



## Case Study

### RISC replacement

Dual-Core Intel® Xeon®  
processors

Dual-Core Intel® Itanium®  
processors

# Accelerating SAP Response with Dual-Core Intel® Processors

**Air Products uses Dual-Core Intel® Xeon® and Dual-Core Intel® Itanium® processors to help employees around the world use SAP\* software more productively, simplify the IT infrastructure, and reduce support costs.**

- 
- Challenges**
- **Deploy more processing power** to support the added demands of extending the company's SAP environment into Asia and deploying Unicode\* for multiple local languages
  - **Simplify the infrastructure** to facilitate future expansion by moving toward a single architecture and operating system for the global computing environment

- 
- Solutions**
- **Accelerate performance:** Air Products is using Dual-Core Intel® Xeon® and Dual-Core Intel® Itanium® processors to deliver the performance needed to expand the SAP environment and improve application response time
  - **Standardize on Intel technology:** Air Products is migrating its diverse mainframe and RISC-based systems to a more unified infrastructure using Intel® technology-based servers and a single operating system; standardizing on Intel technology eliminates the cost of maintaining multiple IT teams trained on various server technologies

Air Products is a leading provider of specialty gases and chemicals, serving customers in industrial, energy, technology, and healthcare market segments around the world. Employees in more than 40 countries rely on the company's IT systems for the information they need to do their jobs, from processing sales orders to running computer-controlled gas separation equipment. To support its global manufacturing and business operations, the company uses an SAP\* environment deployed as a single system for all employees. Standardizing on Intel® processor-based servers to run that software has boosted SAP responsiveness and enabled the company to move toward a simpler, more flexible IT infrastructure.

# “We know that Intel® technology can help us address future business challenges, just as it’s helping us extend our SAP environment into new areas today.”

Bob Elward, Director, Client and Server Engineering, Air Products



**“We have plans to adopt Quad-Core Intel® Xeon® processors, which will enable us to put more processing power in the same data center space while also saving on power and cooling costs.”**

Bob Elward  
Director  
Client and Server Engineering  
Air Products

## Assessing the Situation

Air Products had deployed the SAP environment a region at a time over several years, running one instance worldwide to give all employees a consistent view of the same up-to-date data. But as the IT group prepared to extend the SAP environment to Asia, they decided they could no longer deliver the information in English only. “Even though English is our internal global business language, that doesn’t always work locally,” says Bob Elward, Air Products’ director of client and server engineering. “We found that a lot of the material for our Asia plants and customer delivery system had to be in Asian languages. The only way for us to support those character sets was with Unicode.”

Implementing the Unicode\* encoding system to accommodate multiple languages and alphabets—and upgrading the SAP environment to support the compute-intensive encoding—meant the company would need additional processing power. “With the added processing and storage demands of Unicode, we couldn’t run SAP on our existing mainframe computers without degrading the responsiveness of the software,” says Elward. “That opened up an opportunity to reassess some of our infrastructure.”

Air Products’ hardware infrastructure for SAP was mixed. The database at the heart of the SAP enterprise resource planning (ERP) application was running in the IBM DB2\* database environment on a mainframe computer. Another key piece of the solution, the SAP Advanced Planning & Optimization\* (SAP APO\*) component, was on a proprietary RISC-based platform running

## Key Technologies

- Dual-Core Intel® Xeon® processors
- Dual-Core Intel® Itanium® processors

the UNIX\* operating system. “As an IT team, we faced a decision,” says Elward. “We could either expand those environments or take the opportunity to move to a non-proprietary, standards-based architecture.”

An evaluation by the Air Products team showed that upgrading the aging, proprietary servers would not be cost-effective. “Not only were the RISC-based and proprietary systems expensive to purchase, but they were more costly to support over time,” says Elward. “We’d be forced to maintain multiple IT teams with knowledge of the various server technologies and operating systems.”

The IT group also wanted to drive toward a more unified infrastructure to simplify future expansion. Says Elward, “We concluded that it was best to move to a single architecture and operating system for our global environment, with standards-based platforms that would give us the flexibility to grow and adapt. With proprietary systems, we were concerned that our options would be limited when it came to selecting the fastest available processors or the best fit in hardware platforms.”



To power its systems, Air Products looked for a vendor with the best roadmap for future technology development. "We wanted to be able to take advantage of hardware advances, such as multiple processing cores, as they developed," Elward says. "Having access to a technology planning roadmap would help us better anticipate advances and how they might align with our business goals."

