TYAN

Thunder & Tempest Platforms

HPC / Cloud Computing / Storage / Embedded Products

World Class Server Platforms

intel XEON PLATINUM inside

intel XEON inside

intel CORE i3 inside

intel CORE i5 inside

intel CORE i7 inside

intel ATOM inside

Product Catalog 2019 Rev.1

World Class Server Platforms

Industry leading hardware manufacturer, providing servers, technical workstations and supercomputing clusters through worldwide distribution channels.

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Intel-Based HPC Platforms

Intel-Based Cloud Computing Platforms

Intel-Based Storage Platforms

Intel-Based Embedded Platforms

TYAN Mezzanine Cards

◆ About TYAN

TYAN is a world class provider of server motherboards and server platforms. Founded in California's Silicon Valley in 1989, TYAN has been bringing innovation and reliability to the server industry for nearly 30 years. As a leading server manufacturer owned by MiTAC Computing Technology Corporation, TYAN is a core business unit of the MiTAC Group.

As a leading manufacturer, TYAN provides systems integrators and value added resellers with market leading products to build and customize their servers worldwide. By offering a full range of server products and accessories, TYAN enables customers to apply their expertise and bring value to their solutions. TYAN prides itself in supplying the channel with building block products.

Many customers have had their TYAN-based products recognized within their industries, covering a wide range of markets such as HPC, hyper-scale/data center, server storage and security appliances.

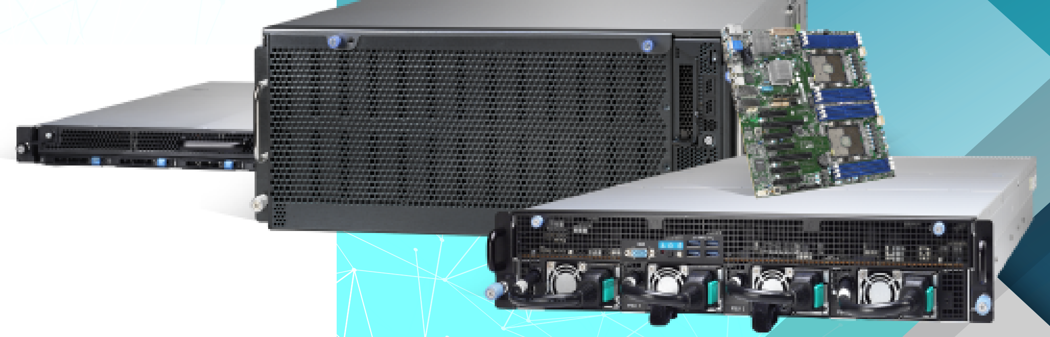
TYAN has locations spanning the globe, from North America to Asia Pacific and Europe, including R&D, distribution, local support, inventory and sales.

◆ TYAN Brand Lines

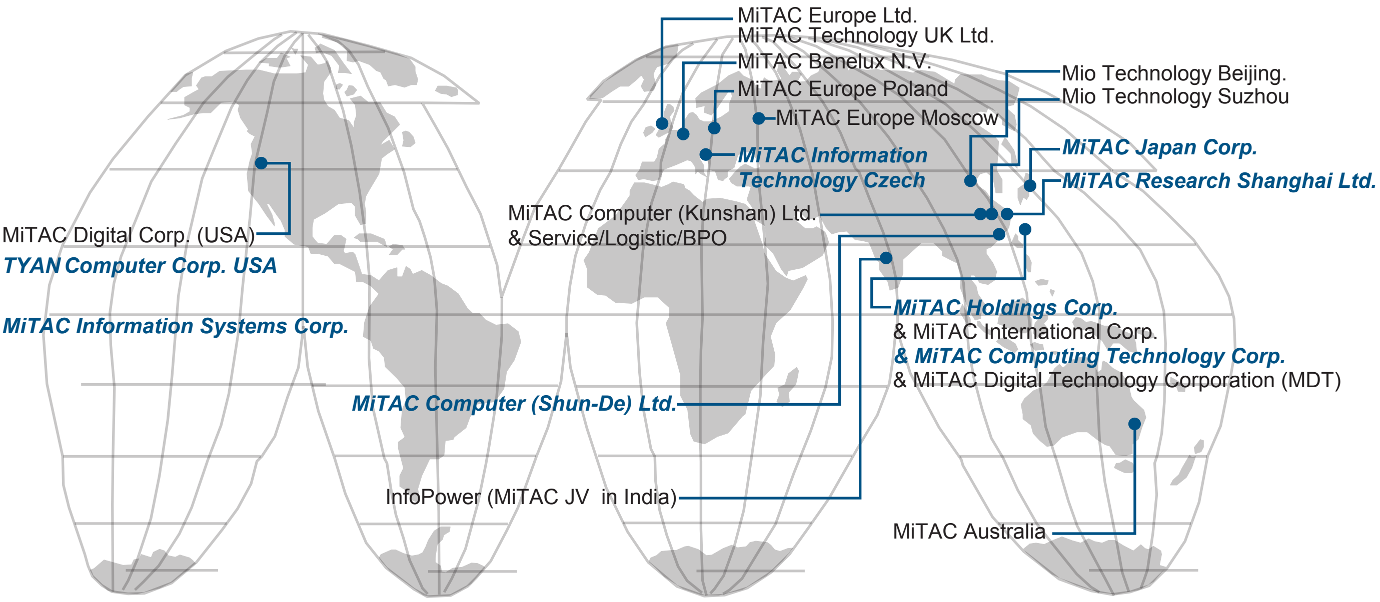
TYAN has a number of server product lines designed to suit a wide range of applications specially tailored to meet the needs of our channel and system integration partners.

TYAN's Thunder and Tempest products span the following five segments:
SX – Storage
HX – HPC
CX – Cloud
RX – Security
EX – Embedded

TYAN is continually developing new products based on the latest Intel technologies. Check our website at www.tyan.com to stay up to date with our latest product offerings.



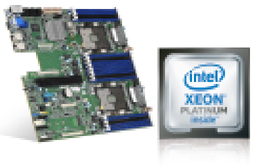
◆ MiTAC Global Presence & TYAN Branch Offices



Thunder

- Server barebones based on Intel's latest technology including Intel® Xeon® Scalable Processors
- Designed to offer best in class server technology, such as remote management, field replaceable parts
- Built to inventory
- Warehoused in US, EU, and China

Tempest



- Motherboards based on Intel's latest world-class server technology
- Fits off the shelf (OTS) chassis products
- Tested to highest standards for design and quality
- Built to inventory
- Warehoused in US, EU, and China

Application-specific Coverage

Products spanning five product segments

SX	HX	CX	RX	EX
Storage	HPC	Cloud	Security	Embedded
· Multiple drive bays · High speed interfaces · Maximum I/O	· Designed for top-end performance · Scalable, dense infrastructure · Both CPU and GPU focused HPC designs	· Virtualzation applications · Remote mangement for monitoring and control	· Built to provide robust controls · Works with latest standards and protcols	· Made for industrial applications · Durable and reliabel · High guality materials and components

Empowering Transformation in a Data-Centric Era

2nd Generation Intel® Xeon® Scalable Processors

The Foundation for Data-Centric Innovation

The 2nd-Gen Intel® Xeon® Scalable platform provides the foundation for a powerful data center platform that creates an evolutionary leap in agility and scalability. Enterprises, cloud and communications service providers can drive forward their most ambitious digital initiatives with a feature-rich, versatile platform.

New features built into the 2nd-Generation Intel® Xeon® Scalable processors include integrated Intel® Deep Learning Boost (Intel® DL Boost) for AI deep learning inferencing acceleration and support for Intel® Optane™ DC persistent memory, the revolutionary technology that brings affordable, high-capacity persistent memory to Intel's data-centric computing portfolio.

Intel® Deep Learning Boost accelerates AI/deep learning/vision workloads up to 14x2 the inference throughput performance over previous generation processors. Moreover, support for the revolutionary Intel Optane DC persistent memory, which brings affordable high-capacity and persistence to Intel's data-centric computing portfolio. By moving more data into memory, this breakthrough innovation allows users to unleash faster insights from their data and delivers up-to 36TB of system-level memory capacity when combined with traditional DRAM in an eight-socket system.

Addition of several hardware-enhanced security features that help build a more trusted foundation for computing, including side channel protections built directly into hardware.

Intel® Xeon® E-2100 Processors

Performance and Security, Intelligently Designed for Growth

An entry server built with the Intel® Xeon® E processor is a smart investment positioning you for growth while providing a reliable, always available solution to protect your data and host critical business software solutions. No matter the size of your business, the value of your data is enormous. Keep it accessible and better protected at all times with an affordable Intel® Xeon® E processor-based server.

Intel® Xeon® D-2100 Processors

Advanced Intelligence for High-Density Edge Solutions

The new Intel® Xeon® D-2100 processor delivers Intel's most transformative and ground-breaking data center processor architecture in a form factor optimized for flexible, scalable, high-density network, storage, and cloud edge solutions. It brings the architectural innovations of the Intel® Xeon® Scalable platform to a system-on-a-chip (SoC) processor for lower-power, high-density solutions, integrating essential network, security, and acceleration capabilities.

Intel® Xeon® D-1500 Processors

Ideal for Lightweight Hyperscale Workloads

The Intel® Xeon® D-1500 processor brings the performance and advanced intelligence of Intel® Xeon® processors into a dense, low-power system on a chip. Intel® Xeon® D-1500 processor provides excellent performance and software compatibility in a low-power SoC, for microservers that can efficiently process lightweight, hyperscale workloads in cloud service provider data centers and dedicated hosting company data centers.

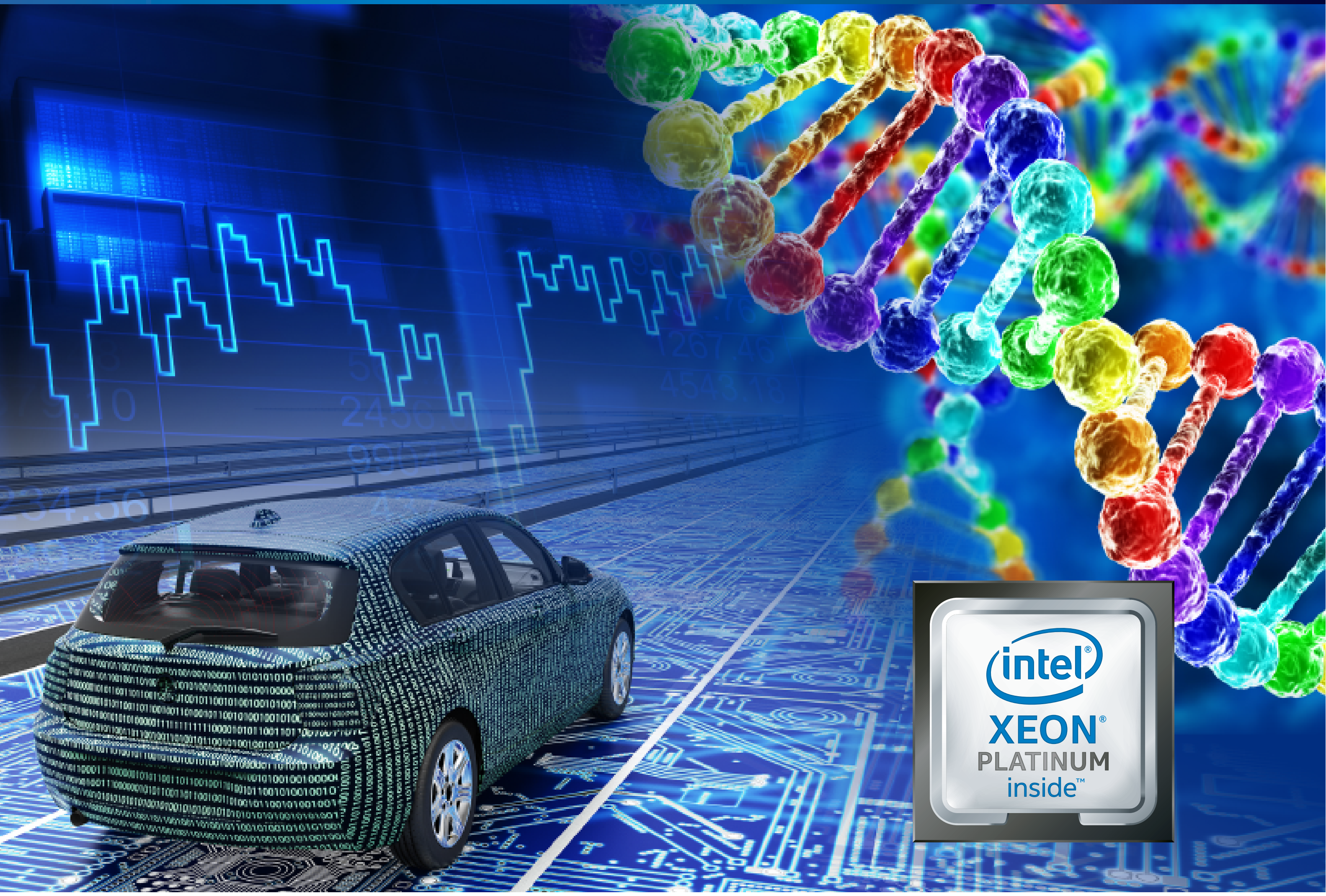
Intel® Atom® C3000 Processors

Efficient Intelligence at the Edge

The Intel® Atom® C3000 processor delivers new options for cost and infrastructure optimization, by bringing the efficient performance and intelligence of Intel® Atom® processor into a dense, lower-power system-on-a-chip (SoC), designed specifically for network and edge solutions.

