





X12 Channel Training

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Welcome



Computing Trends Insight

• 3rd Gen Intel[®] Xeon[®] Scalable Processors Update

Supermicro X12 Update







Computing Trends Insight





The Fourth Industrial Revolution is Here



1st



Steam engine

- Industrial production
 powered by a new resource
- Steel, rail transport, etc.

2nd



Electricity

- Mass production
- Oil, internal combustion engine

3rd



Information technology

- Automated production
- Communications, internet, personal computers

4th



Intelligent technology

- Intelligent production
- AI, IoT, bioscience integrated into human society

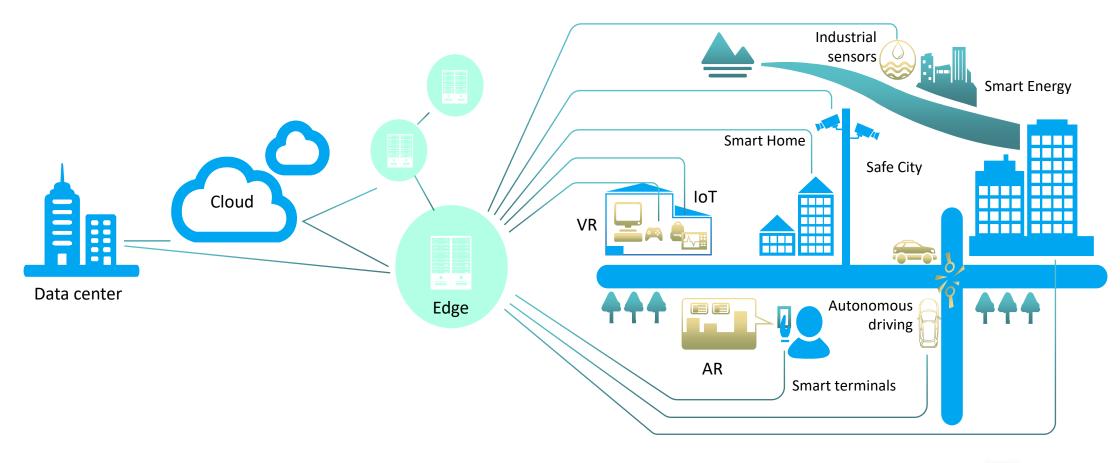




Embrace a Fully Connected World



All Things Sensing | All Things Connected | All Things Intelligent

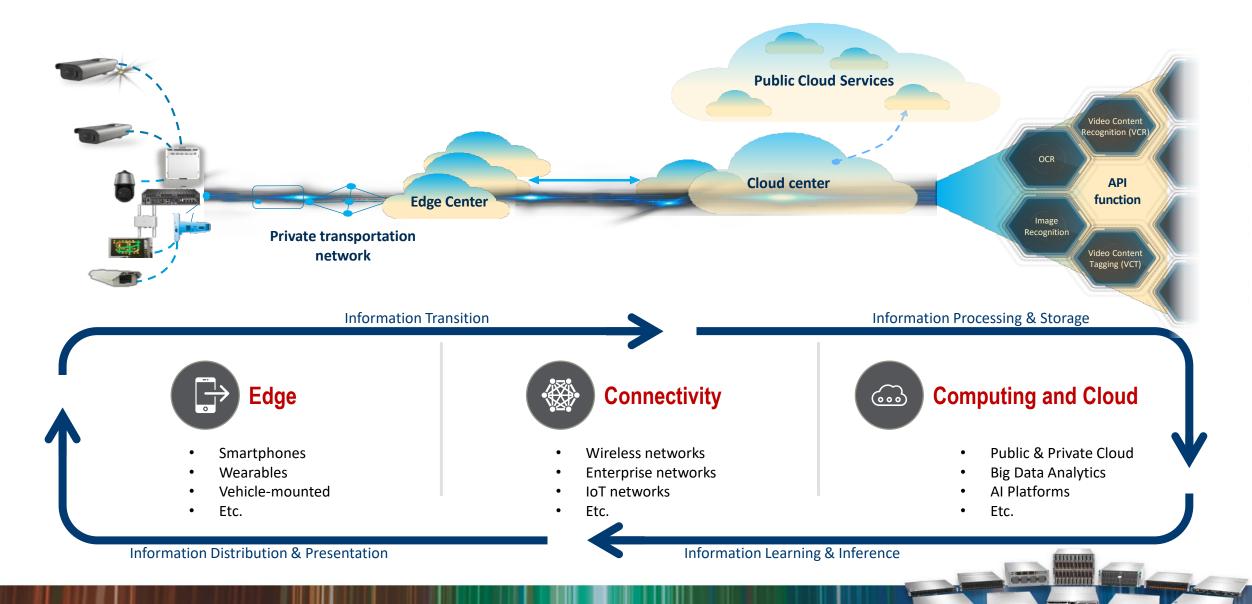






Intelligent Cloud - Three Key Components









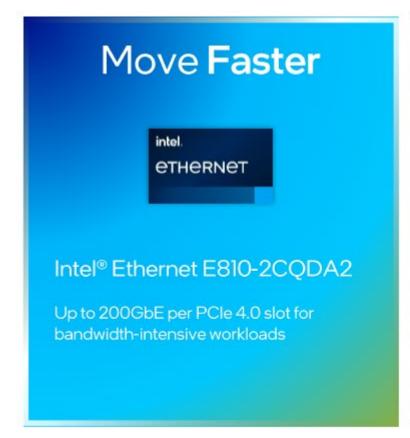
3rd Gen Intel[®] Xeon[®] Scalable Processors Update





