

IBM NeXtScale nx360 M5 server node utilizes the same chassis used by the previous-generation IBM NeXtScale nx360 M4

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At a glance



IBM® NeXtScale System™ is a powerful chassis-based solution comprised of compute, storage, and GPU/Phi nodes. For the M5 generation, the nx360 M5 compute node has been updated to a new version, which utilizes the same chassis (MT 5456) used by the previous-generation IBM NeXtScale nx360 M4. Each chassis can house up to 12 half-wide nx360 M5 compute nodes, or up to six GPU/Phi nodes with six nx360 M5 compute nodes, or up to six storage nodes with six nx360 M5 compute nodes. You can mix compute, GPU/Phi, and storage nodes within the chassis.

The IBM NeXtScale nx360 M5 is a half-wide, dual-socket server designed for data centers that require high performance, yet are constrained on floor space, power, and cooling infrastructure. The nx360 M5 is equipped with the latest Intel Xeon™ E5-2600 v3 series processors and is ideal for clients who need a dense, flexible solution with low total cost of ownership.

New features of the NeXtScale nx360 M5 server include:

- Support for dual E5-2600 v3 processors (up to 18 core)
- 16x DIMM slot support for DDR4 2133MHz memory
- 2x front hot-swap 2.5-inch hard drives, for total internal storage capacity of 4 drives, including 2x 2.5-inch drives in the rear
- IBM exclusive Mezzanine LOM Gen2, ML2, network adapter slot that supports Ethernet or InfiniBand from industry leaders such as Broadcom, Emulex, Intel™, Mellanox, and QLogic
- New dedicated RAID slot enabling 50% more PCI capacity and flexibility
- Support for additional network adapters, hard drives, SSDs, and RAID cards

The existing n1200 Enclosure is a light chassis without integrated networking or built-in switching. As a result, no chassis-level management is required. The nodes in the chassis with front-access cabling connect to top-of-rack switches installed in the same rack or another rack.

Easy-to-order dual-socket compute nx360 M5 standard models and CTO (build your own) models are now available in Standalone Solutions Configurator Tool (SSCT), IBM Hardware Configurator (Blue Horizons), and IBM System x® and Cluster Solutions configurator (x-config).

IBM service options: Three-year Customer Replaceable Unit (CRU) and on-site¹ limited warranty².

Overview

IBM NeXtScale System is the next generation of dense computing. It is an open, flexible, and simple data center solution for users of technical computing, grid deployments, analytics workloads, and large-scale cloud and virtualization infrastructures.

IBM NeXtScale System is built with industry-standard components to create flexible configurations of servers, chassis, and networking switches that integrate easily in a standard 19-inch rack. It is a general-purpose platform that provides flexibility, creating unique and differentiated solutions using off-the-shelf components, such as standard PCIe adapters, networking switches, and cables. Front access to servers, networking cables, and switches enables ease of serviceability and reduces chances of miscabling. Additionally, front access allows users to stay at the front of racks in the cold aisle instead at the back in the hot aisle.

Customized solutions for your applications can be configured to meet your specific business needs for optimum compute power, GPU or co-processor acceleration, and storage with your choice of I/O and networking. Since the NeXtScale platform is optimized for standard racks, it allows the mixing of high-density NeXtScale server offerings and non-NeXtScale components within the same cluster rack.

You can purchase a fully integrated NeXtScale solution from IBM, or procure piece parts or a complete solution through your preferred Business Partner.

If purchased through Intelligent Cluster™, IBM manufacturing sites will fully integrate the components on site and test them as a complete solution before shipping the rack to your location. When you receive the rack, it is removed from the packaging, placed in its proper location, powered up, and connected to the network in minimal time. IBM personnel will confirm that the servers and network are functioning properly before acceptance.

In addition, the integrated NeXtScale solution will undergo Linpack testing on the nodes and clients who require the benchmarking results can be provided HPL output data that was obtained during the test.

IBM NeXtScale System is scalable and extendable with multigenerational upgrades to protect and maximize IT investments.

¹ IBM sends a technician after attempting to diagnose and resolve the problem remotely.

² For information on the IBM Statement of Limited Warranty, contact your IBM representative or reseller. Copies are available upon request.

Key prerequisites

Device drivers, as required

Planned availability date

November 19, 2014

Description

The NeXtScale nx360 M5 system-board tray uses the following features and technologies:

- Optional Broadcom 10GBASET PCIe adapter

This Broadcom adapter enables low-cost migration to 10 Gb Ethernet for applications such as analytics, public or private cloud, and virtualization.

- Two PCI Express® x16 adapter capabilities

The system-board tray has two connectors for PCI Express adapters. These connectors accept standard x16 or x8 adapters.

