



# Ultra: Best-in-Class Performance and Virtualization

## Supermicro Ultra

IT Professionals are increasingly asked to qualify multiple platforms for varying workloads, even as datacenter infrastructure grows. To meet these challenges in the best, most effective manner possible, organizations need practical, high-quality, high-performing systems that can be “qualified once, and deployed many times.” Supermicro introduces a powerful, versatile server platform designed to meet all of these challenges and more, the Ultra 1U/2U.

## High End Performance and Versatility

Ultra offers the most of everything that a powerful, versatile, general purpose server should offer. It can grow with your organization and adapt to changing organizational needs. Ultra is future-ready, with features that can be added and optimized for your specific data

center and enterprise environments. Ultra can handle a wide variety of robust computing workloads, with support for dual Intel® Xeon® E5-2600 v3 CPUs up to 36 cores, 1.5TB DDR4-2133MHz in 24 DIMMs and up to 180W per CPU<sup>2</sup>. This combination of large onboard memory, high core count CPUs, and low latency NVMe caching, make this a best-in-class offering for virtualization.



Ultra 1U server with 10x 2.5" hot-swap hard disk drives

**Table 1: Ultra 1U vs. Competitors**

Supermicro advantage

Company	Supermicro Ultra 1U	HP ProLiant DL360 Gen9	Lenovo ThinkServer RD550	IBM System x3550 M5
Fans	4/6/8	7	8	8
CPU TDP	165W	160W	145W	145W
Sustained CPU Thermal Capacity	180W <sup>2</sup>	N/A	N/A	N/A
#DIMM Slots	24	24	24	24
PCI-E 3.0	4	3	3	3
Power Supplies (*Titanium)	750W, 1KW*, 1.2KW*, 1.6KW*	500W, 800W, 1400W	550W, 750W, 1100W	550W, 750W*, 900W
GPUs/Xeon Phi™ (Capacity)	1 double-width, or 2 single-width	2 single-width	No	1 single-width
Networking (Standard)	2x 40GbE, or 4x 1GbE, or 2x/4x 10GBase-T, or 2x 10GbE SFP+	4x 1GbE	2x 1GbE, or 4x 10Gbe	4x 1GbE, or 4x 10GBase-T, or 2x 10GbE SFP+
HDDs	10 hot-swap 2.5", or 4 hot-swap 3.5"	10 hot-swap 2.5", or 4 hot-swap 3.5"	12 hot-swap 2.5", or 4 hot-swap 3.5"+2x 2.5" rear**	10 hot-swap 2.5"+2x 2.5" rear**, or 4 hot-swap 3.5"
NVMe	Up to 8x hot-plug	No	No	No

\*\*Requires optional kit for rear HDDs, with PCI-E slot limitations.

**Table 2: Ultra 2U vs. Competitors**

 Supermicro advantage  

Company	Supermicro Ultra 2U	HP ProLiant DL380 Gen9	Lenovo ThinkServer RD650	IBM System x3650 M5
<b>Fans</b>	4	6	6	6
<b>CPU TDP</b>	165W	160W	145W	145W
<b>Sustained CPU Thermal Capacity</b>	180W <sup>2</sup>	N/A	N/A	N/A
<b># DIMM Slots</b>	24	24	24	24
<b>PCI-E 3.0</b>	8	6	8	8
<b>Power Supplies (*Titanium)</b>	750W, 900W*, 1KW*, 1.2KW*, 1.6KW*, 1.8KW	500W, 800W, 1400W	550W, 750W, 750W*, 1100W, 1600W	550W, 750W, 750W*, 900W
<b>GPUs/Xeon Phi™ (Capacity)</b>	4 double-width	2 double-width	No	2 double-width
<b>Networking (Standard)</b>	2x 40GbE, or 4x 1GbE, or 2x/4x 10GBase-T, or 2x 10GbE SFP+	4x 1GbE	2x/4x 10GBase-T	4x 1GbE
<b>HDDs</b>	24 hot-swap 2.5", or 12 hot-swap 3.5"	24 hot-swap 2.5", or 12 hot-swap 3.5"	24 hot-swap 2.5"+ 2x2.5" rear**, or 12 hot-swap 3.5"+ 2x2.5" rear**, or 9 hot-swap 3.5"+, or 6 hot-swap 2.5"+ 2x2.5" rear**	26 hot-swap 2.5", or 14 hot-swap -3.5"+ 2x2.5" rear**
<b>NVMe</b>	Up to 16x hot-plug	No	No	No