### Delivering the Solution

The Air Products team decided to move the two key SAP applications, ERP and APO, to Intel® technology-based servers running the Microsoft Windows\* operating system. "We had been using Intel technology-based servers in other parts of the enterprise environment, and they'd worked well for us," Elward says.

The group also looked at technology roadmaps. "Intel was clearly the leader in terms of multi-core processing, low power usage, and other server technologies we see as important for the future," Elward says. "We were confident that Intel Xeon and Intel Itanium processors would be the right choice now and for the long-term. We also knew that Intel works closely with Microsoft, SAP, and other software providers, so we wouldn't have to worry about compatibility issues."

To host the core SAP database, the IT team replaced the mainframe computer with HP Integrity\* rx8640 servers, each with 12 Dual-Core Intel Itanium 2 processors for 24 cores per server. In place of the RISC servers hosting SAP APO, the Air Products team deployed HP ProLiant\* DL380 G5 servers with 2-socket, Dual-Core Intel Xeon processors.

### Spotlight on Air Products

Air Products, which serves customers worldwide with a unique portfolio of atmospheric gases, process and specialty gases, specialty chemicals, and equipment and services, enjoyed record sales in fiscal 2007. On Fortune Magazine's 2007 Most Admired Companies list, Air Products is one of the top three companies in the chemical industry.

### Improved SAP Response Time

Results were dramatic. Together, the Intel technology-based servers enabled Air Products to implement Unicode without any loss of responsiveness in the SAP environment. In fact, response time actually improved, even with the added workload. "With the Dual-Core Intel Xeon and Dual-Core Intel Itanium processor-based servers, our average SAP response time went down by nearly 40 percent," says Elward. "That's a very substantial improvement with direct productivity benefits for employees using the system. Transactions go faster, so people can do their jobs more efficiently and stay focused on what they're doing."

The IT team received positive feedback from the company's management about the performance improvement and the very smooth transition to the new servers. "Overall, it's been a huge success. The conversion and the platform met all of our service-level agreement requirements for uptime, so we're very pleased from a reliability and availability standpoint as well," Elward says.

### A Cost-Effective Solution

Standardizing on Intel technology-based servers is also helping the Air Products team meet an ongoing corporate objective of driving down the IT operating budget as a percent of sales. "We get tremendous scale and simplicity, because our IT people only have

**"With the Dual-Core Intel® Xeon® and Dual-Core Intel® Itanium® processor-based servers, our average SAP response time went down by nearly 40 percent. That's a very substantial improvement with direct productivity benefits for employees using the system."**

Bob Elward  
Director  
Client and Server Engineering  
Air Products

to know about Intel and Windows technology to work on all of our server systems," Elward says. "I expect to see reductions in training, labor, and other IT support costs as a result."

### Building a Predictive Enterprise

Access to the Intel roadmap has helped Air Products further its goal of building a Predictive Enterprise, in which technology and businesses goals are well aligned. "As our business and IT requirements continue

to expand, we can scale our server performance as Intel scales its multi-core technology," Elward explains. "We know that Intel technology can help us address future business challenges, just as it's helping us extend our SAP environment into new areas today. We have plans to adopt Quad-Core Intel Xeon processors, which will enable us to put more processing power in the same data center space while also saving on power and cooling costs."



---

Find a business solution that is right for your company. Contact your Intel representative or visit the Intel®Business/Enterprise Web site at [intel.com/business](http://intel.com/business).

---

This document and the information given are for the convenience of Intel's customer base and are provided "AS IS" WITH NO WARRANTIES WHATSOEVER, EXPRESS OR IMPLIED, INCLUDING ANY IMPLIED WARRANTY OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, AND NON-INFRINGEMENT OF INTELLECTUAL PROPERTY RIGHTS. Receipt or possession of this document does not grant any license to any of the intellectual property described, displayed, or contained herein. Intel products are not intended for use in medical, life-saving, life-sustaining, critical control, or safety systems, or in nuclear facility applications.

Performance tests and ratings are measured using specific computer systems and/or components and reflect the approximate performance of Intel products as measured by those tests. Any difference in system hardware or software design or configuration may affect actual performance.

Intel may make changes to specifications, product descriptions and plans at any time, without notice.

Intel, the Intel logo, Intel Itanium, and Intel Xeon are trademarks or registered trademarks of Intel Corporation or its subsidiaries in the United States and other countries.

\*Other names and brands may be claimed as the property of others.

Copyright © 2007 Intel Corporation

1107/YMB/TDA/XX/PDF

318446-001US