The Intel® Atom® C3000 processor is Intel's third generation system-on-a-chip based CPU manufactured on Intel's optimized 14nm process technology. It can be deployed for a variety of light scale-out workloads that require very low power, high density, and high I/O integration.

INTEL-BASED HPC PLATFORMS



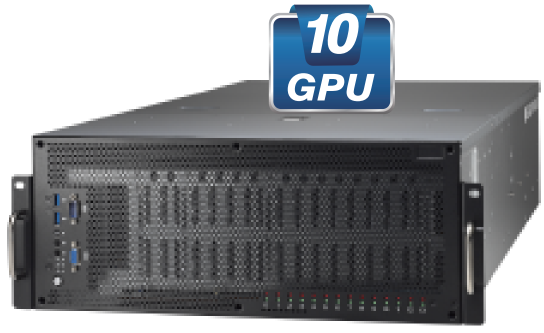
High Performance Computing is becoming an increasingly important part both datacenter and enterprise workloads. Machine Learning applications help organizations make intelligent decisions by sifting through mountains of data generated by edge devices, customer databases, historical trends, and other key indicators.

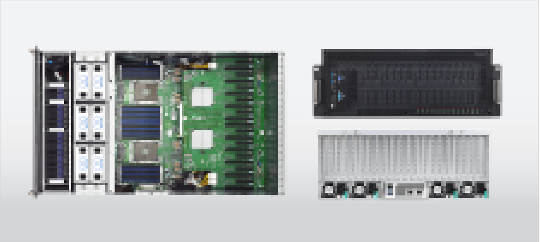
TYAN's HPC platforms are based on the latest Intel® Xeon® Scalable processors and feature support for new technologies like Intel® Deep Learning Boost, Intel® AVX-512 and Intel® Omni-Path Networking Fabric. TYAN's platforms also offer the widest support in the industry for PCIe based accelerator cards.

Target Applications:

- Data Mining, Analytics and Databases
- Imaging, Molecular Dynamics, Weather, Climate Modeling and Atmospheric
- Oil, Gas and Petroleum Exploration
- Physic and Scientific Research
- Cryptography
- Genetic Sequencing
- Large Scale Facial Recognition
- Machine Learning, Artificial Intelligence and AI inferencing

Thunder HX
FA77-B7119



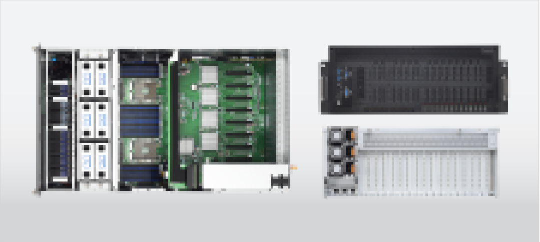


4U2S 10-GPU server platform designed for AI/Deep Learning applications

Model Number	FA77-B7119
Enclosure Form Factor	4U (30.3" in depth)
Supported CPU	(2) 2nd Gen. Intel® Xeon® Scalable Processor
Chipset	Intel® C621 PCH + (2) PLX PEX8796 PCIe switches
CPU Interconnect	(2) Intel® UPI 10.4/9.6 GT/s
Number of DIMM Slot	24/ (12+12)
Memory Type (max. capacity)	Follow latest 2nd Gen. Intel® Xeon® Scalable Platform DDR4 Memory POR* *: Actual memory speed depends on populated CPU models
Storage Controller	Intel® C621 PCH (SATA 6Gb/s)
RAID Support	RAID 0, 1, 5, 10 (Intel® RSTe) (Opt.) RAID 0, 1, 10 (Intel® VROC) for NVMe
Networking	(2) 10GbE + (1) IPMI
PCI Expansion Slots	(10) double-wide PCIe x16 + (1) single-wide PCIe x16 + (1) PCIe x16 Tyan Storage Mezz. slots + (2) OCuLink 8x (SFF-8612) connectors for 4x NVMe
Power Supply	(3+1) 4,800W RPSU

Standard Model	# Storage Bay	# PCIe slots	Networking
B7119F77V14HR-2T55-N	(14) hot-swap 2.5" (SAS/SATA only)	(10) DW PCIe x16 + (1) PCIe x16 + (1) Storage Mezz.	(2) 10GBase-T + (1) 1000Base-T (IPMI)
B7119F77V10E4HR-2T55-N	(14) hot-swap 2.5" (up to 4x NVMe U.2)	(10) DW PCIe x16 + (1) PCIe x16 + (1) Storage Mezz.	(2) 10GBase-T + (1) 1000Base-T (IPMI)

Thunder HX
FT77D-B7109



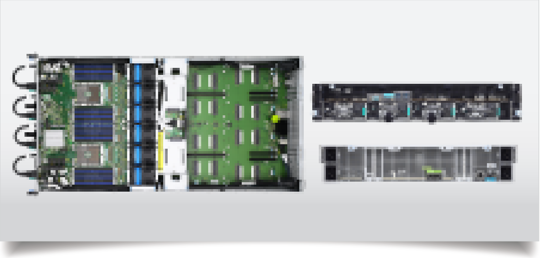
4U2S 8-GPU server platform designed for embarrassingly parallel workloads

Model Number	FT77D-B7109
Enclosure Form Factor	4U (30.3" in depth)
Supported CPU	(2) 2nd Gen. Intel® Xeon® Scalable Processor
Chipset	Intel® C621 PCH + (4) PLX PEX8747 PCIe switches
CPU Interconnect	(2) Intel® UPI 10.4/9.6 GT/s
Number of DIMM Slot	24/ (12+12)
Memory Type (max. capacity)	Follow latest 2nd Gen. Intel® Xeon® Scalable Platform DDR4 Memory POR* *: Actual memory speed depends on populated CPU models
Storage Controller	Intel® C621 PCH (SATA 6Gb/s)
RAID Support	RAID 0, 1, 5, 10 (Intel® RSTe) (Opt.) RAID 0, 1, 10 (Intel® VROC) for NVMe
Networking	(2) 10GbE + (1) IPMI
PCI Expansion Slots	(8) double-wide PCIe x16 + (1) single-wide PCIe x16 + (2) PCIe x8 Tyan Mezz. slots
Power Supply	(2+1) 3,200W RPSU

Standard Model	# Storage Bay	# PCIe slots	Networking
B7109F77DV14HR-2T-N	(14) hot-swap 2.5" (SAS/SATA only)	(8) DW PCIe x16 + (1) PCIe x16 +(2) Tyan Mezz.	(2) 10GBase-T + (1) 1000Base-T (IPMI)
B7109F77DV10E4HR-2T-N	(14) hot-swap 2.5" (up to 4x NVMe U.2)	(8) DW PCIe x16 + (2) Tyan Mezz.	(2) 10GBase-T + (1) 1000Base-T (IPMI)

Thunder HX
TA88-B7107

2U2S 8-GPU server platform with NVLink designed for AI/Deep Learning applications

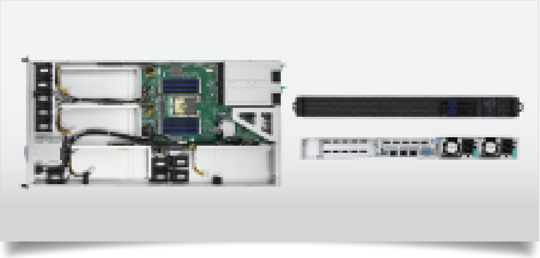


Model Number	TA88-B7107
Enclosure Form Factor	2U (34.65" in depth)
Supported CPU	(2) 2nd Gen. Intel® Xeon® Scalable Processor
Chipset	Intel® C621 PCH + (4) PLX PEX8796 PCIe switches
CPU Interconnect	(2) Intel® UPI 10.4/9.6 GT/s
Number of DIMM Slot	24/ (12+12)
Memory Type (max. capacity)	Follow latest 2nd Gen. Intel® Xeon® Scalable Platform DDR4 Memory POR* *: Actual memory speed depends on populated CPU models
Storage Controller	Intel® C621 PCH (SATA 6Gb/s)
RAID Support	(Opt.) RAID 0, 1, 10 (Intel® VROC) for NVMe
Networking	(2) 10GbE + (1) IPMI
PCI Expansion Slots	(4) PCIe x16 + (2) NVMe M.2 (22110/2280) slots
Power Supply	(2+2) 4,400W RPSU

Standard Model	# Storage Bay	# PCIe slots	Networking
B7107T88E2HR-2F	(2) hot-swap 2.5" (NVMe only)	(4) PCIe x16 + (2) M.2	(2) 10GBase SFP+ + (1) 1000Base-T (IPMI)

Thunder HX
GA88-B5631

1U1S 4-GPU server platform designed for GPUDirect RDMA applications



Model Number	GA88-B5631
Enclosure Form Factor	1U (34.8" in depth)
Supported CPU	(1) 2nd Gen. Intel® Xeon® Scalable Processor
Chipset	Intel® C621 PCH + (2) PLX PEX8747 PCIe switches
CPU Interconnect	-
Number of DIMM Slot	12
Memory Type (max. capacity)	Follow latest 2nd Gen. Intel® Xeon® Scalable Platform DDR4 Memory POR* *: Actual memory speed depends on populated CPU models
Storage Controller	Intel® C621 PCH (SATA 6Gb/s)
RAID Support	RAID 0, 1, 10 (Intel® RSTe)
Networking	(2) 10GbE + (1) IPMI
PCI Expansion Slots	(4) double-wide PCIe x16 + (1) single-wide PCIe x16 + (2) NVMe M.2 (22110/2280) slots
Power Supply	(1+1) 1,600W RPSU

Standard Model	# Storage Bay	# PCIe slots	Networking
B5631G88V2HR-2T-N	(2) hot-swap 2.5" (SAS/SATA only)	(4) DW PCIe x16 + (1) PCIe x16 + (2) M.2	(2) 10GBase-T + (1) 1000Base-T (IPMI)

Thunder HX
FT48T-B7105

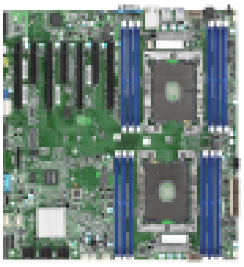
Pedestal/4U 2S 5-GPU workstation platform designed for GPU accelerated technical computing

Model Number	**FT48T-B7105**
Enclosure Form Factor	Pedestal/4U (27.5" in depth)
Supported CPU	(2) 2nd Gen. Intel® Xeon® Scalable Processor
Chipset	Intel® C621 PCH
CPU Interconnect	(2) Intel® UPI 10.4/9.6 GT/s
Number of DIMM Slot	12/ (6+6)
Memory Type (max. capacity)	Follow latest 2nd Gen. Intel® Xeon® Scalable Platform DDR4 Memory POR* *: Actual memory speed depends on populated CPU models
Storage Controller	Intel® C621 PCH (SATA 6Gb/s)
RAID Support	RAID 0, 1, 5, 10 (Intel® RSTe)
Networking	(2) 10GbE + (1) IPMI
PCI Expansion Slots	(5) double-wide PCIe x16 + (1) single-wide PCIe x16 + (2) NVMe M.2 (22110/2280) slots
Power Supply	(1+1) 2,000W RPSU

Standard Model	# Storage Bay	# PCIe slots	Networking
B7105F48TV4HR-2T-N (6 system fans)	(4) hot-swap 3.5" (SAS/SATA only)	(5) DW PCIe x16 + (1) PCIe x16 + (2) M.2	(2) 10GBase-T + (1) 1000Base-T (IPMI)
B7105F48TV8HR-2T-G (3 system fans)	(8) hot-swap 3.5" (SAS/SATA only)	(5) DW PCIe x16 + (1) PCIe x16 + (2) M.2	(2) 10GBase-T + (1) 1000Base-T (IPMI)

