

# X13 CloudDC

## All-in-one Rackmount Platform for Cloud Data Centers



### 1U and 2U rackmounts with NVMe and GPU support

- Single and dual socket 4th Gen Intel® Xeon® Scalable processors
- 16 DIMM slots supporting DDR5-4800MHz
- 2.5" and 3.5" storage options with up to 12 U.2 NVMe/SAS/SATA drives and all-hybrid options
- 2 PCIe 5.0 slots in 1U or 6 PCIe 5.0 slots in 2U
- Dual PCIe 5.0 AIOM slots supporting up to 400G networking

### High-density, Tool-less Mechanical Design for Rapid Cloud Deployment and Easy Maintenance

Ultimate flexibility on I/O and storage with 2 or 6 PCIe 5.0 slots and dual AIOM slots (PCIe 5.0; OCP 3.0 compliant) for maximum data throughput. Supermicro X13 CloudDC systems are designed for convenient serviceability with tool-less brackets, hot-swap drive trays and redundant power supplies that ensure a rapid deployment and more efficient maintenance in data centers. High-efficiency Titanium Level redundant power supplies provide resiliency and lower carbon footprint.

### Designed for Data Centers

X13 CloudDC systems are designed for cost-effective service delivery in cloud computing environments with dual and single processor configurations available to support a range of demanding workloads:

- Internet infrastructure including Web hosting, domain name, and email services
- Virtualization
- Public and private cloud computing
- Content-delivery networks (CDNs)
- Deep learning inferencing
- Financial services applications

### Advanced I/O

The X13 CloudDC family of systems supports up to 2 PCIe 5.0 expansion slots in 1U or 6 slots in 2U plus an additional 2 OCP 3.0-compliant Supermicro Advanced I/O Modules (AIOMs). This flexible I/O configuration enables highly customizable networking configurations for a range of workloads, including support for 100GbE to connect to today's standard data center networks, as well as 400-Gbps InfiniBand connectivity for extremely high-bandwidth, low-latency cluster interconnections. For accelerated workloads, up to 2 double-width or 6 single-width GPUs are supported in 2U.

### Innovative, Tool-Less Design

Cloud data centers are all about scale, with a constant flow of new servers for scaling capacity in line with business requirements as well as ongoing upgrades and maintenance to refresh existing infrastructure. Supermicro X13 CloudDC servers feature cold-aisle accessible drive bays and tool-less brackets, rear-panel components, PCIe slots and AIOM cards to facilitate fast and hassle-free servicing and upgrades. The chassis lid can also be opened by hand and mid-chassis fans pop out easily for replacement.

## Powered by 4th Gen Intel® Xeon® Scalable Processors

Just like the X13 CloudDC family, the new 4th Gen Intel Xeon Scalable processors are optimized for the data center, with built-in accelerator engines designed to improve performance and efficiency for common data center workloads. Intel's Data Streaming Accelerator (Intel DSA) offloads common

data movement tasks to reduce overhead and increase CPU and memory workload performance, while Intel QuickAssist Technology (Intel QAT) offloads popular compression and cryptographic algorithms, increasing core workload capacity. The new range of processors also includes more single CPU-optimized SKUs to deliver maximum compute in a UP configuration.



