Executive Summary

Supermicro is introducing a rack-scale implementation of NVIDIA Omniverse™ Enterprise powered by the Supermicro SYS-421GE-TNRT GPU servers. The Supermicro solution is an NVIDIA-Certified OVX 3.0 System purpose-built to power and operate large-scale digital twins for Omniverse Enterprise. This purpose-built turnkey solution features the best-in-class architecture to deliver the cutting-edge performance needed for data-intensive applications and real-time collaboration using NVIDIA Omniverse.

Designed for Operating Large-Scale Digital Twins and Running Simulations

With 256x NVIDIA L40S GPUs and 200 Gbps networking in a 32-node Scalable Units, Supermicro OVX Rack solutions deliver unparalleled performance to operate digital twins and run large simulations effortlessly.

- Designed and explicitly architected to meet the computing demands for digital twins and application-intensive workloads
- Validated solution enables data-center scale and reliability for real-time collaboration and high-fidelity simulations
Scalable Performance and Flexible Deployment Options

Deploy Supermicro Rack Scale Solutions of NVIDIA Omniverse™ Enterprise with 1 to 4 nodes as a proof of concept and quickly scale to hundreds of servers via Scalable Units to meet workload demands.

- Multi-rack plug-and-play design. Easily grow the cluster as an organization's workloads increase.
- SYS-421GE-TNRT provides the best-in-class performance and flexible computing architecture with dual 3rd Gen Intel® Xeon® Scalable processors and NVIDIA GPUs.
- High-performance networking enables high bandwidth and low latency for workloads simultaneously utilizing multiple systems.

Deploy In Days, Not Weeks

Fully tested and validated design at the cluster level so customers can have Omniverse Enterprise operational in days. As a result, engineers, designers, artists, and scientists can focus on fewer system implementation complexities and more technological breakthroughs.

- Optimized rack layout and topology for power and cooling
- Validated and tuned OVX architecture that is designed for stability and future scalability

Reasons To Deploy Supermicro Rack Scale OVX Solutions

- Complete NVIDIA Omniverse™ Enterprise software stack included – makes it easy to get started with the NVIDIA Omniverse platform.
- Enabled by NVIDIA RTX™ and high-speed networking technologies – Enables fast responses for optimal collaboration.
- End-to-end thoroughly tested and integrated – Racks are plug-and-play design; Supermicro assembles and extensively tests the entire configuration prior to shipping to the customer.
- Purpose built for performance and acceleration – Selected components ensure optimal performance using the latest CPUs and GPUs.
- Highly scalable and easy to deploy from four-server clusters to multiple pods to handle the largest workloads.
- Four configurations are available, from single to multiple racks, to begin building metaverse applications, running large-scale simulations, and operating digital twins.
# Supermicro OVX Solutions

<table>
<thead>
<tr>
<th></th>
<th>Small</th>
<th>Medium</th>
<th>Large (PoD)</th>
<th>XL (Scalable Unit)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appliance</td>
<td>SRS-48UOVX-SMAL-03</td>
<td>SRS-48UOVX-MED-03</td>
<td>SRS-48UOVX-POD-03</td>
<td>SRS-48UOVX-SPOD-03</td>
</tr>
<tr>
<td>OVX Nodes</td>
<td>4x SYS-421GE-TNRT</td>
<td>8x SYS-421GE-TNRT</td>
<td>16x SYS-421GE-TNRT</td>
<td>32x SYS-421GE-TNRT</td>
</tr>
<tr>
<td>Nucleus Servers</td>
<td>1x SYS-121H-TNR</td>
<td></td>
<td></td>
<td>2x SYS-121H-TNR</td>
</tr>
<tr>
<td>Rack</td>
<td>1x 48U (Optional 42U)</td>
<td>2x 48U (Optional 42U)</td>
<td>3x 48U (Optional 42U)</td>
<td>6x 48U (Optional 42U)</td>
</tr>
<tr>
<td>Total CPUs</td>
<td>8x Intel® Xeon® Platinum 8462Y+</td>
<td>16x Intel® Xeon® Platinum 8462Y+</td>
<td>32x Intel® Xeon® Platinum 8462Y+</td>
<td>64x Intel® Xeon® Platinum 8462Y+</td>
</tr>
<tr>
<td>Total GPUs</td>
<td>32x NVIDIA L40S</td>
<td>64x NVIDIA L40S</td>
<td>128x NVIDIA L40S</td>
<td>256x NVIDIA L40S</td>
</tr>
<tr>
<td>Total System Memory</td>
<td>4TB</td>
<td>8TB</td>
<td>16TB</td>
<td>32TB</td>
</tr>
<tr>
<td>Networking</td>
<td>2x 200Gbps 32-port NVIDIA SN3700 Ethernet Leaf Switches</td>
<td>2x 200Gbps 64-port NVIDIA SN4600 Ethernet Leaf Switches</td>
<td>4x 200Gbps 64-port NVIDIA SN4600 Ethernet Leaf Switches</td>
<td>1x 1Gbps 48-port NVIDIA SN2201 Ethernet Switch</td>
</tr>
<tr>
<td>Total Storage</td>
<td>60.8TB NVMe (Raw)</td>
<td>121.6TB NVMe (Raw)</td>
<td>243.2TB NVMe (Raw)</td>
<td>486.4TB NVMe (Raw)</td>
</tr>
<tr>
<td>Estimated Peak Power</td>
<td>18.61kW</td>
<td>34.10kW</td>
<td>66.64kW</td>
<td>133.21kW</td>
</tr>
<tr>
<td>Software</td>
<td>NVIDIA Omniverse™ Enterprise Starter Pack Subscription (1, 3, 4, and 5 yr. options)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
## Conclusion and Summary

NVIDIA Omniverse™ Enterprise revolutionizes design collaboration, simulation, and operation of digital twins. Globally dispersed teams can accelerate their workflows with one-click interoperability between leading software tools and seamlessly collaborate in a shared virtual world running from the data center. Supermicro’s rack-scale OVX solution for Omniverse enables the development and operations of factory digital twins, harmonizes the flow of design data across the enterprise, and accelerates visualization for in-vehicle experiences, car configurators, and virtual showrooms.

Omniverse is driving digital transformation and innovation through the following:

- A Cutting-edge solution to help your business to beat the competition
- Seamless high-speed global connectivity allows for design and collaboration at scale
- Increase productivity and faster time to market
- Resource-saving and lower overhead costs
Digital Transformation Through Omniverse

For More Information, please visit:
Supermicro X13 CPU Choices (4th Gen Intel Xeon Scalable processors)