



Case Study

Intel® Itanium® 2 Processor
Retail
Business Intelligence



CompUSA Gets a Business Intelligence Boost with Microsoft SQL Server* 2005 and Itanium® 2-Based Server

As one of the nation's leading technology retailers of computers and home electronics, CompUSA* knows the value of technology. The retailer runs its business largely on Intel® technologies that support business-critical functions including a one terabyte data warehouse. Built on Microsoft SQL Server* 2000 (64-bit edition) and powered by the Intel® Itanium® 2 processor, this dynamic database provides near real-time information on everything from point-of-sale (POS) activity and inventory numbers to corporate financial data.

CompUSA also knows the business value companies can achieve by taking smart advantage of new technology solutions. So when Microsoft introduced a major upgrade with SQL Server 2005, CompUSA was quick to put the product to the test on the latest Intel Itanium 2 processor-based platforms. "Our data warehouse is mission critical," says IT Director Doug Gray. "We are going to be very interested in anything that makes it easier to extend our analytical capabilities within the company and provide information to more of our customers."

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Doug Gray
IT Director CompUSA

The Challenge

- CompUSA's original challenge was familiar to any large enterprise without a data warehouse: information silos made it difficult if not impossible to get a comprehensive and timely view of the business.
- CompUSA initiated a 32-bit data warehouse solution using Microsoft SQL Server 2000 on the Intel® Xeon® processor and populated it with POS information. As the company added data from multiple sources and extended reporting services to broader groups of users, the dramatically increased workload began to drain performance.

The Solution

- In 2003, CompUSA migrated to the 64-bit power of the Intel Itanium 2 processor and SQL Server 2000 (64-bit edition), experiencing a sevenfold increase in cube processing speed and ensuring a path to further scalability.
- Now, the company is working with Microsoft, Intel® Solution Services, Intel's worldwide professional services organization, and Business Intelligence software leader ProClarity* on a proof of concept (POC) to pave the way for a full migration in 2006. Migrating to SQL Server 2005 has been faster and easier than anticipated, and full-text searches are orders of magnitude faster than on SQL Server 2000 running on earlier generation Itanium 2-based servers.





SQL Server* 2005 adds rich, new analytical capabilities. Itanium® 2 processor-based platforms deliver superb performance and reliability.

Assessing the Situation

Like many IT managers, CompUSA's IT director is a straight shooter. "We have a great relationship with our vendors because we're up front with them," says Doug Gray. "If something doesn't work, we say so."

Microsoft SQL Server 2005, running on the latest Intel Itanium 2 processor with 9 MB of memory, is earning accolades based on the POC that Gray's team conducted at its Dallas-based headquarters with Intel, Microsoft and ProClarity. "Every time I talk to the team, it's: Wow! SQL Server* 2005 running on the latest generation Itanium® 2-based platform is better and faster every step of the way," Gray says. He expects the improvements – advanced analytics, greater scalability, optimized performance, a more robust development environment, and others – to deliver significant benefits for the giant retailer.

Maximizing Data Assets

CompUSA sells PCs, software, accessories and much more – everything from handhelds and video game consoles to DVD players and digital TVs. Shifting its retail mix to accommodate market changes, the company has recently beefed up its home electronics selection and launched Techknowledgist*, a national network of over 20,000 computer technology specialists who are available for in-store, residential and business-based appointments. CompUSA has also revved up its commitment to the small and mid-sized business segment and now provides a total office solution with the addition of paper, ink and more than 23,000 other office supplies.

Look at nearly any aspect of CompUSA's business, and Gray and his colleague, Dennis Naherny, Director of Enterprise Reporting, can tell you how the company's data warehouse helps the company manage that part of the business even better. And the POC is providing insights into ways in which SQL Server 2005, running on the latest Intel Itanium 2 processor-based servers, will add further value.

"Driving information delivery across the company is critical to our business success," says Naherny. "SQL Server 2005 and ProClarity 6.1, running on Intel Itanium 2 processors, will enable us to perform more sophisticated market basket and attach rate analysis, root cause analysis and trending analysis over time, which ultimately will help us reduce our operating expenses in a variety of areas."