Intel Optimized Portfolio









Optimized Solutions





>500
Partner Solutions





Performance for Demanding Workloads













Cloud

1.5x

Improvement in Latency Sensitive Workloads 5G

1.62x

Improvement in Network and Communications Workloads loT

1.56x

Image Classification Inference Improvement **HPC**

1.57x

Faster Modeling for Critical Vaccine Research Artificial Intelligence

UPTO

1.74x

Language Processing Inference Improvements

Performance varies by use, configuration and other factors. Configurations see appendix [5,7, 17, 19, 52]







Supermicro X12 Update





Versatile Server & Storage Systems







Ultra | Twin | Storage | Hyper

















Intelligent Cloud Infrastructure

Storage | Big Data | Data Analytics | HCI





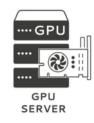






Al and HPC

Heterogeneous Servers





5G and Edge

Edge Servers | Hyper-E



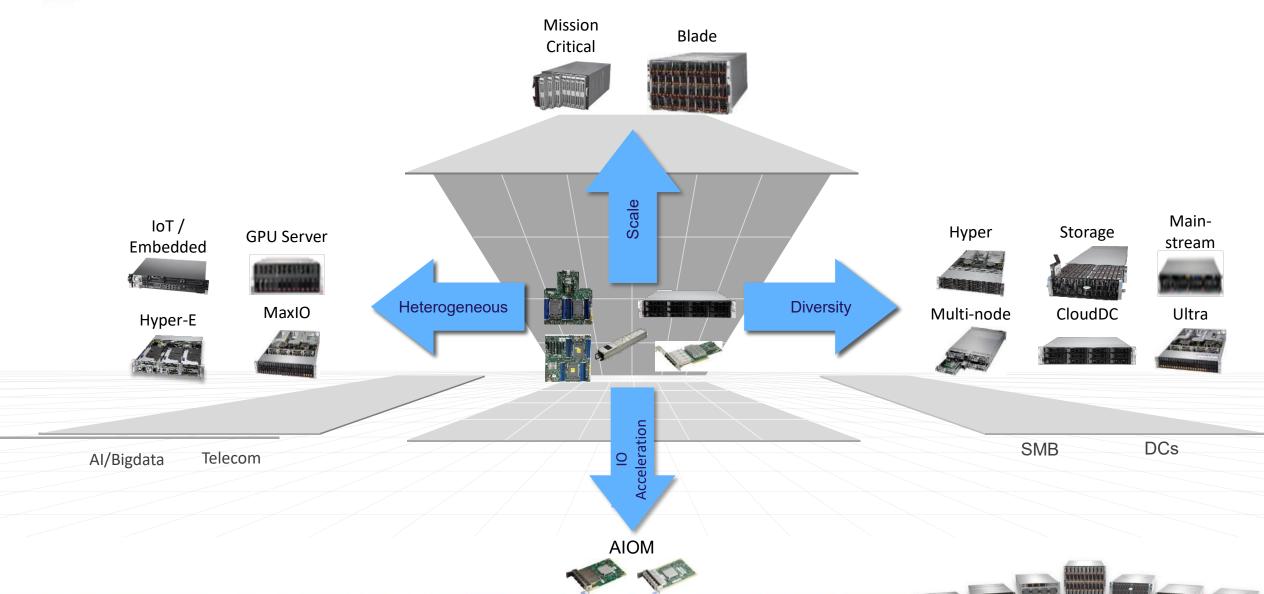






Accelerate Your Business







X12 Systems for Enterprise Applications



BigTwin®: Leading Multi-node Architectures

- Highly configurable 2U 4-node and 2U 2-node systems
- 3rd Gen Intel[®] Xeon[®] Scalable processors, 2 per node, up to 270W TDP
- 16 DIMMs + 4 Intel Optane Persistent Memory 200 series per node

Ultra: High Performance & Flexibility for Enterprise

- Optimized for highest processor TDPs
- Up to 22 hybrid NVMe and up to 3 double width GPUs
- PCI-E 4.0 support with 64 lanes per socket; Total 128 lanes
- Dual 3rd Gen Intel[®] Xeon[®] Scalable processors up to 270W and 32 DIM slots for maximum memory capacity

SuperBlade: Highest Density x86 Multi-Node

- Up to 20 hot-pluggable nodes
- Optimized for performance and advanced networking