<sup>2</sup>Requires optional kit for rear HDDs, with PCI-E slot limitations.

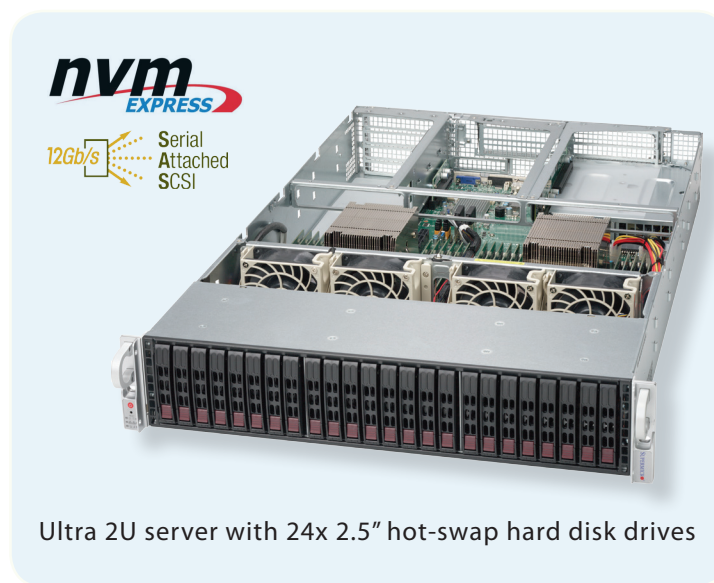
Flexible integrated networking options for Ultra, optimized for applications such as cloud computing, include 1G, 10Gbase-T/ SFP+, and up to 2x 40GbE, 4x 1GbE, or 2x 10GbE. Ultra also has substantial parallel acceleration capabilities to meet the increasing customer need for multithreaded applications, with 1 double-width GPU/Xeon Phi™ supported in 1U, and up to 4 supported in 2U. With highest performance processors, maximum memory, and NVMe SSD slots, Ultra can provide enough computing power to handle even the most demanding high-performance workloads, including virtualization.

Ultra is powered by Platinum or Titanium Level power supplies, for 96%+ efficiency power supplies with non-shadowed CPU cooling.

### The Most Advanced NVMe Storage Technology

In addition to being one of the industry's most versatile servers, Ultra offers the most advanced storage technologies available, and even some that competitors just can't match. Ultra offers optional SAS 3.0 support, with up to 12 Gbps bandwidth and transfer speeds up to 1200MB/s. That can translate into performance gains as high 40%, even when using older SAS2 HDDs/SSDs.

Ultra's storage is made even more versatile with the addition of SuperDOM, with dual direct-connect powered SATA connectors. SuperDOM provides a convenient alternative for storing a Boot/OS or Backup/Recovery solution, as it frees up a disk drive tray on the server. And because Ultra 1U and 2U systems are based on the same motherboard, it is easy to qualify the system once, and then deploy the same system in a variety of ways.



Ultra 2U server with 24x 2.5" hot-swap hard disk drives

One of the most exciting features on Ultra is optional support for NVMe – Non-Volatile Memory express, which enables Ultra to take full advantage of the superior speed, bandwidth, and performance of SSDs. NVMe offers a direct PCI-E to processor connection, which can significantly improve performance over SATA by over 6x, and reduce overhead with ~70% better latency. This best-in-class storage option can improve the performance of many different workloads from databases to hyper-converged systems. Unlike any other datacenter server available, Supermicro Ultra gives you hot-swap NVMe capability – enabling the removal and replacement of NVMe enabled drives without interrupting the running operating system<sup>1</sup>.

