CASE STUDY
Intel® Xeon® processor 5500 series
Enterprise Server

Gains through green IT

Intel® Xeon® processor 5500 series delivers environmental and cost benefits to Banca Monte dei Paschi di Siena

Since its founding in 1472 Banca Monte dei Paschi di Siena (MPS) has been a pioneer in sustainability. It continues this tradition today through the step-by-step introduction of green IT. Most recently it was keen to reduce the energy consumption of servers in its Siena data centre, replacing them with 352 new servers powered by the Intel® Xeon® processor X5570. By doing so, it has been able to reduce energy consumption by 1.3 million KWh per annum, equating to a cost saving of EUR 261,000 (USD 320,000) and a 648-tonne reduction in CO^2 emissions.

MONTE DEI PASCHI DI SIENA
BANK SINCE 1472

CHALLENGES

- **Sustainability programme.** Maintain reputation as a pioneer in the area of Corporate Social Responsibility by introducing a corporate green IT policy
- **Latest technology.** Refresh servers in the Siena data centre with more energy-efficient, high-performance technology

SOLUTIONS

- **Processor evaluation.** Assessed the performance of 256 previous-generation servers with 352 new servers powered by the Intel® Xeon® processor X5570
- **Power Usage Effectiveness (PUE).** Evaluation took into account amount of power entering the data centre versus the power used to run the data centre infrastructure

IMPACT

- **Reducing energy.** Replacing 256 previous-generation servers with a total of 352 new servers reduces energy consumption by 1.3 million KWh in one year, equating to annual cost saving of EUR 261,000 (USD 320,000) and a 648-tonne reduction in CO^2 emissions
- **Maintaining performance.** Intel Xeon processor 5500 series has 25 percent faster performance and caches 50 percent larger than the previous-generation Intel® Xeon® processor

"We are committed to reducing energy consumption, not only in our data centres but also across the whole corporate network."

Gianluca Pancaccini,
General Manager at the Consorzio Operativo Gruppo Montepaschi

Founding of an instituion

Colombo has not yet discovered America, at just twenty years of age Leonardo da Vinci is painting his first important work – the angel in the Battesimo di Cristo at the Uffizi – and all over Europe the exchange currency is the Tuscan Florin. It is 1472, and in Siena the Monte dei Paschi di Siena (MPS) – the oldest bank in the world – is founded.

As centuries pass, MPS is developing constantly, always in step with the times. In the Twentieth century it became an important company at national and then international level and during the nineties it was the first Italian bank to diversify its business into the insurance sector.

At the beginning of the new millennium, when it was listed on the Stock Exchange, it began an intense phase of territorial and operational expansion, characterised by acquisitions, strengthening of production structures and consolidation of activities.

In 2008, the acquisition of Banca Antonveneta placed MPS forever among the most important Italian banking groups at international level. With more than 32,000 employees in more than 3,000 branches, MPS currently offers its services to more than 6 million customers.

Significant reduction in energy consumption and carbon emissions

"The Intel® Xeon® processor 5500 series has enabled us to save 1.3 million kWh in one year – the equivalent of more than EUR 261,000 (USD 320,000)."

Luca Guzzabocca,
Head of the Costs and Logistics Area at MPS

A bank with social responsibility in its DNA

The secret of MPS's success is to grow, while maintaining a close link with local communities and playing an active role in supporting and enhancing the economic structures in which it works. These characteristics are part of the DNA of the bank, established by the magistratures of the ancient Republic of Siena, to give support to the needy classes and to support the city's economy. Today this is referred to as Corporate Social Responsibility – an area in which MPS has always been one of the pioneers in the Italian banking market segment.

For MPS the sustainability of its own activities is one of the cornerstones of a responsible approach. All the companies in the MPS Group are expected to make their contribution – a central role is naturally played by IT. The service company responsible for this area within the Group is called Consorzio Operativo Gruppo Montepaschi. It employs around 1,000 IT staff in five centres in Italy, including the two main data centres in Siena and Florence. In line with the general direction of the Group, the Consorzio Operativo Gruppo Montepaschi has been adopting a green IT approach for several years, introducing very strict parameters for assessing the energy efficiency of its supplies.

Processors, efficiency enablers

"We are committed to reducing energy consumption, not only in our data centres but across the whole corporate network," explains Gianluca Pancaccini, General Manager at the Consorzio Operativo Gruppo Montepaschi.

"We select products on the basis of a green approach. We measure and verify the results strategically considering as a whole the various aspects of management processes. In addition to energy efficiency, we also measure, for example, the impact on IT of the management of assets and buildings, technical architecture, the capacity management of IT services and support services. For this, it is fundamental for us to choose IT devices which combine overall eco-efficiency with high levels of service and performance requirements".

In addition to the servers hosted in the two data centres, the Group's installed base also includes around 3,000 departmental servers, with 30,000 workstations and 25,000 printers in the branches – all are characterised by various levels of obsolescence.