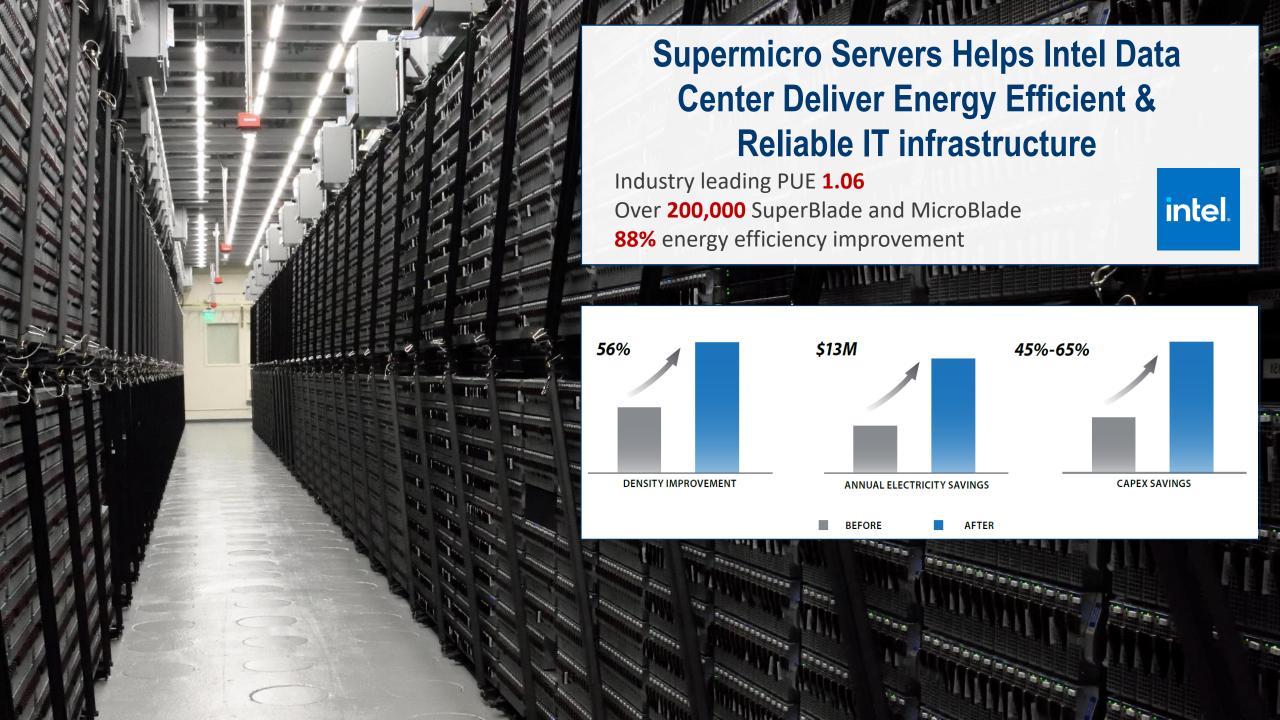
2U 4-Node SYS-220BT-H Series







8U SuperBlade SBE-820H/C/J/L-822/622/422





X12 for Intelligent Cloud Infrastructure



CloudDC: All-in-one Rackmount Platform for Cloud Data Centers

- Tool-less design, configurable I/O and 16 DDR4-3200MHz DIMMs up to 4TB
- Dual AIOM slots (OCP 3.0 compliant), 4-12 SATA/SAS drive bays with optional full NVMe supports
- Versatile and compact 2U system that supports up to two double-width GPUs in a 25.5" (648 mm) chassis
- Rich security features with TPMI 1.2/2.0, silicon root of trust, secured boot and Runtime FW Protection

SCC: Intelligent Server & Data Center Management

- Monitor and manage Supermicro and 3rd party systems in a single unified console
- Data analytics, BIOS management, network provisioning, high level visualization, lifecycle & asset management, and more.

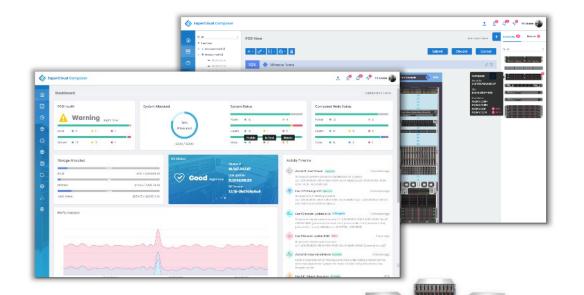


2U CloudDC

SYS-620C-TN12R 12x 3.5" NVMe/SAS/SATA









X12 for AI and HPC



Performance and Flexibility for AI/ML and HPC

GPU with PCI-E:

- High performance AI/ML and HPC-optimized solution
- Optimized for graphics and rendering applications
- Double the CPU to GPU throughput with PCI-E 4.0
- Dual socket 3rd Gen Intel® Xeon® Scalable processors up to 270W

GPU with HGX A100:

- Dense and scalable multi-GPU powerhouse supports the latest HGX A100 8 SXM4 GPUs
- Next generation of NVIDIA NVLink™, with double the GPUto-GPU direct bandwidth, almost 10X higher than PCI-E 4.0
- New NVIDIA NVSwitch™ that is 2X faster than the previous generation



4U 10-GPU SYS-420GP-TNR







4U HGX A100 8-GPU SYS-420GP-TNAR(+)



X12 for 5G and Edge



Hyper-E: Best-in-class Performance and Flexibility Rackmount Server

- High performance and highly configurable 2U system with short depth and front I/O, with DC power and NEBS Level 3 options
- Dual 3rd Gen Intel® Xeon® Scalable processors up to 270W and 32 DIMM slots
- Lightning-fast storage with the latest generation PCI-E 4.0 NVMe SSDs and networking flexibility with AIOM (OCP 3.0 compliant) NIC support

