



Success Brief

Intel® Xeon® processor

7300 series

Manufacturing

Server migration

Driving infrastructure changes

The BMW Group benefits from migrating SAP environment to Intel® Xeon® processor 7300 series

With its brands BMW, MINI and Rolls-Royce, the BMW Group concentrates exclusively on the premium segments of the international automobile and motorcycle markets. With over 106,000 employees worldwide and 24 production sites in 13 countries, BMW Group's IT infrastructure is extensive and vital to the smooth running of the organisation. SAP enterprise software and business solutions form the backbone of this complex infrastructure and are used for a variety of mission-critical applications. These include: BMW Group's production and process workflow system, and those applications used for engine manufacturing, supply chain, logistics, financial services, human resources, marketing and other support functions. Increasingly complex management, spiralling costs and the restrictions of being tied to a proprietary system, prompted Intel to migrate BMW Group's worldwide SAP environment from a RISC infrastructure to an x86 server architecture based on the Intel® Xeon® processor 7300 series.

"The Intel® Xeon® processor 7300 series offers superior performance and much greater energy efficiency."

Danie Ventner,
SAP ISM co-ordinator,
BMW Group

Challenge

- **Migrating for the future.** Intel helped the BMW Group to simplify management and reduce the total cost of ownership of the server infrastructure powering its SAP enterprise software and business solutions.

Solution

- **Industry-standard x86 architecture.** Intel and the BMW Group deployed 400 IBM System x3650* and IBM System x3850* rack-mounted servers powered by the Intel® Xeon® processor 7300 series. This new x86-based architecture runs on a Linux operating system, alongside an Oracle 10g* database and replaces its old proprietary RISC-based infrastructure.

Impact

- **Far-reaching benefits.** The open standard Intel-based architecture is easier to manage, has greater flexibility and is easier to consolidate than the old infrastructure. It is more energy efficient and offers even greater computing performance. What's more, it is the ideal infrastructure for virtualisation. Ultimately, all these advantages lead to a much lower total cost of ownership.
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Intel® technology helps BMW Group reduce the total cost of ownership of its server infrastructure

Numerous UNIX-based servers with 400 IBM System x3650 and IBM System x3850 servers powered by the Intel® Xeon® processor 7300 series will be replaced. This new x86-based architecture runs on a Linux operating system, alongside an Oracle 10g database. Eighty servers have already been migrated, including those running its volume planning, warehouse, marketing, financial reporting, human resources and engine manufacturing systems. Consolidating onto standard Intel x86-based architecture removes the complexity associated with managing a multi-vendor RISC-based environment. Hardware utilisation has improved as it is now much easier to scale server resources to meet business need, and the new rack-mounted servers take up much less floor space than the old RISC systems.

The new infrastructure offers greater flexibility thanks to its open standards architecture. Previously, with the proprietary RISC systems, the BMW Group was tied to using UNIX hardware and a UNIX operating system. With the Intel-based architecture, it has the choice of any hardware or operating system vendor on the market, both now and in the future. This platform-independent infrastructure also makes future consolidation a lot simpler – the RISC systems ran on unique operating systems meaning they had to be migrated to a standard system prior to consolidation. Now, this is no longer the case.

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Spotlight: BMW Group

- Founded in 1916 as Bayerische Flugzeugwerke AG and later changed to Bayerische Motoren Werke AG, the company is now the world's leading premium manufacturer in the automotive industry
- The efficiency of the international BMW Group production network forms the basis for the continued growth of the company. With 24 production sites, the BMW Group is active in 13 countries
- In addition to the development, production and marketing of automobiles and motorcycles, the BMW Group offers its private and business customers a comprehensive range of financial services, including finance and leasing offers, insurance and capital investment offers



Virtualisation is a lot easier on the new architecture. Virtualising a RISC server is complex and costly, and would have tied BMW Group into a using proprietary virtualisation technology. For example, if BMW Group had virtualised its RISC infrastructure and then gone on to migrate to a new hardware platform it would also have had to update its virtualisation software. With the Intel-based architecture BMW Group is able to choose from any industry-standard software vendor. So far BMW Group has selected Xen* hypervisor to virtualise the servers running its billing system.

Performance has also increased. Together with Intel, BMW Group carried out an evaluation of the new server architecture. Using the SPECint CPU 2006 benchmark, it found that the Intel® Xeon® processor 7300 series performed 2.75-3X faster than the implemented RISC-based servers¹. In addition to this superior performance, the Intel® Xeon® processor 7300 series also offers greater energy efficiency. Based on the Intel® Core™ microarchitecture, it is manufactured using new materials such as hafnium-based high-k gate dielectrics and metal gates, which significantly reduces electrical leakage. In summary, BMW Group has since 2007 increased the number of servers deployed without increasing the power consumption as a result of these servers having lower levels of power consumption.

Together these benefits result in a lower total cost of ownership for the server infrastructure behind BMW Group's SAP enterprise software and business solutions.

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