HP AlphaServer systems

Power, performance, investment protection

Solutions for the adaptive enterprise.

hp invent

HP AlphaServer systems: delivering value to your Adaptive Enterprise

HP AlphaServer GS1280 system | HP AlphaServer ES80 system | HP AlphaServer ES47 system | HP AlphaServer ES45 system | HP AlphaServer DS25 system | HP AlphaServer DS15 system | HP AlphaServer TS15 system

"We have had a long standing history with HP AlphaServer Technology. With each AlphaServer update, the servers continue to offer better price performance and scalability. These are major benefits to our success in offering exceptional healthcare solutions to our clients. HP AlphaServer systems and OpenVMS continue to advance, providing the power we need for today and tomorrow."
Rod Coombs, Vice President Technology Management
Cerner Corporation

HP AlphaServer systems: building on more than a decade of technology leadership

HP AlphaServer systems have provided high availability with superior clustering and the ability to run bulletproof operations to enterprise-wide computing environments for years. Now they deliver more simplicity, agility, and value than ever, as HP continues to deliver performance enhancements to meet your needs today while establishing a foundation that will enable your environment to embrace change and adapt to future technologies.

Building on more than a decade of technology leadership, HP AlphaServer systems are synchronized with today's fast-paced and ever-changing business environment to deliver a demonstrable return on your IT investment. HP AlphaServer systems—with industry-leading operating system choices of OpenVMS and Tru64 UNIX®—offer rock-solid reliability, improved application availability and performance, unparalleled security, aggressive price/performance, simplified management, and increased flexibility. HP AlphaServer systems offer attractive top-of-the-line solutions and a clear evolution path to the HP Integrity server platform.

HP AlphaServer systems are faster and more powerful than ever

For years, HP AlphaServer systems have been reliable, workhorse performers that have met and exceeded your IT demands. From entry level to high end, HP AlphaServer systems have delivered all the "abilities" you require: reliability, availability, manageability, scalability, and superior clustering capability.

Now, they're faster and more powerful than ever—with an even stronger, more flexible foundation—enabling you to handle today's challenges along with the adaptability to embrace tomorrow's technologies. HP's strategic commitment to the entire product includes enhanced EV7-based, binary-compatible Alpha processors in the midrange systems and EV7z-based processors in high-end systems.

HP AlphaServer systems continue to enable you to leverage your investments in applications running on OpenVMS, Tru64 UNIX, or Linux® operating systems. Engineered to integrate seamlessly into a homogeneous or mixed computing environment, HP AlphaServer systems provide simplified management ability to run bulletproof operations and improve your company's bottom line by promoting:

- Investment protection
- Long-term growth
- Business continuity
- Improved service levels
- Lower total cost of ownership (TCO)

HP understands how important it is to be able to rely on the information technology that has served you so well for so long. By delivering on promised performance enhancements to HP AlphaServer systems such as faster EV7 processors, new storage solutions, and support for new options and peripherals, HP continues to demonstrate its strong commitment to your IT requirements.

"HP AlphaServers are a real powerhouse for our various bioinformatics projects, especially when configured as a Tru64 UNIX cluster. We use a combination of AlphaServer GS1280 and ES45 systems to provide a very fast and reliable platform for numerically intensive computing, database servers, and for providing Web services to a large community of researchers. AlphaServers just can't be beat for this mix of applications."
Dr. Tom Ferrin, Director, Resource for Biocomputing, Visualization, and Informatics at the University of California–San Francisco

HP AlphaServer systems help you mitigate risk and manage costs

HP AlphaServer systems continue to be an ideal high-tech, low-cost solution to support your mission-critical applications, helping you to meet new and changing demands across the enterprise. And because the evolutionary path to HP Integrity servers is well defined—allowing you to evolve when you are ready—your business is better able to mitigate risk and manage costs.

