



Solution Brief

Intel® Select Solutions

High Performance Computing

2nd Generation Intel® Xeon® Scalable Processors

July 2019



Overview

Simulation & Modeling can be the key element of success for manufacturing and research companies facing an increasingly competitive environment. Numerous Simulation & Modeling applications provide capabilities to explore design parameters, reduce prototype costs, produce optimized products in shorter amounts of time to market, and provide more innovative server to customer. In addition, many of these applications are capable of distributing computation across multiple machines that are configured to act as one large unit: a high performance computing (HPC) cluster. An HPC cluster can provide a scalable resource that enables faster results, finer grained models, and ultimately, higher productivity, compared to using a single system for simulation workloads.

But for many organizations, the skills or expertise to deploy and maintain scalable HPC clusters for Simulation & Modeling workloads present a barrier to adoption. Building an HPC cluster involves more than choosing the right processor, core count, and memory. Storage, remote-visualization, job scheduling, and workload management

software all need to be considered. In addition, integrating the hardware and software to meet the requirements for Simulation & Modeling applications is highly complex. In the end, businesses can spend weeks or more researching and assembling the components needed for their solutions.

Advantech, the leading provider for industrial intelligent systems, has provided its expertise in reliable and high performance server grade-IPC for over 30 years. Now Advantech has chosen to partner up with Intel and together, SKY-5240 is verified as Intel® Select Solutions for Simulation & Modeling. This enables users of the systems to benefit from experience in Simulation & Modeling markets with workload-optimized performance from 2nd Generation Intel® Xeon® Scalable processors.

The Advantech system with Advantech SKY-5240 is verified as an Intel Select Solution for Simulation & Modeling, offering end users and developers faster access to optimized and stable platform configurations to accelerate use and development of high performance computing solutions.

Ready to ship as pre-configured platforms and also available for benchmarking in Advantech's Remote Evaluation Service labs, interested users can utilize these platforms to conduct testing and modeling of solutions that will define next-generation compute, Simulation & Modeling capabilities.

Introduction to Intel Select Solutions for Simulation & Modeling

Intel Select Solutions for Simulation & Modeling are pre-validated and tested solutions that combine Intel Xeon Scalable processors and other Intel technologies into a proven architecture based on the Intel® HPC Platform Specification. The solutions can help reduce the time and cost of building an HPC cluster and are designed to provide optimized performance for Simulation & Modeling workloads. Intel Select Solutions for Simulation & Modeling serve as a common foundation for the family of solutions and are designed for productivity, compatibility, and workload-optimized performance across a broad range of traditional HPC applications.

Configurations

Infrastructure solutions are a key target for today's complex workloads, based on 2nd Generation Intel® Xeon® Scalable processors with high speed network interconnects. Also, the new Intel Select Solutions for Simulation & Modeling eases multiple customers and end users through complex selection processes to help them make smarter and faster price-performance choices based on data.

Intel Select Solutions for Simulation & Modeling performance requirements have been established using HPL, HPCG, DGEMM, STREAM, IMB PingPong, OSPRay, and ParaView benchmarks. Intel Select Solutions consists of select hardware, including Intel Xeon Scalable processors and Intel® Omni-Path Host Fabric Interface along with optimized software and firmware configurations. It consists of the following components. The system must be comprised of at least one Advantech SKY-5240.

Compute Node (Advantech SKY-5240 Server)

Hardware	Intel Reference Platform	Advantech System
CPU	2 x Intel® Xeon® Gold 6252 processor @ 2.10 GHz / 24C/48T or higher number CPU	Intel Xeon Gold 6252 processor x2
Memory	192 GB or higher with 2 GB/core or higher, 1 DPC 2666 MHz	32GB 2666MHz x12
Message Fabric	Intel® Omni-Path Host Fabric Interface (Intel® OP HFI) Adapter 100 Series	Omni-Path Host Fabric Interface Adapter 100 Series x1
Data Drive	Intel® Solid State Drive (SSD) DC S3520 Series or better, or Intel® SSD DC P3520 Series or better	Intel SSD DC S3610 400GB x1

The Advantech SKY-5240 server, it is a highly configurable and high performance server designed to balance server-class processing with flexible I/O and offload density in a 20" depth chassis. The system is a cost effective, robust platform optimized for high reliability in network, edge and industrial computing.

It is specifically designed for high density PCIe card payloads where maximum I/O connectivity is needed or the integration of industry leading offload and acceleration technology is essential. Equipped with flexible I/O options, it is easy to upgrade to 1G/10G/40G/100G LAN via daughter boards.

