TYAN

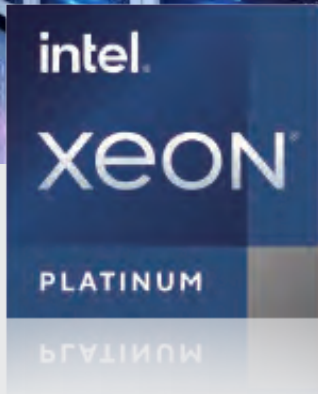# Thunder & Tempest Solutions

3rd Gen Intel® Xeon® Scalable Processors / Intel® Xeon® E-2300 Processors
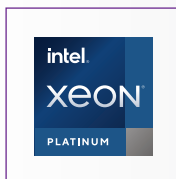

World Class Server Platforms

intel. **XEON** PLATINUM

intel. **XEON**

Product Catalog 2022 Rev.1

World's Most Broadly Deployed Data Center Processor

3rd Gen Intel® Xeon® Scalable Processors

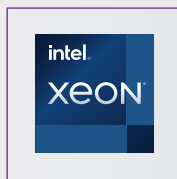### Delivering Flexible Performance Across Cloud, Networking and Intelligent Edge

3rd Gen Intel® Xeon® Scalable processors are the foundation of Intel's data center platform, enabling customers to capitalize on some of the most significant business opportunities today by leveraging the power of AI.

The processors add new and enhanced platform capabilities including Intel SGX for built-in security, and Intel® Crypto Acceleration and Intel® DL Boost for AI acceleration. These new capabilities, combined with Intel's broad portfolio of Intel® Select Solutions and Intel® Market Ready Solutions, enable customers to accelerate deployments across cloud, AI, enterprise, HPC, networking, security and edge applications.

Optimized for cloud, AI enterprise, HPC, network, security and internet of things workloads, 3rd Gen Intel® Xeon® Scalable processors come with eight to 40 powerful cores and a wide range of frequency, feature and power levels. New benefits include PCIe-Gen4 support, increased memory bandwidth, memory capacity per processor up to 6 terabytes per processor/socket and additional AVX-512 instructions.

Intel® Xeon® E-2300 Processors

Essential Performance, Expandability and Manageability for Entry Servers

The new Intel® Xeon® E-2300 processor increases performance for single-socket entry servers, with up to 8 cores, 16 threads, Intel® Turbo Boost technology frequencies up to 5.1 GHz, and Intel® Software Guard Extensions (Intel® SGX) to deliver essential performance and manageability for entry-level, bare metal server offerings.

Software and workloads used in performance tests may have been optimized for performance only on Intel microprocessors. Performance tests are measured using specific computer systems, components, software, operations and functions. Any change to any of those factors may cause the results to vary.

TYAN Brand Lines

Tyan is pleased to announce a new line of server barebones and motherboards designed to suit the needs of the channel and our system integration partners.

Thunder and Tempest products spanning five product segments:
SX – Storage
HX – HPC
CX – Cloud
RX – Security
EX – Embedded

Tyan continually develops a roadmap full of innovative new products. Check our website at www.tyan.com to stay up to date with our latest product offerings.

Thunder

The Tyan **Thunder** series is a line of server barebones based on Intel's latest technology including the Intel® Xeon® Scalable Processors. These barebones are designed to offer best in class server technology to our customers. Tyan Thunder server barebones are built to inventory and are warehoused locally in the USA.
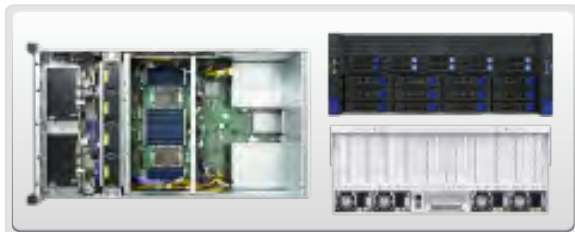
Tempest

Tyan's **Tempest** line of motherboards are designed to pack the latest of Intel's world-class server technology into commodity off the shelf chassis, providing an outstanding server building block for the widest possible range of applications. Like Tyan's Thunder server barebones, these motherboards are warehoused in the USA and are readily available in the channel.

