



Quick Path Interconnect

The modern PC architecture will be revolutionized with the advent of Intel's latest generation of Nehalem and Tukwila processors. Communication bottlenecks between processors as well as between the processor and chipset will be eliminated with the replacement of the former processor bus (commonly referred to as the Front-Side Bus or FSB) with the latest generation high-speed, low-latency point-to-point Intel QuickPath Interconnect. This new inter-processor and processor-chipset interconnect will allow for seamless integration and connection of one or more processors (such as in server platforms) with the chipset.

DDR3

Benefit from DDR3

DDR2 at its Performance Limit (800MHz); DDR3-1066 >35% Higher Bandwidth/Watt, Higher Performance, More Memory per DIMM

Performance

- Higher frequency - scalable to 1600+ MHz vs. 800 MHz on DDR2
- 25+% improvement on latency than FBD at same speed

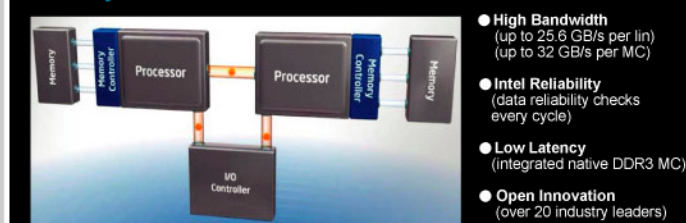
Power

- DDR3 TDP is 15+% lower than DDR2 at same speed
- Average power 20-30% better than FB-DDR2 at same speed
- Idle Power ~50% better than FB-DDR2 at same speed

Density

- Supports up to 8GB per DIMM - 2X memory per DIMM on DDR2
- 144GB system capacity for a two socket system

Intel® QuickPath Interconnect plus integrated Intel® memory controllers



- High Bandwidth**
(up to 25.6 GB/s per pin)
(up to 32 GB/s per MC)
- Intel Reliability**
(data reliability checks every cycle)
- Low Latency**
(integrated native DDR3 MC)
- Open Innovation**
(over 20 industry leaders)

Intel® Xeon® Processor 5400/5200 Series vs. 5500 Series What Are the Major Feature Differences?

Intel® Xeon® Processor 5400/5200 Series	Intel® Xeon® Processor 5500 Series
4 cores, 4 threads	4 cores, 8 threads
N/A	Intel® Hyper-Threading Technology
N/A	Intel® Turbo Boost
4 channels FBDIMM Memory	3 channels DDR3 Memory*
Front Side Bus	Intel® QuickPath Interconnect
45nm	45nm

Intel® 5500 Chipset

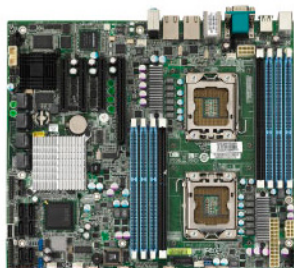


NEW S7017

S7017GM2NR-LE / S7017GM2NRI (BTO)

Processor	• Dual LGA1366 sockets support Intel® Quad-Core Xeon® 5500 series processors
Chipset	• Intel® 5520 + ICH10R (S7017GM2NRI) • Intel® 5500 + ICH10R (S7017GM2NR-LE)
Memory	• (12) DDR-III DIMM sockets • Support up to 96GB of Registered DDR-III 1333/1066/800 w/ ECC memory
Expansion	• (1) PCI-E x16 slot (Gen. 2)
Storage	• (4) SATA-II connectors running at 3.0 Gb/s w/ RAID 0, 1, 10, 5 support
Network	• (2) GbE (via Intel® dual-port NIC 82576EB) • (2) 4X InfiniBand ports (via Mellanox ConnectX™ IB MT25408AA-FCC-Q) (S7017GM2NRI)
Video	• ASPEED AST2050 Integrated Graphics
Management	• ASPEED AST2050 (IPMI v2.0 compliant w/ iKVM)
Form Factor	• SFF (6.3" x 16.4", 160mm x 416.56mm)