The solution is architected around the cutting edge technologies with Intel Xeon Scalable processor family and supports up to 24 DIMMs per Node (Intel® Xeon® Gold 6252 processors in Intel Select Solutions for Professional Visualization)

Advantech SKY-5240 Overview

- 2U High-density Multi-Node Server (2U, 4 Node)
- Support 8 2nd Generation Intel Xeon Scalable processor (up to 140W, LGA3647 socket)
- 24 x2.5" SASIII / SATAIII hot-swap bay (6 HDD per node, 2 of them support NVMe)
- Power Supply: 1+1 2200W Redundant Power Supply 2x M.2 storage
- System fan: 6x80x38 fan (2 for CPU, 4 for card charge)
- Certificate: CE/FCC class A
- Specification per Node:
 - *24xDDR4 DIMM slot support ECC-REG 2400/2133, Max. 768GB per Node.
 - *2x M.2 storage
 - *2x Intel X557 10Gb LAN
 - *Remote Management 1x dedicate IPMI LAN
 - *2x Low Profile PCIe16 Expansion
- Specification per System (with 4 Node)
 - *96*DDR4 DIMM slot support ECC-REG 2400/2133, Max. 3072GB per System
 - *8x M.2 storage
 - *8x Intel X557 10Gb LAN
 - *Remote Management: 4x dedicate IPMI LAN
 - *8x Low Profile PCIe16 Expansion

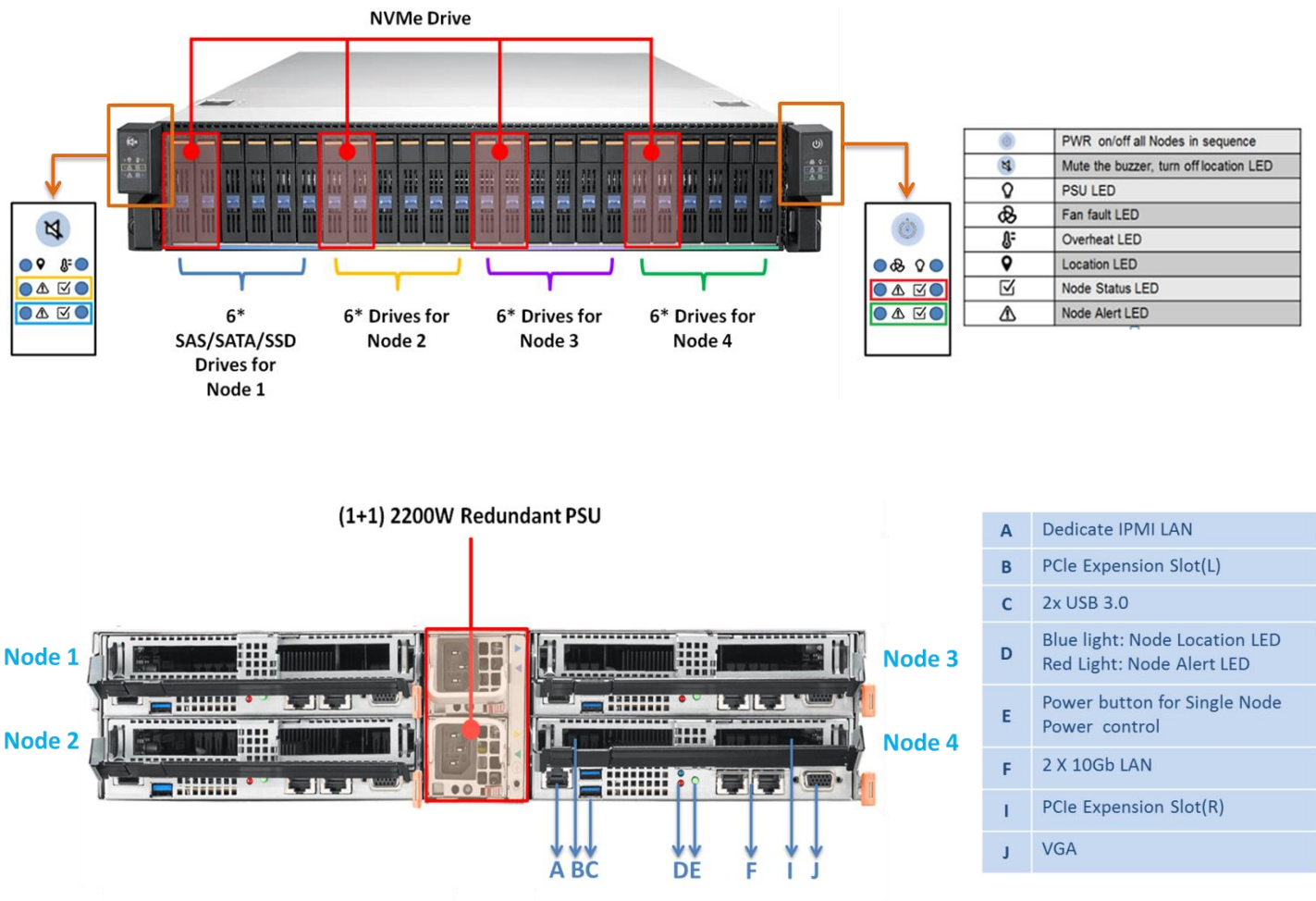


Figure3. Advantech SKY-5240 Server Front View and Rear View

For more information of Advantech SKY-5240 verified Intel Select Solutions for Simulation & Modeling, please go to the following website or contact Advantech directly:

- [Advantech's Intel Select Solutions for Simulation & Modeling](#)
- [SKY-5240](#)
- [Advantech Website](#)

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