CloudDC	SYS-121C-TN10R/TN2R	SYS-611C-TN4R	SYS-621C-TN12R
Processor Support	Dual Socket E (LGA-4677) 4th Gen Intel® Xeon® Scalable processors <sup>†</sup>	Dual Socket E (LGA-4677) 4th Gen Intel® Xeon® Scalable processors <sup>†</sup>	Dual Socket E (LGA-4677) 4th Gen Intel® Xeon® Scalable processors <sup>††</sup>
Outstanding Features	Dual sockets up to 270W TDP Dual NVMe M.2 (2280) Dual AIOM with NCSI (OCP 3.0 NIC) Compact server with tool-less drive trays Balanced architecture in compact chassis (23.5") Optional DVD ROM support(SYS-121C-TN2R)	Up to 4x SATA/SAS/NVMe tool-less drive bays Optional fixed 2.5" 7 mm drive bays Dual sockets up to 270W TDP Dual NVMe M.2 (2280) Dual AIOM with NCSI (OCP 3.0 NIC) Compact server with tool-less drive trays Balanced architecture in compact chassis (25.6") 3.5" tool-less drive trays also support 2.5" drives	Up to 12x NVMe/SATA/SAS hybrid tool-less drive bays Optional hot-swappable 2.5" rear drive bays Flexible expansion with up to 2x PCIe 5.0 x16 and 4x PCIe 5.0 x8 (convertible to 2x PCIe 5.0 x16) slots Dual sockets up to 350W TDP Dual NVMe M.2 (2280) Dual FHFLDW PCIe 4.0 GPU support Dual AIOM with NCSI (OCP 3.0 NIC) Compact server with tool-less drive trays Balanced architecture in compact chassis (25.6") 3.5" tool-less drive trays also support 2.5" drives
Memory Slots & Capacity	16 DIMM slots Up to 4TB: 16x 256GB DRAM	16 DIMM slots Up to 4TB: 16x 256GB DRAM	16 DIMM slots Up to 4TB: 16x 256GB DRAM
I/O Ports	2x 100GbE QSFP28 with Broadcom® BCM57508 2x 10GbE RJ45 with Intel® Carlsville X710-AT2 2x 10GbE RJ45 with Intel® X550-AT2 2x 10GbE SFP+ with Intel® X710-BM2 2x 1GbE RJ45 with Intel® i350-AM2 2x 25GbE SFP28 or 2x 100GbE QSFP28 with Mellanox® CX-6 2x 25GbE SFP28 with Broadcom® BCM57414 2x 25GbE SFP28 with Intel® E810-XXVAM2 4x 10GbE RJ45/SFP+ with Intel® X710-TM4 4x 10GbE SFP+ with Intel® XL710-BM1 4x 1GbE RJ45 or 4x 1GbE SFP with Intel® i350-AM4 4x 25GbE RJ45/SFP28 with Mellanox® CX-4 Lx EN Intel® X550-AT2 via AIOM 1 VGA Port 1 Dedicated IPMI LAN port 2 USB 2.0 port(s) (2 front; SYS-121C-TN10R) 2 USB 3.0 port(s) (2 rear) 1 COM Port(s) (1 rear) 1 SuperDOM (Disk on Module) port	2x 100GbE QSFP28 with Broadcom® BCM57508 2x 10GbE RJ45 with Intel® Carlsville X710-AT2 2x 10GbE RJ45 with Intel® X550-AT2 2x 10GbE SFP+ with Intel® X710-BM2 2x 1GbE RJ45 with Intel® i350-AM2 2x 25GbE SFP28 or 2x 100GbE QSFP28 with Mellanox® CX-6 2x 25GbE SFP28 with Broadcom® BCM57414 2x 25GbE SFP28 with Intel® E810-XXVAM2 4x 10GbE RJ45/SFP+ with Intel® X710-TM4 4x 10GbE SFP+ with Intel® XL710-BM1 4x 1GbE RJ45 or 4x 1GbE SFP with Intel® i350-AM4 4x 25GbE RJ45/SFP28 with Mellanox® CX-4 Lx EN Intel® X550-AT2 via AIOM 1 VGA Port 1 Dedicated IPMI LAN port 2 USB 3.0 port(s) (2 rear) 1 COM Port(s) (1 rear) 1 SuperDOM (Disk on Module) port	2x 100GbE QSFP28 with Broadcom® BCM57508 2x 10GbE RJ45 with Intel® Carlsville X710-AT2) 2x 10GbE RJ45 with Intel® X550-AT2 2x 10GbE SFP+ with Intel® X710-BM2 2x 1GbE RJ45 with Intel® i350-AM2 2x 25GbE SFP28 or 2x 100GbE QSFP28 with Mellanox® CX-6 2x 25GbE SFP28 with Broadcom® BCM57414 2x 25GbE SFP28 with Intel® E810-XXVAM2 4x 10GbE RJ45/SFP+ with Intel® X710-TM4 4x 10GbE SFP+ with Intel® XL710-BM1 4x 1GbE RJ45 or 4x 1GbE SFP with Intel® i350-AM4 4x 25GbE RJ45/SFP28 with Mellanox® CX-4 Lx EN Intel® X550-AT2 via AIOM 1 VGA Port 1 Dedicated IPMI LAN port 2 USB 3.0 port(s) (2 rear) 1 COM Port(s) (1 rear) 1 SuperDOM (Disk on Module) port
Motherboard	X13DDW-A	X13DDW-A	X13DDW-A
Form Factor	1U Rackmount Enclosure: 437 x 43 x 597mm (17.2" x 1.7" x 23.5") Package: 605 x 197 x 822mm (23.8" x 7.8" x 32.4")	1U Rackmount Enclosure: 437 x 43 x 650mm (17.2" x 1.7" x 25.6") Package: 605 x 197 x 878mm (23.8" x 7.8" x 34.6")	2U Rackmount Enclosure: 437 x 89 x 648mm (17.2" x 3.5" x 25.5") Package: 678 x 290 x 876mm (26.7" x 11.4" x 34.5")

<sup>†</sup> Supports up to 270W TDP CPUs (Aircooled). CPUs with high TDP supported under specific conditions. Contact Technical Support for details.

<sup>††</sup> Supports up to 350W TDP CPUs (Aircooled). CPUs with high TDP supported under specific conditions. Contact Technical Support for details.



