

## CASE STUDY

Intel® Xeon® processor 5600 series

ISV

Virtualization and High-Performance Computing



# Simulation Gets a Boost with Efficient Virtualized Data Center

MSC Software improves data center performance and simulation product development after migrating to a virtualized Intel® architecture platform powered by Intel® Xeon® processor 5600 series



“We have significantly increased the efficiency of our data center by implementing the Intel Xeon processor 5600 series and Cisco UCS, enabling faster application response time to enterprise business applications and decreasing overall product build time by 10 percent and regression time by 70 percent.”

Himanshu Shah  
Director, Global IT  
MSC Software

## CHALLENGES

- **Transition to a unique platform.** Manage and support six different hardware platforms delivering seven different simulation products while keeping business trends in mind for future product development.
- **Increase computing capacity while lowering hardware footprint.** Boost computation of CPU cycles, computing core, and memory capacity for better I/O throughput.
- **Lower cost and practice eco-friendly operations.** Reduce infrastructure capital and operating expenses while achieving more computation results with lower power and cooling requirements.

## SOLUTIONS

- **Move from proprietary hardware to X86 platform.** Consolidate all supported platforms on the X86 platform to improve management, develop and deliver products using only this new platform.
- **Deploy Cisco UCS\* with Intel® Xeon® processor 5600 series.** Significantly increase the efficiency of the data center to support a higher number of cores.
- **Use Intel's virtualization capability.** Adopt virtualization to shrink data center footprint while lowering power usage and cooling requirements to adopt eco-friendly practices.

## BUSINESS VALUE

- **Managed cost-effectively.** Reduced spending on infrastructure capital and operating expenses.
- **Eco-friendly practices.** Smaller server footprint lowered energy consumption and cooling requirements, and delivered a smaller carbon footprint.
- **Boost product development.** Intel Xeon processor 5600 series-based virtual farm helped significantly in the product development vision to have a 24-hour cycle for full build and regression, and a two-hour code certification cycle for all portfolio products.

## TECHNOLOGY RESULTS

- **Enhanced data center performance.** Cisco UCS running on Intel Xeon processor 5600 series with eight cores made it easier for MSC to consolidate all platforms so they can be managed more effectively.
- **Smaller data center footprint.** Adopting virtualization helped shrink the server footprint while increasing virtual/physical server percentage by 70 percent.
- **Better energy efficiency.** Intel Xeon processor 5600 series helped build an efficient virtual farm that increased the virtualization percentage on a standard platform, lowering power consumption and data center footprint.

## Driving change to meet service excellence

With close to 50 years in the industry, MSC Software has always set its sights on improving its products and services to respond to market segment trends. As the computer-aided engineering (CAE) industry leader in extending simulation to the engineering enterprise, its IT department strives to enable engineering excellence and enhance operational effectiveness by providing clear benefits from the four C's: cost, consolidation, cloud, and compliance.

In its commitment to providing the highest quality products to its customers, MSC Software needed to improve platform support of its products. To make this possible, MSC Software decided to migrate from a distributed, heterogeneous platform to a virtualized Intel® architecture.

## The need to switch platforms

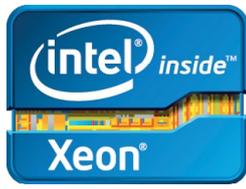
Traditionally, MSC Software had been using the Intel Xeon processor 5500 series, which had fewer cores to support its different platforms than the Intel Xeon processor 5600. With fewer cores, the response time

to meet the requirements of enterprise business applications, as well as overall product build and regression time, needed efficiency improvements.

MSC Software also had difficulty managing and supporting its multiple platforms while keeping up with the demands of the business. The cost of maintaining multiple platforms was also high as real-time simulation modeling and mathematical computation solutions continue to need higher CPU cycles and faster I/O throughput.

There was also an increased data center footprint as more power and cooling was needed as the data center churns out more computation results.

MSC Software realized it needed to switch to an Intel architecture platform to improve the performance of the data center while reducing operating costs and spending on infrastructure capital. MSC Software also wanted this Intel-based platform to serve as a fundamental backbone in its development of new products. While its customers have grown accustomed to the various platforms it used to support, MSC Software believed more of its clientele will find migrating to this new platform easier and more efficient in delivering its products and services.



## MSC Software builds an optimized data center powered by Intel® Xeon® processor 5600 series, providing efficient virtualization and high-performance computing

### Switching to an optimized data center solution

For its new platform, MSC Software needed a comprehensive solution to meet its specific requirements.