Thunder HX
FT83A-B7129

10 GPU

80 PLUS PLATINUM

4U2S 10-GPU server platform designed for various parallel workloads

Model Number	FT83A-B7129
Enclosure Form Factor	4U (32.68" in depth)
Supported CPU	(2) 3rd Gen. Intel® Xeon® Scalable Processor
Chipset	Intel® C621A PCH + (2) Broadcom PEX88096 PCIe Gen.4 switches
CPU Interconnect	(3) Intel® UPI 11.2/10.4 GT/s
Number of DIMM Slot	32/ (16+16)
Memory Type (max. capacity)	Follow latest 3rd Gen. Intel® Xeon® SP DDR4 Memory POR* *: Actual memory speed depends on populated CPU models
Storage Controller	Intel® C621A PCH (SATA 6Gb/s) Intel® VMD 2.0 (NVMe)
RAID Support	RAID 0, 1, 10, 5 (Intel® RSTe)
Networking	(1) IPMI
PCI Expansion Slots	(10) FH/10.5"L/DW PCIe Gen.4 x16 + (1) FH/HL PCIe Gen.4 x16 + (1) PCIe Gen.4 x16 OCP 3.0 mezz. + (2) NVMe M.2 (2280) slots
Power Supply	(3+1) 4,800W (@220VAC) hot-swap RPSU

Standard Model	# Storage Bay	# PCIe slots	Networking
B7129F83AV14E8HR-N	(12) 3.5"/2.5" hot-swap (SATA) + (10) 2.5" hot-swap (2 SATA+8 NVMe)	(11) PCIe Gen.4 slots + (1) OCP 3.0 mezz. + (2) M.2	(1) IPMI

Thunder HX
FT83A-B7129

10 GPU

80 PLUS PLATINUM

4U2S 10-GPU server platform designed for various parallel workloads

Model Number	FT83A-B7129
Enclosure Form Factor	4U (32.68" in depth)
Supported CPU	(2) 3rd Gen. Intel® Xeon® Scalable Processor
Chipset	Intel® C621A PCH + (2) Broadcom PEX88096 PCIe Gen.4 switches
CPU Interconnect	(3) Intel® UPI 11.2/10.4 GT/s
Number of DIMM Slot	32/ (16+16)
Memory Type (max. capacity)	Follow latest 3rd Gen. Intel® Xeon® SP DDR4 Memory POR* *: Actual memory speed depends on populated CPU models
Storage Controller	Intel® C621A PCH (SATA 6Gb/s) Intel® VMD 2.0 (NVMe)
RAID Support	RAID 0, 1, 10, 5 (Intel® RSTe)
Networking	(1) IPMI
PCI Expansion Slots	(10) FH/10.5"L/DW PCIe Gen.4 x16 + (3) FH/HL PCIe Gen.4 x16 + (1) PCIe Gen.4 x16 OCP 3.0 mezz. + (2) NVMe M.2 (2280) slots
Power Supply	(3+1) 4,800W (@220VAC) hot-swap RPSU

Standard Model	# Storage Bay	# PCIe slots	Networking
B7129F83AV8E4HR-N	(12) 3.5"/2.5" hot-swap (12 SATA w/ 4 NVMe)	(13) PCIe Gen.4 slots + (1) OCP 3.0 mezz. + (2) M.2	(1) IPMI

Thunder HX
FT65T-B5642

intel XEON PLATINUM | 10nm | 40 Core | NVM EXPRESS | PCIe 4.0

Pedestal/4U 1S workstation platform supports multiple high performance GPU cards

80 PLUS PLATINUM

2 GPU

Model Number	FT65T-B5642
Enclosure Form Factor	Pedestal/4U (25.59" in depth)
Supported CPU	(1) 3rd Gen. Intel® Xeon® Scalable Processor
Chipset	Intel® C621A PCH
CPU Interconnect	-
Number of DIMM Slot	8
Memory Type (max. capacity)	Follow latest 3rd Gen. Intel® Xeon® SP DDR4 Memory POR* *: Actual memory speed depends on populated CPU models
Storage Controller	Intel® C621A PCH (SATA 6Gb/s) Intel® VMD 2.0 (NVMe)
RAID Support	RAID 0, 1, 10, 5 (Intel® RSTe)
Networking	(Opt.) (2) 10GbE + (1) GbE + (1) IPMI
PCI Expansion Slots	(2) PCIe Gen.4 x16 + (2) PCIe Gen.4 x8 + (1) PCIe Gen.4 x4 + (2) PCIe Gen.3 x2 NVMe M.2 (22110/2280) slots
Power Supply	(1) 2,000W (@220VAC) ATX PSU

Standard Model	# Storage Bay	# System Fan	Networking
B5642F65TV8E2H-G	(8) 3.5"/2.5" hot-swap (SATA) + (2) 2.5" hot-swap (SATA/NVMe)	(3) 12038	(1) GbE + (1) IPMI
B5642F65TV8E2H-2T-N	(8) 3.5"/2.5" hot-swap (SATA) + (2) 2.5" hot-swap (SATA/NVMe)	(3) 12038 + (2) 8038	(2) 10GbE + (1) GbE+ (1) IPMI