Intel® 5500 Chipset

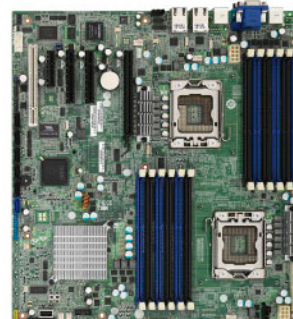


NEW S7002

S7002G2NR-LE / S7002GM2NR-LE / S7002WGM2NR-LE / S7002WGM2NR

Processor	• Dual LGA1366 sockets support Intel® Quad-Core Xeon® 5500 series processors
Chipset	• Intel® 5520 + ICH10R (S7002WGM2NR) • Intel® 5500 + ICH10R (S7002G2NR-LE / S7002GM2NR-LE / S7002WGM2NR-LE)
Memory	• (8) DDR-III DIMM sockets • Support up to 64GB of Registered DDR-III 1333/1066/800 w/ ECC memory
Expansion	• (1) PCI-E x16 slot (Gen. 2) • (2) PCI-E x8 slots (Gen. 2) (S7002WGM2NR) • (1) PCI-E x8 slot (Gen. 2) (w/ x4 link) (S7002WGM2NR-LE / S7002GM2NR-LE / S7002G2NR-LE)
Storage	• (1) PCI-E x8 slot (w/ x4 link) • (6) SATA-II connectors running at 3.0 Gb/s w/ RAID 0, 1, 10, 5 support • (4) stacked 2-port SAS connectors w/ RAID 0, 1, 1E support (S7002WGM2NR / S7002GM2NR-LE)
Network	• (2) GbE (via two Intel® 82574L)
Video	• ASPEED AST2050 Integrated Graphics
Management	• ASPEED AST2050 (IPMI v2.0 compliant w/ iKVM) (S7002WGM2NR / S7002GM2NR-LE / S7002G2NR-LE)
Form Factor	• SSI CEB (12" x 10.5", 305mm x 267mm)

Intel® 5500 Chipset

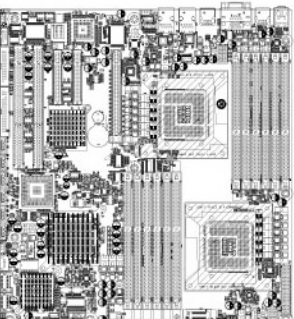


NEW S7010

S7010AGM2NRF

Processor	• Dual LGA1366 sockets support Intel® Quad-Core Xeon® 5500 series processors
Chipset	• Intel® 5520 + ICH10R
Memory	• (12) DDR-III DIMM sockets • Support up to 144GB of Registered DDR-III 1333/1066/800 w/ ECC memory
Expansion	• (3) PCI-E x8 slots (Gen. 2) • (2) PCI-E x8 slots (Gen. 2) • (1) PCI-E x4 slot • (1) PCI 32/33MHz slot
Storage	• (6) SATA-II connectors running at 3.0 Gb/s w/ RAID 0, 1, 10, 5 support • (2) GbE (via two Intel® 82574L)
Network	• ASPEED AST2050 Integrated Graphics
Audio	• Realtek ALC262 audio CODEC
Firewire	• VIA VT6308 1394a controller
Management	• ASPEED AST2050 (IPMI v2.0 compliant w/ iKVM)
Form Factor	• SSI EEB (12" x 13", 305mm x 330mm)