Edge/loT/Embedded: High-performance Portfolio with Compact Form Factors

- High-density processing power at the Edge
- Connecting the intelligent world from devices to the cloud
- Low-power high-efficiency computing
- Compact form factors



2U Hyper-E SYS-220HE-FTNRD







UP Short-Depth, Front I/O SYS-210P-FRDN6T







Supermicro X12 Systems



Comprehensive Portfolio Powered by Intel 3rd Gen Intel® Xeon® Scalable Processors



BigTwin®

Highly Modular Multi-Node Systems with Tool-less Design



PCIe GPU Servers

High Density Systems for Double-width, Full Length PCIe GPUs



TwinPro[®]

Cost-effective 2U Multi-node Platforms



Ultra and Ultra-E

High Performance & Flexibility Rackmount Systems for Enterprise Applications



HGX GPU Servers

High Performance and Flexibility with Advanced Architecture and Thermal Design



MP 4-Way Server

Highest Performance and Flexibility for Enterprise Applications



CloudDC

All-in-one Rackmount Platforms for Cloud Data Centers



Mainstream

Versatile Entry Level and Volume Servers for Enterprise Applications



SuperWorkstations

Workstations for High Performance Workloads



Super Blade®

High Density x86 Multi-node Server for Enterprise Cloud, HPC



Top-loading Server Optimized for Field Serviceability and Field Replacement



FatTwin[®]

Advanced Multi-node 4UTwin Architecture with 8 or 4 Nodes



Hyper-E and Hyper

Best-in-Class Performance and

Flexibility Rackmount Servers

WIO

Industry's Widest Variety of I/O Optimized Servers



IOT/Embedded

High-efficiency, High-performance Compact Form Factor for 5G and Edge computing



Performance Begins Now



X12 Server Solutions

Supporting 3rd Gen Intel[®] Xeon[®] Scalable Processors







Better

Better Performance Per Watt and Per Dollar

Faster

40%-60% Better Performance on Cloud Workloads

Greener

Reduced Environmental Impact & Lower TCO



Start Now - Early Access Program









More Information



Go to www.supermicro.com/x12 and the channel portal to explore:

- X12 brochure
- 3D Virtual Booth
- TechTalk videos
- Detailed product specs
- And more..





More Information



Register for upcoming product deep-dives:

Supermicro Blade Solutions Channel Update

- Tuesday, May 4
- 10.30 CEST
- Sign up: https://primetime.bluejeans.com/a2m/register/wvcydbbg

Supermicro UP Solutions Channel Update

- Tuesday, May 11
- 16.00 CEST
- Sign up: https://primetime.bluejeans.com/a2m/register/fczzugds



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Thank you!

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Appendix: X12 Product Detail





X12 – BigTwin®



Leading Multi-node Architectures

- Highly configurable 2U 4-node and 2U 2-node systems
- 3rd Gen Intel[®] Xeon[®] Scalable processors, 2 per node, up to 270W TDP
- All-hybrid hot-swappable drive bays NVMe, SAS or SATA (2.5" or 3.5" drives) Up to 12 NVMe drives per node.
- 16 DIMMs + 4 Intel Optane Persistent Memory 200 series per node
- PCI-E 4.0 AIOM (OCP 3.0 compliant) networking -1 per node







Key Applications

- Enterprise Server
- Hyper-Converged Storage
- Virtualization
- Al training/Inferencing

- Big Data Analytics
- Cloud Computing
- CDN
- In-memory Database





X12 – CloudDC





SYS-620C-TN12R 12x 3.5" NVMe/SAS/SATA





Key Applications

- **Cloud Computing**
- Web Servers
- Hyper-converged Storage •
- Virtualization

- File Servers
- **Head-node Computing**
- 5G Telco AI Inferencing

All-in-one Rackmount Platform for Cloud Data Centers

- Tool-less design, configurable I/O and 16 DDR4-3200MHz DIMMs up to 4TB
- Dual AIOM slots (OCP 3.0 compliant) for flexible networking plus 4-12 SATA/SAS drive bays with optional full NVMe support in selected SKUs
- Highly versatile and compact 2U system that supports up to two double-width GPUs in a 25.5" (648 mm) chassis
- Rich security features with TPMI 1.2/2.0, silicon root of trust, secured boot and Runtime FW **Protection**





X12 – Ultra and Ultra-E



High Performance & Flexibility Enterprise Applications

- Optimized for highest processor TDPs
- Up to 22 hybrid NVMe
- Up to 3 double width GPUs
- PCI-E 4.0 support with 64 lanes per socket; Total 128 lanes
- Dual 3rd Gen Intel® Xeon® Scalable processors up to 270W and 32 DIM slots for maximum memory capacity



2U Ultra-E

SYS-220-MTNR





Key Applications

- HCI
- HPC
- CDN
- Hybrid Cloud, Container as-a-Service
- Cloud Computing
- Big Data Analytics
- Back-up and Recovery
 - Scale-Out Storage



