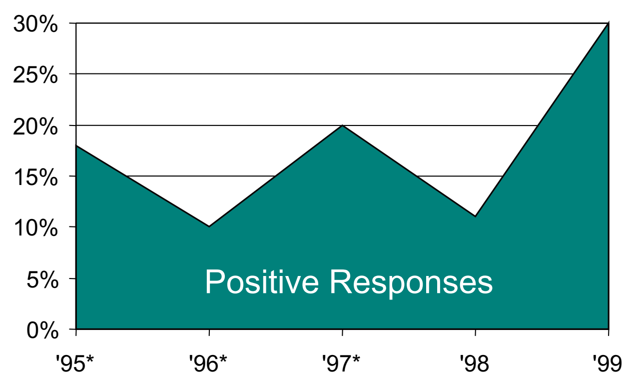
Turning Up The Heat

"O! for a Muse of fire, that would ascend. The brightest heaven of invention!"
-William Shakespeare, Henry V

Compaq is attacking the high-end Unix market with its latest GS Series AlphaServer. Three years in the making, Compaq's new high-end AlphaServer is expected to deliver mainframe-level performance with one of the lowest cost points of entry in the market. Compaq hopes the price/performance ratio of the new AlphaServer will make IBM, HP and Sun a little hot under the collar.

The GS Series AlphaServer spearheads Compaq's drive to gain share in the fiercely competitive high-end Unix server market. It's a lucrative market, one that Standish Group research shows has been growing for the past three years. Compaq is currently ranked fourth in the general Unix market (behind IBM, HP and Sun) in both purchase consideration and revenue. The new system's roots come from the distinguished Alpha bloodline. Compaq hopes to capitalize on its market recognition and the AlphaServer heritage to position this high-end system as the new competitive force in the performance arena. The Standish Group believes the GS Series AlphaServer may have the potential to propel Compaq up the Unix market ranks and gain market prominence, but it is going to have to prove itself worthy.

"For new/changing applications, would you consider Compaq's AlphaServer as your server hardware platform?"



*NOTE: Prior to 1998, our survey referenced Digital Equipmentís AlphaServer.

Figure 1. Compaq's AlphaServer product family turned a major corner in 1999. IT executives who responded to our 1999 DARTS survey said they viewed AlphaServer more positively and were giving greater consideration to the system as an enterprise platform for new or changing applications deployment.

As indicated in Figure 1, regard for Compaq's server technology is on the rise, topping 30% in 1999. With this in mind, Compaq is looking to offer a refined marketing message and unified direction. This includes introducing an enhanced product line for its high-end server strategy. By augmenting the strength of the existing AlphaServer platform, the company hopes to vie successfully with market perennials IBM, HP and Sun, who have their own high-end Unix server offerings in this space. Compaq is banking on the new GS AlphaServer to give the company a competitive boost in offering a full range of high-end hardware, software, services and solutions. However, becoming a top contender in an extremely aggressive market takes more than potential; it takes proof.

Overview

Compaq's GS Series platform is the newest addition to the high-end AlphaServer line. The new system is poised to enter the enterprise-level server space with a faster, more scalable design. Compaq will target enterprise data center operations and applications where the latest AlphaServer's scalability and multiprocessing power can be exploited.

The GS Series system's expandability supports rapidly growing IT environments typically found in ISPs, telcos and dot.com companies. Since up-time is crucial to these companies, this new system's high availability features will appeal to them. With its scalable, heterogeneous components, the GS Series platform can provide a high availability solution and simplify system administration by serving as a platform for server consolidation.

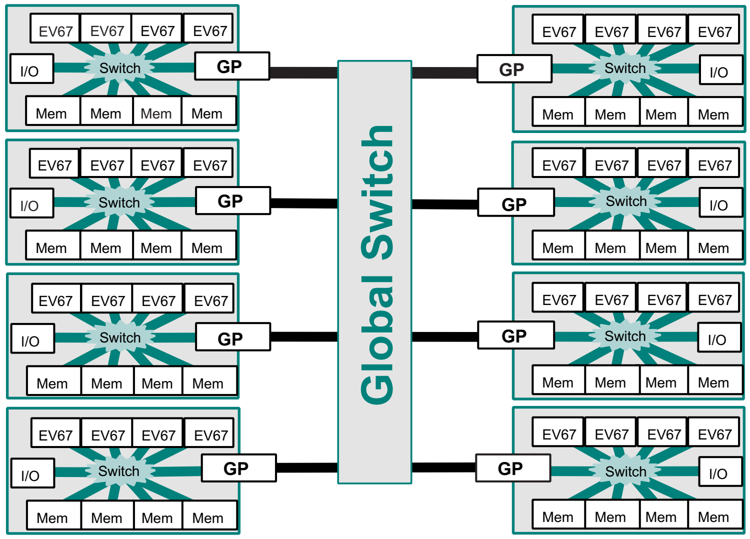


Figure 2. GS Series AlphaServer's High-End System Architecture.