Intel® 5500 Chipset

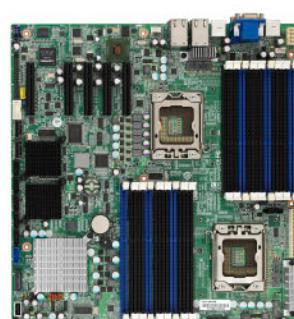


NEW S7020

S7020AGM2NR / S7020WAGM2NR

Processor	• Dual LGA1366 sockets support Intel® Quad-Core Xeon® 5500 series processors
Chipset	• Intel® 5520 + ICH10R + 6702PXH
Memory	• (12) DDR-III DIMM sockets • Support up to 96GB of Registered DDR-III 1333/1066/800 w/ ECC memory
Expansion	• (1) PCI-E x16 slot (Gen. 2) • (1) PCI-E x8 slots (Gen. 2) • (1) PCI-E x8 slots (Gen. 2) (w/x4 link) • (2) PCI-X 64/133MHz slots
Storage	• (6) SATA-II connectors running at 3.0 Gb/s w/ RAID 0, 1, 10, 5 support • (8) SAS connectors w/ RAID 0, 1, 1E support (S7020WAGM2NR)
Network	• (2) GbE (via two Intel® 82574L)
Video	• ASPEED AST2050 Integrated Graphics
Audio	• Realtek ALC262 audio CODEC
Firewire	• VIA VT6308 1394a controller
Management	• ASPEED AST2050 (IPMI v2.0 compliant w/ iKVM)
Form Factor	• SSI EEB (12" x 13", 305mm x 330mm)

Intel® 5500 Chipset



NEW S7012

S7012GM4NR / S7012WGM4NR

Processor	• Dual LGA1366 sockets support Intel® Quad-Core Xeon® 5500 series processors
Chipset	• Intel® 5520 + ICH10R
Memory	• (18) DDR-III DIMM sockets • Support up to 144GB of Registered DDR-III 1333/1066/800 w/ ECC memory
Expansion	• (4) PCI-E x8 slots (Gen. 2) • (1) PCI-E x4 slot
Storage	• (6) SATA-II connectors running at 3.0 Gb/s w/ RAID 0, 1, 0+1, 5 support • (8) SAS ports by (2) mini-SAS connectors w/ RAID 0, 1, 1E support
Network	• (4) GbE (via Intel® dual-port NIC 82576EB and two Intel® 82574L)
Video	• ASPEED AST2050 Integrated Graphics
Management	• ASPEED AST2050 (IPMI v2.0 compliant w/ iKVM)
Form Factor	• SSI EEB (12" x 13", 305mm x 330mm)

Intel® 5500 Chipset



NEW S7016

S7016GM3NR / S7016WGM3NR

Processor	• Dual LGA1366 sockets support Intel® Quad-Core Xeon® 5500 series processors
Chipset	• Intel® 5520 + ICH10R
Memory	• (18) DDR-III DIMM sockets • Support up to 144GB of Registered DDR-III 1333/1066/800 w/ ECC memory
Expansion	• (3) PCI-E x8 slots (Gen. 2)
Storage	• (4) SATA-II ports by (1) mini-SAS connector running at 3.0 Gb/s w/ RAID 0, 1, 10, 5 support • (2) SATA-II connectors running at 3.0 Gb/s w/ RAID 0, 1, 10, 5 support • (8) SAS ports by (2) mini-SAS connectors w/ RAID 0, 1, 1E support
Network	• (3) GbE (via Intel® dual-port NIC 82576EB and Intel® 82574L)
Video	• ServerEngines Pilot 2 Integrated Graphics
Management	• ServerEngines Pilot 2 (IPMI v2.0 compliant w/ iKVM)
Form Factor	• Extended ATX (12" x 13", 305mm x 330mm)

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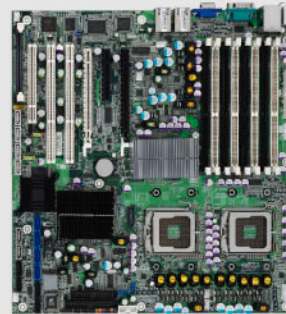
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Product Catalog 2009 Rev.1