Tempest HX
S7100

Server Board WS Board



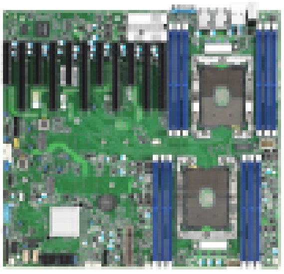
Dual-socket server/workstation implementation for HPC applications

Processor	• (2) 2nd Gen. Intel® Xeon® Scalable Processor
Chipset	• Intel® C621 PCH
Memory	• (6+6) DDR4 DIMM slots
Expansion	• (4) PCIe x16 slots • (3) PCIe x8 slots • (2) NVMe M.2 slots
Storage	• (14) SATA 6Gb/s (Intel® RSTe)
Network	• (2) 1000Base-T ports (Intel® I350-AM2; 1 shared w/ IPMI)
Video & Audio	• ASPEED AST2500 Integrated Graphics (Server SKU) • ASPEED AST2510 Integrated Graphics (Workstation SKU) • Realtek ALC892-GR (Workstation SKU)
Management	• iBMC w/ iKVM (Server SKU)
Form Factor	• SSI EEB

Standard Model	PCH	SAS	NVMe	BMC	Audio
S7100GM2NR	C621	-	(2) M.2	Yes	-
S7100AG2NR	C621	-	(2) M.2	-	Yes

Tempest HX
S7105

Server Board WS Board

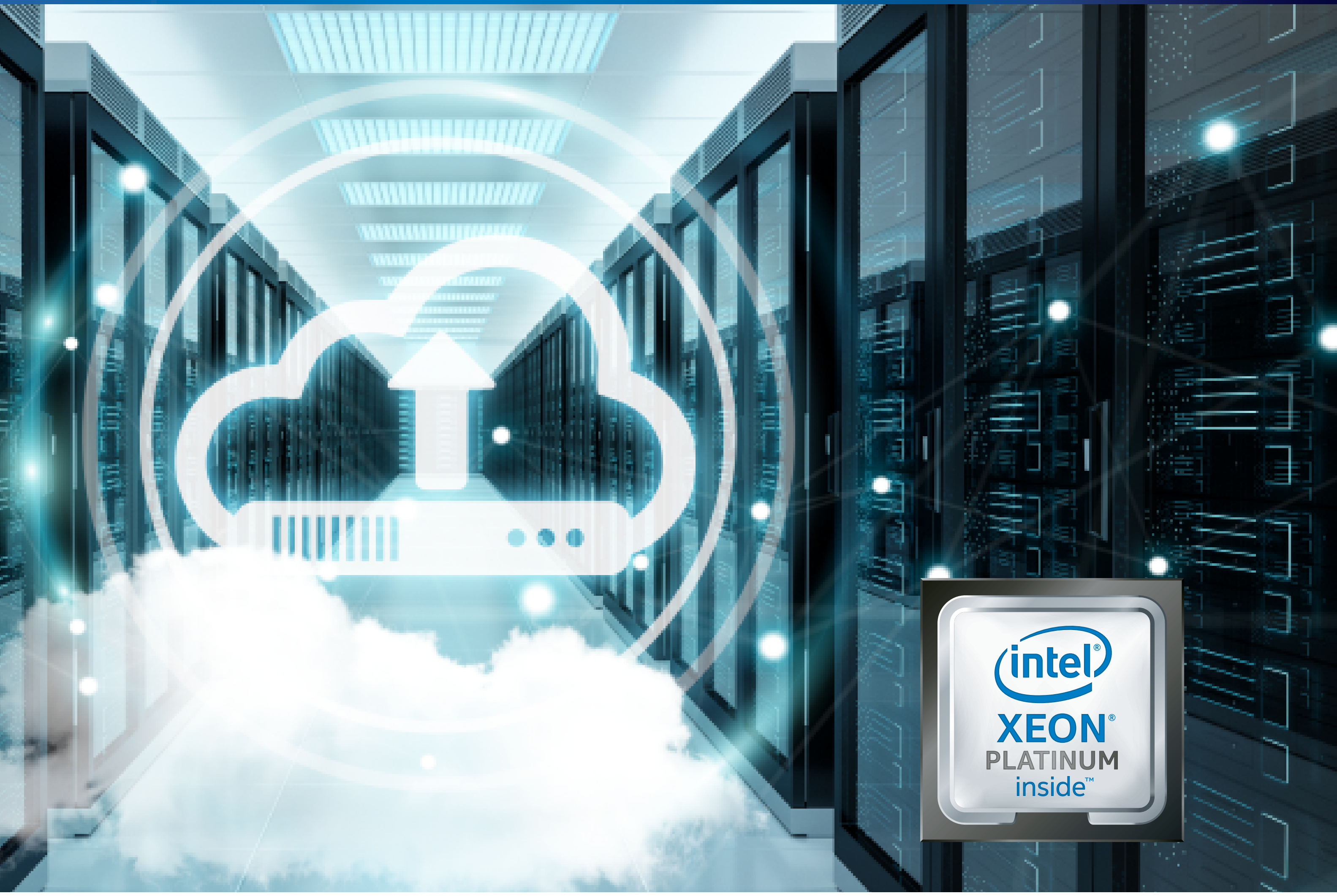


Dual-socket server/workstation implementation for HPC applications

Processor	• (2) 2nd Gen. Intel® Xeon® Scalable Processor
Chipset	• Intel® C621 PCH
Memory	• (6+6) DDR4 DIMM slots
Expansion	• (6) PCIe x16 slots • (5) PCIe x8 slots (mux'd with adjacent PCIe x16 slots) • (2) NVMe M.2 slots
Storage	• (10) SATA 6Gb/s (Intel® RSTe)
Network	• (2) 10GBase-T ports (Intel® x550-AT2) • (1) 1000Base-T port dedicate for IPMI (Realtek RTL8211E-VB-CG)
Video & Audio	• ASPEED AST2500 Integrated Graphics • Realtek ALC892-CG
Management	• iBMC w/ iKVM
Form Factor	• 14.23" x 13.24"

Standard Model	PCH	SAS	NVMe	BMC	Audio
S7105AGM2NR-2T	C621	-	(2) M.2	Yes	Yes

INTEL-BASED CLOUD PLATFORMS



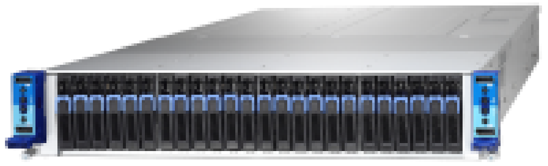
Cloud Computing is a major technology trend that is transforming the way organizations deploy hardware. Moving workloads to the cloud involves taking servers that would have gone into local server closets and deploying them in a centralized datacenter where density and energy performance are key.

TYAN has a wide range of Cloud Computing server platforms that feature outstanding compute, storage, and memory density along with industry leading energy efficiency.

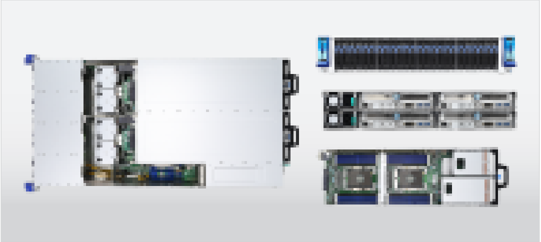
Target Applications:

- Big Data Analytics
- Streaming Data Processing
- Data Enrichment
- Trigger Event Detection
- Complex Session Analysis
- In-Memory Databases
- Interactive Analysis
- Data Visualization

Thunder CX
TN200-B7108-X4S



2U4N server platform designed for hyper-converged and HPC workloads



Model Number	TN200-B7108-X4S
Enclosure Form Factor	2U (33.8" in depth)
Supported CPU (per node)	(2) 2nd Gen. Intel® Xeon® Scalable Processor
Chipset (per node)	Intel® C621 PCH
CPU Interconnect (per node)	(2) Intel® UPI 10.4/9.6 GT/s
Number of DIMM Slot (per node)	16/ (8+8)
Memory Type (per node) (max. capacity)	Follow latest 2nd Gen. Intel® Xeon® Scalable Platform DDR4 Memory POR* *: Actual memory speed depends on populated CPU models
Storage Controller (per node)	Intel® C621 PCH (SATA 6Gb/s)
RAID Support (per node)	RAID 0, 1, 5, 10 (Intel® RSTe) (Opt.) RAID 0, 1, 10 (Intel® VROC) for NVMe U.2/M.2
Networking (per node)	(1) IPMI
PCI Expansion Slots (per node)	(1) PCIe x16 + (1) PCIe x8 + (1) PCIe x16 OCP 2.0 Mezz. + (2) NVMe M.2 (22110/2280) slots
Power Supply	(1+1) 2,200W RPSU

Standard Model	# Storage Bay	# PCIe slots (per node)	Networking (per node)
B7108T200X4-220PE6HR	(24) hot-swap 2.5" (NVMe/SATA only)	(1) PCIe x16 + (1) PCIe x8 + (1) OCP 2.0 Mezz. + (2) M.2	(1) 1000Base-T (IPMI)

Thunder CX
TN200-B7108-X4L

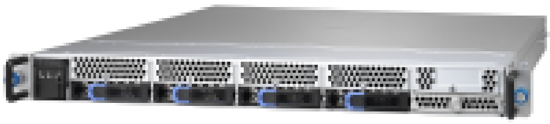
2U4N server platform designed for hyper-converged and HPC workloads

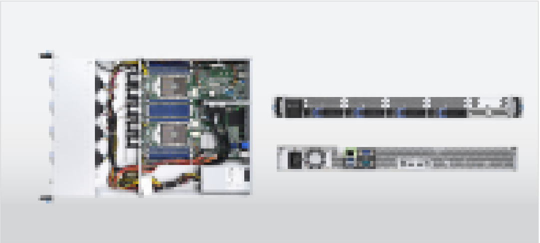
Model Number	TN200-B7108-X4L
Enclosure Form Factor	2U (33.8" in depth)
Supported CPU (per node)	(2) 2nd Gen. Intel® Xeon® Scalable Processor
Chipset (per node)	Intel® C621 PCH
CPU Interconnect (per node)	(2) Intel® UPI 10.4/9.6 GT/s
Number of DIMM Slot (per node)	16/ (8+8)
Memory Type (per node) (max. capacity)	Follow latest 2nd Gen. Intel® Xeon® Scalable Platform DDR4 Memory POR* *: Actual memory speed depends on populated CPU models
Storage Controller (per node)	Intel® C621 PCH (SATA 6Gb/s)
RAID Support (per node)	RAID 0, 1, 5, 10 (Intel® RSTe) (Opt.) RAID 0, 1, 10 (Intel® VROC) for NVMe M.2
Networking (per node)	(1) IPMI
PCI Expansion Slots (per node)	(1) PCIe x16 + (1) PCIe x8 + (1) PCIe x16 OCP 2.0 Mezz. + (2) NVMe M.2 (22110/2280) slots
Power Supply	(1+1) 2,200W RPSU

Standard Model	# Storage Bay	# PCIe slots (per node)	Networking (per node)
B7108T200X4-220PV3HR	(12) hot-swap 3.5" (SAS/SATA only)	(1) PCIe x16 + (1) PCIe x8 + (1) OCP 2.0 Mezz. + (2) M.2	(1) 1000Base-T (IPMI)

Thunder CX
GT62D-B7106

1U2S server platform for CSP compute server applications



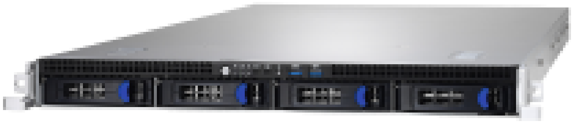


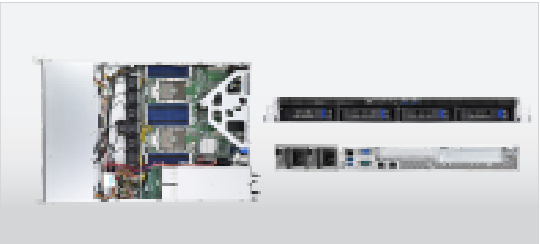
Model Number	GT62D-B7106
Enclosure Form Factor	1U (24.6" in depth)
Supported CPU	(2) 2nd Gen. Intel® Xeon® Scalable Processor
Chipset	Intel® C621 PCH
CPU Interconnect	(2) Intel® UPI 10.4/9.6 GT/s
Number of DIMM Slot	12/ (6+6)
Memory Type (max. capacity)	Follow latest 2nd Gen. Intel® Xeon® Scalable Platform DDR4 Memory POR* *: Actual memory speed depends on populated CPU models
Storage Controller	2nd Gen. Intel® Xeon® Scalable Processor (PCIe Gen.3 x4)
RAID Support	-
Networking	(1) IPMI
PCI Expansion Slots	(1) PCIe x16 OCP 2.0 Mezz. + (1) NVMe M.2 (2280/2260/2242) slots
Power Supply	(1) 500W PSU