HP AlphaServer systems deliver outstanding business value for your real business needs. From the entry-level, single-processor AlphaServer DS15 system to the high-end, 64-processor GS1280 system, HP AlphaServer systems offer you modular building blocks for the future and deliver the same set of core capabilities, including:

- Robust and cost-effective clustering
- Dynamic, multipath I/O—providing for a reliable, scalable I/O subsystem
- Support for OpenVMS and Tru64 UNIX operating systems

HP AlphaServer systems provide the simplicity, agility, and value that enable an Adaptive Enterprise: business and IT synchronized to capitalize on change.

Faster-than-ever EV7 processors streamline intense workloads

The EV7 Alpha processors, each containing more than 150 million circuits to drive performance as high as possible, demonstrate HP's commitment to keeping HP AlphaServer systems current. The EV7's blazing performance leadership was designed for the enterprise with compute-intensive workloads. The higher-speed EV7z processor for the AlphaServer GS1280 system, and the EV7 processor for the AlphaServer ES80 and ES47 systems, can handle all planned and unexpected growth in your compute loads. And, of course, they'll run your applications faster and more smoothly.

All EV7-based AlphaServer systems also feature enhanced Reliability, Availability, Serviceability (RAS) capabilities through their innovative switchless mesh architecture, which dramatically reduces the number of components and connections that could contribute to failure. Other innovative features such as RAID memory help avoid memory errors even as the amount of memory grows very large.

Empower your infrastructure efficiently and cost-effectively

HP AlphaServer systems provide continuous, secure operation; dynamic resource optimization; and automated, intelligent management. With HP AlphaServer systems, you also benefit from:

- Binary compatibility that runs the applications you are running now without change. They just run faster.
- Switchless mesh architecture for the EV7 systems, which removes roadblocks inside the box—no more intermediaries. Now, your data takes a straight line to its destination.
- Modular design that makes it easy to buy what you need today, so you can scale up or scale out tomorrow.
- High availability. Up to five nines (99.999%)—with standard HP products in conjunction with HP Services.
- The latest storage and backup technologies, with improved price/performance.
- Proven HP OpenVMS and HP Tru64 UNIX operating systems, bringing your IT environment greater availability through enhanced clustering, significant improvements in I/O and SMP performance, expanded security, more effective and efficient system management, improved storage subsystems, efficient e-business solutions, and advanced capabilities to extend interoperability and performance.
- Advanced flexibility for all the EV7 systems (AlphaServer GS1280, ES80, and ES47 systems), with hard partitioning that eliminates single points of failure—whether brought on by hardware or software errors. Plus, scheduled downtime will be extinct when you combine clusters with proactive management of major system components, and true hot-swap for everything else.
- Full support of the Alpha RetainTrust Program, designed to provide a seamless evolution from the AlphaServer platform to HP Integrity servers.

Extend the power of HP OpenVMS and Tru64 UNIX across AlphaServer systems

The latest versions of the HP OpenVMS and Tru64 UNIX operating systems have been enhanced to take advantage of the AlphaServer systems' faster processing speeds. HP OpenVMS and Tru64 UNIX operating systems continue to provide robust, secure, scalable, and flexible information management capabilities in environments driven by relentless, unpredictable, and accelerating change.

OpenVMS

For more than 25 years, HP OpenVMS has met or exceeded the world's most challenging IT demands. From the beginning, OpenVMS was designed to handle enormous amounts of information without interruption in the support of the world's most demanding industries. OpenVMS is employed by more than 10 million users in a world that never stands still. As new needs require you to consider new options, you will want to grow not just at the speed of technology, but at the speed of business as well.

"In the financial markets, you need systems that respond as quickly as traders make decisions. HP AlphaServer systems running OpenVMS provide the Korea Stock Exchange with the high availability, scalability, and rock-solid reliability demanded by our business. The new AlphaServer GS1280 and ES45 systems are in our immediate plans. As we continue to look to the future, at consolidating systems and applications, we are very pleased that OpenVMS will also be available on industry-standard HP Integrity servers."
Yong Jin Park, Operation Team Manager, Korea Stock Exchange

OpenVMS continues to exceed expectations, to improve, and to provide an exceptionally robust, secure, scalable, and flexible information management capability in an environment that is driven by relentless, unpredictable, and accelerating change.