X12 – SuperBlade



Highest Density x86 Multi-Node for Enterprise Cloud & HPC

8U:

- Up to 20 hot-pluggable nodes
- Optimized for performance and advanced networking
- Integrated 200G HDR InfiniBand with non-blocking switch

6U:

- Up to 10 hot-pluggable nodes
- Performance and memory optimized architecture

4U:

- Up to 14 hot-pluggable nodes
- Optimized for performance, density and value



8U SuperBlade

SBE-820H/C/J/L-822/622/422





Key Applications

- HPC
- Hybrid Cloud
- EDA

- Virtualization
- Health
- Financial Services



X12 – GPU with PCI-E





4U 10-GPU SYS-420GP-TNR





Key Applications

- AI/ML
- Deep Learning Training and Inference
- High-performance Computing (HPC)
- Rendering Platform for High-end Professional Graphics
- Best-in-Class VDI
 Infrastructure Platform

Performance and Flexibility for AI/ML and HPC

- High performance AI/ML and HPC-optimized solution
- Optimized for graphics and rendering applications
- Double the CPU to GPU throughput with PCI-E 4.0
- Dual socket Intel[®] Xeon[®] Scalable processors up to 270W
- NVIDIA GPUs supported
- NVIDIA certified system





X12 – GPU with HGX



Performance and Flexibility for AI/ML and HPC

- Dense and scalable multi-GPU powerhouse supports the latest HGX A100 8 SXM4 GPUs
- Next generation of NVIDIA NVLink™, with double the GPU-to-GPU direct bandwidth, almost 10X higher than PCI-E 4.0
- New NVIDIA NVSwitch that is 2X faster than the previous generation
- Networking up to 200G, GPUDirect RDMA and GPUDirect Storage
- AIOM slot (OCP 3.0 compliant) support
- NVIDIA certified system



4U HGX A100 8-GPU

SYS-420GP-TNAR(+)





Key Applications

- AI/ML
- Deep Learning Training and Inference
- High-performance

Computing (HPC)

Building Block for Scalable AI Infrastruture





X12 – SuperStorage



Application-optimized High- Performance Storage

- New generation top-loading server optimized for field serviceability and field replacement
- PCI-E 4.0 storage controller with hardware RAID and IT mode
- Tool-less hot-swappable drive bays supporting 3.5 and 2.5" media
- Flexible mix of hybrid HDD and SSD drive bays for best performance and TCO
- Superior pullout drive drawer design
- Hot swappable nodes, expanders, drives, power supplies and fans



4U 90x Top-Loading SSG-640P-E1CR90





Key Applications

- Object Storage
- Data Intensive HPC/AI
- Private & Hybrid Cloud

Backup & Active Archive





X12 – Mainstream









Key Applications

- SMB
- Virtualization
- Web Server

- AI Inferencing
- Cloud Computing
- Head-node Computing

Versatile Entry Level and Volume Servers for Enterprise

- Highly versatile servers to enable a wide variety of enterprise server applications
- Choices of multiple form factors including rackmount and tower
- A rich selection of storage and memory speed support
- 4 PCI-E 4.0 x16 and 2 PCI-E 4.0 x8 expansion slots
- On-board networking options 2x 10G or 1x 1G
 Ethernet for networking
- Dual 3rd Gen Intel® Xeon® Scalable processors up to 270W and 32 DIM slots for maximum memory capacity





X12 – Hyper and Hyper-E



Best-in-class Performance and Flexibility Rackmount Servers

- High performance 1U & 2U systems with rear I/O and front I/O configurations to meet today's data center requirements
- Dual 3rd Gen Intel® Xeon® Scalable processors up to 270W and 32 DIMM slots for maximum memory capacity
- Lightning-fast storage with the latest generation PCI-E 4.0 NVMe SSDs and networking flexibility with AIOM (OCP 3.0 compliant) NIC support
- Tool-less system design features intended to simplify field serviceability and lower maintenance time



2U Hyper-E SYS-220HE-FTNRD





- 5G Core and Edge
- Telecom Micro Data Center
- Enterprise Server
- Cloud Computing
- Big Data Analytics

- Hyperconverged Storage
- Al Inference and Machine Learning
- Network Function Virtualization





X12 – FatTwin®



Advanced Multi-node 4U Twin Architecture with 8 and 4 Nodes

- Highly configurable 4U 8-node and 4-node systems
- Front accessible service design for cold-aisle serviceability
- Hot-swappable drive bays interchangeable NVMe, SAS or SATA
- Better thermal with new optimized airflow designs for up to 165W processors
- Dual 3rd Gen Intel[®] Xeon[®] Scalable processors up to 270W and 16 DIM slots for maximum memory capacity



4U 8-Node SYS-F610P2-RTN





- Hyperscale / Hyperconverged
- Cloud Optimized Servers
- Data Center Enterprise Applications
- Scale out of Storage expansion
- Telcom Data Center & ETSI certified
- Virtualization Server



X12 – TwinPro®





4 DP Nodes in 2U SYS-220TP-H



Key Applications

- Enterprise Missioncritical Applications
- Data Center Cloud Computing
- HPC
- Virtualization
- Big Data
- Financial Analysis