Standard Model	# Storage Bay	# PCIe slots	Networking
B7106G62DE4H	(4) hot-swap 2.5" (NVMe only)	(1) OCP 2.0 Mezz. + (1) M.2	(1) 1000Base-T (IPMI)

Thunder CX
GT24E-B7106

1U2S server platform for cost-effective CSP server applications



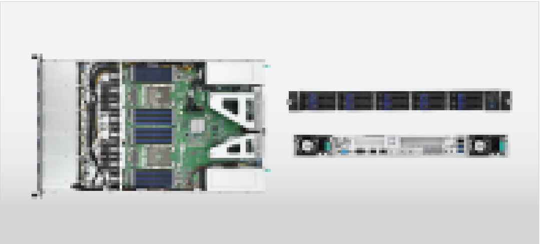


Model Number	GT24E-B7106
Enclosure Form Factor	1U (25.4" in depth)
Supported CPU	(2) 2nd Gen. Intel® Xeon® Scalable Processor
Chipset	Intel® C621 PCH
CPU Interconnect	(2) Intel® UPI 10.4/9.6 GT/s
Number of DIMM Slot	16/ (8+8)
Memory Type (max. capacity)	Follow latest 2nd Gen. Intel® Xeon® Scalable Platform DDR4 Memory POR* *: Actual memory speed depends on populated CPU models
Storage Controller	Intel® C621 PCH (SATA 6Gb/s)
RAID Support	RAID 0, 1, 5, 10 (Intel® RSTe) (Opt.) RAID 0, 1, 10 (Intel® VROC) for NVMe
Networking	(2) GbE + (1) IPMI
PCI Expansion Slots	(2) PCIe x16 + (1) PCIe x16 OCP 2.0 Mezz. + (1) PCIe x16 Storage Mezz. + (1) NVMe M.2 (2280/2260/2242) slots
Power Supply	(1+1) 770W RPSU

Standard Model	# Storage Bay	# PCIe slots	Networking
B7106G24EV4HR	(4) hot-swap 3.5" (SAS/SATA only) + (2) int. 2.5"(SATA SSD only)	(2) PCIe x16 + (1) OCP 2.0 Mezz. + (1) Storage Mezz. + (1) M.2	(2) 1000Base-T + (1) 1000Base-T (IPMI)
B7106G24EV2E2HR	(4) hot-swap 3.5" (up to 2x NVMe U.2) + (2) int. 2.5"(SATA SSD only)	(2) PCIe x16 + (1) OCP 2.0 Mezz. + (1) M.2	(2) 1000Base-T + (1) 1000Base-T (IPMI)

Thunder CX
GT75B-B7102

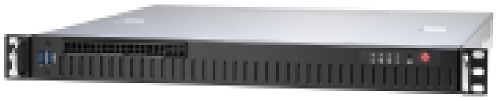
1U2S server platform with maximum memory support for virtualization applications



Model Number	GT75B-B7102
Enclosure Form Factor	1U (29.72" in depth)
Supported CPU	(2) 2nd Gen. Intel® Xeon® Scalable Processor
Chipset	Intel® C621 PCH
CPU Interconnect	(2) Intel® UPI 10.4/9.6 GT/s
Number of DIMM Slot	24/ (12+12)
Memory Type (max. capacity)	Follow latest 2nd Gen. Intel® Xeon® Scalable Platform DDR4 Memory POR* *: Actual memory speed depends on populated CPU models
Storage Controller	Intel® C621 PCH (SATA 6Gb/s)
RAID Support	RAID 0, 1, 5, 10 (Intel® RSTe) (Opt.) RAID 0, 1, 10 (Intel® VROC) for NVMe
Networking	(2) 10GbE + (1) IPMI
PCI Expansion Slots	(2) PCIe x16 + (1) PCIe x8 OCP Mezz. + (1) PCIe x8 Storage Mezz. + (2) NVMe M.2 (2280) slots
Power Supply	(1+1) 750W RPSU

Standard Model	# Storage Bay	# PCIe slots	Networking
B7102G75BV10HR-2T-HE	(10) hot-swap 2.5" (SAS/SATA only)	(2) PCIe x16 + (1) OCP Mezz. + (1) Storage Mezz. + (2) M.2	(2) 10GBase-T + (1) 1000Base-T (IPMI)
B7102G75BV6E4HR-2T-HE	(10) hot-swap 2.5" (up to 4x NVMe U.2)	(1) PCIe x16 + (1) OCP Mezz. + (1) Storage Mezz. + (2) M.2	(2) 10GBase-T + (1) 1000Base-T (IPMI)

Thunder CX
GX38-B5550



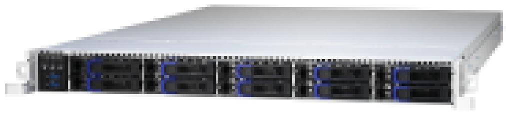
1U1S server platform with shallow chassis for IoT applications

Model Number	GX38-B5550
Enclosure Form Factor	1U (14.96" in depth)
Supported CPU	(1) Intel® Xeon® E-2100 Processor
Chipset	Intel® C242 PCH
CPU Interconnect	-
Number of DIMM Slot	4
Memory Type (max. capacity)	Follow latest Intel® Xeon® E-2100 Platform DDR4 Memory POR* *: Actual memory speed depends on populated CPU models
Storage Controller	Intel® C242 PCH (SATA 6Gb/s)
RAID Support	RAID 0, 1, 10 (Intel® RSTe)
Networking	Up to (4) GbE + (1) IPMI
PCI Expansion Slots	(1) PCIe x8 slot
Power Supply	(1) 250W PSU

Standard Model	# Storage Bay	# PCIe slots	Networking
B5550G38V2-2	(2) internal 3.5" (SATA only)	(1) PCIe x8	(2) 1000Base-T + (1) 1000Base-T (IPMI)
B5550G38V2-4	(2) internal 3.5" (SATA only)	(1) PCIe x8	(4) 1000Base-T + (1) 1000Base-T (IPMI)

Thunder CX
GT62E-B5556

1U1S server platform for CSP applications

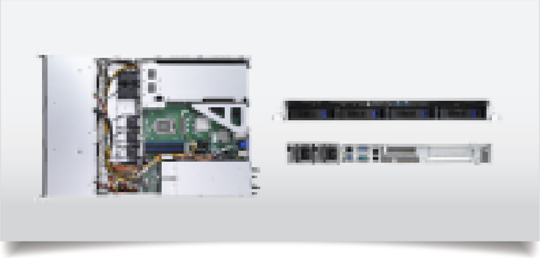


Model Number	GT62E-B5556
Enclosure Form Factor	1U (24.6" in depth)
Supported CPU	(1) Intel® Xeon® E-2100 Processor
Chipset	Intel® C242 PCH
CPU Interconnect	-
Number of DIMM Slot	4
Memory Type (max. capacity)	Follow latest Intel® Xeon® E-2100 Platform DDR4 Memory POR* *: Actual memory speed depends on populated CPU models
Storage Controller	Intel® C242 PCH (SATA 6Gb/s)
RAID Support	RAID 0, 1, 5, 10 (Intel® RSTe)
Networking	(2) 10GbE + (1) IPMI
PCI Expansion Slots	Up to (2) PCIe x8 + (1) PCIe x4 slots
Power Supply	(1+1) 650W RPSU

Standard Model	# Storage Bay	# PCIe slots	Networking
B5556G62EV10HR-2T-844	(10) hot-swap 2.5" (SAS/SATA only)	(2) PCIe x8 + (1) PCIe x4	(2) 10GBase-T + (1) 1000Base-T (IPMI)
B5556G62EV8E2HR-2T-844	(10) hot-swap 2.5" (up to 2x NVMe U.2)	(1) PCIe x8 + (1) PCIe x4	(2) 10GBase-T + (1) 1000Base-T (IPMI)

Thunder CX
GT24E-B5556

1U1S server platform for CSP applications

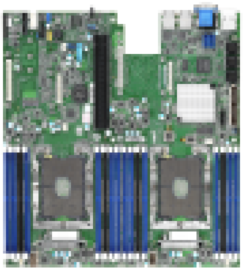


Model Number	GT24E-B5556
Enclosure Form Factor	1U (25.4" in depth)
Supported CPU	(1) Intel® Xeon® E-2100 Processor
Chipset	Intel® C242 PCH
CPU Interconnect	-
Number of DIMM Slot	4
Memory Type (max. capacity)	Follow latest Intel® Xeon® E-2100 Platform DDR4 Memory POR* *: Actual memory speed depends on populated CPU models
Storage Controller	Intel® C242 PCH (SATA 6Gb/s)
RAID Support	RAID 0, 1, 5, 10 (Intel® RSTe)
Networking	(2) 10GbE + (1) IPMI
PCI Expansion Slots	(1) PCIe x16 + (1) PCIe x4 slots
Power Supply	(1+1) 650W RPSU

Standard Model	# Storage Bay	# PCIe slots	Networking
B5556G24EV4HR-2T-N	(4) hot-swap 3.5" (SAS/SATA only) + (2) int. 2.5" (SATA SSD only)	(1) PCIe x16 + (1) PCIe x4	(2) 10GBase-T + (1) 1000Base-T (IPMI)
B5556G24EV4HR-2T	(4) hot-swap 3.5" (SAS/SATA only) + (2) int. 2.5" (SATA SSD only)	(2) PCIe x8 + (1) PCIe x4	(2) 10GBase-T + (1) 1000Base-T (IPMI)

Tempest CX
S7106

Server Board



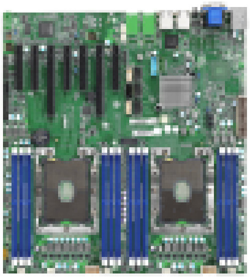
Rack-optimized dual-socket server implementation for CSP application server deployment

Processor	• (2) 2nd Gen. Intel® Xeon® Scalable Processor
Chipset	• Intel® C621 PCH • Intel® C622 PCH (-L2 SKU)
Memory	• (8+8) DDR4 DIMM slots
Expansion	• (2) PCIe x24 slots • (1) PCIe x16 OCP 2.0 mezz. slot • (1) PCIe x16 storage mezz. slot • (1) NVMe M.2 slot
Storage	• (14) SATA 6Gb/s (Intel® RSTe)
Network	• (2) 1000Base-T ports (2x Intel® i210-AT) • (1) 1000Base-T port dedicate for IPMI (Realtek RTL8211E-VB-CG)
Video	• ASPEED AST2500 Integrated Graphics
Management	• iBMC w/ iKVM
Form Factor	• EATX

Standard Model	PCH	SAS	NVMe	BMC	10GbE
S7106GM2NR	C621	-	M.2	Yes	-
S7106GM2NR-L2	C622	-	M.2	Yes	-

Tempest CX
S7103

Server Board



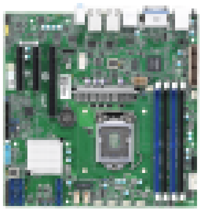
Cost-optimized dual-socket server implementation for general server deployment

Processor	• (2) 2nd Gen. Intel® Xeon® Scalable Processor
Chipset	• Intel® C621 PCH • Intel® C622 PCH (-L2 SKU)
Memory	• (6+6) DDR4 DIMM slots
Expansion	• (2) PCIe x16 slots • (5) PCIe x8 slots
Storage	• (14) SATA 6Gb/s (Intel® RSTe) • (8) SAS 12Gb/s (Broadcom Integrated RAID) (-W SKU)
Network	• (2) 1000Base-T ports (Intel® i350-AM2) (N/A on (W)GM2NR-2F-L2 SKUs) • (2) 10GBase SFP+ ports (Intel® C622 PCH integrated x722) (-2F SKU) • (1) 1000Base-T port dedicate for IPMI (Realtek RTL8211E-VB-CG)
Video	• ASPEED AST2500 Integrated Graphics
Management	• iBMC w/ iKVM
Form Factor	• EATX

Standard Model	PCH	SAS	GbE	BMC	10GbE
S7103GM2NR	C621	-	Yes	Yes	-
S7103WGM2NR	C621	12G IOC	Yes	Yes	-
S7103GM2NR-2F-L2	C622	-	-	Yes	Yes
S7103WGM2NR-2F-L2	C622	12G IOC	-	Yes	Yes
S7103GM4NR-2F-L2	C622	-	Yes	Yes	Yes
S7103WGM4NR-2F-L2	C622	12G IOC	Yes	Yes	Yes

