

DEC 4000 AXP Servers

21st Century Computing for Single or Multiple Users Starts Today

digital



**Putting
Imagination
to Work...**

*Implementing
Open Client/Server
Solutions*

Digital's DEC 4000 AXP™ Servers provide solutions in a world that requires every organization to do more with less. Whether the challenge is to increase performance in compute-intensive applications or to increase productivity in database applications, the DEC 4000 AXP systems deliver.

Incorporating Digital's breakthrough Alpha AXP 64-bit RISC microprocessor, the DEC 4000 AXP system features exceptional uniprocessor power and symmetric multiprocessing (SMP) capabilities. And with Futurebus+ I/O rates of 160 MB per second, the DEC 4000 AXP systems become truly balanced systems.

The DEC 4000 AXP systems are available in a "go anywhere" pedestal and an industry-standard rackmount configuration. Designed for maximum expandability, these systems can be tailored to your application requirements. Thousands of software products are available from Digital and third-party application providers.

As your organization downsizes and takes advantage of the cost savings and efficiency gains of distributed computing, DEC 4000 AXP systems can be an important part of your strategy. They drive higher performance and productivity into your power-hungry technical or business applications — helping you achieve a clear advantage today while providing a secure growth path into the next century.

DEC 4000 AXP System Highlights

- Balanced performance
- Digital open operating system of choice
- High-capacity, integrated system I/O
- Flexible packaging
- High availability features
- Easy upgrade procedures
- Integration in multivendor environments
- Easy expandability

Enhanced Power and Performance

The DEC 4000 AXP system features exceptional power balanced with capabilities that makes high performance available to a broader population of users than ever before. And system performance can be nearly doubled when a DEC 4000 AXP system is configured with two CPUs running in symmetric multiprocessing mode.

The DEC 4000 AXP system's memory subsystem is tightly integrated with the system architecture. Maximum memory is a substantial 512 MB today — with 2 GB available in the future. A 128-bit super-high-speed system bus provides memory access. The bus eliminates bottlenecks and allows additional performance boosts through memory interleaving.

Support for Multiple Operating Environments

The DEC 4000 AXP system supports both DEC OSF/1™ AXP — a standards-compliant UNIX® operating environment and OpenVMS AXP — an industry-compliant open operating environment. The system accelerates

OpenVMS solutions to previously unachievable performance levels and, when running DEC OSF/1, offers the industry's highest-performance UNIX platform for a distributed computing environment.

Most existing OpenVMS and ULTRIX applications can be ported to the DEC 4000 AXP system by simply recompiling and relinking. Digital offers a range of tools, training, consulting services and support to facilitate the migration of applications from Digital and non-Digital platforms to the high-performance DEC 4000 AXP system.

High-Capacity Integrated System I/O

Equipped with extraordinary throughput capabilities, the DEC 4000 AXP system offers a choice of integral I/O modules to meet varying application requirements, whether that requirement is the highest possible bandwidth to disk or high-speed networking.

For applications that require the highest possible bandwidth to disk, an I/O module is available that supports four fast SCSI-2 buses, each of which can operate at up to 10 MB/s — with a total sustained throughput of up to 25 MB/s.

The DEC 4000 AXP system also incorporates six Futurebus+ (Profile B) slots for system expansion supported by a growing number of peripheral vendors around the world. Customers can choose from a broad variety of network adapters including FDDI and Genroco's Futurebus+™ velocitor IPI disk controller, as well as a variety of bus bridges and other vendor supplied adapters.

Flexible Packaging

The DEC 4000 AXP system is available in two packages, each optimal for different installation needs. The pedestal package internal storage is limited to less than 25% of the maximum storage supported by its built-in disk controller. Expansion is horizontal by adding additional disk storage cabinets.

The rackmount package provides very high density disk storage in a small footprint. It also supports dual systems in a single rack. All this in an attractive package suitable for an office environment or satellite equipment room.

High Availability Features

Clustering allows multiple computer systems to share disks for increased data availability. Distributing the computing load across multiple systems provides greater system uptime. The DEC 4000 AXP system supports Ethernet-based Local Area Clusters, a low-cost avenue to resource sharing, centralized system management, and increased data storage for workgroup users. With OpenVMS AXP V1.5, high-performance DSSI clustering can be configured with other DEC 4000 AXP systems or selected VAX systems. Other high availability features include ECC error detection and correction memory and optional Uninterruptible Power Supply (UPS).

Investment Protection

To maximize investments made in Digital server platforms, upgrading from current models to the new models has been made easy. In many cases, a simple exchange of the CPU board is all that is necessary. Because of the change in clock speeds, the CPU from the Model 710 cannot be used with a CPU from a Model 610 in a symmetrical multiprocessor environment.

However, all the components of existing Model 610/620 systems are preserved. This includes memory, disks, tapes and any Futurebus+ options already installed. The upgrade packages include all operating system upgrade licenses.

Simplifying Multivendor Integration

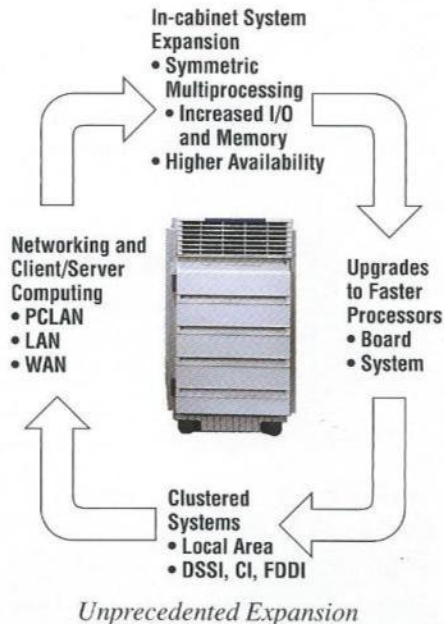
Digital's networking capabilities and standards-compliant software ensure that your DEC 4000 AXP system works seamlessly with your existing VAX and DECsystem computers — as well as with virtually any other vendor's systems.

