manufacturers' mainframe computers. Packetnet systems provide communication over public packet-switched networks. These networking products link realtime systems, word processing systems, computational systems, and data processing systems. The low-cost VAX-11/730 can bring all the resources of an extended computer system network down to the project level, where the work begins, without losing central control.

You can develop applications on a larger VAX and transfer them online to a VAX-11/730. You can use a number of VAX-11/730s for remote data acquisition and entry, realtime control, and local processing, while a larger VAX provides centralized data management. You can access data stored in files on a remote system and use it locally without transferring the entire file. And you can use VAX systems to offload time-critical applications from your mainframe.

Digital's networking software gives you complete flexibility. There are no prerequisite host systems, and our networks can be reconfigured quickly and easily to meet changing requirements. Advanced features such as network management from a single network command terminal and adaptive path routing help make it easier than ever to establish and maintain a distributed processing network. And since all network operations are completely transparent, the only real concern you'll have is the information at hand, not how to get it.

As with all Digital software, the DNA products are both an answer to your present communications needs and a safe investment in future development. Future technologies, such as the Ethernet local communications standard, will be fully supported by existing high-level DECnet capabilities.



The new VAX-11/730 packaging technology combines small size and VAX performance.

The VAX-11/730 is by far the smallest VAX yet. In fact, the 10.5-inch-high (26.6 cm) rack-mountable box model, designed for use by technical OEMs and special systems designers, is only one-third the size of the smallest comparable VAX-11/750 and is identical in size to the PDP-11/44 box.

Two packaged systems are available. Both include the CPU and two disk drives—either two removable-media RL02s or one RL02 and one Winchester-technology R80. Both stand only 41.8 inches high(106.2 cm), 21.3 inches wide (54.1 cm), and 31.5 inches deep (80 cm). In packaged systems, the VAX-11/730 complies with the Class A FCC test parameters of Chapter 15, Subchapter J. The two packaged systems are designed with different performance environments in mind. A Digital Software Service specialist can help you determine which one best fits your application needs.

The entire CPU is contained on three boards, and up to five Mbytes of memory are available. The key to the VAX-11/730's combination of size, performance, and low price is advanced packaging technology. Such compression of size is made possible in part by the use of 64K RAM chips, the current state of the art in memory technology. This means that with the VAX-11/730, larger programs can reside in memory and more programs can run concurrently than with most other comparable systems.

Two other hardware advances play equally important parts in producing the VAX-11/730 size/performance ratio. First is the DMF32 communications module, an intelligent VAX family DMA UNIBUS controller designed to support a combination of I/O devices on a single printed-circuit card. It actually serves as three controllers in one: as a DMA asynchronous multiplexer with eight transmit and receive lines, as a synchronous line with full modem control, and as a lineprinter (LP11) or general purpose parallel interface (DR11) controller. The net result is a savings in mounting space and cost, improved interrupt-service performance, high message throughput, and optimal high-speed printer communications.

Second, but no less impressive, is the Integrated Disk Controller (IDC). It is the standard VAX-11/730 system controller for up to four rack-mountable disks—either four ten-Mbyte RL02s or three RL02s and one 121-Mbyte R80. The IDC utilizes a dedicated slot in the integrated processor box to achieve transfer rates comparable to the larger VAX-11/750. There is a UNIBUS (but no MASSBUS) on the VAX-11/730's backplane. Space for some UNIBUS attachments is provided in the processor box, and UNIBUS expander boxes mounted in a separate cabinet can provide even more peripheral device capacity.

The result is VAX performance in a small package, one that can give you a low-cost entry into 32-bit computing or an affordable way to expand your distributed processing network.

Digital delivers worldwide service for the VAX-11/730.

VAX performance is coupled with VAX reliability. The VAX-11/730's new customer-runnable diagnostic software can be run in only 15 minutes to help you correct a simple error or oversight, such as not loading a disk, or to isolate a more complex problem for correction by a Digital representative. Using remote diagnosis technology, remote support and remote hardware monitoring services are also available to help provide immediate answers to immediate problems and to support a preventive maintenance program that can pinpoint potential problems while they're still potential.

But reliability means more than having diagnostic software and innovative hardware. Digital has over 16,000 people in Field Service, Software Service, and Educational Services. We can provide you with the comprehensive customer support that's necessary when you're dealing with large, complex applications—even with large, complex applications on a very compact, reliable VAX-11/730.

VAX-11/730 CPU Specifications

Logic:
›Programmed Array Logic Technology
›Circuit Density—Large Scale Integration (LSI)

Size (H x W x D):
›26.6 x 47 x 66 cm
›(10.5 x 18.5 x 22 in)

Data Transfers:
›32 bits

Maximum Weight:
›45.5 kg (100 lb)

Power Requirements:
›Single Phase
›120 Vac 60 H_7
›240 Vac 50 H_7

Maximum Power Consumption:
›400 Watts

Maximum Heat Dissipation:
›403.2 kcal/h (1600 Btu/h)

Effective Memory Access Time:
›810 ns

Physical Memory:
›Maximum of 5 Megabytes
›7-bit Error-Correcting Code/32 bits

I/O Ports:
›1 UNIBUS™

Maximum UNIBUS Throughput:
›1.5 MB/s

Console Subsystem:
›180 char/s Hardcopy Terminal
›Two 256 KB Cartridge Tape Drives

Supported Devices:
Disks
›124 MB Fixed
›28 MB Cartridge
›10 MB Cartridge

Magnetic Tapes
›9-track, 1600 b/in, 45 in/s

Lineprinters:
›285-1200 l/min.

Card Readers
›285, 600 cards/min

Terminals
›Video
›Hardcopy 30 to 180 char/s

Communication Lines
›Asynchronous up to 19,200 b/s
›Synchronous up to 1,000,000 b/s

VAX Software

Operating System:
VAX/VMS
›Virtual Memory Management
›System Services
›Input/Output Device Drivers
›User Authorization Control Program
›Digital Command Language

Programming Languages:
›FORTRAN
›COBOL
›BASIC
›PL/1
›PASCAL
›CORAL 66
›BLISS
›MACRO
›DSM (Mumps)
›DIBOL
›C

Program Development Services:
›Interactive Editors
›Linker with Cross Reference
›Interactive Symbolic Debugger
›Remote Terminal Capability
›Multiqueue/Multistream Batch Processing
›Run-Time Library

Realtime Services:
›32 Priority Levels
›Event-Driven Scheduling
›Scheduling/Priority Memory Lock
›Page/Process Memory Lock
›User-Written Device Driver Support
›Application Code Connect-to-Interrupt
›User-Written System Service Support
›Interprocess Communication

Timesharing Services:
›32 Priority Levels
›16 Levels with VAX/VMS Adaptive Scheduling
›User Account Statistics
›User Resource Quotas
›User Privilege Control

Data Communication Services:
›DECnet™ Networking Software
›2780/3780 Protocol Emulator
›MUX200 Protocol Emulator
›3271 Protocol Emulator
›Packetnet (x.25) System Interface

Data Management Services:
›Record Management Services including Multikey ISAM
›Volume, Directory, and File Security
›DATATRIEVE Query and Report Writer
›FMS Interactive Screen Format System
›Database Management System
›Common Data Dictionary
›Electronic Mail

Diagnostic Support:
›Automatic Error Logging
›User Environmental Test Package
›Online Diagnostics

Diagnostic Services:
›Customer Runnable Diagnostic Software
›Remote Support
›Remote Hardware Monitoring

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