Cost-effective 2U Multi-node Platforms

- Dual socket supported. TDP up to 185W, 2 UPI
- 16 DIMM slots. Up to 4TB ECC RDIMM/ LRDIMM DDR4-3200MHz
- Support up to 6 hot-swappable SAS/SATA and 2 internal M.2 NVMe SSDs per node
- Onboard dual 10GbE RJ45 ports with Intel[®] X710-AT2 controller
- 2 PCI-E 4.0 x16 LP expansion slots and 1 PCI-E 4.0 x8 (M.2)
- 2 Redundant 2200W Titanium Level (96%) power supplies



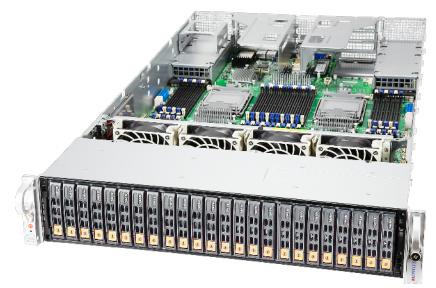


X12 – MP 4-Way Server



Performance and Flexibility for Enterprise Applications

- Large memory footprint for up to 18TB
- All hybrid hot-swappable drive bay NVMe, SAS, or SATA
- Supports 3rd Gen Intel[®] Xeon[®] Scalable (Cooper Lake) processors
- Support for PCI-E 3.0 for network interface cards
- SAP HANA Certified System SAP HANA 1.0 SPS 12, SAP HANA 2.0



2U Memory Performance SYS-240P-TNRT



- Artificial Intelligence (AI)
- Business Intelligence
- ERP
- CRM

- Scientific Virtualization
- In-Memory Database
- HCI
- SAP HANA



X12 – SuperWorkstations



Advanced Multi-node 4U Twin Architecture with 8 and 4 Nodes

- Mid-tower and 4U tower with support for 3rd Gen Intel® Xeon® Scalable processors
- Mid-tower with up to 4 internal 3.5" SATA drives and 2 onboard M.2 slots, optional 4x 2.5" drive carrier (for total of 8 drives) and optional NVMe drive support
- 4U tower with 8 hot-swappable 3.5"/2.5" SATA drive bays and 2 onboard M2 slots, optional SAS and NVMe drive support.



4U Tower SYS-740A-T



- Rendering
- Multimedia Digital Content Creation
- CAD
- Engineering/Scientific Research



X12 - WIO





SYS-520P-WTR





Key Applications

- Enterprise Applications
- Networking Appliance
- Firewall / Security Appliances
- General Purpose Computing
- Cloud Computing
- Media Entertainment

Industry's Widest Variety of I/O Optimized Servers

- Cost-effective systems supporting up to 6 PCI-E
 4.0 devices
- Hot-swappable 2.5" or 3.5" SATA3 storage
- Onboard networking dual 10 Gigabit Ethernet
- Up to 4 NVMe hybrid storage supported optionally
- 3rd Gen Intel® Xeon® Scalable processors up to 270W and 8 DIM slots for maximum memory capacity





X12 – Edge/IoT/Embedded







Key Applications

- Cloud Computing
- 5G Core and Edge
- Network Function Virtualization

High-performance Portfolio with Compact Form Factors

- High-density processing power at the Edge
- Connecting the intelligent world from devices to the cloud
- Low-power high-efficiency computing
- Long life cycle
- Compact form factors





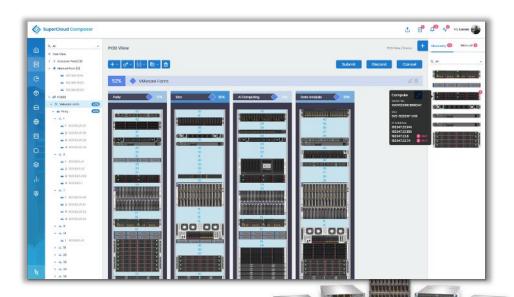
SuperCloud Composer



Compose Disaggregated Infrastructure Quickly and Effortlessly

- Monitor and manage Supermicro servers and third-party systems with a single unified console
- Data analytics
- Management
 - Update BIOS and BMC FW
 - Update BIOS configuration
 - Hardware and firmware inventory
- Top of rack network provisioning
- POD view provides high level visualization to for rack management.
- Network topology
- Telemetry, alert and log
- Lifecyle/asset management