- SAS, SATA, and SSD hard drive support
- Choice of SAS, Ethernet, or iSCSI host interface
- Dynamic System Analysis (DSA) programs

The DSA programs collect and analyze system information to aid in diagnosing problems. The diagnostic programs collect a large amount of information, such as:

- System configuration
- Network interfaces and settings
- Installed hardware
- Service processor status and configuration
- Vital product data, firmware, and uEFI configuration
- RAID controller configuration and status
- Event logs for ServeRAID controllers and service processors
- Operating system configuration (Online DSA only)
- Installed device drivers (Online DSA only)
- System services (Online DSA only)

- Online DSA

DSA comes in both online (runs under the operating system) and preboot (runs its own media) versions. Online DSA, which is a web download, collects additional software information and operating system vital product data. DSA Preboot runs additional diagnostics, such as the memory test which can help to detect faulty hardware. Both versions can transmit data back to IBM for analysis by service and support personnel or can have the results analyzed locally.

- Integrated Management Module (IMM)

The Integrated Management Module combines the baseboard management controller (BMC) and video controller functions in a single chip that provides basic service-processor environmental monitoring functions. If an environmental condition exceeds a threshold or if a system component fails, LEDs are illuminated on the BMC to help you diagnose the problem and the error is recorded in the error log. The BMC also provides remote server management capabilities, using the Intelligent Platform Management Interface (IPMI) Version 2.0 protocol.

Note: In messages and documentation, the term "service processor" refers to the baseboard management controller.

- Integrated network support

The system-board tray comes with an integrated Intel dual-port Gigabit Ethernet controller, which supports connection to a 10 Mbps, 100 Mbps, or 1000 Mbps network.

- Storage capacity

The system-board tray supports one 3.5-inch simple-swap SATA drive, or two 2.5-inch simple-swap SATA/SAS drives, or four 1.8-inch simple-swap solid-state HDDs. An optional SAS controller must be installed for specific configurations.

- Supported memory options

The nx360 M5 server system-board tray can address up to 512 GB of system memory. The memory controller supports up to 16 industry-standard, registered ECC double-data-rate 4 (DDR4) -1066 DIMMs, -1333 DIMMs, and -1600 DIMMs or unbuffered ECC double-data-rate 4 (DDR4) -1600 DIMMs and -1866 DIMMs.

- Memory mirroring

Memory mirroring stores data in two pairs of DIMMs simultaneously.

- Redundant connection

The addition of an optional network interface card (NIC) provides a failover capability to a redundant Ethernet connection. If a problem occurs with the primary Ethernet connection, all Ethernet traffic that is associated with the primary connection is automatically switched to the redundant NIC. If the applicable device drivers are installed, this switching can occur without data loss and without user intervention.

IBM NeXtScale n1200 Enclosure Chassis (5456)

This 6U enclosure offers:

- Shared high-efficiency power supply (optional redundant supply)
- Shared low-power-consumption fans

IBM NeXtScale n1200 1300 W power supply

When the IBM NeXtScale PCIe Native Expansion Tray is installed, only 1300 W power supplies can be supported and the 1300 W power supply can be connected only when highline voltage is 220 - 240 V ac. See table below.

1300 W power supply quantity	FPC power bank		
	Non-redundant	N+1 redundant	N+N redundant
2	Support	Support	Non-Support
3	Support	Support	Non-Support
4	Support	Support	Non-Support
5	Support	Support	Non-Support
6	Non-Support	Non-Support	Support

NeXtScale servers help pack more processors into the same power and cooling envelope, better utilizing floor space, and "right size" data center design. With the NeXtScale solution, less power per processor means more processing capacity per kilowatt. The NeXtScale can run cooler to deliver greater reliability.

IBM Rear Door Heat eXchanger (175642X)

For dense data center environments, IBM offers smart rack-level heat management solutions such as the super-efficient IBM Rear Door Heat eXchanger. The water-cooled door is designed to dissipate heat generated from the back of the rack to reduce the overall room temperature. With this combination of benefits at the server and data-center level, IBM systems deliver strong power and cooling benefits to NeXtScale clients.

The Rear Door Heat eXchanger for 42U Deep Dynamic racks helps reduce the air temperature in your growing data center to approximately the same air temperature as that entering the rack, alleviating the need to add air conditioning units. This unobtrusive solution brings more cooling capacity to areas where the heat is greatest, around racks of servers with multiple, more powerful processors.

This cooling efficiency can help alleviate or possibly eliminate the need for additional air conditioning power and the associated construction cost.