The GS Series system is driven by its EV67 Alpha processor, which boasts a clock speed of 731 MHz. The new AlphaServer's modular design supports 8-way, 16-way and 32-way configurations and up to 256 GB of memory and 64 PCI buses. The central building component of its architecture is based on up to four EV67 processors, dubbed "quad building blocks". The new platform's integrated component design also enables seamless upgrades and facilitates more clustering options. A full duplex global port switch on each quad building block connects multiple quad building blocks together into larger configurations in a single cabinet stack. Compaq claims this 2-level, switch-based quad building block architecture is an advantage in delivering higher levels of aggregate bandwidth and lower latency issues. Consequently, this modular approach alleviates complexities associated with distributed memory configurations, such as NUMA (non-uniform memory access) architectures.

The new system will run the latest versions of Tru64 UNIX (both 4.0G and 5.1) including TruCluster Server, Open VMS (including Galaxy software) and eventually Linux. A key feature of the new platform is its ability to run single and multiple operating systems concurrently via hardware partitioning. The GS Series AlphaServer's quad building block design can support up to eight partitions in a 32-way configuration through the Intelligent Global Switch. Partitioning is implemented on a quad building block boundary. A multiple quad building block configuration can be partitioned to run multiple operating systems with multiple applications without disruption. This includes being able to perform operating system and application upgrades and running mixed workloads. Operating system partitions and workload management augments this capability. In addition, the AlphaServer's scalable architecture will merit serious attention from IT organizations that need to consolidate applications and servers to simplify and reduce costs of system administration.

MEETING THE DEMAND?

Does this high-end AlphaServer platform fulfill the needs of the IT community? Through tracking purchase trends, The Standish Group has devised a checklist of what IT buyers consider the most important factors in making a critical purchase decision. This section reviews how the new AlphaServer stacks up to these demands.

✓*Availability*

The Scenario: Scalable architecture and continuous availability have become much more than just purchase concerns or selling points; they are performance principles. The ability of a system to recover during both planned and unplanned outages is the quintessential business requirement.

The Response: Adaptive architecture is fundamental to this new generation of AlphaServers. It relies on its rugged engineering to deliver continuous levels of availability. Performance is insured with on-line repairs, hot swappable CPUs and hot-add memory capabilities for uninterrupted operation.

✓ *Scalability*

The Scenario: Architectures must be able to expand - and expand fast - to accommodate the growing IT environment. Size does matter, from numbers of CPUs to amount of storage space. Each component affects speed and performance.

The Response: The new AlphaServer's strongest feature is its scalable design. From 8-way up to 32-way configurations, the Alpha-powered GS Series can support up to 256GBs of memory space facilitating faster processing speeds with greater I/O bandwidth. The new modular design allows for low entry point and seamless upgrades, an investment advantage. The system's flexibility can even accept mixed speed CPUs in the same system. The new capacity-on-demand capability allows pre-configuring additional CPUs in a system and using them when the need arises.

✓ *Manageability*

The Scenario: IT purchase decision-makers seek manageable applications, data and systems for their computing environment. It is a challenge for organizations to operate high-performance, yet low-maintenance equipment. The influence of the Internet has made overseeing various installations critical and complex.

The Response: The GS Series promotes a viable and continuous operation through its open, scalable architecture with up to 32-way configurations. Using Tru64 UNIX with a TruCluster Server or OpenVMS with Galaxy software, users can access the information needed for supervising activities, tracking progress, making decisions and isolating and solving problems without interruption. This is achieved through the GS Series' continuous availability features like transparent failover and adaptive load balancing.

✓ *Service/Serviceability*

The Scenario: IT purchase decision-makers want a system that provides administrative accessories and functions. Service is measured on the quality of the service experience. Serviceability is measured on the features built into the system to allow for quick upgrades and repairs.

The Response: Compaq has greatly improved its serviceability with the introduction of the GS Series AlphaServer system. This new system promotes no single-point failure configurations with clustering, supports on-line repair and upgrades and reduces host interconnect hot spots. Compaq Services offers a comprehensive array of services for enterprise infrastructures and applications including: (1) high availability services that take a holistic approach to minimizing downtime by addressing all of the factors that affect availability beyond hardware and software; (2) performance, management and security services; (3) server consolidation services; and (4) pre-installation factory integration services.

✓ *Data Integrity and Transfer Reliability*

The Scenario: High-end systems need to be able to maintain the integrity of the data and data transfers through preventive measures like memory preservation controls. Insuring integrity is especially important for critical applications and systems that demand constant data accessibility, like ERP, financial systems and Computer Aided Dispatch emergency systems.