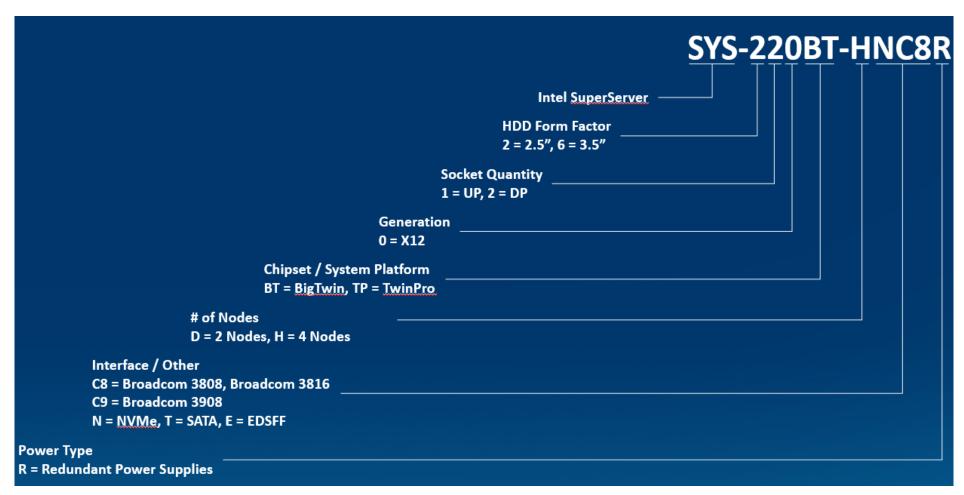


Appendix: Product Naming Rule





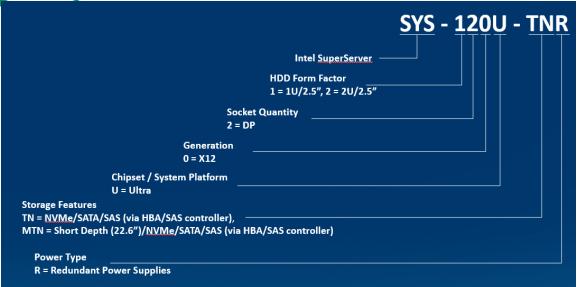




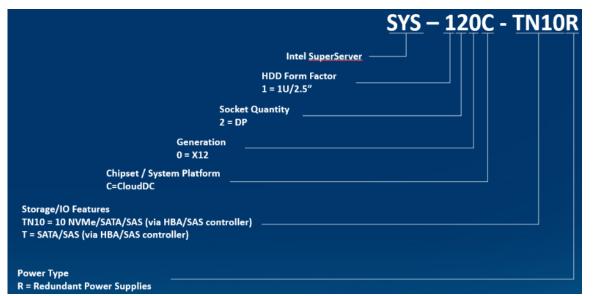
X12 BigTwin

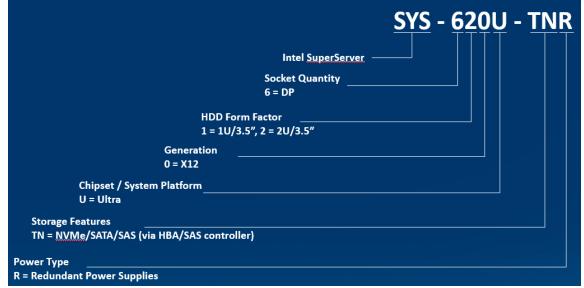




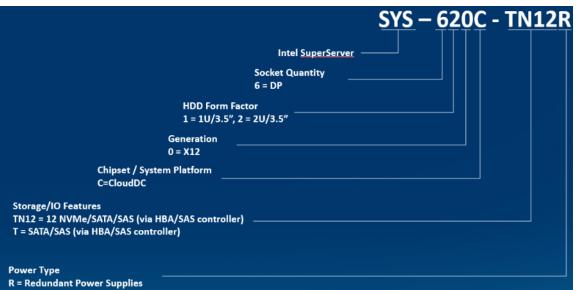


X12 Ultra – 2.5" HDD

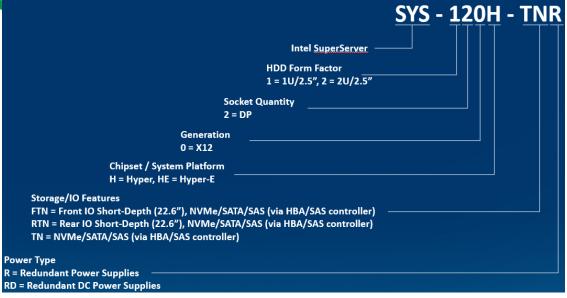


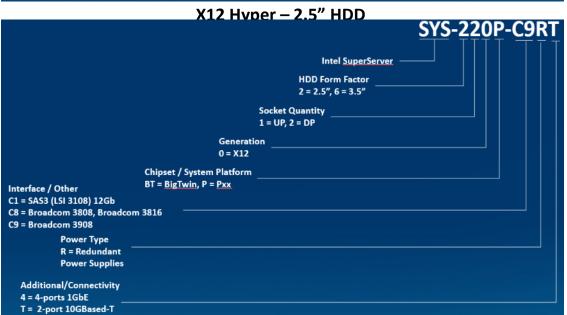


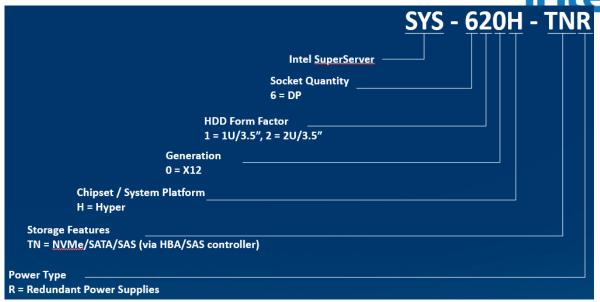
X12 Ultra – 3.5" HDD







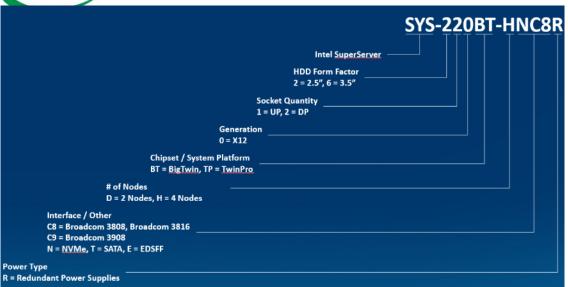




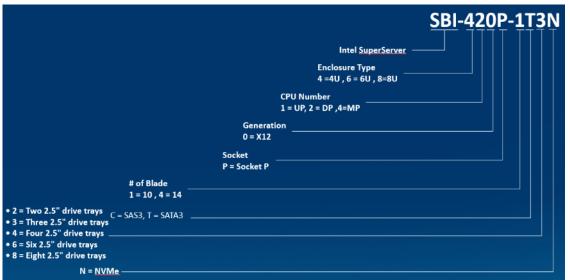
X12 Hyper – 3.5" HDD







X12 BigTwin





X12 FatTwin



X12 Blade

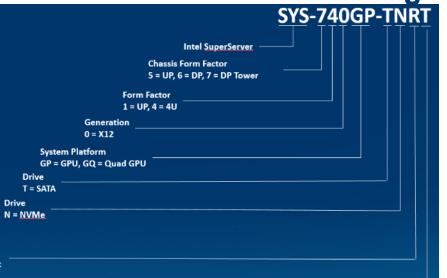


Power Supply

R = Redundant

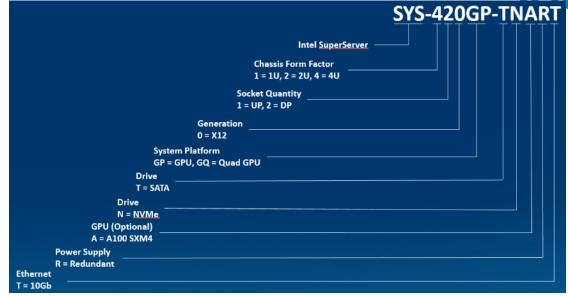
T = 10Gb

X12 Server Naming Guidelines



X12 GPU 3.5"





X12 GPU 2.5

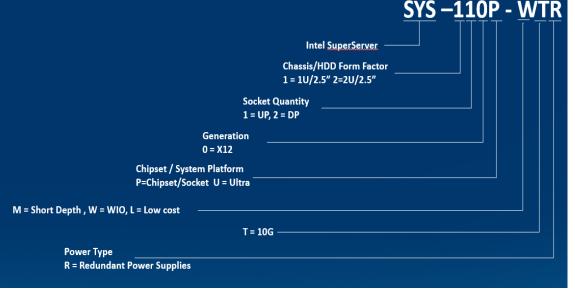


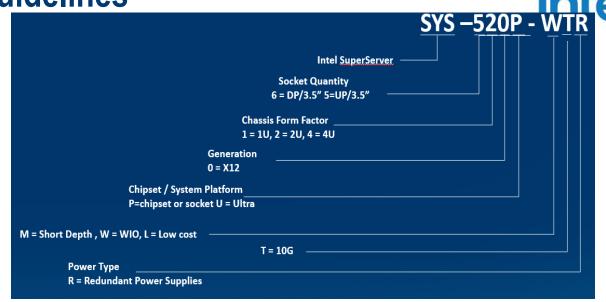
X12 Superstorage 2.5"

X12 Superstorage 3.5"



X12 Server Naming Guidelines
SYS-110P-WTR





X12 UP 2.5" X12 UP 3.5"