"The new platform should be able to consolidate all our platforms while meeting the demands of our product portfolio, and keep up with business trends. Moving forward, our strategy is to develop and deliver products only on the X86 platform, which is more practical since more customers are moving to an open system based on Intel architecture. The new platform should also be able to shrink our data center footprint to reduce operational costs and adopt a more eco-friendly business operation," explains Abhijit Konkane, senior manager for Global IT Infrastructure at MSC Software.

Taking no chances, MSC Software decided to build the X86 platform on Cisco UCS running on the Intel Xeon processor 5600 series.

"We shared performance details on Intel architecture as well as provided them access to Intel labs to do benchmarking for their products. The results were very encouraging. After this, they requested original equipment manufacturers (OEMs) to bid their solutions running on Intel architecture. Cisco showed the best compatibility with Intel architecture," shares Vijay Shimpukade, regional enterprise manager of Intel West India.

MSC Software used the Intel Xeon processor 5600 series with eight cores to replace the hardware used in the previous RISC platform and older-generation Intel architecture-based servers. The Intel Xeon processor 5600 series is scalable, reliable, energy efficient, and ensures service continuity. It includes a number of hardware-based features that make it suitable for virtual private cloud services.

Moving to Intel Xeon processor 5600 series enabled support for more cores and helped in the parallelization of the software builds and regressions. The data center significantly increased efficiency by enabling faster application response time and decreasing overall product build time by 10 percent and regression time by 70 percent.

Implementing Cisco UCS powered by Intel Xeon processor 5600 series allowed MSC Software to build an efficient virtual platform, which helped consolidate the physical servers

while increasing the virtual/physical server percentage to 70 percent. In the past, most of these servers were physical machines only, and only 5 percent of the total server count was virtual. By adopting virtualization, MSC Software is able to shrink its data center footprint, allowing it to manage operation costs effectively.

Building an efficient virtual farm has also helped significantly in MSC Software's product development vision to have a 24-hour cycle for full build and regression, and a two-hour code certification cycle for all portfolio products. With consolidated platforms, MSC Software can now concentrate on providing high-quality products while helping small and medium businesses adapt to MSC Software's product offerings.

MSC Software's product development is now restricted on the Intel architecture-based platform. Customers are also migrating to open systems based on Intel architecture.

### A brighter future with a stronger data center

With a stronger platform, MSC Software is now looking at strengthening its growth strategy by delivering high-end simulation products developed through the X86 platform's strong compute foundation. This will also reduce the time to market for the company's future products.

"With the optimization of data center performance, we aim to scale up from 116 virtual servers to 300 virtual servers in the near future," says Konkane.

Moving forward, MSC Software's future strategy is to develop an internal cloud to support its development and services needs. MSC Software is also testing servers based on the Intel Xeon processor E5 family to evaluate the capabilities and build future infrastructure based on the same.

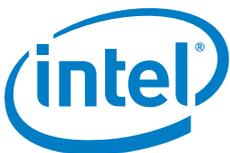
"The Intel Xeon processor 5600 series is a fundamental building block in this strategy, providing the foundation for us to move forward in the future," says Konkane.

Find a solution that's right for your organization. Contact your Intel representative, visit Intel's Business Success Stories for IT Managers ([www.intel.com/itcasestudies](http://www.intel.com/itcasestudies)) or explore the Intel.com IT Center ([www.intel.com/itcenter](http://www.intel.com/itcenter)).

- New age processors provide higher computing accuracy to help keep up with marketplace demands.
- Companies with challenges in product build, regression cycle times and managing the cost of running large data center setups should consider updating their systems.
- Intel has strong virtualization, cloud, and computation solutions for data centers needing higher CPU cycles and faster I/O throughput.

### ABOUT MSC SOFTWARE

- One of the world's 10 original software companies.
- Worked with the National Aeronautics and Space Administration (NASA) in the U.S. to commercialize the finite element analysis (FEA) software known as NASA Structural Analysis\* (Nastran\*).
- Pioneered technologies that are now relied upon by the industry to analyze and predict stress and strain, vibration and dynamics, acoustics, and thermal analysis based on its flagship product, MSC Nastran\*.
- Developed/acquired many other well-known computer-aided engineering (CAE) applications, including Patran\*, Adams\*, Marc\*, Dytran\*, Fatigue\*, SimXpert\*, SimDesigner\*, SimManager\*, Easy5\*, Sinda\*, and Actran\*.
- Offers the only simulation data and process management platform in the world that has been successfully deployed in industries including automotive, aerospace, shipbuilding, electronics, and more.



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