The power to meet the most demanding pressures for business-critical markets such as financial services, manufacturing, healthcare, telecommunications, and government makes OpenVMS indispensable. OpenVMS delivers the ability to maintain a seamless connection between business demands and IT performance.

And now, the OpenVMS hallmarks of availability, scalability, reliability, and security are available on the HP Integrity server line as well as HP AlphaServer systems. Starting with OpenVMS v8.2, a single source code for both AlphaServer systems and Integrity servers allows all non-hardware-dependent enhancements to continue to be released simultaneously on both platforms. Because of this, your AlphaServer systems investment is fully preserved even as you expand your capabilities with the addition of HP Integrity servers. And as with earlier versions, the base infrastructure technologies needed to support e-business applications are incorporated into the HP OpenVMS license, so the HP OpenVMS operating system is e-business and Internet-ready. To learn more, go to **www.hp.com/go/openvms**

Tru64 UNIX
Tru64 UNIX is the enterprise UNIX operating environment for HP AlphaServer systems, delivering the strong availability, manageability, security, and performance HP AlphaServer systems customers have come to depend upon. TruCluster technology, and its corresponding log-based file system AdvFS, add even more value to Tru64 UNIX clusters by delivering high availability and scale-out performance while lowering the management costs of a cluster.

For longest term support and lowest costs, upgrade your existing systems to the current version of Tru64 UNIX, and cluster where you have two or more AlphaServer systems. When your business needs require, the Alpha RetainTrust program delivers training, free software license swap, and software migration aids that make HP-UX 11i an exceptionally cost-effective destination enterprise UNIX.
www.hp.com/go/tru64unix

Strong partnerships with industry-leading ISVs

HP AlphaServer systems deliver complete solutions to your IT environment. With the long-term commitment of key ISVs to the AlphaServer platform—including BEA Systems, Oracle®, SAP, and PeopleSoft—you're ready to take on your enterprise's most challenging IT tasks.

In addition, software developers continue to design and create applications for HP AlphaServer systems to help you run your enterprise more smoothly and cost-efficiently.

HP AlphaServer systems with HP StorageWorks solutions

Delivering more for the Adaptive Enterprise
As the worldwide leader in storage, HP delivers one of the broadest product portfolios in the industry. The HP StorageWorks portfolio includes disk arrays, integrated management software, tape devices, and storage area network (SAN) infrastructures.

HP StorageWorks solutions and AlphaServer systems offer best-in-class, standalone functionality in any operating environment. Numerous best-in-class industry awards and customer successes clearly demonstrate the caliber of HP StorageWorks and AlphaServer products.

The combination of StorageWorks hardware and software, AlphaServer systems, and HP Services allow you to gain more control of your data center and overall business with more efficiency and stability—while reducing costs. HP StorageWorks solutions extend the investment protection, virtualization, consolidation, and unified management capabilities of HP AlphaServer systems across your entire enterprise, providing a lower TCO and a better return on investment.

HP Services for AlphaServer systems

Committed to the success of your enterprise

HP offers a full range of services to help you deploy your HP AlphaServer systems as seamlessly and painlessly as possible. We'll help you introduce your AlphaServer systems into your existing IT environment and fully support their potential to grow your business. We offer:

- Assessment services to define your requirements and chart a course to deployment
- Implementation services to install and configure your equipment
- Education services to provide your staff with the expertise required to achieve the highest levels of productivity
- Support services—from simple, reactive support to comprehensive, mission-critical services—to provide the availability and performance you need

Through our world-class methodologies, proven processes, IT expertise, advanced support technologies, and partnerships with industry leaders, HP Services can help you gain the full benefits from this technology. By utilizing HP Services' capabilities, you can maximize return, mitigate risk, improve performance, and increase agility—and improve the overall effectiveness of your IT environment.