Attach rate analysis on the data warehouse is helping CompUSA develop more profitable promotions. "When we run an ad, market basket and attachment analysis can help us see if we've got the right products in the ad, and if they're driving the sales of other items," says Naherny. "The advances in analytic capability and performance we're seeing in SQL Server 2005 on the latest Intel Itanium 2 processors will help us improve margins and make us more competitive in the future."

Root cause and trending analysis are enabling CompUSA to administer its warranty program more efficiently and improve its product mix by identifying and eliminating products that have a high return rate. Store managers can identify aging inventory and move it before it becomes distressed. Information is available so rapidly that when the company runs a Midnight Madness sale, it can analyze data from the East Coast and apply the learnings in the Midwest and West. Customer analytics extracted from the data warehouse are helping CompUSA better understand – and meet – the needs of the burgeoning small and mid-sized business market.

"The data warehouse drives growth, makes us more efficient and optimizes our operational excellence."

Doug Gray
IT Director CompUSA

Spotlight: CompUSA

- One of the nation's leading retailers and resellers of technology products and services
- Provides one-stop shopping for lifestyle solutions, blending expertise in technology and home entertainment
- More than 250 CompUSA Superstores in over 90 major metropolitan markets across the U.S. and Puerto Rico
- Headquartered in Dallas, Texas

Key Technologies

- HP Integrity* servers based on the Intel® Itanium® 2 processor
- Microsoft Windows* Server 2003
- Microsoft SQL Server 2000 in production, piloting SQL Server 2005
- ProClarity* 6.1 business analytics software
- Assessment of business needs, recommendation, and definition of migration path, and project management and solution platform optimization from Intel® Solution Services.

Integral Answers

- HP Integrity servers with the Intel Itanium 2 processor deliver performance and scalability for CompUSA's one terabyte data warehouse and its growing user base
- SQL Server 2005 provides next-generation data management and analysis, optimized for great performance on the Intel Itanium 2 processor's 64-bit architecture.
- ProClarity software enhances SQL Server Business Intelligence with market-leading analytic solutions.
- Expertise from Intel Solution Services, Intel's worldwide professional services organization, helps CompUSA prepare for successful adoption of new technology.

Delivering the Solution

CompUSA's migration to the 64-bit performance of the Intel® Itanium® 2 processor two years ago relieved the performance problems that had arisen as the demands on the 32-bit platform skyrocketed. Now, the company expects the Itanium 2 processor-based servers and SQL Server 2005 to take its business intelligence even further.

"We had gotten to a point where the original data warehouse was so underpowered, no one wanted to use it," recalls Naherny. "When we deployed Itanium 2-based servers, we overcame those problems, and usage has taken off. I expect it to go even higher with SQL Server 2005 on the latest Intel Itanium 2 processors."

Naherny's ultimate goal is for every employee to have a customized ProClarity dashboard. "If you can measure it, you can improve it," he says. "SQL Server 2005 and the performance of the Itanium 2-based platform will help us get to the point where all employees will be able to track their performance against their key performance indicators."

Smooth Path to Higher Performance

CompUSA's POC has met the company's expectations and offered one surprise. CompUSA expected that its deployment of SQL Server 2005 and Itanium 2-based systems would demonstrate great performance, and they have – even though the POC was too short to allow for performance tuning. SQL Server 2005 on the Intel Itanium 2 processor is showing dramatic speedups. Full-text searches are faster by several orders of magnitude compared to SQL 2000 on the earlier-generation Itanium 2-based server, according to CompUSA information architect Dong Shen.

CompUSA also anticipated powerful new features. Again, expectations were met, with the POC demonstrating capabilities that CompUSA believes will provide more power for users, enable IT operations improvements, simplify application development, and enhance security (see table). For example, SQL Server 2005 supports larger cubes and blurs the traditional separation between relational and OLAP processing.

This is enabling CompUSA to consolidate its Sales Analysis warehouse from six cubes to three, a move that will reduce management complexity and allow users to experience more of the "aha" moments that come from seeing data in new ways.