IQSB



PCI-E Gen 2

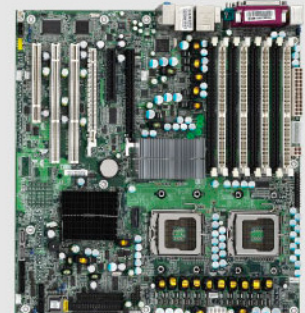
S5393
S5393G2NR / S5393WG2NR

Processor	• Dual LGA771 sockets support Intel® Xeon® 5100/ 5200/ 5300/ 5400 series QC/DC processors
Chipset	• Intel® 5400A + 6321ESB
Memory	• (8) FB-DIMM slots • Support up to 64GB of FB-DIMM 667/ 533 memory
Expansion	• (2) PCI-E x16 slots (Gen. 2) • (1) PCI-E x8 slot • (2) PCI-X 64/133MHz slots • (1) PCI 32/33MHz slot
Storage	• (1) IDE port supports up to two IDE devices • (6) SATA-II connectors running at 3.0 Gb/s w/ RAID 0, 1, 10, 5 support • (8) SAS connectors w/ RAID 0, 1, 1E support (S5393WG2NR)
Network	• (2) GbE (via Intel® dual-port PHY 82563EB)
Video	• XGI Volari™ Z9s w/ 32MB DDR2 memory
Management	• (Opt.) TYAN® M3295-2/ M3296 SMDC (IPMI v2.0 compliant)
Form Factor	• SSI EEB (12" x 13", 305mm x 330mm)

Intel Qualified Server Board

<http://www.intel.com/products/server/qualifi>

IQSB



PCI-E Gen 2

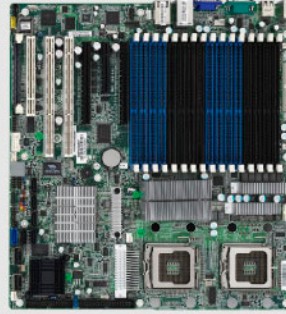
S5396
S5396A2NRF / S5396WA2NRF

Processor	• Dual LGA771 sockets support Intel® Xeon® 5100/ 5200/ 5300/ 5400 series QC/DC processors
Chipset	• Intel® 5400A + 6321ESB
Memory	• (8) FB-DIMM slots • Support up to 64GB of FB-DIMM 667/ 533 memory
Expansion	• (2) PCI-E x16 slots (Gen. 2) • (1) PCI-E x8 slot • (2) PCI-X 64/133MHz slots • (1) PCI 32/33MHz slot
Storage	• (1) IDE port supports up to two IDE devices • (6) SATA-II connectors running at 3.0 Gb/s w/ RAID 0, 1, 10, 5 support • (8) SAS connectors w/ RAID 0, 1, 1E support (S5396WA2NRF)
Network	• (2) GbE (via Intel® dual-port PHY 82563EB)
Audio	• Realtek ALC888 audio CODEC
Firewire	• TI TSB43AB22 1394a controller
Management	• (Opt.) TYAN® M3291 SMDC (IPMI v2.0 compliant)
Form Factor	• SSI EEB (12" x 13", 305mm x 330mm)

Intel Qualified Server Board

<http://www.intel.com/products/server/qualifi>

Intel® 5400 Chipset

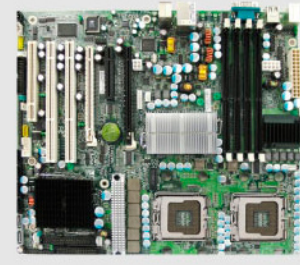


PCI-E Gen 2

S5397
S5397AG2NRF/S5397WAG2NRF

Processor	• Dual LGA771 sockets support Intel® Xeon® 5100/ 5200/ 5300/ 5400 series QC/DC processors
Chipset	• Intel® 5400B + 6321ESB
Memory	• (16) FB-DIMM slots • Support up to 128GB of FB-DIMM 800 /667/ 533 memory
Expansion	• (2) PCI-E x16 slots (Gen. 2) • (1) PCI-E x8 slot (w/ x4 link) • (2) PCI-X 64/133MHz slots • (1) PCI 32/33MHz slot
Storage	• (1) IDE port supports up to two IDE devices • (6) SATA-II connectors running at 3.0 Gb/s w/ RAID 0, 1, 10, 5 support • (8) SAS ports by (2) mini-SAS connectors w/ RAID 0, 1, 1E support (S5397WAG2NRF)
Network	• (2) GbE (via Intel® dual-port PHY 82563EB)
Video	• XGI Volari™ Z9s w/ 32MB DDR2 memory
Audio	• Realtek ALC262 audio CODEC
Firewire	• VIA VT6308 1394a controller
Management	• (Opt.) TYAN® M3295-2/ M3296 SMDC (IPMI v2.0 compliant)
Form Factor	• EATX (12" x 13", 305mm x 330mm)