Lab services

NeXtScale installation planning

Features:

- Assess the client's air conditioning and air distribution in support of NeXtScale systems
- Evaluate the need for any Rear Door Heat eXchanger installations and offer necessary guidance
- Review the NeXtScale power specifications based on the client's hardware configurations and offer necessary guidance

Typical benefits:

- Offers accurate environmental information as required for supporting NeXtScale systems most reliably
- Identifies the most efficient approach to the NeXtScale system cooling and ventilation needs
- Reduces potential installation shortfalls with open and ongoing communication with the client surrounding their specific NeXtScale system requirements

NeXtScale systems management

The NeXtScale product family offers systems management support through standards-based, scriptable interfaces. This support starts with the embedded Intelligent Platform Management Interface (IPMI) baseboard management controller (BMC).

For rapid diagnosis of problems, NeXtScale supports IBM Dynamic System Analysis (DSA) preboot diagnostics and online data collection for problem determination in supported Microsoft™ Windows™ and Linux™ environments. Refer to the Dynamic System Analysis product documentation for additional detail on DSA features.

NeXtScale compute nodes support IBM Systems Director with limited function. Refer to IBM Systems Director product documentation for specific details on supported functions on NeXtScale hardware.

The compute nodes have been tested with the Extreme Cluster Administration Toolkit (xCAT), an open source community-based cluster administration tool set tailored to scale-out compute environments. You can download xCAT from SourceForge at

<http://sourceforge.net/projects/xcat/>

For additional information on xCAT, contact your IBM Sales and Support Team, or visit

http://sourceforge.net/p/xcat/wiki/Main_Page/

Accessibility by people with disabilities

A US Section 508 Voluntary Product Accessibility Template (VPAT) containing details on accessibility compliance can be requested at

http://www.ibm.com/able/product_accessibility/index.html

Product positioning

IBM delivers innovations that meet your specific needs. The right choice depends on your business requirements, target applications, and operating environment. NeXtScale focuses on:

- Compute performance in gigaflops per dollar and performance per watt
- Rapidly scaling and large scale-out deployments
- Maximum useable compute density in the data center
- Software-resilient workloads such as HPC, grid, and cloud computing
- Optional redundant power supply for nongrid workloads

The NeXtScale hardware platform is positioned for large-scale enterprise deployments that rely on recovery-oriented architecture that primarily enables redundancy through the software layer instead of redundant hardware.

Product number

The following are newly announced features on the specified models of the IBM xSeries 5465 machine type:

Description	MT	Model	Feature
5465-AC1	5465	AC1	
QLogic 10Gb SFP+ SR Optical Transceiver	5465	AC1	0064
Brocade 10Gb SFP+ SR Optical Transceiver	5465	AC1	0069
EMEA Long Leadtime Configurations	5465	AC1	1763
Hungary CHW plant 9SH	5465	AC1	1764
Guad CHW plant 9KQ	5465	AC1	1765
ISTC CHW 9K2	5465	AC1	1766
RTP CHW 9NR	5465	AC1	1767
Offload Manufacturing to Guadalajara HVEC	5465	AC1	1768
Offload Manufacturing to RTP HVEC	5465	AC1	1769
Offload Manufacturing to ISTC	5465	AC1	1770
Routing for AP Foxconn	5465	AC1	1771
Capacity Scheduling Service	5465	AC1	1772
Custom SLA Scheduling Service	5465	AC1	1796
Custom Asset Tagging - Standard	5465	AC1	2200
Custom Asset Tagging - Enhanced	5465	AC1	2201
Custom Image Load - Server	5465	AC1	2204
Custom Media Shipgroup	5465	AC1	2206
Request for Global Trade Number (UPC or EAN)	5465	AC1	2207
Custom Software/Firmware Setting - Standard	5465	AC1	2208
Custom Software/Firmware Setting - Enhanced	5465	AC1	2209
Custom RAID Configuration	5465	AC1	2212
Custom Unit Carton Label	5465	AC1	2220