The Response: The new AlphaServer is built for speed and configured with memory data integrity protection measures like redundant I/O, hardware and environmental monitoring protocols, hot-add memory and redundant remote system management. The remote system management capabilities of the GS Series includes multiple redundant access paths for interrogating failed subsystems. Using Compaq's StorageWorks offerings and Storage Area Networks, storage resources can be allocated dynamically to the various partitions and connected via high performance, high integrity switched fiber.

✓ *Interoperability*

The Scenario: Multiple operating systems running multiple applications increase reliability and availability. A stable server environment can withstand the integration of additional applications without unduly taxing system performance. Interoperable platforms and systems are an economic alternative to supplementary servers, and they also provide clustering options.

The Response: Compaq's new server exploits its heterogeneous design to provide for top-notch interoperability. Currently, the GS Series system can support simultaneous operation of Tru64 UNIX and OpenVMS with strong Windows NT/Windows 2000 interoperability. Linux will be supported later on. This shared environment is optimal for server consolidation strategies as well. In addition, this new series of AlphaServers also supports multiple Alpha processor generations and are fully TruCluster Server and Galaxy compatible.

✓ *Total Cost of Ownership*

The Scenario: Managing a distributed environment is a costly venture, especially with many different applications running on a multitude of servers. Systems are constantly upgraded and expanded to meet business requirements. This expansion contributes to the cost of ownership and operation.

The Response: The new AlphaServer is a key component in Compaq's consolidation initiative. Employing the GS Series' quad building block configuration permits shared components, hardware and software partitions and running concurrent operating systems. The simultaneous operation of multiple applications and operating systems in a clustered environment can result in simplified administration and reduced management costs.

Beta Tester Profile

Pushed to the limit, IT organizations are scrambling for ways to do more with less. That was the business challenge at a major British telecommunications organization, which put Compaq's GS Series AlphaServer through a strenuous four-month beta test late last year.

The IT organization was charged with two responsibilities: increase system performance levels to their existing 6,000 users and build up the infrastructure to support eventually 10,000 to 15,000 users. IT management looked to this new high-end AlphaServer system to deliver the performance gains and expandability that would be needed to meet those requirements.

Their current IT system operates an on-line customer service and call center from 7AM to 8PM. After peak hours, the same system performs over 4,000 batch jobs overnight. In batch mode, the system completes nearly 30 base loads per week running an Oracle database. In addition, the organization's data warehouse is expanding rapidly and poses a major problem. The upshot is that the IT systems are vastly overloaded and running at almost 100% capacity nearly 24 hours a day.

The biggest issue that the IT department faces is having enough processing power to meet service levels during peak hours and also to handle batch jobs in off-peak hours. In some instances, batch jobs have overrun their allotted processing window and spilled into the on-line customer service and call center operations.

Upgrading the current system with a more powerful, scalable architecture to meet the demands for higher availability and greater performance was the obvious solution. The GS Series AlphaServer was expected to deliver the horsepower. IT personnel spent weeks running benchmarks and performing load tests on the new system. Finally, with the system tuned, IT technicians moved the overnight batch processing jobs onto the newer platform. Under actual conditions and workloads, the new GS Series system reduced CPU utilization from 100% to 33% while moving data loads five times faster and processing batch jobs twice as fast. Overall, the test team felt the new GS Series AlphaServer delivered very positive performance results.

Summary

Unity and continuity are Compaq's new mission parameters. The company is capitalizing on the strength of its technology and corporate realignment to promote solid product offerings from entry-level to enterprise-level environments. The company reinforced this initiative with the addition of the new GS Series platform to its high-end AlphaServer strategy.

The AlphaSever GS Series may be blazing the trail for the next generation of Alpha technology; however, it has a long way to go before setting the server world ablaze. Compaq faces stiff opposition from IBM, HP and Sun. All of these companies have their own established high-end Unix server lines. Compaq is the latecomer in this market space.

With the arrival of the GS Series platform, Compaq solidifies its stance in the high-end enterprise server marketplace. System highlights include an impressive modular design for rapid scalability, reliable architecture for complete solutions availability, the power of a high-performance Alpha processors for maximum performance and partitionable design for heterogeneous operation and management flexibility. This, combined with a comprehensive set of enterprise-level services and StorageWorks options, gives Compaq's new AlphaServer the potential to make the IT buying community hot to trot.

The Standish Group International, Inc. produces research advice based on extensive primary research in the area of mission-critical applications. The Standish Group provides this advice through the VirtualCOMPASS™ continuous information service. VirtualCOMPASS™ studies the requirements for developing, implementing and maintaining mission-critical applications.

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