Tempest CX
S5550

Server Board WS Board



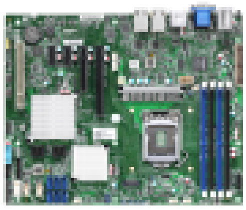
Single-socket server motherboard for CSP front-tier server deployment

Processor	• (1) Intel® Xeon® E-2100 Processor • (1) 9th Gen. Intel® Core™ i3 Processorr
Chipset	• Intel® C242 PCH
Memory	• (4) DDR4 DIMM slots
Expansion	• (1) PCIe x16 slot (w/ x8 link) • (1) PCIe x8 slot • (1) PCIe x8 slot (w/ x2 link)
Storage	• (6) SATA 6Gb/s (Intel® RSTe)
Network	• (2) 1000Base-T ports (2x Intel® i210-AT) (2N SKUs) • (4) 1000Base-T ports (4x Intel® i210-AT) (4N SKUs) • (1) 1000Base-T port dedicate for IPMI (Realtek RTL8211E-VB-CG)
Video	• ASPEED AST2500 Integrated Graphics
Management	• iBMC w/ iKVM
Form Factor	• Micro-ATX

Standard Model	PCH	pGfx	Display Port	BMC	GbE
S5550GM2NR	C242	-	-	Yes	2
S5550GM4NR	C242	-	-	Yes	4

Tempest CX
S5552

Server Board



Single-socket server motherboard for SMB entry server applications

Processor	• (1) Intel® Xeon® E-2100 Processor • (1) 9th Gen. Intel® Core™ i3 Processor
Chipset	• Intel® C242 PCH
Memory	• (4) DDR4 DIMM slots
Expansion	• (1) PCIe x16 slot (w/ x8 link on -W SKU) • (1) PCIe x8 slot (w/ x2 link) • (2) PCIe x1 slots
Storage	• (6) SATA 6Gb/s (Intel® RSTe) • (8) SAS 12Gb/s (Broadcom Integrated RAID) (-W SKU)
Network	• (2) 1000Base-T ports (2x Intel® i210-AT) (2N SKUs) • (4) 1000Base-T ports (4x Intel® i210-AT) (4N SKUs) • (1) 1000Base-T port dedicate for IPMI (Realtek RTL8211E-VB-CG)
Video	• ASPEED AST2500 Integrated Graphics
Management	• iBMC w/ iKVM
Form Factor	• ATX

Standard Model	PCH	SAS	Display Port	BMC	GbE
S5552GM2NR	C242	-	-	Yes	2
S5552GM4NR	C242	-	-	Yes	4
S5552WGM4NR	C242	Yes	-	Yes	4

INTEL-BASED STORAGE PLATFORMS

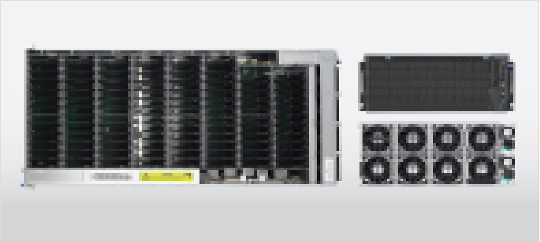
Data storage is an enormous problem for organizations spanning many different markets. Video surveillance and high definition video distribution are a few examples of workloads that deal with mountains of data.

TYAN offers a full line of storage servers capable of storing massive amounts of data, from 1U servers with 12 3.5” HDD bays designed for Hadoop workloads to enormous 4U servers capable of storing more than a petabyte; TYAN has a range of storage servers that can meet the needs of any storage application.

Target Applications:

- Software Defined Storage
- High Speed Data Streaming
- Distributed Database Applications
- Content Distribution
- Enterprise Workloads
- Object Storage
- Virtualization

Thunder SX
FA100-B7118



4U2S storage server platform designed for hyper-scale storage capacity requirement

Model Number	FA100-B7118
Enclosure Form Factor	4U (42" in depth)
Supported CPU	(2) 2nd Gen. Intel® Xeon® Scalable Processor
Chipset	Intel® C621 PCH
CPU Interconnect	(2) Intel® UPI 10.4/9.6 GT/s
Number of DIMM Slot	16/ (8+8)
Memory Type (max. capacity)	Follow latest 2nd Gen. Intel® Xeon® Scalable Platform DDR4 Memory POR* *: Actual memory speed depends on populated CPU models
Storage Controller	(2) Broadcom SAS3008 (SAS 12Gb/s)
RAID Support	RAID 0, 1, 1E, 10 (Broadcom Integrated RAID)
Networking	(1) IPMI
PCI Expansion Slots	(1) PCIe x16 + (1) PCIe x16 OCP 2.0 Mezz. + (1) NVMe M.2 (22110/2280) slots
Power Supply	(1+1) 1,600W RPSU

Standard Model	# Storage Bay	# PCIe slots	Networking
B7118F100V100HR	(100) hot-swap 3.5" (SATA only)	(1) PCIe x16 + (1) OCP 2.0 Mezz. + (1) M.2	(1) 1000Base-T (IPMI)

Thunder SX
FT70-B7100

4U2S storage server platform for warm stoage applications

Model Number	FT70-B7100
Enclosure Form Factor	4U (27.5" in depth)
Supported CPU	(2) 2nd Gen. Intel® Xeon® Scalable Processor
Chipset	Intel® C621 PCH
CPU Interconnect	(2) Intel® UPI 10.4/9.6 GT/s
Number of DIMM Slot	12/ (6+6)
Memory Type (max. capacity)	Follow latest 2nd Gen. Intel® Xeon® Scalable Platform DDR4 Memory POR* *: Actual memory speed depends on populated CPU models
Storage Controller	Discrete SAS 12G HBA/RAID Adapter
RAID Support	Depends on deployed HBA/RAID Adapter
Networking	(2) GbE (1 shared IPMI NIC)
PCI Expansion Slots	(3) PCIe x16 + (3) PCIe x8 + (2) NVMe M.2 (1x 2280 + 1x 2242) slots
Power Supply	(1+1) 800W RPSU

Standard Model	# Storage Bay	# PCIe slots	Networking
B7100F70V26HR	(24) hot-swap 3.5" (SAS/SATA only) + (2) hot-swap 2.5" (SATA only)	(3) PCIe x16 + (3) PCIe x8 + (2) M.2	(2) 1000Base-T (1 shared w/ IPMI)

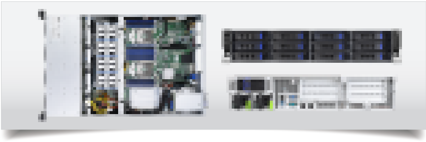
Thunder SX
TN76-B7102

2U2S server platform with maximum memory support for virtualization applications

Model Number	TN76-B7102
Enclosure Form Factor	2U (30.1" in depth)
Supported CPU	(2) 2nd Gen. Intel® Xeon® Scalable Processor
Chipset	Intel® C621 PCH
CPU Interconnect	(2) Intel® UPI 10.4/9.6 GT/s
Number of DIMM Slot	24/ (12+12)
Memory Type (max. capacity)	Follow latest 2nd Gen. Intel® Xeon® Scalable Platform DDR4 Memory POR* *: Actual memory speed depends on populated CPU models
Storage Controller	Intel® C621 PCH (SATA 6Gb/s)
RAID Support	RAID 0, 1, 5, 10 (Intel® RSTe) (Opt.) RAID 0, 1, 10 (Intel® VROC) for NVMe
Networking	(2) 10GbE + (1) IPMI
PCI Expansion Slots	(3) PCIe x16 (2 support double-width GPU cards) or (6) PCIe x8 (on risers) + (2) PCIe x8 + (1) PCIe x8 OCP Mezz. + (1) PCIe x8 Storage Mezz. + (2) NVMe M.2 (2280) slots
Power Supply	(1+1) 1,200W RPSU

Standard Model	# Storage Bay	# PCIe slots	Networking
B7102T76V12HR-2T-N	(12) hot-swap 3.5" (SAS/SATA only)	(3) PCIe x16 (or 6x PCIe x8) + (2) PCIe x8 + (1) OCP Mezz. + (1) Storage Mezz. + (2) M.2	(2) 10GBase-T + (1) 1000Base-T (IPMI)
B7102T76V8E4HR-2T-N	(12) hot-swap 3.5" (up to 4x NVMe U.2)	(2) PCIe x16 + (2) PCIe x8 + (1) OCP Mezz. + (1) Storage Mezz. + (2) M.2	(2) 10GBase-T + (1) 1000Base-T (IPMI)
B7102T76V12HR-2T-G	(12) hot-swap 3.5" (SAS/SATA only)	(2) PCIe x16 + (2) PCIe x8 + (1) OCP Mezz. + (1) Storage Mezz. + (2) M.2	(2) 10GBase-T + (1) 1000Base-T (IPMI)

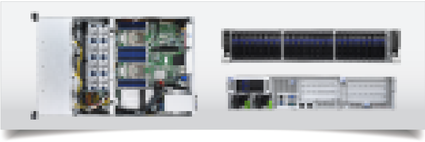
Thunder SX
TN70E-B7106



Model Number	TN70E-B7106
Enclosure Form Factor	2U (27.56" in depth)
Supported CPU	(2) 2nd Gen. Intel® Xeon® Scalable Processor
Chipset	Intel® C621 PCH
CPU Interconnect	(2) Intel® UPI 10.4/9.6 GT/s
Number of DIMM Slot	16/ (8+8)
Memory Type (max. capacity)	Follow latest 2nd Gen. Intel® Xeon® Scalable Platform DDR4 Memory POR* *: Actual memory speed depends on populated CPU models
Storage Controller	Intel® C621 PCH (SATA 6Gb/s)
RAID Support	RAID 0, 1, 5, 10 (Intel® RSTe) (Opt.) RAID 0, 1, 10 (Intel® VROC) for NVMe
Networking	(2) GbE + (1) IPMI
PCI Expansion Slots	(6) PCIe x8 (on risers) + (1) PCIe x16 OCP 2.0 Mezz. + (1) PCIe x16 Storage Mezz. + (1) NVMe M.2 (2280/2260/2242) slots
Power Supply	(1+1) 770W RPSU

Standard Model	# Storage Bay	# PCIe slots	Networking
B7106T70EV12HR	(12) hot-swap 3.5" (SAS/SATA only) + (2) hot-swap 2.5" (SATA only)	(6) PCIe x8 + (1) OCP 2.0 Mezz. + (1) Storage Mezz. + (1) M.2	(2) 1000Base-T + (1) 1000Base-T (IPMI)
B7106T70EV8E4HR	(12) hot-swap 3.5" (up to 4x NVMe U.2) + (2) hot-swap 2.5" (SATA only)	(6) PCIe x8 + (1) OCP 2.0 Mezz. + (1) M.2	(2) 1000Base-T + (1) 1000Base-T (IPMI)

Thunder SX
TN70A-B7106

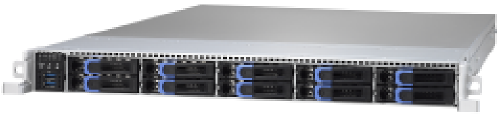


Model Number	TN70A-B7106
Enclosure Form Factor	2U (27.56" in depth)
Supported CPU	(2) 2nd Gen. Intel® Xeon® Scalable Processor
Chipset	Intel® C621 PCH
CPU Interconnect	(2) Intel® UPI 10.4/9.6 GT/s
Number of DIMM Slot	16/ (8+8)
Memory Type (max. capacity)	Follow latest 2nd Gen. Intel® Xeon® Scalable Platform DDR4 Memory POR* *: Actual memory speed depends on populated CPU models
Storage Controller	Discrete SAS 12G HBA/RAID Adapter
RAID Support	Depends on deployed HBA/RAID Adapter
Networking	(2) GbE + (1) IPMI
PCI Expansion Slots	(5) PCIe x8 (on risers) + (1) PCIe x16 OCP 2.0 Mezz. + (1) PCIe x16 Storage Mezz. + (1) NVMe M.2 (2280/2260/2242) slots
Power Supply	(1+1) 770W RPSU

Standard Model	# Storage Bay	# PCIe slots	Networking
B7106T70AV26HR	(24) hot-swap 2.5" (SAS/SATA only) + (2) hot-swap 2.5" (SATA only)	(5) PCIe x8 + (1) OCP 2.0 Mezz. + (1) Storage Mezz. + (1) M.2	(2) 1000Base-T + (1) 1000Base-T (IPMI)