Request for a new Vendor Logo Hardware	5465	AC1	2247
Request for a Classic RPQ	5465	AC1	2248
Install largest capacity, faster drives starting in Array 1	5465	AC1	2498
Install smallest capacity, slower drives starting in Array 1	5465	AC1	2499
QLogic 8Gb FC Single-port HBA for IBM System x	5465	AC1	3578
QLogic 8Gb FC Dual-port HBA for IBM System x	5465	AC1	3579
Emulex 8Gb FC Single-port HBA for IBM System x	5465	AC1	3580
Emulex 8Gb FC Dual-port HBA for IBM System x	5465	AC1	3581
Brocade 8Gb FC Single-port HBA for IBM System x	5465	AC1	3589
Brocade 8Gb FC Dual-port HBA for IBM System x	5465	AC1	3591
10GbE 850 nm Fiber SFP+ Transceiver (SR) for IBM BladeCenter	5465	AC1	4942
Select Storage devices - no IBM-configured RAID required	5465	AC1	5977
Select Storage devices - IBM-configured RAID	5465	AC1	5978
SOFS Solution Code MFG Instruction	5465	AC1	6124
SAP-BWA Solution Code MFG Instruction	5465	AC1	6125
InfoSphere-BWA Solution Code MFG Instruction	5465	AC1	6126
GMAS Solution Code MFG Instruction	5465	AC1	6127
IBW-SSD Solution Code MFG Instruction	5465	AC1	6128
Cloudburst Solution Code MFG Instruction	5465	AC1	6129
SoNAS Solution Code MFG Instruction	5465	AC1	6130
1.8" SAS Storage Support	5465	AC1	6138
Primary Array 2 HDDs	5465	AC1	7008
Primary Array 3 HDDs	5465	AC1	7009
Primary Array 4 HDDs	5465	AC1	7010
Secondary Array 2 HDDs	5465	AC1	7015
System x iDataPlex® Solution	5465	AC1	7018
Group ID 01	5465	AC1	7501
Group ID 02	5465	AC1	7502
Group ID 03	5465	AC1	7503
Group ID 04	5465	AC1	7504
Group ID 05	5465	AC1	7505
Group ID 06	5465	AC1	7506
Group ID 07	5465	AC1	7507
Group ID 08	5465	AC1	7508
Group ID 09	5465	AC1	7509
Group ID 10	5465	AC1	7510
Group ID 11	5465	AC1	7511
Group ID 12	5465	AC1	7512
Group ID 13	5465	AC1	7513
Group ID 14	5465	AC1	7514
Group ID 15	5465	AC1	7515
Group ID 16	5465	AC1	7516
Group ID 17	5465	AC1	7517
Group ID 18	5465	AC1	7518
Group ID 19	5465	AC1	7519
Group ID 20	5465	AC1	7520
China Warranty	5465	AC1	7599
Customer Solution Center Services	5465	AC1	7831
e1350 Special Bid Solution Component	5465	AC1	7929
No HDD Selected	5465	AC1	8026
Consolidate Shipment	5465	AC1	8031
e1350 Solution Component	5465	AC1	8034
TAA Compliant Order	5465	AC1	8067
General Racking Solution	5465	AC1	8072
No SATA HDD Selected	5465	AC1	8080
No 2.5" SAS HDD Selected	5465	AC1	8081
No Publications Selected	5465	AC1	8086
Memory Sparing	5465	AC1	9016
Enable Memory Mirroring	5465	AC1	9017
Storage Subsystem ID 01	5465	AC1	9170
Storage Subsystem ID 02	5465	AC1	9171
Storage Subsystem ID 03	5465	AC1	9172
Storage Subsystem ID 04	5465	AC1	9173
Storage Subsystem ID 05	5465	AC1	9174
Storage Subsystem ID 06	5465	AC1	9175
Storage Subsystem ID 07	5465	AC1	9176
Storage Subsystem ID 08	5465	AC1	9177
Storage Subsystem ID 09	5465	AC1	9178
Storage Subsystem ID 10	5465	AC1	9179
Storage Subsystem ID 11	5465	AC1	9180