## Supermicro Solutions

Supermicro offers customer solutions to help IT personnel manage and maintain their server deployments, including remote management software, and maintenance services. These offerings can improve uptime, reduce costs, and enhance the productivity of Supermicro customers' Ultra deployments, as described below.

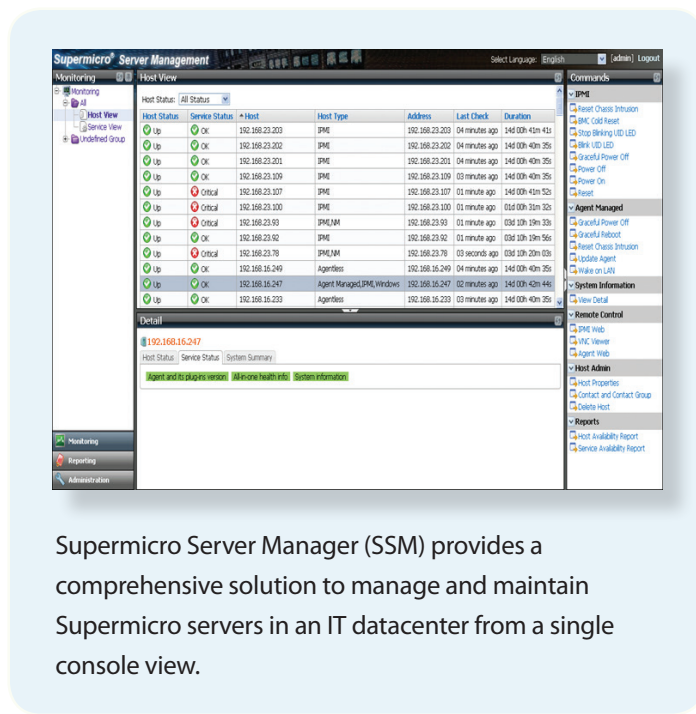
### Enterprise Data Center Remote Management

Supermicro Server Manager (SSM) provides a comprehensive solution to manage and maintain Supermicro servers in an IT Datacenter from a single console view. A CLI interface is included which enables system administrators to automate server management and firmware updates from their infrastructure software.

SSM is beneficial for IT environments where a centralized console is needed to administer all Supermicro servers in the data center. SSM is critical for collecting comprehensive information from Supermicro IPMI and SuperDoctor® 5 (SD5) and can be implemented quickly and easily.

### Supermicro Global Hardware Maintenance Service & Support

Supermicro Global Hardware Enhanced Services provide the highest quality of help desk services and product support for your Supermicro solutions. This offering includes 4-Hour and Next Business Day Onsite Response, and Integration Service.



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## Ultra Possibilities

Cutting-edge NVMe storage capability, maximum GPU/Xeon® Phi™ capacity (1 double-width card in 1U, and up to 4 double-width cards in 2U, up to 235W), and best-in-class features for virtualization are just some of the reasons why Ultra is the most versatile server for today's datacenter. To learn more about how Ultra can help you make the most of virtualization in your datacenter, contact your local Supermicro reseller today, or visit [www.supermicro.com](http://www.supermicro.com) for more information.

## References

<sup>1</sup><http://www.marketwatch.com/story/supermicro-releases-x10-server-solutions-featuring-new-intel-xeon-processor-e5-26001600-v3-ddr4-and-nvme-at-idf-2014-2014-09-08>

<sup>2</sup>*With turbo mode, 145W CPUs (Intel® Xeon® E5-2697 v3) with six fans, two specially designed Supermicro heat sinks (SNK-P0057PS).*