Thunder SX
GT62H-B7106

1U2S server platform for all-flash storage applications

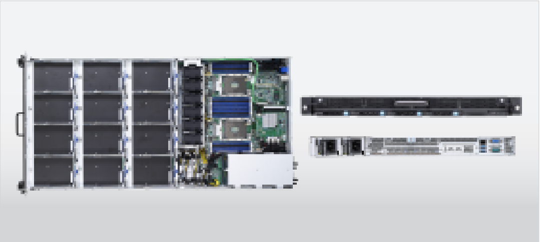


Model Number	GT62H-B7106
Enclosure Form Factor	1U (24.6" in depth)
Supported CPU	(2) 2nd Gen. Intel® Xeon® Scalable Processor
Chipset	Intel® C621 PCH
CPU Interconnect	(2) Intel® UPI 10.4/9.6 GT/s
Number of DIMM Slot	16/ (8+8)
Memory Type (max. capacity)	Follow latest 2nd Gen. Intel® Xeon® Scalable Platform DDR4 Memory POR* *: Actual memory speed depends on populated CPU models
Storage Controller	(2) 2nd Gen. Intel® Xeon® Scalable Processor
RAID Support	(Opt.) RAID 0, 1, 10 (Intel® VROC)
Networking	(2) GbE + (1) IPMI
PCI Expansion Slots	(2) PCIe x16 (on risers) + (1) NVMe M.2 (2280/2260/2242) slots
Power Supply	(1+1) 800W RPSU

Standard Model	# Storage Bay	# PCIe slots	Networking
B7106G62HE10HR	(10) hot-swap 2.5" NvMe U.2 (up to 4 SAS/SATA)	(2) PCIe x16 + (1) M.2	(2) 1000Base-T + (1) 1000Base-T (IPMI)

Thunder SX
GT90-B7113

1U2S server/storage platform designed for CSP server-based storage applications



Model Number	GT90-B7113
Enclosure Form Factor	1U (35.43" in depth)
Supported CPU	(2) 2nd Gen. Intel® Xeon® Scalable Processor
Chipset	Intel® C621 PCH
CPU Interconnect	(2) Intel® UPI 10.4/9.6 GT/s
Number of DIMM Slot	16/ (8+8)
Memory Type (max. capacity)	Follow latest 2nd Gen. Intel® Xeon® Scalable Platform DDR4 Memory POR* *: Actual memory speed depends on populated CPU models
Storage Controller	Intel® C621 PCH (SATA 6Gb/s) (V12 SKU) Broadcom SAS3416 IOC (SAS 12Gb/s) (U12 SKU)
RAID Support	RAID 0, 1, 5, 10 (Intel® RSTe) (V12 SKU) (Opt.) RAID 0, 1, 10 (Intel® VROC) for NVMe
Networking	(1) IPMI
PCI Expansion Slots	(1) PCIe x16 OCP 2.0 Mezz. + (1) PCIe x8 Storage Mezz. slots (V12 SKU) (1) PCIe x16 OCP 2.0 Mezz. slot (U12 SKU)
Power Supply	(1+1) 650W RPSU

Standard Model	# Storage Bay	# PCIe slots	PSU
B7113G90V12E4HR	(12) hot-swap 3.5" (SATA only) + (4) hot-swap 2.5" (NVMe U.2 only)	(1) OCP 2.0 Mezz. + (1) PCIe x8 Storage Mezz.	(1+1) 650W; 80+ Platinum
B7113G90U12E4HR	(12) hot-swap 3.5" (SAS/SATA only) + (4) hot-swap 2.5" (NVMe U.2 only)	(1) OCP 2.0 Mezz.	(1+1) 650W; 80+ Platinum

Thunder SX
TE70-B5546

2U2N HA storage server platform supports dual-port SAS/NVMe storage devices

Model Number	TE70-B5546
Enclosure Form Factor	2U (27.3" in depth)
Supported CPU (per node)	(1) Intel® Xeon® D-2100 Processor
Chipset	-
CPU Interconnect	-
Number of DIMM Slot (per node)	8
Memory Type (max. capacity) (per node)	Follow latest Intel® Xeon® D-2100 Platform DDR4 Memory POR* *: Actual memory speed depends on populated CPU models
Storage Controller (per node)	(1) Intel® Xeon® D-2100 Processor
RAID Support	Broadcom SAS3416 (SAS 12G)
Networking (per node)	(2) GbE + (1) IPMI
PCI Expansion Slots (per node)	(2) PCIe x8 + (1) PCIe x16 OCP 2.0 Mezz.+ (2) NVMe M.2 (22110/2280) slots
Power Supply	(1+1) 1,200W RPSU

Standard Model	CPU	# Storage Bay	# PCIe slots
B5546T70U20E4HR-D43	Xeon® D-2143IT (8C/16T/2.2GHz/65W)	(24) hot-swap 2.5" (up to 4 NVMe U.2)	(2) PCIe x8 + (1) OCP 2.0 Mezz. + (2) M.2
B5546T70U20E4HR-D23	Xeon® D-2123IT (4C/8T/2.2GHz/60W)	(24) hot-swap 2.5" (up to 4 NVMe U.2)	(2) PCIe x8 + (1) OCP 2.0 Mezz. + (2) M.2

Thunder SX
TE73-B5546

2U2N HA storage server platform supports dual-port SAS/NVMe storage devices

Model Number	TE73-B5546
Enclosure Form Factor	2U (29" in depth)
Supported CPU (per node)	(1) Intel® Xeon® D-2100 Processor
Chipset	-
CPU Interconnect	-
Number of DIMM Slot (per node)	8
Memory Type (max. capacity) (per node)	Follow latest Intel® Xeon® D-2100 Platform DDR4 Memory POR* *: Actual memory speed depends on populated CPU models
Storage Controller (per node)	(1) Intel® Xeon® D-2100 Processor
RAID Support	Broadcom SAS3416 (SAS 12G)
Networking (per node)	(2) GbE + (1) IPMI
PCI Expansion Slots (per node)	(2) PCIe x8 + (1) PCIe x16 OCP 2.0 Mezz.+ (2) NVMe M.2 (22110/2280) slots
Power Supply	(1+1) 1,200W RPSU

Standard Model	CPU	# Storage Bay	# PCIe slots
B5546T73U8E4HR-D43	Xeon® D-2143IT (8C/16T/2.2GHz/65W)	(12) hot-swap 3.5" (up to 4 NVMe U.2)	(2) PCIe x8 + (1) OCP 2.0 Mezz. + (2) M.2
B5546T73U8E4HR-D23	Xeon® D-2123IT (4C/8T/2.2GHz/60W)	(12) hot-swap 3.5" (up to 4 NVMe U.2)	(2) PCIe x8 + (1) OCP 2.0 Mezz. + (2) M.2

Trinity SX
TE55J-E3272

NVMe-oF

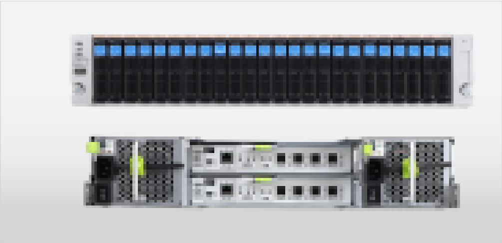
2U dual-controller all-flash storage expansion enclosure over fabric for high-performance

Model Number	**TE55J-E3272**
Enclosure Form Factor	2U (21.61" in depth)
Chipset	Mellanox BlueField™ P-/E-Series SoC + Microsemi PM8535 PCIe Gen.3 Switch
# of IOM per Enclosure / # of Ext. Connector per IOM	2 / (4) 100GBase QSFP28 (SFF-8663)
Designed for High Availability	End-to-end redundany (Redundant PSU, Dual-Port Device, Dual IOM, Dual Data Path, Dual Host support)
Management Redundancy	Automatic configuration sync. up Single address for both in-band and out-of-band management across IOMs
Power Supply	(1+1) 850W RPSU

Standard Model	SoC	# Storage Bay	# Ext. Connector
J3272T55E24HR-H2DR-HE	Mellenox BlueField™ P-series 16-core SoC w/o crypto	(24) hot-swap 2.5" (NVMe U.2 only)	(2) SFF-8663 per IOM; (4) SFF-8663 per enclosure
J3272T55E24HR-H2DR	Mellenox BlueField™ E-series 16-core SoC w/o crypto	(24) hot-swap 2.5" (NVMe U.2 only)	(2) SFF-8663 per IOM; (4) SFF-8663 per enclosure

Trinity SX
TN52J-E3252

JBOD



2U dual-controller storage expansion enclosure for mission-critical applications

Model Number	**TN52J-E3252**
Enclosure Form Factor	2U (20.4" in depth)
Chipset	Microsemi PM8055 SAS 12Gb/s Expander
RAID Support	JBOD (RAID via host controller)
# of IOM per Enclosure / # of Ext. Connector per IOM	2 / (4) MiniSAS HD (SFF-8644)
Designed for High Availability	End-to-end redundany (Redundant PSU, Dual-Port Device, Dual IOM, Dual Data Path, Dual Host support)
Power Supply	(1+1) 580W RPSU

Standard Model	# Storage Bay	# Ext. Connector	PSU
J3252T52U24HR-U8DR	(24) hot-swap 2.5" (SAS/SATA only)	(4) SFF-8644 per IOM; (8) SFF-8644 per enclosure	(1+1) 580W RPUS; 80+ Gold

TYAN

INTEL-BASED EMBEDDED PLATFORMS

Embedded server applications require specifications that go above and beyond what is expected from a standard server platform. The servers used to design industrial computers, network appliances, military hardware, and many other specialized server deployments must conform to higher standards.

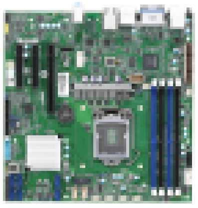
TYAN offers a line of motherboards that feature parts from the Intel Embedded roadmap which include long lifespan and extended temperature bands, allowing for ruggedized servers and platforms that last much longer than the industry standard 3-year lifespan.

Target Applications:

- IoT, Security, Surveillance
- Telecommunications
- Networking
- Industrial Automation
- Military
- Digital Signage and Imaging
- Set Top Box
- Gaming
- Storage
- Medical & Healthcare

Tempest EX
S5550-EX

Embedded



Single-socket server motherboard for compact server appliances deployment

Processor	(1) Intel® Xeon® E-2100 Processor (1) 9th Gen. Intel® Core™ i3 Processor
Chipset	Intel® C246 PCH
Memory	(4) DDR4 DIMM slots
Expansion	(1) PCIe x16 slot (w/ x8 link) (1) PCIe x8 slot (1) PCIe x8 slot (w/ x4 link)
Storage	(6) SATA 6Gb/s (Intel® RSTe)
Network	(2) 1000Base-T ports (2x Intel® i210-AT) (2N SKUs) (4) 1000Base-T ports (4x Intel® i210-AT) (4N SKUs) (1) 1000Base-T port dedicate for IPMI (Realtek RTL8211E-VB-CG)
Video	ASPEED AST2500 Integrated Graphics (VGA) Intel® Xeon® E-2100 Processor Integrated Graphics (DP) Intel® Core™ i3 Processor Integrated Graphics (DP)
Management	iBMC w/ iKVM
Form Factor	Micro-ATX

Standard Model	PCH	pGfx	Display Port	BMC	GbE
S5550AGM2NR-EX	C246	Yes	2	Yes	2
S5550AGM4NR-EX	C246	Yes	2	Yes	4

Tempest EX
S5552-EX

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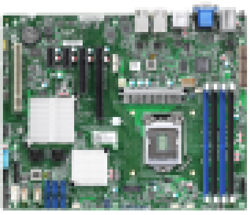

Single-socket server motherboard for industrial automation server applications

Processor	(1) Intel® Xeon® E-2100 Processor (1) 9th Gen. Intel® Core™ i3 Processor
Chipset	Intel® C246 PCH
Memory	(4) DDR4 DIMM slots
Expansion	(1) PCIe x16 slot (w/ x8 link) (1) PCIe x8 slot (w/ x4 link) (2) PCIe x1 slots
Storage	(6) SATA 6Gb/s (Intel® RSTe) (8) SAS 12Gb/s (Broadcom Integrated RAID)
Network	(4) 1000Base-T ports (4x Intel® i210-AT) (1) 1000Base-T port dedicate for IPMI (Realtek RTL8211E-VB-CG)
Video	ASPEED AST2500 Integrated Graphics (VGA) Intel® Xeon® E-2100 Processor Integrated Graphics (DP) Intel® Core™ i3 Processor Integrated Graphics (DP)
Management	iBMC w/ iKVM
Form Factor	ATX