The surprise of the POC was how much faster and easier the migration to SQL Server 2005 proved to be. The POC required converting eight of CompUSA's Data Transformation Services (DTS) packages to the more powerful SQL Server Integration Services (SSIS). "We thought we would have to rewrite all the code and it would take two to three weeks," says John Gazdacka, Senior Staff Consulting Engineer at Intel Solution Services. "In fact, the Migration Tool helped out so much that it only took three days."

It all adds up to a significant impact on the bottom line. "The data warehouse helped us when resources were tight, and the new platform is going to make us even more efficient going forward," Gray says. "The data warehouse drives growth, makes us more efficient, and optimizes our operational excellence."

“On SQL Server* 2005 and the new Intel® Itanium® 2 processor, full-text searches are faster by several orders of magnitude compared to SQL 2000 on our earlier-generation Itanium 2-based server.”

Dong Shen
Information Architect
CompUSA

Capability	CompUSA Impact
1 Enhancements to Analysis Services enable users to include nearly any attribute in a view or report	Increasingly sophisticated business intelligence since CompUSA users can more quickly and easily analyze multiple attributes (such as SKU status, vendor number, and manufacturing part number).
2 Enhancements to the Unified Dimensional Model (UDM) enable OLAP and relational sources to be part of a single view	Using ProClarity* software, users can more powerfully combine variables and analyze patterns, such as comparing today's sales for 5-6 p.m. with the same date and time last year. Application development is also enhanced.
3 Improvements to Reporting Services	Users can create and customize reports more easily, and use centralized, automated reporting analysis to disseminate results rapidly. IT saves on the cost of producing custom reports.
4 Horizontal table and index partitioning of file groups in a database	Users get query responses faster, enhancing productivity. Database administrators can better manage complex tables.
5 Performance improvements in full text searches	Searches are faster by several orders of magnitude compared to SQL 2000 on an earlier-generation Itanium® 2-based server
6 Improved error-handling and native support for looping constructs in Integration Services - critical components are built-in and easily accessible without the need to create scripts.	CompUSA can develop new applications more quickly, enhancing business agility.
7 Usability improvements in Management Studio	Teams can collaborate more easily and the support environment is more robust, improving both end-user and IT effectiveness.
8 Ability to put multiple fact tables in a cube, removal of 64K-row limit in dimension levels	CompUSA can reduce the number of separate cubes it must manage and maintain, lowering management costs and complexity, simplifying application development, and boosting performance for business users.
9 70 new performance counters	Administrators gain better insight into database performance and resource usage and can maximize performance.
10 Native encryption	Enterprise security is enhanced.

CompUSA looks to Intel® technology roadmaps for advances that will meet tomorrow's business challenges.

CompUSA uses Intel technologies to power its business, and was an early adopter of the Intel Itanium 2 processor. "We run our enterprise on Intel – SAP* and pretty much everything else," says Gray. "We see nothing but upside from our choice of Intel platforms. We're saving roughly half the price of UNIX*RISC systems, and we've got a powerful and flexible foundation to run our business."

Gray also looks to Intel for the future. "Intel's roadmap looks out five years, and we look out five years for our business," he says. "We see a lot of innovation on that roadmap that matches up with where we're headed. We'll do a lease swap when the lease on our current systems comes up, and the new systems will definitely be Intel."

Return on Investment

- The Intel® Itanium® 2 processor's high-performance 64-bit architecture delivers power, scalability and availability to run CompUSA's data warehouse and make data accessible to more users. The one TB data warehouse gives CompUSA valuable insights into the business and fuels decisions that drive growth and make the company more efficient. And IT director Doug Gray says the costs are roughly half those of comparable RISC solutions.
- The latest Itanium 2-based servers running SQL Server* 2005 and ProClarity 6.1 are demonstrating their ability to help CompUSA make smarter, faster business decisions that will help the company reduce operations costs, increase business agility and deliver bottom-line impact.
- Expert assistance from Intel® Solution Services ensured a smooth proof-of-concept with a well-defined architecture and proven methodologies, enabling CompUSA to flatten out the speed bumps of technology transition and speed its time-to-value in adopting SQL Server 2005.

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