Intel® 5400 Chipset

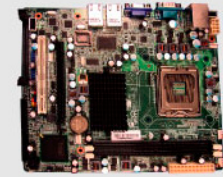


PCI-E Gen 2

S5392
S5392ANR

Processor	• Dual LGA771 sockets support Intel® Xeon® 5100/ 5200/ 5300/ 5400 series QC/DC processors
Chipset	• Intel® 5400A + 6321ESB
Memory	• (4) FB-DIMM slots • Support up to 32GB of FB-DIMM 667/ 533 memory
Expansion	• (2) PCI-E x16 slots (Gen. 2) • (1) PCI-E x8 slot • (2) PCI-X 64/133MHz slots • (1) PCI 32/33MHz slot
Storage	• (1) IDE port supports up to two IDE devices • (6) SATA-II connectors running at 3.0 Gb/s w/ RAID 0, 1, 10, 5 support • (8) SAS connectors w/ RAID 0, 1, 1E support (S5396WA2NRF)
Network	• (2) GbE (via Intel® dual-port PHY 82564EB)
Audio	• Realtek ALC888 audio CODEC
Management	• (Opt.) TYAN® M3291 SMDC (IPMI v2.0 compliant)
Form Factor	• SSI CEB (12" x 10.5", 305mm x 267mm)

Embedded Solution / Intel® 3200 Chipset

**S5221**
S5221AG2NR

Processor	• Single LGA775 socket supports Intel® Core™ 2 Quad Q9000/Core™ 2 Duo E8000 series QC/DC processor
Chipset	• Intel® Q35 + ICH9R
Memory	• (2) DDR-II DIMM slots • Support up to 4GB of Unbuffered DDR-II 800/667/533 memory
Expansion	• (1) PCI-E x16 slot • (1) PCI 32/33MHz slots
Storage	• (1) IDE port supports up to two IDE devices • (6) SATA-II connectors running at 3.0 Gb/s w/ RAID 0, 1, 10, 5 support
Network	• (1) GbE (via Intel® 82573V) • (1) GbE (via Intel® 82573L)
Video	• Intel® Graphic Media Accelerator 3100 (GMA 3100)
Audio	• Realtek ALC262 audio CODEC
Management	• (Opt.) TYAN® M3295-2 SMDC (IPMI v2.0 compliant)
Form Factor	• Flex ATX (9" x 7.5", 229mm x 191 mm)

Embedded Solution / Intel® 3200 Chipset

**S5207**
S5207G2N

Processor	• Single mPGA479 ZIF socket supports Intel® Celeron® M ULV 423/ Core™ Duo U2500/ Core™ 2 Duo L7400/ U7500 processor
Chipset	• Intel® 3100
Memory	• (2) DDR-II DIMM slots • Support up to 4GB of Registered DDR-II 400 w/ ECC memory
Expansion	• (2) PCI-E x8 slot (x4 link)
Storage	• (6) SATA connectors running at 1.5 Gb/s
Network	• (2) GbE (via two Intel® 82573L)
Video	• ATI® ES1000 with 32MB DDR memory
Management	• (Opt.) TYAN® M3291 SMDC (IPMI v2.0 compliant)
Form Factor	• Flex ATX (9" x 7.5", 228mm x 190.5 mm)