Standard Model	PCH	SAS	Display Port	BMC	GbE
S5552WGM4NR-EX	C246	Yes	1	Yes	4

Tempest EX
S5555-EX

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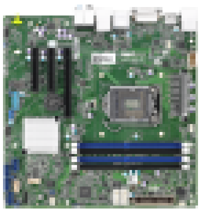

Single-socket Workstation motherboard for embedded applications

Processor	(1) 9th Gen. Intel® Core™ i3/i5/i7 Processor
Chipset	Intel® Q370 PCH
Memory	(4) DDR4 DIMM slots
Expansion	(1) PCIe x16 slot (2) PCIe x8 slots (w/ x4 link) (1) NVMe M.2 slot (w/ x2 link)
Storage	(6) SATA 6Gb/s (Intel® RST)
Network	(2) 1000Base-T ports (1x Intel® i210-AT, 1x Intel® i219-LM)
Video	Intel® Core™ i3/i5/i7 Processor Integrated Graphics
Audio	7.1 Channel HD Audio (Realtek ALC892-CG)
Form Factor	Micro-ATX

Standard Model	PCH	pGfx	Display Port	DVI-D	GbE
S5555AG2NR-EX	Q370	Yes	2	1	2

Tempest EX
S5557

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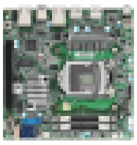

Single-socket Embedded motherboard

Processor	(1) 9th Gen. Intel® Core™ i3/i5/i7 Processor
Chipset	Intel® H310 PCH
Memory	(2) DDR4 SO-DIMM slots
Expansion	(1) PCIe x16 slot
Storage	(3) SATA 6Gb/s (Intel® RST)
Network	(2) 1000Base-T ports (1x Intel® i210-AT, 1x Intel® i219-LM)
Video	Intel® Core™ i3/i5/i7 Processor Integrated Graphics
Form Factor	Mini-ITX

Standard Model	PCH	pGfx	Display Port	DVI-D	GbE
S5557G2NR	H310	Yes	2	-	2

Tempest EX S5548

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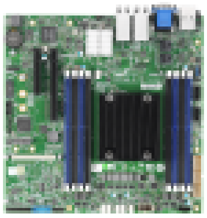

Single-socket server motherboard for embedded applications

Processor	• (1) Intel® Xeon® D-2100 Processor
Chipset	• Integrated in Intel® Xeon® D-2100 Processor
Memory	• (8) DDR4 DIMM slots
Expansion	• (1) PCIe x16 slot • (1) PCIe x8 storage mezz. slot • (2) OCuLink™ 4x conn.
Storage	• (10) SATA 6Gb/s
Network	• (4) 10GBase-T ports (Intel® x557-AT4) • (1) 1000Base-T port dedicate for IPMI (Realtek RTL8211E-VB-CG)
Video	• ASPEED AST2500 Integrated Graphics
Management	• iBMC w/ iKVM
Form Factor	• Micro-ATX

Standard Model	CPU Model	CPU TDP	DIMM	NVMe	10GbE
S5548GM4NE-D83-4T	Xeon® D-2183IT (16C/32T/2.2GHz)	100W	4-channel DDR4-2400	2 (OCuLink™ 4x) + (1) M.2	4
S5548GM4NE-D43-4T	Xeon® D-2143IT (8C/16T/2.2GHz)	65W	4-channel DDR4-2133	2 (OCuLink™ 4x) + (1) M.2	4
S5548GM4NE-D23-4T	Xeon® D-2123IT (4C/8T/2.2GHz)	60W	4-channel DDR4-2400	2 (OCuLink™ 4x) + (1) M.2	4

Tempest EX S5549

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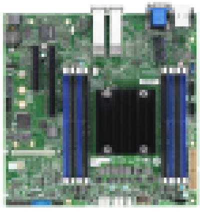


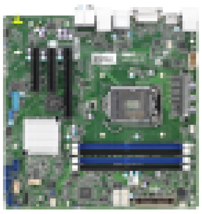
Single-socket server motherboard for embedded applications

Processor	• (1) Intel® Xeon® D-2100 Processor
Chipset	• Integrated in Intel® Xeon® D-2100 Processor
Memory	• (8) DDR4 DIMM slots
Expansion	• (1) PCIe x16 slot • (1) PCIe x8 storage mezz. slot • (2) OCuLink™ 4x conn.
Storage	• (10) SATA 6Gb/s
Network	• (4) 10GBase SFP+ ports (Intel® Xeon® D-2100 processor integrated) • (1) 1000Base-T port dedicate for IPMI (Realtek RTL8211E-VB-CG)
Video	• ASPEED AST2500 Integrated Graphics
Management	• iBMC w/ iKVM
Form Factor	• Micro-ATX

Standard Model	CPU Model	CPU TDP	DIMM	NVMe	10GbE
S5549GM4NE-D83-4F	Xeon® D-2183IT (16C/32T/2.2GHz)	100W	4-channel DDR4-2400	2 (OCuLink™ 4x) + (1) M.2	4
S5549GM4NE-D43-4F	Xeon® D-2143IT (8C/16T/2.2GHz)	65W	4-channel DDR4-2133	2 (OCuLink™ 4x) + (1) M.2	4
S5549GM4NE-D23-4F	Xeon® D-2123IT (4C/8T/2.2GHz)	60W	4-channel DDR4-2400	2 (OCuLink™ 4x) + (1) M.2	4

Tempest EX S5555-HE

Embedded Server Embedded WS



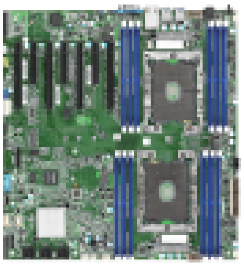
Single-socket Workstation motherboard for embedded applications

Processor	• (1) Intel® Xeon® E-2100 Processor • (1) 9th Gen. Intel® Core™ i3 Processor
Chipset	• Intel® C246 PCH
Memory	• (4) DDR4 DIMM slots
Expansion	• (1) PCIe x16 slot • (2) PCIe x8 slots (w/ x4 link) • (1) NVMe M.2 slot (w/ x2 link)
Storage	• (6) SATA 6Gb/s (Intel® RST)
Network	• (2) 1000Base-T ports (1x Intel® i210-AT, 1x Intel® i219-LM)
Video	• Intel® Xeon® E-2100 Processor Integrated Graphics • Intel® Core™ i3 Processor Integrated Graphics
Audio	• 7.1 Channel HD Audio (Realtek ALC892-CG)
Form Factor	• Micro-ATX

Standard Model	PCH	pGfx	Display Port	DVI-D	GbE
S5555AG2NR-HE	C246	Yes	2	1	2

Tempest EX S7100-EX

Embedded Server Embedded WS



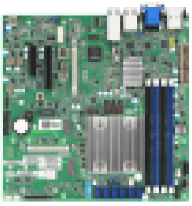
Dual-socket server/workstation implementation for embedded applications

Processor	• (2) 2nd Gen. Intel® Xeon® Scalable Processor
Chipset	• Intel® C621 PCH
Memory	• (6+6) DDR4 DIMM slots
Expansion	• (4) PCIe x16 slots • (3) PCIe x8 slots • (2) NVMe M.2 slots
Storage	• (14) SATA 6Gb/s (Intel® RSTe)
Network	• (2) 1000Base-T ports (Intel® I350-AM2; 1 shared w/ IPMI)
Video & Audio	• ASPEED AST2500 Integrated Graphics • Realtek ALC892-GR
Management	• iBMC w/ iKVM (Server SKU)
Form Factor	• SSI EEB

Standard Model	PCH	SAS	NVMe	BMC	Audio
S7100AGM2NR-EX	C621	-	M.2	Yes	Yes

S5539

Embedded Server



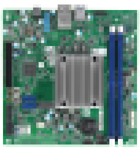
Single-socket server motherboard for embedded applications

Processor	• (1) Intel® Xeon® D-1500 Processor
Chipset	• Integrated in Intel® Xeon® D-1500 Processor
Memory	• (4) DDR4 DIMM slots
Expansion	• (1) PCIe x8 slot • (1) PCIe x4 slot • (1) PCIe x8 OCP mezz. Slot • (1) PCIe x8 storage mezz. slot
Storage	• (4) SATA 6Gb/s • (2) SATA 6Gb/s co-layout w/ (2) M.2
Network	• (2) 1000Base-T ports (2x Intel® i210-AT) • (2) 10GBase-T ports (Intel® x557-AT2) (-2T SKU) • (1) 1000Base-T port dedicate for IPMI (Realtek RTL8211E-VB-CG)
Video	• ASPEED AST2500 Integrated Graphics
Management	• iBMC w/ iKVM
Form Factor	• Micro-ATX

Standard Model	CPU Model	CPU TDP	DIMM	GbE	10GbE
S5539GM2NR-D77	Xeon® D-1577 (16C/32T/1.3GHz)	45W	2-channel DDR4-2133	2	-
S5539GM2NR-D71	Xeon® D-1571 (16C/32T/1.3GHz)	45W	2-channel DDR4-2400	2	-
S5539GM2NR-D67	Xeon® D-1567 (12C/24T/2.1GHz)	65W	2-channel DDR4-2133	2	-
S5539GM2NR-D57	Xeon® D-1557 (12C/24T/1.5GHz)	45W	2-channel DDR4-2133	2	-
S5539GM4NR-D41-2T	Xeon® D-1541 (8C/16T/2.1GHz)	45W	2-channel DDR4-2400	2	2
S5539GM2NR-D41	Xeon® D-1541 (8C/16T/2.1GHz)	45W	2-channel DDR4-2400	2	-
S5539GM2NR-D21	Xeon® D-1521 (4C/8T/2.4GHz)	45W	2-channel DDR4-2133	2	-

S3227

Embedded Server



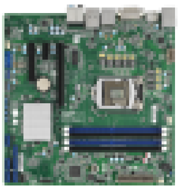
Single-socket server motherboard for embedded applications

Processor	• (1) Intel® Atom® C3000 Processor
Chipset	• Integrated in Intel® Atom® C3000 Processor
Memory	• (2) DDR4 DIMM slots • (1) DDR4 DIMM slot (-C338 SKU)
Expansion	• (1) PCIe x8 slot • (1) SFI connector in-lined w/ PCIe x8 slot for 10GbE mezzanine option
Storage	• (2) SATA 6Gb/s • (1) SATA M.2
Network	• (2) 1000Base-T ports (Realtek RTL8111H)
Form Factor	• Mini-ITX

Standard Model	CPU Model	CPU TDP	DIMM	PCI-E slot	10GbE Option
S32272NR-C958	Atom® C3958 (16C/16T/2.0GHz)	31W	2-channel DDR4-2400	(1) PCIe x8	Yes
S32272NR-C858	Atom® C3858 (12C/12T/2.0GHz)	25W	2-channel DDR4-2400	(1) PCIe x8	Yes
S32272NR-C538	Atom® C3538 (4C/4T/2.1GHz)	15W	2-channel DDR4-2133	(1) PCIe x8 (w/ x2 link)	Yes
S32272NR-C338	Atom® C3338 (2C/2T/1.5GHz)	8.5W	1-channel DDR4-1866	(1) PCIe x8 (w/ x2 link)	-

Tempest EX
S5545-EX

Embedded



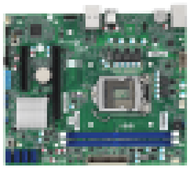
Single-socket Workstation motherboard for embedded applications

Processor	• (1) 6th / 7th Gen. Intel® Core™ i3/i5/i7 Processor
Chipset	• Intel® Q170 PCH
Memory	• (4) DDR4 DIMM slots
Expansion	• (1) PCIe x16 slot • (1) PCIe x8 slot (w/ x4 link) • (1) PCIe x1 slot
Storage	• (6) SATA 6Gb/s (Intel® RST)
Network	• (2) 1000Base-T ports (1x Intel® i210-AT, 1x Intel® i219-LM)
Video	• Intel® Core™ i3/i5/i7 Processor Integrated Graphics
Audio	• 7.1 Channel HD Audio (Realtek ALC892-GR)
Form Factor	• Micro-ATX