A 'green' structure, in which the IT department is responsible for three-quarters of energy consumption, is developed through a series of interim targets. Presently, the most significant of these targets is the refresh of servers in the data centre in Siena.

IT refresh for Siena

The evaluation of savings within the data centres takes into account Power Usage Effectiveness (PUE). PUE is determined by dividing the amount of power entering a data centre by the power used to run the computer infrastructure within it. PUE is therefore expressed as a ratio, with overall efficiency improving as the quotient decreases toward one.

"If we interpret these figures correctly we are aware that IT refresh, at this time, brings large savings in terms of electrical input,

guaranteeing an increase in processing power. For this refresh, MPS selected servers from five different manufacturers, all powered by the Intel® Xeon® processor X5570," adds Panaccini.

The evaluation included estimates of available power, average input (calculating maximum load conditions for 25 percent of the time and idle for 75 percent), energy consumption for periods of one year and four years, and CO2 emissions.

Luca Guzzabocca, Head of the Costs and Logistics Area at MPS, comments: "With regard to our strict energy efficiency requisites, and therefore also the total cost of ownership (TCO) of the servers, the new Intel server processor performs significantly better than both previous-generation Intel and current competitor servers."

"Comparing a sample of 256 previous-generation servers with a total of 352 new servers, we have estimated a reduction of more than 1.3 million kWh in one year, which, calculating an average energy cost of 20 cents per kWh, means an annual saving of around EUR 261,000 (USD 320,000) plus a 648-tonne reduction in CO^2 emissions."

The comparison is extremely favourable despite the fact that there are 96 more of the new servers. "If we had compared an equal number of machines the advantage would be even more significant considering that 352 of the new servers consume in one year less than 780 thousand kWh, while 256 of the previous-generation servers consume almost 3.1 million KWh," emphasises Guzzabocca.

Intel leadership in energy efficiency

Carlo Parmeggiani, Large Accounts and Healthcare Regional Business Manager at Intel Italy & Switzerland, explains: "The banking sector must handle enormous quantities of data guaranteeing very high levels of service, therefore data centre performance, as well as energy efficiency, is critical. The Intel® Xeon® processor 5500 series with four cores is a low-voltage 45 nanometer (nm) server processor which operates at 50W, in other words, just 12.5W per core, and at a speed of up to 2.50GHz."

"With 25 percent faster speeds and caches 50 percent larger than the previous generation, in the same thermal envelope, contained at 50 Watt, the Intel Xeon processors L5500 series combine the advantages of the exclusive 45 nm Intel production process and the new transistor formula, with exclusive functions such as the Intel® Intelligent Power Technology, Intel® Virtualization technology and Intel® Data Centre Manager.

Intel Power Management Technology allows efficient management of energy consumption according to the workload, while the new generation of Intel® Virtualization Technology allows optimal virtualization performances, superior scalability, advanced flexibility and simplified server management. Intel® Data Centre Manager allows monitoring and management of energy and temperatures per server, racks and groups of servers in the data centre.

"The current refresh is part of a series of activities carried out over the last three years in which we have concentrated on controlling expenditure on IT, as well as its environmental impact," says Pancaccini.

"The green IT project is already envisaged to continue for the next three years, with ongoing evaluations to ensure that we are using the most up-to-date, high-performing and energy-efficient technology available."

Gianluca Pancaccini,
General Manager at the Consorzio Operativo Gruppo Montepaschi

Other green IT initiatives

The Consorzio has undertaken further green IT initiatives – an example of which is the Ghiro project. This consisted of the implementation of a smart PC shutdown system in the Group's branches, as well as the deployment of more advanced calibration features in both data centres.

Moving forward the Consorzio will work on a range of other initiatives, such as grid computing, to further optimise available resources and existing facilities. It has been investigating this technology for several years, but thanks to the efficiency and speed of the latest Intel server processors it has only just become possible to circulate reports in a matter of minutes rather than hours.

"The Intel® Xeon processor 5500 series is a fundamental enabler for MPS," confirms Pancaccini. "The green IT project is already envisaged to continue for the next three years, with ongoing evaluations to ensure that we are using the most up-to-date, high-performing and energy-efficient technology available.

"Considering Intel's continuous programme of development, we are confident that its latest technology, which we will evaluate this year, will be even more favourable than those we evaluated last year."

Find a solution that is right for your organisation. Contact your Intel representative or visit the Reference Room at **www.intel.com/references.**

Spotlight on Consorzio Operativo Gruppo Montepaschi

The Consorzio is the centre for the development and management of Information Communication and Technology (ICT) systems, and for the provision of back office administrative services, for the various companies in the MPS Group.

With regard to ICT, it develops and manages the ICT system for the whole MPS Group - specifically, application and software, facilities and hardware, and the IT helpdesk. With regard to administrative services, it manages the back office that supports the banking process – specifically, processing of current accounts, portfolios, collections and payments, e-money services, foreign and securities administration and treasury.

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