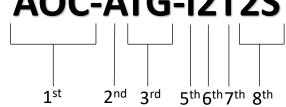




AIOM Naming Convention







Character	Representation	Options
1st	Product Family	AOC: Add On Card
2nd	Form Factor	S: Standard, P: Proprietary, C: MicroLP, M: Super IO Module (SIOM), MH: SIOM Hybrid A: Advanced IO Module (AIOM), AH: AIOM Hybrid
3rd	Product Type/Speed	G: GbE (1Gb/s), TG: 10GbE (10Gb/s), 25G: 25GbE (25Gb/s), 40G: 40GbE (40Gb/s), 50G: 50GbE (50Gb/s), 100G: 100GbE (100Gb/s), IBE: EDR IB (100Gb/s), HFI: Host Fabric Interface
4th	Chipset Model (Optional)	N: Niantec (82599), P: Powerville (i350), S: Sageville (X550), F: Fortville (XL710/X710), L: Lewisburg (PCH)
5th	Chipset Manufacturer	i: Intel, m: Mellanox, b: Broadcom
6th	Number of Ports	1: 1 port, 2: 2 ports, 4: 4 ports, 8: 8 ports
7th	Connector Type (Optional)	S: SFP/SFP+/SFP28, T: 10GBase-T, Q: QSFP+, C: QSFP28
8th	2 nd Controller/Connector Type (Optional)	G: 1x GbE RJ45, 2G: GbE 2x RJ45, S: 1x 10G SFP+, T: 10GBase-T, 2T: 2x 10GBase-T, 2S: 2x SFP+