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Compaq's AlphaServer Powers SAP's Most Demanding Business Intelligence and Supply Chain Applications

Most performance-savvy IT professionals know that Compaq's Alpha supercomputer is the industry leader in high-performance technical computing (HPTC). Now, the most demanding business-critical applications from SAP, the Business Information Warehouse (SAP BW) and Advanced Planner and Optimizer (SAP APO), are a perfect fit in the enterprise for Alpha's power.

#1 in Supercomputing

AlphaServer systems have established Compaq as the HPTC market leader. The U.S. Department of Energy, National Science Foundation, and others have selected Compaq to build the world's largest supercomputers. For applications ranging from nuclear test simulation to the mapping of the human genome, Alpha is all about power.

Business Applications Need Power, Too!

The Alpha systems product family is commonly associated with scientific "number crunching," but there is a new class of business computing requiring the same raw performance — CPU speed, large memory, and I/O throughput — as the most demanding HPTC applications. Complex analytical algorithms and very large databases characterize this new class of applications. Examples include mySAP Business Intelligence (BI) and Supply Chain Management (SCM), notably the SAP BW and SAP APO components.

The SAP market is hardly uncharted waters for Compaq — with a 30% total market share (number of SAP installations), it is

the leading hardware supplier for SAP R/3 systems.

BI: Supercomputing for Business

The strategic core of a Business Intelligence solution, such as mySAP BI, is the data warehouse (DW), a central data repository for an entire corporation. An effective DW must be built on a scalable infrastructure to support countless calculations, massive I/O processing, and terabyte storage. Compaq AlphaServer-based solutions provide the following key elements:

- the fastest single processor performance from Alpha;
- NUMA (non-uniform memory access) architecture that eliminates the bottlenecks of other multiprocessor designs;
- large in-memory database processing with native 64-bit support on the Tru64 Unix operating environment;
- Compaq StorageWorks fibre channel storage for terabyte databases and high I/O bandwidth; and

- support for parallel data access through Oracle Parallel Query.

Proof Points: World-Record Results

In January 2001, Compaq announced SAP BW performance that significantly exceeded previous results in every measurement captured by the benchmark suite. The 32-way Alpha GS320 loaded 114,509,804 rows per hour in the load phase, more than 36 times the previous leading result, and processed 207,323 navigational steps per hour in the query phase, 79% higher than the previous high. The benchmark required 1.3 terabytes of Compaq StorageWorks fibre channel disk storage.

In April 2001, the Alpha ES40 system with four 833 MHz EV68 processors demonstrated world-record performance for mid-range servers on the SAP BW benchmark. The new EV68 Alpha chip has been clocked up to 1.1 GHz and, with 8 MB memory, L2 cache, has set other benchmark records. The ES40 was the first RISC/Unix system to post TPC-C results below \$20 per tpmC.

Compaq has also exhibited the leading Intel-based SAP BW result on an 8-way ProLiant 8000 and has run more SAP BW benchmarks than any other SAP partner. The benchmarks provide necessary sizing and system configuration data to SAP customers and are indicative of Compaq's expertise and 32% leading market share with SAP BW.

SCM: Newest Application for Alpha

The demand and supply planning component of mySAP SCM — SAP APO

— was originally implemented for Windows only. Now, APO has been ported to Unix for performance reasons using Compaq's 64-bit development environment — 64-bit compilers and enterprise toolkit.

The key to SAP APO performance is the *liveCache* Server's ability to process SCM business objects in memory, thus reducing run times for SCM planning and optimization. The SAP BW benchmarks and Alpha's 64-bit technology indicate that the Alpha platform is extremely well-suited for the liveCache architecture and APO processing.

RAS Features and Ease of Management

Tru64 Unix has been highly rated for its reliability, availability, and serviceability (RAS) characteristics and for its cluster technology. The Compaq TruCluster Server allows multiple systems to be managed as a single system image and delivers high availability for critical applications. Both SAP and Oracle have recognized Compaq's outstanding cluster technology and are demonstrating new configurations on TruClusters.

Aberdeen Conclusions

Compaq is number one in HPTC and has demonstrated outstanding RAS capabilities with Tru64 Unix and TruClusters. Supply chain and business intelligence algorithms require a number-crunching, memory monster. The best choice for these 21st century supercomputing applications might just be Alpha — with its proven success in 20th century supercomputing.

— Robert Dorin