2U Server

TA26-B5397
B5397T26W8H / B5397T26W8HR

Model Number	TA26-B5397
Enclosure Form Factor	2U (26" in depth)
Supported CPU	(2) Intel Xeon® 5100/ 5200/ 5300/ 5400 Series
Chipset	Intel® 5400B/ 6321ESB
Front Side Bus (MHz)	1600/ 1333/ 1066 MHz
Number of DIMM Slot	16
Memory Type (max. capacity)	FB-DIMM 800/ 667/ 533 (128GB)
Storage Controller	LSI SAS1068E 8-port SAS
RAID Support	0, 1, 1E
Multimedia Drive	Slim DVD-ROM, 8x
Networking	(2) GbE (2) PCI-E (Gen 2) x16, (1) PCI-E x8/ w/ x4 link (2) PCI-X 64/133MHz, (1) PCI 32/33MHz

Standard Model	Number of HDD Bay	Storage Backplane	Power Supply
B5397T26W8H	(8) Hot-swap SAS	8-port SAS/ SATA	700W PSU
B5397T26W8HR	(8) Hot-swap SAS	8-port SAS/ SATA	700W, (1+1) RPSU

2U Serve

GT24-B5397
B5397G24V4H / B5397G24W4H / B5397G24W4HR

Model Number	GT24-B5397
Enclosure Form Factor	1U (25.4" in depth)
Supported CPU	(2) Intel® Xeon® 5100/ 5200/ 5300/ 5400 Series
Chipset	Intel® 5400B/ 6321ESB
Front Side Bus (MHz)	1600/ 1333/ 1066 MHz
Number of DIMM Slot	16
Memory Type (max. capacity)	FB-DIMM 800/ 667/ 533 (128GB)
Storage Controller	Intel® ICH10R 6-port SATA-II/ LSI SAS 1068E 8-port SAS
RAID Support	0, 1, 10, 5/ 0, 1, 1E
Multimedia Drive	Slim DVD-ROM, 8x
Networking	(2) GbE
PCI Expansion Slots	(1) PCI-E (Gen 2) x16

Standard Model	Number of HDD Bay	Storage Backplane	Power Supply
B5397G24V4H	(4) Hot-swap SATA-II	4-port SAS/ SATA	600W PSU
B5397G24W4H	(4) Hot-swap SAS	4-port SAS/ SATA	600W PSU
B5397G24W4HR	(4) Hot-swap SAS	4-port SAS/ SATA	650W, (1+1) RPSU

1U Server

GT20-B7002
B7002G20V4H

Model Number	GT20-B7002
Enclosure Form Factor	1U (22.4" in depth)
Supported CPU	(2) Intel® Xeon® 5500 Series
Chipset	Intel® 5500/ ICH10R
QuickPath Interconnect	6.4/5.86/4.8 GT/s
Number of DIMM Slot	8
Memory Type (max. capacity)	Registered, DDR-II 1333/1066/800 w/ ECC (64GB)
Storage Controller	Intel® ICH10R 6-port SATA-II
RAID Support	0, 1, 10, 5
Multimedia Drive	N/A (Opt. Slim DVD-ROM, 8x)
Networking	(2) GbE
PCI Expansion Slots	(1) PCI-E (Gen 2) x16
Management	ASPEED AST2050 (IPMI v2.0 compliant w/ iKVM)

Standard Model	Number of HDD Bay	Storage Backplane	Power Supply
B7002G20V4H	(4) Hot-swap SATA-II	4-port SAS/ SATA	400W PSU

Double 1U Server

GT24-B5377
B5377G24V4H (BTO)

Model Number	GT24-B5377 (Double 1U)
Enclosure Form Factor	1U (25.4" in depth)
Supported CPU	(1) Intel® Xeon® 5100/ 5200/ 5300/ 5400 Series (per node)
Chipset	Intel® 5100/ ICH9R (per node)
Front Side Bus (MHz)	1333/ 1066 MHz
Number of DIMM Slot	8 (per node)
Memory Type (max. capacity)	Registered, DDR-II 800/ 667 w/ ECC (48GB) (per node)
Storage Controller	Intel® ICH9R 6-port SATA-II
RAID Support	0, 1
Multimedia Drive	N/A
Networking	(2) GbE (per node)
PCI Expansion Slots	(1) PCI-E x16 (per node)