To learn more about HP Services, visit **www.hp.com/hps**

HP Financial Services offer you a variety of choices to ease your burden

HP Financial Services' flexible financing options enhance the return on your investment by letting you purchase your HP AlphaServer systems over time. When you take advantage of our many financing options, you get the solution you need without a large capital outlay. You get all the financial, tax, and accounting benefits of leasing—without the risks associated with ownership. And you spread out your costs over time, so you pay for your solution as your reap its business benefits.

The HP AlphaServer Transition Lease offer[1] is one of our financing options enabling you to lease the most advanced AlphaServer systems on the market today and leverage built-in transition options to support your future technology needs. The AlphaServer Transition Lease gives you the industry-leading technology you need now and peace of mind knowing you're prepared to embrace the changes of future technology.

[1] The AlphaServer Transition Lease offer is available through Hewlett-Packard Financial Services Company (HPFSC) to qualified commercial customers and may not be available in all countries. The AlphaServer Transition Lease offer is subject to credit approval and execution of applicable HPFSC documentation. Other terms, conditions, and restrictions apply as per HPFSC documentation. HPFSC reserves the right to change or cancel this program at any time without notice. Please check with your local account representative for details on the availability of the AlphaServer Transition Lease offer.

"By consolidating on our new OpenVMS AlphaServer GS1280 systems, we will not only reduce administrative costs, but we will also be positioned to scale up, as Lutz adds thousands of users each year. We also plan to add HP Integrity servers in a few years and are delighted that HP has designed Integrity servers to integrate seamlessly with AlphaServer clusters."
Johann Stiglbrunner
Head of OpenVMS Department
Lutz

HP AlphaServer systems can handle your growing requirements

When HP refers to the Adaptive Enterprise, one of the essential principles we emphasize is the agility to meet new challenges and adopt new technologies—at your own pace. In addition to delivering a rock-solid foundation for your IT environment, HP AlphaServer systems provide outstanding value today and they provide for a smooth path forward when you are ready to make the move to HP Integrity servers.

You can be confident investing in AlphaServer systems. When the time is right, your AlphaServer systems will be able to seamlessly migrate to or integrate with Itanium®-based Integrity servers. These servers feature the industry's leading processor performance and the flexibility to choose the operating system that best fits your needs: OpenVMS, HP-UX, Windows®, and Linux.

The vast majority of HP's OpenVMS ISV partners have already committed to port their applications to OpenVMS on the HP Integrity server platform. Moreover, HP is now integrating the best features of Tru64 UNIX into HP-UX on Integrity servers to create the world's best enterprise UNIX.

So, as your needs evolve, you can continue to take advantage of world-class investment protection for your world-class IT environment.

HP AlphaServer systems deliver manageability, availability, and performance—at a price you can afford

Demand for high-performance and high-availability computing continues to grow regardless of business conditions. HP AlphaServer systems keep up with these demands from entry level to high end, delivering the reliability, power, and agility your enterprise requires to succeed.

High-end systems

HP AlphaServer GS1280 system

It's difficult to find a stronger, more reliable performer that provides better value than the HP AlphaServer GS1280 system. If the AlphaServer GS1280 system is already driving your IT, you already know what a powerhouse platform it is for telecommunications, business intelligence, business applications, high-performance technical computing (HPTC), and server consolidation. With up to 64 EV7z 1.3 GHz processors, HP AlphaServer GS1280 systems deliver up to three times the performance over previous 32-way systems.

While getting much more done with a lot less hardware, the HP AlphaServer GS1280 system has also proven the most reliable AlphaServer system ever designed. The high-level integration of the EV7 "system-on-a-chip" means dramatically fewer components and corresponding higher reliability. In fact, after almost two years of operation involving more than 600 systems in diverse locations throughout the world, the AlphaServer GS1280 system has proven to be the most reliable AlphaServer system ever.

