

## Realize the impact of HPC

- Speed up time to market—complete jobs in minutes, rather than in hours or days
- Get deeper insights—larger models support increased complexity, improved designs and quality
- Improve productivity—using centralized system management and simplify collaboration

## Starter Configuration (Price/Performance)

### Head /Login Node



ThinkSystem SR630

### Performance Compute Node



ThinkSystem SD530 / D2 Enclosure

### Visualization Node



ThinkSystem SR650

## Tested, Validated HPC Solutions

### For CFD and Explicit Workloads - (CFD, FEA) Ansys CFX, Fluent, LS-DYNA and Explicit STR

Lenovo SR630 (1U Server)

- 2x Intel 6226R CPUs (16c, 2.9GHz)
- 192 GB Total RAM
- 12x 16GB TruDDR4
- 2933Hz (2Rx8 1.2v) RDIMMs
- Mellanox EDR InfiniBand HCA

# HPC Starter Kit for Ansys Environments

## Turn-key, fully managed HPC clusters for CAE (Explicit and Implicit Workloads)

Computer-aided engineering (CAE) analysts often push the limits of their desktop systems, constraining the size of their models and limiting the number of simulations. Scaling to high-performance computing (HPC) removes these limits but can add complexity. HPC starter kits help eliminate these issues and making it easy, affordable and scalable as workloads get more complex with time.

## Scale Ansys workloads with access to an onsite HPC cluster

Ansys working with LENOVO is offering a simple solution for engineers who use computer-aided engineering (CAE) and want to scale beyond workstations. Lenovo's ThinkSystem Servers are dense compute cluster solutions that can scale very easily. The cluster is customizable to meet your specific workload needs.

This solution could be delivered pre-configured, with applications installed and ready to integrate into your network to provide easy desktop access for engineers and CAE analysts. The system could be remotely managed, with updates installed and user support.

## Expertly Engineered Solutions

As a global leader in High Performance Computing, Lenovo working closely with key industry partners such as Intel and Ansys to develop, integrate, and deploy technologies of Exascale™ level computing to organizations of all sizes, taking a customer-centric approach to provide the best HPC solutions that best meet customer's needs.

Ansys, Lenovo and Intel partnered to bring together solutions that optimize performance, accelerate product development with increased speed to market. Ansys delivers the tools required to enable real-world multi-physics solutions, incorporating fluids, structures, thermal and electromagnetic solutions for the most complex problems.

The combined solution should enable a greater number of high-fidelity simulations conducted more rapidly and help customers ensure that their products perform as expected in the real-world helping companies innovate faster, delivering unprecedented improvement to product development and productivity.

## Benefits

- Validated & optimized platform: Deploy quickly with a solution built for Ansys HPC workloads and based on Lenovo's ThinkSystem Servers purposed for high performance computing (HPC).
- Flexibility and scalability: The system components support a range of Ansys applications and workloads, which can be adapted and expanded to meet changing requirements.

## For Implicit Workloads - Ansys Mechanical

Lenovo SR630 (1U Server)

- 2x Intel 6226R CPUs (16c, 2.9GHz)
- 384GB Total RAM, 24x 16GB TruDDR4 2933MHz (2Rx4 1.2v) RDIMMs
- 2x 2.5" Intel S4610 1.92TB SATA SSD
- 2x 2.5" U.2 Intel P4610 1.6TB NVMe PCIe
- Mellanox EDR InfiniBand HCA

## For Visualization / Management Server

Lenovo SR650 (2U Server)

- 2x Intel 6226R CPUs (16c, 2.9GHz)
- 384GB Total RAM, 12x 32GB TruDDR4 2933Hz (2Rx8 1.2v) RDIMMs
- 2x 2.5" Intel S4610 1.92TB SATA SSD
- 2x NVIDIA Tesla V100 32GB GPUs

"Our customers are engineering experts, but that expertise doesn't always stretch to HPC cluster selection and deployment," says Wim Slagter, Director HPC and cloud alliances at Ansys. "We want to give our customers the best possible experience and, for that reason, we are working with Lenovo, Intel and business partners to provide our customers an Ansys-optimised cluster solution designed for ease of procurement, deployment and operation."

**Wim Slagter**  
Director of HPC & Cloud Alliances, Ansys

## Resources

Intel White paper for Ansys:

<https://www.ansys.com/-/media/ansys/corporate/resourcelibrary/whitepaper/ansys-intel-benchmarking.pdf>

Lenovo Data Sheets for ThinkSystem servers:

SR630 - <https://lenovopress.com/ds0031>

SR650 - <https://lenovopress.com/ds0032>

SD530 - <https://lenovopress.com/ds0003>



<sup>1</sup> Ansys license and support are purchased directly from Ansys.



## Service Partners

- Lenovo works with a network of highly specialized HPC managed partners who could deliver completely integrated Lenovo Clusters along with cluster software environment (job scheduler, Resource management tools)
- Service partners provide On-site install, start-up services to have the cluster integrated into your work environment, including installation of Ansys<sup>1</sup> application, Ansys RSM and HPC scheduler.

## Expertly Architected, Validated, Highly Optimized, Scalable Configurations for Ansys Workloads – Easy to Manage

Lenovo, with its customer centric approach provides customers with choice of HPC systems based on customers budget requirements making them excellent "Starter Configurations".

For CFD/Explicit workloads (Table 1), Lenovo provides 4 different configurations with the first two configurations (SR630 and SD530 systems with 2.9 GHz processors) offering good Price/Performance and for complex workloads we have the same systems with a 3.0 GHz processor as listed in the Table.

**Table 1: CFD and Explicit Architecture Building Blocks**

Server	Processor	Memory
SR630 (1U)	2x Intel 6226R CPU's (16c, 2.9GHz)	192GB Total RAM, 12x 16GB TruDDR4, 2933Hz, 2Rx8 1.2v) RDIMMs
SD530 (2U4N)	2x Intel 6226R CPU's (16c, 2.9GHz)	192GB Total RAM, 12x 16GB TruDDR4, 2933Hz, 2Rx8 1.2v) RDIMMs
SR630 (1U)	2x Intel 6248R CPU's (24c, 3.0GHz)	192GB Total RAM, 12x 16GB TruDDR4, 2933Hz, 2Rx8 1.2v) RDIMMs
SD530 (2U4N)	2x Intel 6248R CPU's (24c, 3.0GHz)	192GB Total RAM, 12x 16GB TruDDR4, 2933Hz, 2Rx8 1.2v) RDIMMs

Similarly, for Implicit FEA workloads, we offer 2 different configurations with SR630 (2.9GHz) providing a good balance of Price/Performance and an SR630(3.0 GHz) system, a Performance variant for complex workloads.

**Table 2: Implicit FEA Architecture Building Blocks**

Server	Processor	Internal Storage	Memory	Upgraded Internal Storage Option
SR630 (1U)	2x Intel 6226R CPU's (16c, 2.9GHz)	2x 2.5" Intel S4610 1.92TB SATA SSD	192GB Total RAM, 12x 16GB TruDDR4, 2933Hz, 2Rx8 1.2v) RDIMMs	2x 2.5" U.2 Intel P4610 1.6TB NVme PCIe 3.0
SR630 (1U)	2x Intel 6248R CPU's (24c, 3.0GHz)	2x 2.5" Intel S4610 1.92TB SATA SSD	192GB Total RAM, 12x 16GB TruDDR4, 2933Hz, 2Rx8 1.2v) RDIMMs	2x 2.5" U.2 Intel P4610 1.6TB NVme PCIe 3.0

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