

Achieving Better Performance and Scalability of Simulation Solutions with NEW Intel® Xeon® W processors

Ansys Mechanical's simulation solution runs faster and scales more efficiently on NEW Intel® Xeon® W processors than on predecessor CPUs. These advances help engineering companies deliver new products to the market faster and at lower cost.



In the modern industry landscape, growing competition puts a lot of pressure on companies to deliver their products faster, at lower cost, and with the least environmental impact. Product improvements must be fast and well-informed, while minimizing time and cost requirements.

Engineering simulation and analysis help engineering-driven firms to better understand possible real-world effects of design decisions, it allows for comparison of different scenarios to guide the most efficient product development workflow. Using computer models to analyze hypothetical outcomes can be far more efficient and comprehensive than physical experimentations, it can be more cost-effective, and may also help to minimize environmental impact.

Delivering simulation results faster helps to avoid costly mistakes and improves the design decision-making process, it positively impacts the cost of product design and reduces time to market.

Modern design relies on fast time-to-result simulation

Modern products are becoming increasingly complex, they are becoming smarter and more connected. Designing and engineering a modern product requires attention to the productivity of design solutions, sustainability of design and engineering, and at the required cost. It is also important to maintain adequate levels of protection of design and engineering ideas.

While we see a growing trend of cloud-based compute capabilities, the importance of in-house compute capabilities for engineering simulation is growing. This is mostly attributed to faster time-to-result in solving and increasing for more iterative engineering process. Today the in-house simulation capabilities of modern workstations are in ever-growing demand.

Optimized performance and scaling of simulation solutions with Intel Xeon W processors

Using high-performance compute workstations and software tools optimized to utilize the hardware capabilities of such workstations allows the delivery of complex simulation solutions to enable better engineering decisions.

Intel® Xeon® W processors offer a continuing roadmap of CPU innovation that helps drive successively better results on enterprise workloads in general and Ansys Mechanical simulations specifically. Workstations built with Intel Xeon W processors with multi-core performance and scalability, necessary for modern simulations. While the simulation software performance also tends to

be bound by memory bandwidth, it benefits from improvements across the platform, in the memory and I/O subsystems.

The most recent version of Ansys Mechanical, when paired with the latest generation of Intel Xeon W CPUs, delivers up to 59% faster FEA simulation with Intel Xeon w7-2595X vs. Intel Xeon W-2295 processor (based on Ansys Mechanical v24 benchmark – directl using up to 24 cores results on Intel Xeon w7-2595X vs. Intel Xeon W-2295 processor).

It is also important to note that the memory subsystem and the I/O capabilities of Intel Xeon W processors uniquely position them for highly dependent memory size and bandwidth software solutions, such as simulation. This makes Intel Xeon W-based workstations a unique tool for highly demanding engineering workflow tasks, which may not be appropriate for other classes of Intel CPU-based workstations.

The new generation of Intel Xeon W processors show clear benefits in Ansys Mechanical performance and scaling

Gen-over-Gen Performance Boost

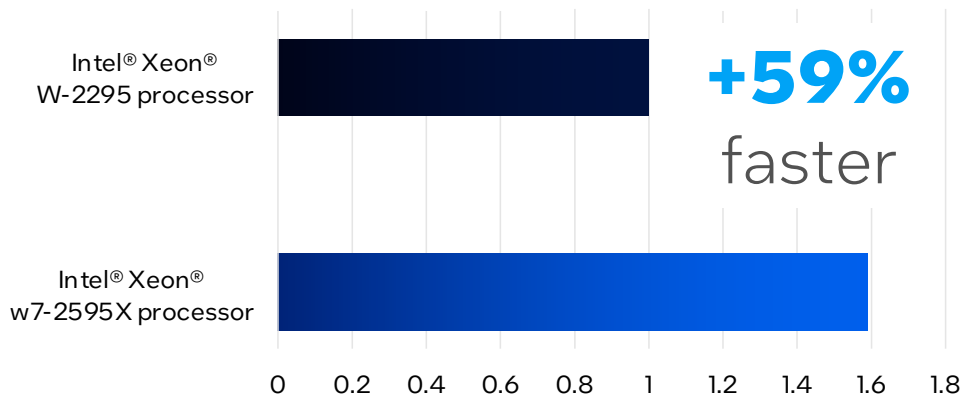


Figure 1. Relative performance of Intel Xeon w7-2595X vs. Intel Xeon W-2295 processor. Based on Ansys Mechanical v24 benchmark – directl using up to 24 cores results on Intel Xeon w7-2595X vs. Intel® Xeon® W-2295 processor. See www.intel.com/PerformanceIndex for workloads and configurations. Results may vary.

efficiency over earlier processors, particularly in larger core counts. The improvements in cache, PCIe and memory capacity display the capabilities of modern workstations in solving engineering simulation problems.

New CPU capabilities enable product teams to run more comprehensive simulations in less time, to help bring higher-quality products to market with faster time to revenue, helping build a lasting competitive advantage.

Learn more

- For more information on Intel Xeon W processors, please visit www.intel.com/workstation
- For more information on Ansys solutions, please visit www.ansys.com

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Performance results are based on testing as of 7/12/2024

Intel® Xeon® w7-2595X processor, PL1= 250W TDP, 26C/52T, Turbo up to 4.6 GHz, Motherboard Name: Intel FHF RVP, Motherboard type: Pre-production, BIOS: FHFDCRB1.86B.0056.D23.2403040627, Graphics: Nvidia Quadro RTX A4000, Gfx version: 537.13, Memory: 128GB (4x32GB) DDR5-4800MHz ECC RDIMMs, Storage: 1TB Samsung 980 Pro, OS: Microsoft Windows® 11 Pro (22H2) Service Pack 22621.2215, CPU Cooler: Air cooled, Tamper Protection (RS6): Enabled, Defender: Enabled, VBS: Enabled.

Intel® Xeon® W-2295 processor, PL1= 165W TDP, 18C/36T, Turbo up to 4.6 GHz, Motherboard Name: Intel FHF RVP, Motherboard type: ASUS WS C422 PRO SE production, BIOS: 3601, Graphics: Nvidia Quadro RTX A4000, Gfx version: 537.13, Memory: 4x32GB DDR4-2933Hz ECC RDIMMs, Storage: 1TB Samsung 980 Pro, OS: Microsoft Windows® 11 Pro (22H2) Service Pack 22621.2215, CPU Cooler: Air cooled, Tamper Protection (RS6): Enabled, Defender: Enabled, VBS: Enabled.

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