(OEM Exclusive)

Thunder SX
TS65-B7120

intel XEON PLATINUM | 10nm | 40 Core | UPI Ultra Path Interconnect | NVM EXPRESS | PCIe 4.0

2U2S server platform designed for server-based storage applications

80 PLUS PLATINUM

Model Number	TS65-B7120
Enclosure Form Factor	2U (25.59" in depth)
Supported CPU	(2) 3rd Gen. Intel® Xeon® Scalable Processor
Chipset	Intel® C621A PCH
CPU Interconnect	(3) Intel® UPI 11.2/10.4 GT/s
Number of DIMM Slot	16/ (8+8)
Memory Type (max. capacity)	Follow latest 3rd Gen. Intel® Xeon® SP DDR4 Memory POR* *: Actual memory speed depends on populated CPU models
Storage Controller	Intel® C621A PCH (SATA 6Gb/s) Intel® VMD 2.0 (NVMe)
RAID Support	RAID 0, 1, 10, 5 (Intel® RSTe)
Networking	(2) GbE + (1) IPMI or (2) 10GbE + (1) IPMI
PCI Expansion Slots	(3) HH/HL PCIe Gen.4 x16 + (2) HH/HL PCIe Gen.4 x8 + (2) PCIe Gen.3 x2 NVMe M.2 (22110/2280) slots
Power Supply	(1+1) 850W RPSU

Standard Model	# Storage Bay	# PCIe slots	Networking
B7120T65V10E4HR	(12) front 3.5"/2.5" hot-swap (12 SATA w/ 4 NVMe) + (2) rear 2.5" hot-swap (SATA)	(5) PCIe Gen.4 slots + (2) M.2	(2) GbE + (1) IPMI
B7120T65V10E4HR-2T	(12) front 3.5"/2.5" hot-swap (12 SATA w/ 4 NVMe) + (2) rear 2.5" hot-swap (SATA)	(5) PCIe Gen.4 slots + (2) M.2	(2) 10GbE + (1) IPMI

Thunder HX
TS75-B7122

2U2S server platform with maximum memory support for virtualization applications

Model Number	TS75-B7122		
Enclosure Form Factor	2U (29.53" in depth)		
Supported CPU	(2) 3rd Gen. Intel® Xeon® Scalable Processor		
Chipset	Intel® C621A PCH		
CPU Interconnect	(3) Intel® UPI 11.2/10.4 GT/s		
Number of DIMM Slot	32/ (16+16)		
Memory Type (max. capacity)	Follow latest 3rd Gen. Intel® Xeon® SP DDR4 Memory POR* *: Actual memory speed depends on populated CPU models		
Storage Controller	Intel® C621A PCH (SATA 6Gb/s) Intel® VMD 2.0 (NVMe)		
RAID Support	RAID 0, 1, 10, 5 (Intel® RSTe)		
Networking	(2) 10GbE + (1) IPMI		
PCI Expansion Slots	(4) PCIe Gen.4 x16 + (1) PCIe Gen.4 x8 + (1) PCIe Gen.4 x16 OCP 3.0 mezz. + (2) PCIe Gen.4 x4 NVMe M.2 (22110/2280) slots		
Power Supply	(1+1) 1,600W (@220VAC) RPSU		
Standard Model	**# Storage Bay**	**# PCIe slots**	**Networking**
B7122T75V8E4HR-2T	(12) 3.5"/2.5" hot-swap (12 SATA w/ 4 NVMe)	(5) PCIe Gen.4 slots + (1) OCP 3.0 mezz. + (2) M.2	(2) 10GbE + (1) IPMI

Thunder SX
TS65-B7126

2U2S server platform designed for 3D rendering, technical computing, and general purpose applications