Standard Model	PCH	pGfx	Display Port	DVI-D	GbE
S5545AG2NR-EX	Q170	Yes	2	1	2

Tempest EX
S5547

Embedded

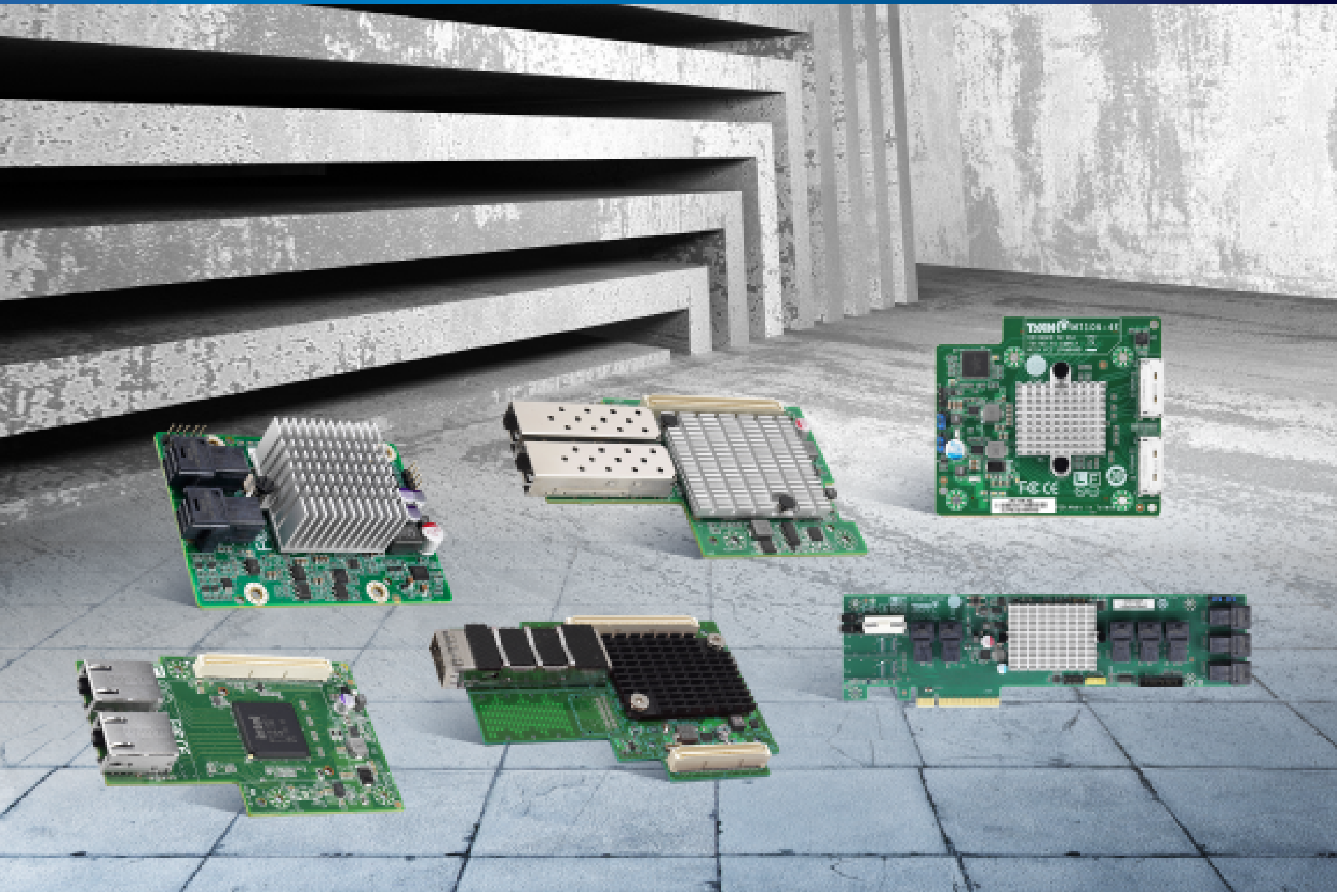


Single-socket Embedded motherboard

Processor	• (1) 6th / 7th Gen. Intel® Core™ i3/i5/i7 Processor
Chipset	• Intel® H110 PCH
Memory	• (2) DDR4 DIMM slots
Expansion	• (1) PCIe x16 slot • (1) PCIe x8 slot (w/ x4 link)
Storage	• (4) SATA 6Gb/s (Intel® RST)
Network	• (2) 1000Base-T ports (1x Intel® i210-AT, 1x Intel® i219-LM)
Video	• Intel® Core™ Processor Integrated Graphics
Form Factor	• Flex-ATX

Standard Model	PCH	pGfx	Display Port	DVI-D	GbE
S5547G2NR	H110	Yes	1	-	2

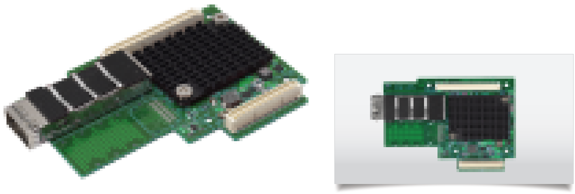
MEZZANINE CARDS



TYAN adopts a modular I/O approach with many of its server platforms. This design flexibility allows customers to deploy a single base motherboard with a wide variety of networking and storage options. It also allows customers to upgrade portions of their server without having to replace core parts such as the motherboard.

TYAN's mezzanine cards span today's most common technologies, with network speeds ranging from 1000Base-T all the way to 100 Gigabit QSFP28 and storage controllers spanning both simple SAS IOC and RAID controllers.

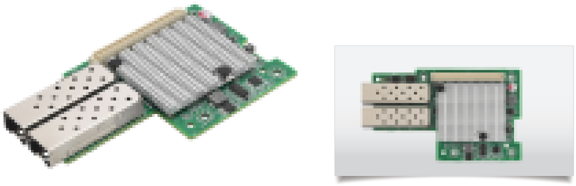
OCP LAN Mezzanine
M7106-C604-1H



Cavium, OCP 2.0
Ethernet Network Adapter

Chipset	• Cavium QL45604
Host Interface	• PCIe Gen.3 x16
Data Transfer Rate	• 100Gb/s per port
Network Interface	• (1) 100GBase QSFP28 (SFF-8679)
Form Factor	• OCP 2.0 with Type 1 connectors

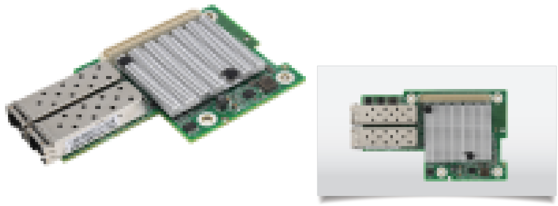
OCP LAN Mezzanine
M7086-X710-2F



Intel®, OCP 0.5
Ethernet Network Adapter

Chipset	• Intel X710-BM2
Host Interface	• PCIe Gen.3 x8
Data Transfer Rate	• 10Gb/s per port
Network Interface	• (2) 10GBase SFP+ (SFF-8431)
Form Factor	• OCP 0.5 with Type 1 connectors

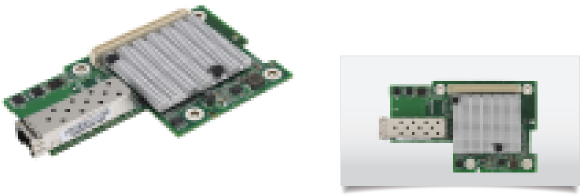
OCP LAN Mezzanine
M7062-I599-2T



Intel, OCP 0.5
Ethernet Network Adapter

Chipset	• Intel 82599ES
Host Interface	• PCIe Gen.2 x8
Data Transfer Rate	• 10Gb/s per port
Network Interface	• (2) 10GBase SFP+ (SFF-8431)
Form Factor	• OCP 0.5 with Type 1 connectors

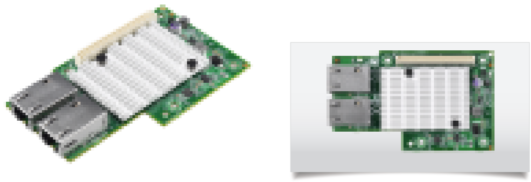
OCP LAN Mezzanine
M7062-I599-1T



Intel®, OCP 0.5
Ethernet Network Adapter

Chipset	• Intel 82599EN
Host Interface	• PCIe Gen.2 x8
Data Transfer Rate	• 10Gb/s per port
Network Interface	• (1) 10GBase SFP+ (SFF-8431)
Form Factor	• OCP 0.5 with Type 1 connectors

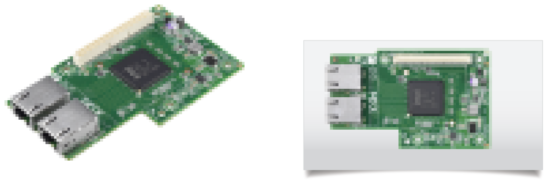
OCP LAN Mezzanine
M7108-X550-2T



Intel®, OCP 0.5
Ethernet Network Adapter

Chipset	• Intel X550-BT2
Host Interface	• PCIe Gen.2 x8
Data Transfer Rate	• 10Gb/s per port
Network Interface	• (2) 10GBase-T
Form Factor	• OCP 0.5 with Type 1 connectors

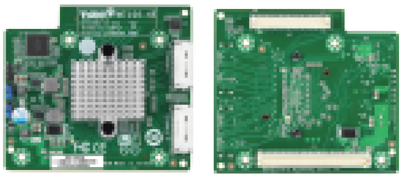
OCP LAN Mezzanine
M7108-I350



Intel®, OCP 0.5
Ethernet Network Adapter

Chipset	• Intel I350-BT2
Host Interface	• PCIe Gen.2 x4
Data Transfer Rate	• 1Gb/s per port
Network Interface	• (2) 1000Base-T
Form Factor	• OCP 0.5 with Type 1 connectors

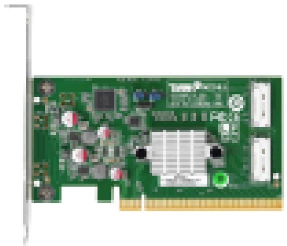
NVMe Mezzanine
M7106-4E



PCIe Bifurcation Mezz. for NVMe Devices

Host Interface	• PCIe Gen.3 x16
Storage Interface	• (2) OCuLink™ 8x (SFF-8612)
Form Factor	• 3.07" x 3.47" (78mm x 88.05mm)

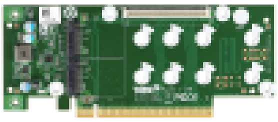
NVMe Mezzanine
M2093



PCIe Bifurcation Adapter for NVMe Devices

Host Interface	• PCIe Gen.3 x16
Storage Interface	• (2) OCuLink™ 8x (SFF-8612)
Form Factor	• 2.54" x 6.6" (64.52mm x 167.64mm)

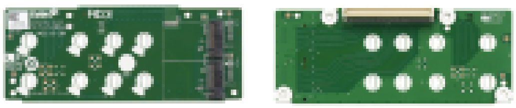
NVMe M.2 Adapter
P2111-2M



PCIe Bifurcation Adapter for NVMe M.2 Devices

Host Interface	• PCIe Gen.3 x16
Storage Interface	• (2) M.2 (M-key) 22110/2280/2260/2242 • Occupied PCIe Gen.3 x8 bandwidth
Expansion	• PCIe Gen.3 x8 downlink in high-density conn.
Form Factor	• 2.54" x 6.6" (64.52mm x 167.64mm)

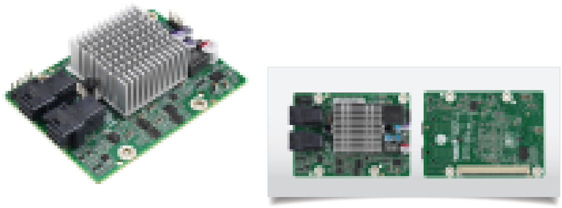
NVMe M.2 Adapter
M2110-2M



PCIe Bifurcation Adapter for NVMe M.2 Devices

Host Interface	• PCIe Gen.3 x8 uplink in high-density conn.
Storage Interface	• (2) M.2 (M-key) 22110/2280/2260/2242
Form Factor	• 2.2" x 5.5" (55.88mm x 139.7mm)

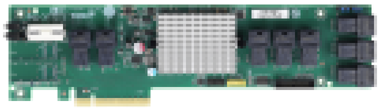
SAS IOC/Expander Mezzanine
M7076-3008-8i



Broadcom, TYAN Storage Mezzanine SAS 12G HBA

Chipset	• Broadcom SAS3008
Host Interface	• PCIe Gen.3 x8
Data Transfer Rate	• 12Gb/s per device
Storage Interface	• (2) MiniSAS HD (SFF-8643)
Form Factor	• 2.52" x 3.52" (64mm x 89.41mm)

SAS IOC/Expander Mezzanine
P3280



Broadcom, TYAN SAS Expander Adapter SAS 12G Expander

Chipset	• Broadcom SAS35x36
Host Interface	• (2) MiniSAS HD (SFF-8643)
Data Transfer Rate	• 12Gb/s per device
Storage Interface	• (6) MiniSAS HD (SFF-8643)
Form Factor	• 2.54" x 10.34" (64.52mm x 262.64mm)

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