CloudDC	SYS-121C-TN10R/TN2R	SYS-611C-TN4R	SYS-621C-TN12R
Expansion Slots	2 PCIe 5.0 x16 FHHL slot(s)	2 PCIe 5.0 x16 FHHL slot(s)	Slot 1: PCIe 4.0 x8 FHHL (optional x16 by merging slot 2) Slot 2: PCIe 4.0 x8 FHHL Slot 3: PCIe 4.0 x16 FHHL Slot 4: PCIe 4.0 x8 FHHL Slot 5: PCIe 4.0 x8 FHHL (optional x16 by merging slot 4) Slot 6: PCIe 4.0 x16 FHHL Slot A1: PCIe 4.0 x16 OCP 3.0 Mezzanine NIC Slot A2: PCIe 4.0 x16 OCP 3.0 Mezzanine NIC
Drive Bays	10x 2.5" hot-swap NVMe/SATA/SAS hybrid drive bays; Optional RAID support via RAID controller AOC (SYS-121C-TN10R) 8x 2.5" hot-swap NVMe/SATA/SAS hybrid drive bays; Optional RAID support via RAID controller AOC (SYS-121C-TN2R) 1x DVD-ROM (SYS-121C-TN2R; optional)	4x 3.5" hot-swap NVMe/SATA/SAS hybrid drive bays; Optional RAID support via RAID controller AOC 2x 2.5" peripheral bays (optional)	12x 3.5" hot-swap NVMe/SATA/SAS hybrid drive bays; Optional RAID support via RAID controller AOC
Cooling	6x 4cm heavy duty fan(s)	6x 4cm heavy duty fan(s)	3x 8cm heavy duty fan(s)
Power Supply	Redundant 860W Platinum level (94%)	Redundant 860W Platinum level (94%)	Redundant 1200W Titanium level (96%)

<sup>†</sup> Supports up to 270W TDP CPUs (Aircooled). CPUs with high TDP supported under specific conditions. Contact Technical Support for details.

<sup>††</sup> Supports up to 350W TDP CPUs (Aircooled). CPUs with high TDP supported under specific conditions. Contact Technical Support for details.



CloudDC	SYS-111C-NR	SYS-521C-NR
Processor Support	Single Socket E (LGA-4677) 4th Gen Intel® Xeon® Scalable processor <sup>†</sup>	Single Socket E (LGA-4677) 4th Gen Intel® Xeon® Scalable processor <sup>†</sup>
Outstanding Features	Max 10x PCIe 5.0 NVMe drives supported in 1U Form Factor Flexible Configurations. Support 2x 16 PCIe 5.0 expansion slots + 2x AIOM slots in 1U	Supports powerful double-width GPUs Flexible Configurations. Support 6 PCIe 5.0 expansion slots + 2x AIOM slots in 2U
Memory Slots & Capacity	16 DIMM slots Up to 4TB: 16x 256GB DRAM	16 DIMM slots Up to 4TB: 16x 256GB DRAM
I/O Ports (optional)	Networking via AIOM 1 VGA Port 1 RJ45 Dedicated IPMI LAN port 2 USB 2.0 port(s) (2 front) 2 USB 3.2 Gen 1 port(s) (2 rear) 1 COM Port	Networking via AIOM 1 VGA Port 1 RJ45 Dedicated IPMI LAN port 2 USB 2.0 port(s) (2 headers) 2 USB 3.2 Gen 1 port(s) (2 rear) 1 COM Port
Motherboard	X13SEDW-F	X13SEDW-F
Form Factor	1U Rackmount Enclosure: 437 x 43 x 597mm (17.2" x 1.7" x 23.5") Package: 602 x 195.6 x 807.7mm (23.7" x 7.7" x 31.8")	2U Rackmount Enclosure: 437 x 89 x 648mm (17.2" x 3.5" x 25.5") Package: 678 x 290 x 876mm (26.7" x 11.4" x 34.5")
Expansion Slots	Slot 1: PCIe 5.0 x16 FHHL Slot 2: PCIe 5.0 x16 FHHL Slot A1: PCIe 5.0 x16 OCP 3.0 AIOM NIC Slot A2: PCIe 5.0 x16 OCP 3.0 AIOM NIC	Slot 1: PCIe 5.0 x8 FHFL (optional x16 by merging slot 2) Slot 2: PCIe 5.0 x8 FHFL Slot 3: PCIe 5.0 x16 FHHL Slot 4: PCIe 5.0 x8 FHFL Slot 5: PCIe 5.0 x8 FHFL (optional x16 by merging slot 4) Slot 6: PCIe 5.0 x16 FHHL Slot A1: PCIe 5.0 x16 OCP 3.0 AIOM NIC Slot A2: dummy AIOM slot
Drive Bays	10x 2.5" NVMe/SATA/SAS drive bays	12x 3.5" SATA/SAS drive bays; 2x 3.5" NVMe hybrid;
Cooling	6x (4cm x 4cm x 5.6cm) heavy duty fan(s)	3x (8cm x 8cm x 3.8cm) heavy duty fan(s)
Power Supply	Redundant 860W Platinum level (94%)	Redundant 1200W Titanium level (96%)

<sup>†</sup> Supports up to 350W TDP CPUs (Aircooled). CPUs with high TDP supported under specific conditions. Contact Technical Support for details.