Model Number	TS65-B7126		
Enclosure Form Factor	2U (25.59" in depth)		
Supported CPU	(2) 3rd Gen. Intel® Xeon® Scalable Processor		
Chipset	Intel® C621A PCH		
CPU Interconnect	(3) Intel® UPI 11.2/10.4 GT/s		
Number of DIMM Slot	16/ (8+8)		
Memory Type (max. capacity)	Follow latest 3rd Gen. Intel® Xeon® SP DDR4 Memory POR* *: Actual memory speed depends on populated CPU models		
Storage Controller	Intel® C621A PCH (SATA 6Gb/s) Intel® VMD 2.0 (NVMe)		
RAID Support	RAID 0, 1, 10, 5 (Intel® RSTe)		
Networking	(2) GbE + (1) IPMI		
PCI Expansion Slots	(2) PCIe Gen.4 x16 + (4) PCIe Gen.4 x8 + (1) PCIe Gen.3 x16 OCP 2.0 mezz. + (1) PCIe Gen.3 x2 NVMe M.2 (22110/2280/2242) slots		
Power Supply	(1+1) 1,200W (@220VAC) hot-swap RPSU		
Standard Model	**# Storage Bay**	**# PCIe slots**	**Networking**
B7126T65V10E4HR	(12) front 3.5"/2.5" hot-swap (12 SATA w/ 4 NVMe) + (2) rear 2.5" hot-swap (SATA)	(6) PCIe Gen.4 slots + (1) OCP 2.0 mezz. + (1) M.2	(2) GbE + (1) IPMI

Thunder CX
GC68-B7126

intel XEON PLATINUM | 10nm | 40 Core | UPI Ultra Path Interconnect | nvm EXPRESS | PCIe 4.0

80 PLUS PLATINUM

1U2S server platform designed for CSP compute and storage applications

Model Number	GC68-B7126
Enclosure Form Factor	1U (26.77" in depth)
Supported CPU	(2) 3rd Gen. Intel® Xeon® Scalable Processor
Chipset	Intel® C621A PCH
CPU Interconnect	(3) Intel® UPI 11.2/10.4 GT/s
Number of DIMM Slot	16/ (8+8)
Memory Type (max. capacity)	Follow latest 3rd Gen. Intel® Xeon® SP DDR4 Memory POR* *: Actual memory speed depends on populated CPU models
Storage Controller	Intel® C621A PCH (SATA 6Gb/s) Intel® VMD 2.0 (NVMe)
RAID Support	RAID 0, 1, 10, 5 (Intel® RSTe)
Networking	(2) GbE + (1) IPMI
PCI Expansion Slots	(2) PCIe FH/HL Gen.4 x16 + (1) PCIe Gen.3 x16 OCP 2.0 mezz. + (1) PCIe Gen.3 x2 NVMe M.2 (22110/2280/2242) slots
Power Supply	(1+1) 850W hot-swap RPSU

Standard Model	# Storage Bay	# PCIe slots	Networking
B7126G68V4E4HR	(4) 2.5" hot-swap (7mm NVMe) + (4) 3.5" hot-swap (SATA)	(2) PCIe Gen.4 slots + (1) OCP 2.0 mezz. + (1) M.2	(2) GbE + (1) IPMI

Thunder CX
GC68A-B7126

intel XEON PLATINUM | 10nm | 40 Core | UPI Ultra Path Interconnect | nvm EXPRESS | PCIe 4.0

80 PLUS PLATINUM

1U2S server platform designed for CSP flash storage

Model Number	GC68A-B7126
Enclosure Form Factor	1U (26.77" in depth)
Supported CPU	(2) 3rd Gen. Intel® Xeon® Scalable Processor
Chipset	Intel® C621A PCH
CPU Interconnect	(3) Intel® UPI 11.2/10.4 GT/s
Number of DIMM Slot	16/ (8+8)
Memory Type (max. capacity)	Follow latest 3rd Gen. Intel® Xeon® SP DDR4 Memory POR* *: Actual memory speed depends on populated CPU models
Storage Controller	Intel® C621A PCH (SATA 6Gb/s) Intel® VMD 2.0 (NVMe)
RAID Support	RAID 0, 1, 10, 5 (Intel® RSTe)
Networking	(2) GbE + (1) IPMI
PCI Expansion Slots	(2) PCIe FH/HL Gen.4 x16 + (1) PCIe Gen.3 x16 OCP 2.0 mezz. + (1) PCIe Gen.3 x2 NVMe M.2 (22110/2280/2242) slots
Power Supply	(1+1) 850W hot-swap RPSU

Standard Model	# Storage Bay	# PCIe slots	Networking
B7126G68AV10E2HR	(12) 2.5" hot-swap (12 SATA w/ 2 NVMe)	(2) PCIe Gen.4 slots + (1) OCP 2.0 mezz. + (1) M.2	(2) GbE + (1) IPMI