Digital offers a wide array of products including PATHWORKS and DEC 4000 AXP ADVANTAGE-SERVER systems. The PATHWORKS family of PC LAN software enables you to connect systems running within ULTRIX, OpenVMS, MS-DOS®, OS/2™, Macintosh®, NetWare®, and Banyan® VINES® operating environments. DEC 4000 AXP ADVANTAGE-SERVER systems, the package-priced computing solution, is complete with memory, I/O controllers, disks, tape, and a wide variety of needed middleware software.

The DEC 4000 AXP system running DEC OSF/1 supports NFS® and will soon support Prestoserve® for high-performance file sharing with a network of UNIX-based machines.

Easy Expandability

With the DEC 4000 AXP system, additional users can be supported easily by adding memory and disks. You can increase memory from 64 MB to 512 MB and expand internal disk storage to 32 GB. And disk storage capacity can be extended to 99.6 GB with external disks, to accommodate your needs as they grow. With the availability of Futurebus+ storage adapters, additional storage expansion



into the terabyte range with industry-leading performance is possible.

The DEC 4000 AXP system supports Digital's SF100, SF200, and SF210 Storage Array Subsystems in separate enclosures. These expansion cabinets can be loaded with DSSI storage disks and tapes to keep pace with your workload requirements.

The DEC 4000 AXP System in Technology-Intensive Industries

The DEC 4000 AXP system supports the development of tomorrow's scientific and technical applications, handling the processing of increasing amounts of data, while delivering the capabilities for real-time decision making. The system leads CPU-intensive applications, such as seismic analysis, CAD/CAM, and simulations, to new performance frontiers. And emerging applications such as multimedia, imaging, complex document processing, and visualization will be well served by the performance of this powerful system.

For government and industrial users, the DEC 4000 AXP system delivers the computer resources needed to meet the requirement for continued improvements in technology.

Highlights

- New levels of support for applications development
- Price/performance that translates into dollars saved
- Greater memory and address space for enhanced processing

The DEC 4000 AXP System in Commercial Environments

Across all service and retail industries, and within an organization's departments, the ability to manage and analyze increasing amounts of data cost-effectively is key to superior customer service and decision support. The systems that deliver the data must provide excellent price/performance in order to make them affordable by many departments, without eroding shrinking profit margins. The new DEC 4000 AXP Model 710 system increases the speed and capacity for handling large databases, with the price/performance to easily justify the purchase.

Highlights

- Client/server system to support new computing options
- Software development and database environment for applications building
- Database building and access
- Symmetric multiprocessing

For Further Information

For more information about the DEC 4000 AXP systems and servers, contact your local Digital sales representative.

DEC 4000 AXP Specifications

Model	610	620	710	720
Number of processors	1	2	1	2
OpenVMS Performance				
TPS (est.)	183	—	300	—
SPECint92	83.6	—	93.8	—
SPECfp92	143.1	—	188.4	—
SPECrate_int92	1,921	3,696	2,201	4,343
SPECrate_fp92	3,318	6,214	4,414	8,344
LINPACK 1000×1000 (DP MFLOPS)	113.5	—	—	—
DEC OSF/1 Performance				
TPS (est.)	—	—	—	—
SPECint92	95	—	113.6	—
SPECfp92	137.6	—	185.4	—
SPECrate_int92	2,198	—	—	—
SPECrate_fp92	3,247	—	—	—
LINPACK 1000×1000 (DP MFLOPS)	110	—	145.6	—
Operating Systems	OpenVMS AXP, DEC OSF/1 AXP			
CPU Clock Speed	DECchip 21064/160 MHz		DECchip 21064/190MHz	
Cache Size on chip/board	16 KB/1 MB per processor (600), 4 MB processor (700)			
In-cabinet CPU Upgrade	Model 610 upgrades to Model 620 and Model 710; Model 620 upgrades to Model 710; Model 710 upgrades to Model 720			
High-Speed System Interconnect	640 MB/s peak			
I/O Features				
Maximum Memory Capacity	512 MB/2 GB			
Maximum Disk Capacity	32 GB/100 GB			
Maximum I/O Bandwidth	160 MB/s (Futurebus+) 50 MB/s (local storage bus)			
I/O Support	Futurebus+, SCSI-2, DSSI, FDDI* Prestoserve*, Ethernet, HiPPI*, IPI*, VME			
Cluster Support (OpenVMS)	Ethernet, DSSI, FDDI			
High Availability Features Supported	Disk Shadowing, Journaling, Integrated Uninterruptible Power System, Disk Warm Swap,* POLYCENTER Advanced File System (DEC OSF/1)			
Operating Environment				
Temperature	10°C – 35°C (50°F – 95°F)			
Humidity	20% – 80%			
Altitude	2,400 m (8,000 ft)			
Maximum Heat Dissipation†	4,774 Btu/h @ 1,400 watts			
Power Requirements	120 VAC/20 amp/60 Hz, 240 VAC/10 amp/50 Hz			
Phases	Single phase power			
Maximum AC Power	1,650 watts			
Physical Characteristics				
Dimensions (Pedestal)	Height: 883 mm (35 in) Depth: 775 mm (31 in)		Width: 499 mm (20 in) Weight: 124 kg (275 lb) max	

* Available with upcoming operating system release

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