The AlphaServer GS1280 system's ability to create partitions as small as two processors is yet another attribute that delivers increased flexibility and value. While the ability to partition is available on all EV7-based AlphaServer systems, HP AlphaServer GS1280 system partitions can virtually deliver up to 32 systems—depending upon the configuration you choose.

These partitions can run OpenVMS and Tru64 UNIX along with different applications. This gives you the ability to develop or test an application in one partition while other partitions handle your operational workload.

The HP AlphaServer GS1280 system proudly sits at the highest end of available servers and continues to be a widely popular solution for the most demanding enterprises.

Midrange systems

HP AlphaServer ES80 system

The HP AlphaServer ES80 system is a performance workhorse for your departmental-level needs, delivering unquestioned application and database reliability, stability, manageability, modularity, and value.

Powered by the EV7 1.15 GHz processor, the versatile AlphaServer ES80 system is available as a scalable 2-, 4-, 6-, or 8-processor rack system, packing all the power you'll need into a space-saving footprint. Adding to the AlphaServer ES80 system's flexibility is its ability to partition into one to four segments while running OpenVMS, Tru64 UNIX, or Linux.

Our customers have told us the AlphaServer ES80 system has exceeded their expectations in building commercial infrastructures, creating innovative digital special effects, processing mounds of database information—or offering the application performance and headroom necessary to keep their businesses running smoothly.

HP AlphaServer ES47 system

We've always liked to refer to the HP AlphaServer ES47 system as our workhorse wizard—because it effortlessly handles the large demands of an enterprise strained by IT resources. The AlphaServer ES47 system is a capable solution for dedicated application servers, Web servers, proxy servers, and mail servers, and for telecom and HPTC applications.

The versatile HP AlphaServer ES47 system is available in either a two-processor tower or a two- to four-processor rack system, and it gives you the industry-leading OS choices of OpenVMS, Tru64 UNIX, or Linux that you can build your environment around.

Powered by EV7 1.15 GHz processors with enhanced single-system availability, the AlphaServer ES47 system affirms HP's commitment to our AlphaServer customers. It builds on the already outstanding capabilities of the AlphaServer ES45 and ES40 systems.

HP AlphaServer ES45 system

The HP AlphaServer ES45 system is a powerful solution with the speed, power, and performance of a high-end system—at a midrange server price.

Powered by up to four 1.25 GHz EV68 Alpha processors with increased memory bandwidth, the AlphaServer ES45 system is perfect for demanding, resource-intensive applications such as Oracle, SAP, and SAS in e-business, and in telecom and HPTC. The AlphaServer ES45 system also offers hot-swap RAID storage and advanced clustering support, and it is OpenVMS, Tru64 UNIX, and Linux ready—adding to its great value.

Entry-level systems

HP AlphaServer DS25 system

When you need high-performance computing for business and telecommunications applications at a price you can afford, the HP AlphaServer DS25 system is the ideal fit. With up to two 1 GHz EV68 processors and 16 GB of memory, the AlphaServer DS25 system gives you power and expandability in a space-saving package.

The AlphaServer DS25 system balances performance and reliability features along with fast processors, large memory capacity, high memory bandwidth, and superior I/O. And when you deploy OpenVMS or Tru64 UNIX clusters, you get ultra-high availability with flexible and cost-effective management.

Other features include dual Ethernet and dual Ultra3 SCSI on the motherboard, plus hot-swappable disks, power, and cooling for high availability. In addition, you can scale out systems easily, adding a single node in minutes.

HP AlphaServer DS15 system

The HP AlphaServer DS15 system is an ideal entry-level solution for businesses and service providers requiring outstanding performance and reliability at a low price.

The system's switch-based architecture takes full advantage of the powerful 1 GHz Alpha processor, running your choice of OpenVMS or Tru64 UNIX with HP's renowned clustering capabilities. The switch-based system interconnect exploits the full potential of the Alpha chip.