Tempest HX S7120

Dual-socket server board designed for HPC applications

Processor	• (2) 3rd Gen. Intel® Xeon® Scalable Processor
Chipset	• Intel® C621A PCH
Memory	• (8+8) DDR4 DIMM slots
Expansion	• (3) PCIe Gen.4 x16 slots • (2) PCIe Gen.4 x8 slots
Storage	• (3) MiniSAS HD (SFF-8643) conn. for (12) SATA 6G • (2) 7-pin SATA 6G ports w/ (1) SATA-DOM support (white conn,) • (2) PCIe Gen.3 x2 NVMe M.2 slots
Network	• (2) 10GBase-T ports (Intel® x550-AT2) (S7120GM2NRE-2T) • (2) 1000Base-T ports (2x Intel® i210-AT) (S7120GM2NRE) • (1) 1000Base-T port dedicate for IPMI (Realtek RTL8211FD-CG)
Video	• ASPEED AST2600 Integrated Graphics
Management	• iBMC w/ iKVM
Form Factor	• SSI EEB (12" x 13.1")

Standard Model	PCH	SAS	NVMe	GbE	10GbE
S7120GM2NRE	C621A	-	(2) M.2 + (2) SlimSAS x8	2	-
S7120GM2NRE-2T	C621A	-	(2) M.2 + (2) SlimSAS x8	-	2

Tempest HX S5642

Single-socket server board designed for technical computing

Processor	• (1) 3rd Gen. Intel® Xeon® Scalable Processor
Chipset	• Intel® C621A PCH
Memory	• (8) DDR4 DIMM slots
Expansion	• (2) PCIe Gen.4 x16 slots • (2) PCIe Gen.4 x8 slots; (1) w/ x4 link • (1) SlimSAS x8 for 2x native NVMe U.2
Storage	• (3) MiniSAS HD (SFF-8643) conn. for (12) SATA 6G • (2) 7-pin (blue) SATA 6G ports • (2) PCIe Gen.3 x2 NVMe M.2 slots
Network	• (2) 10GBase-T ports (Intel® x550-AT2) (-2T SKU) • (1) 1000Base-T port (Intel® i210-AT) • (1) 1000Base-T port dedicate for IPMI (Realtek RTL8211E-VB-CG)
Video & Audio	• ASPEED AST2500 Integrated Graphics • Realtek ALC888S-VD2-GR HD Audio Codec
Management	• iBMC w/ iKVM
Form Factor	• SSI CEB

Standard Model	PCH	SAS	NVMe	GbE	10GbE
S5642AGMNRE	C621A	-	(2) M.2 + (1) SlimSAS x8	1	-
S5642AGM3NRE-2T	C621A	-	(2) M.2 + (1) SlimSAS x8	1	2

Tempest CX S7126

Rack-optimized dual-socket server board for CSP deployment

Processor	• (2) 3rd Gen. Intel® Xeon® Scalable Processor
Chipset	• Intel® C621A PCH
Memory	• (8+8) DDR4 DIMM slots
Expansion	• (2) PCIe Gen.4 x32 slots for riser deployment • (1) PCIe Gen.3 x16 slot OCP 2.0 mezzanine slot • (4) SlimSAS x4 for 4x native NVMe U.2
Storage	• (3) MiniSAS HD (SFF-8643) conn. for (12) SATA 6G • (2) 7-pin (blue) SATA 6G ports • (1) PCIe Gen.3 x2 NVMe M.2 slot
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 (12" x 13.1")

Standard Model	PCH	SAS	NVMe	GbE	10GbE
S7126GM2NRE	C621A	-	(1) M.2 + (4) SlimSAS x4	2	-

Tempest HX S5560

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

Processor	• (1) Intel® Xeon® E-2300
Chipset	• Intel® Rocket Lake PCH (C250 Series)
Memory	• (4) DDR4 DIMM slots
Expansion	• (1) PCIe Gen.4 x16 slot w/ x8 link • (2) PCIe Gen.3 x8 slots; (1) w/ x2 link • (1) SlimSAS x4 for 2x native NVMe U.2
Storage	• (1) MiniSAS HD (SFF-8643) conn. for (4) SATA 6G • (2) SATA-DOM ports (white) • (2) 7-pin (blue) SATA 6G ports (-HE SKU) • (2) PCIe Gen.3 x2 NVMe M.2 slots (-HE SKU)
Network	• (2) 10GBase-T ports (Intel x550-AT2) • (1) 1000Base-T port dedicate for IPMI (Realtek RTL8211FD-CG)
Video	• ASPEED AST2600 Integrated Graphics
Management	• iBMC w/ iKVM
Form Factor	• Micro-ATX

Standard Model	PCH	SATA	NVMe	GbE	10GbE
S5560GM2NRE-2T-HE	C256	8	(2) M.2 + (1) SlimSAS x4	-	2
S5560GM2NRE-2T	C252	6	(1) M.2 + (1) SlimSAS x4	-	2

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