Standard Model	HDD Bay (No.)	Storage Backplane	Power Supply
B5377G24V4H	(2) Hot-swap SATA-II (per node)	4-port SAS/ SATA	600W PSU

1U Server

GT20-B5211-1U
B5211G20V4H-1U

Model Number	GT20-B5211-1U
Enclosure Form Factor	1U (22.4" in depth)
Supported CPU	(1) Intel® Xeon® 3000/ 3100/ 3200/ 3300 Series
Chipset	Intel® 3200/ ICH9R
Front Side Bus (MHz)	1333/ 1066 MHz
Number of DIMM Slot	4
Memory Type (max. capacity)	Un-buffered DDR-II 800/ 667 w/ or w/o ECC (8GB)
Storage Controller	Intel® ICH9R 6-port SATA-II
RAID Support	0, 1, 10, 5
Multimedia Drive	Slim DVD-ROM, 8x
Networking	(2) GbE
PCI Expansion Slots	(1) PCI-E x16 (w/ x8 link) or (1) PCI-X 64/133MHz

Standard Model	HDD Bay (No.)	Storage Backplane	Power Supply
B5211G20V4H-1U	(4) Hot-swap SATA-II	4-port SAS/ SATA	400W PSU

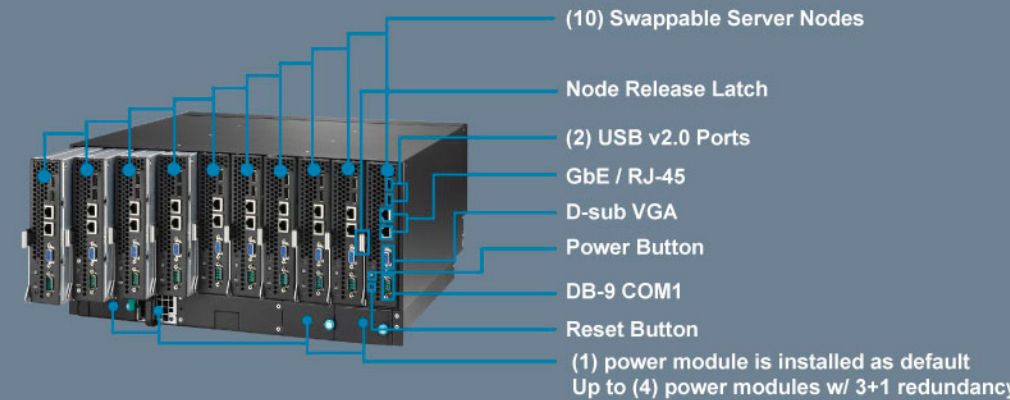
5U High Density Server

High Density Server
Ideal Solutions for IPDC & SMB**VT35-B3105**
B3105V35S10

Model Number	VT35-B3105
Enclosure Form Factor	5U (13.77" in depth)
Supported CPU	(1) Intel® Atom N270 (per node)
Chipset	Intel® 945GSE/ ICH7-M (per node)
Front Side Bus (MHz)	533/ 400 MHz
Number of DIMM Slot	2 (SO-DIMM/ per node)
Memory Type (max. capacity)	Un-buffered, DDR-II 533/ 400 (2GB) (per node)
Storage Controller	Intel® ICH7-M 2-port SATA-II
RAID Support	N/A
Multimedia Drive	N/A
Networking	(2) GbE (per node)
PCI Expansion Slots	N/A

Standard Model	Number of HDD Bay	Storage Backplane	Power Supply
B3105V35S10	(2) fixed SATA-II (per node)	N/A	650W PSU

■ VT35-B3105 High Density Server System Placement



- (10) Swappable Server Nodes
- Node Release Latch
- (2) USB v2.0 Ports
- GbE / RJ-45
- D-sub VGA
- Power Button
- DB-9 COM1
- Reset Button
- (1) power module is installed as default
- Up to (4) power modules w/ 3+1 redundancy

■ VT35-B3105 Node Placement