You can take your choice of three rack cabinets and an internal or front-access storage cage. Plus, you can place up to 13 systems in the largest cabinet, or add more storage with StorageWorks shelves.

HP AlphaServer TS15 system

The HP AlphaServer TS15 system is designed specifically for the telecommunications sector, featuring a Network Equipment-Building System (NEBS)-certified package and outstanding configuration flexibility. Users can build their own system, add to existing rack cabinets, or add to an existing cluster. A NEBS cabinet enclosure supports up to 10 AlphaServer TS15 systems.

The AlphaServer TS15 system's switch-based architecture takes full advantage of the powerful 1 GHz Alpha processor, running your choice of OpenVMS or Tru64 UNIX with HP's renowned clustering capabilities.

HP Alpha RetainTrust Program: for your continuity and peace of mind

The HP Alpha RetainTrust (ART) program underscores HP's commitment to deliver long-term business continuity for AlphaServer system customers by easing the evolution to HP Integrity servers. The program includes transition planning and deployment tools, training, and working with the ISV community to support solution continuity and business practices to preserve the value of the AlphaServer ecosystem, and to allow customers to transition to Itanium®-based HP Integrity servers when their business needs require them to do so.

HP continues to deliver on its product commitments by:

- Delivering new EV7-based AlphaServer systems
- Porting OpenVMS and its layered products to HP Integrity servers and releasing OpenVMS 8.2 (release 2H '04), a source-compatible release for both AlphaServer systems and HP Integrity servers
- Focusing on increased Tru64 UNIX resiliency and performance while retaining 100% binary compatibility with version 5.1B throughout the rest of the Tru64 UNIX lifecycle—to ensure that our ISV partners can easily continue to support their software releases on Tru64 UNIX. HP will also add minor enhancements to support new devices (i.e., storage) on Tru64 UNIX.

Some customers will elect to transition to HP Integrity servers in the near term. To help them prepare for this transition, HP has developed a strong suite of complementary transition planning tools. For OpenVMS customers, the source code compatibility of OpenVMS 8.2 on AlphaServer systems and HP Integrity servers, plus the availability of the same development tools on both platforms, greatly simplifies the transition. Tru64 UNIX customers require more assistance to plan and implement their transition. Consequently, HP has developed complementary transition planning tools, including:

- Side-by-side "Tru64 UNIX & HP-UX 11i Differences" webinars to help customers understand the operational differences between the operating environments
- Transition Planning Modules (TPM), a series of planning and assessment documents providing the guidance that customers need to successfully transition from Tru64 UNIX to HP-UX 11i on HP Integrity servers. These TPMs focus on four areas: Platform Infrastructure, Custom Code Migration, Oracle Database, and Packaged Application transition.
- Tru64 UNIX–to–HP 11i Software Transition Kit, to help you identify and resolve compatibility issues between the Tru64 UNIX and HP-UX 11i operating systems
- ISV roadmap planning tools to help customers understand the availability of ISV software on all HP enterprise server platforms

From a financial and operational perspective, HP developed the Alpha Customer Assurance Program (ACAP) as part of the ART program to protect customers' investments and to provide the business practices that ensure solution continuity for our customers. This program includes the following elements:

- 100% money-back customer satisfaction guarantee on HP Integrity servers
- Technology refresh incentives and guaranteed trade-in values on HP AlphaServer systems
- Transition lease program for AlphaServer customers to smoothly transition to Integrity servers
- HP operating system software license trade-ins
- Support for ISV license transfers
- Transition planning tools, and design and implementation services

Please contact your HP account representative to verify that these programs are available in your country.

Invest confidently in HP AlphaServer systems

HP AlphaServer systems are renowned for their manageability, performance, scalability, and value. HP continues to dedicate support and make improvements to the entire AlphaServer family because these systems will continue to be vital components of your IT environment—even as you choose to deploy Itanium-based HP Integrity servers when your business needs require.

The need to maximize return, mitigate risk, improve performance, and increase agility will continue to grow as your business grows. HP AlphaServer systems are the logical, cost-efficient way for you to add capacity to your existing environment—especially when you compare it to the real costs associated with switching vendors: lost productivity, retraining your staff, reconfiguring your applications, and more.

HP AlphaServer systems are the right choice to enhance your IT infrastructure with the power, performance, and investment protection your business demands.

To learn more

For more information call your local HP reseller or visit: **www.hp.com/servers/alphaserver**

HP AlphaServer system family at-a-glance

	HP AlphaServer GS1280 system	HP AlphaServer ES80 system	HP AlphaServer ES47 system	HP AlphaServer ES45 system
Number of processors	2 to 64	2, 4, 6, or 8	2 tower, 2 or 4 rack	Up to 4
CPU/clock speed	AlphaChip EV7z/1.3 GHz, EV7/1.15 GHz	AlphaChip EV7/1.15 GHz, 1.0 GHz	AlphaChip EV7/1.15 GHz, 1.0 GHz	AlphaChip EV68/1.25 GHz
Performance				
SPECint_2000	994	882	882	928
SPECint_rate_2000	732 (64 CPU)	81 (8 CPU)	40 (4 CPU)	42 (4 CPU)
SPECfp_2000	1,684	1,494	1,494	1,365
SPECfp_rate_2000	1236 (64 CPU)	136 (8 CPU)	68 (4 CPU)	50 (4 CPU)
Packaging	Rack-mount	Rack-mount	Tower, 4U or 8U rack-mount	Tower, 8U rack-mount, pedestal
Maximum memory	Up to 512 GB (8 GB/processor) RAID memory optional	Up to 64 GB (8 GB/processor) RAID memory optional	Up to 32 GB (8 GB/processor) RAID memory optional	Model 1: 16 GB ECC Model 2, 3: 32 GB ECC
Maximum I/O bandwidth	222 GB/sec	24.5 GB/sec	12.3 GB/sec	1.85 GB/sec
I/O support	Up to 512 PCI-X slots, 192 PCI slots, 64 AGP 4X slots	Up to 52 PCI-X slots, 12 PCI slots, 8 AGP 4X slots	Tower: 5 PCI-X slots, 1 AGP 4X slot; Rack: Up to 26 PCI-X slots, 6 PCI slots, 4 AGP 4X slots	Model 1: 6 64-bit PCI slots, 1 AGP 4X slot, Model 2, 3: 10 64-bit PCI slots

	HP AlphaServer DS25 system	HP AlphaServer DS15 system	HP AlphaServer TS15 system—NEBS certified
Number of processors	Up to 2	1	1
CPU/clock speed	AlphaChip EV68/1.0 GHz	AlphaChip EV68/1.0 GHz	AlphaChip EV68/1.0 GHz
Performance			
SPECint_2000	678	631	631
SPECint_rate_2000	15.5	6.87	6.87
SPECfp_2000	985	876	876
SPECfp_rate_2000	21.5	9.43	9.43
Packaging	Tower, 5U rack-mount	3U rack-mount, desktop	3U rack-mount, desktop
Maximum memory	16 GB ECC	4 GB ECC	4 GB ECC
Maximum I/O bandwidth	1.85 GB/sec	528 MB/sec	528 MB/sec
I/O support	6 64-bit PCI slots	4 64-bit/33 MHz slots or 2 64-bit/66 MHz slots	4 64-bit/33 MHz slots or 2 64-bit/66 MHz slots

Clustering software

- When configured with Tru64 UNIX and TruCluster, AlphaServer systems provide automated failover and 99.999% availability and allow single-system management of multiple servers.
- OpenVMS Clusters can link together up to 96 AlphaServer or HP VAX systems spanning up to 500 miles into a virtual system that can share resources and ensure access to information and applications 24 hours a day, 365 days a year.

change + hp

To learn more, visit www.hp.com/servers/alphaserver

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