Storage Subsystem ID 12	5465	AC1	9181
Storage Subsystem ID 13	5465	AC1	9182
Storage Subsystem ID 14	5465	AC1	9183
Storage Subsystem ID 15	5465	AC1	9184
Storage Subsystem ID 16	5465	AC1	9185
Storage Subsystem ID 17	5465	AC1	9186
Storage Subsystem ID 18	5465	AC1	9187
Storage Subsystem ID 19	5465	AC1	9188
Storage Subsystem ID 20	5465	AC1	9189
Windows Specify	5465	AC1	9201
Red Hat Specify	5465	AC1	9202
SuSE Specify	5465	AC1	9203
Drop-in-the-Box Specify	5465	AC1	9205
No Preload Specify	5465	AC1	9206
System x Cluster Upgrade	5465	AC1	A103
Integrated Solutions - Microsoft	5465	AC1	A192
Integrated Solutions	5465	AC1	A193
IBM Integration Management Module Standard Upgrade	5465	AC1	A1MK
IBM Integrated Management Module Advanced Upgrade	5465	AC1	A1ML
High Performance Analytics Appliance	5465	AC1	A1NN
Label KC	5465	AC1	A2CM
IBM Blank USB Memory Key for VMWare ESXi Downloads	5465	AC1	A2G0
Primary Array - RAID 0	5465	AC1	A2K6
Primary Array - RAID 1	5465	AC1	A2K7
Primary Array - RAID 5	5465	AC1	A2K9
Primary Array - RAID 6	5465	AC1	A2KA
Primary Array - RAID 10	5465	AC1	A2KB
Secondary Array - RAID 0	5465	AC1	A2KF
Secondary Array - RAID 1	5465	AC1	A2KG
Planar Not Integrated With Chassis	5465	AC1	A2N7
Broadcom NetXtreme I Quad Port GbE Adapter for IBM System x	5465	AC1	A2V3
Broadcom NetXtreme I Dual Port GbE Adapter for IBM System x	5465	AC1	A2V4
Emulex 16Gb FC Single-port HBA for IBM System x	5465	AC1	A2W5
Emulex 16Gb FC Dual-port HBA for IBM System x	5465	AC1	A2W6
Brocade 16Gb FC Single-port HBA for IBM System x	5465	AC1	A2XU
Brocade 16Gb FC Dual-port HBA for IBM System x	5465	AC1	A2XV
NVIDIA GRID K1	5465	AC1	A3GM
NVIDIA GRID K2	5465	AC1	A3GN
Intel Xeon Phi 7120P	5465	AC1	A3GP
QLogic 16Gb FC Single-port HBA for IBM System x	5465	AC1	A3KW
QLogic 16Gb FC Dual-port HBA for IBM System x	5465	AC1	A3KX
Mellanox ConnectX-3 10 GbE Adapter for IBM System x	5465	AC1	A3PM
Mellanox ConnectX-3 40GbE / FDR IB VPI Adapter for IBM System x	5465	AC1	A3PN
3U Bracket for Mellanox ConnectX-3 FDR VPI IB/E Adapter	5465	AC1	A3WF
3U Bracket for Mellanox ConnectX-3 10 GbE Adapter	5465	AC1	A3WG
N2215 SAS/SATA HBA for IBM System x	5465	AC1	A3YY
ServeRAID M5210 SAS/SATA Controller for IBM System x	5465	AC1	A3YZ
ServeRAID M5200 Series 1GB Cache/RAID 5 Upgrade for IBM Systems	5465	AC1	A3Z0
ServeRAID M5200 Series 1GB Flash/RAID 5 Upgrade for IBM Systems	5465	AC1	A3Z1
ServeRAID M5200 Series 2GB Flash/RAID 5 Upgrade for IBM Systems	5465	AC1	A3Z2
ServeRAID M5200 Series 4GB Flash/RAID 5 Upgrade for IBM Systems	5465	AC1	A3Z3
ServeRAID M5200 Series RAID 6 Upgrade for IBM Systems-FoD	5465	AC1	A3Z5
ServeRAID M5200 Series Zero Cache/RAID 5 Upgrade for IBM Systems-FoD	5465	AC1	A3Z6
ServeRAID M5200 Series Performance Accelerator for IBM Systems-FoD	5465	AC1	A3Z7
ServeRAID M5200 Series SSD Caching Enabler for IBM Systems-FoD	5465	AC1	A3Z8
Intel X540 ML2 Dual Port 10GbBaseT Adapter for IBM System x	5465	AC1	A40P
Emulex VFA5 ML2 Dual Port 10GbE SFP+ Adapter for IBM System x	5465	AC1	A40Q
Broadcom NetXtreme II ML2 Dual Port 10GbBaseT for			

IBM System x	5465	AC1	A40S
Broadcom NetXtreme II ML2 Dual Port 10GbE SFP+ for IBM System x	5465	AC1	A40T
Air Baffle HDD Cage	5465	AC1	A454
ServeRAID M1215 SAS/SATA Controller for IBM System x	5465	AC1	A45W
Super Cap Cable 925mm for ServRAID M5200 Series Flash	5465	AC1	A47F
IBM 1TB 7.2K 6Gbps SATA 3.5" HDD for NeXtScale System	5465	AC1	A487
IBM 3TB 7.2K 6Gbps SATA 3.5" HDD for NeXtScale System	5465	AC1	A489
IBM 500GB 7.2K 6Gbps SATA 2.5" HDD for NeXtScale System	5465	AC1	A48B
IBM 300GB 10K 6Gbps SAS 2.5" HDD for NeXtScale System	5465	AC1	A48D
KVM Dongle cable	5465	AC1	A4AK
IBM HDD Filler ASM GEN 3	5465	AC1	A4C2
IBM 4TB 7.2K 6Gbps SATA 3.5" HDD for NeXtScale System	5465	AC1	A4GC
S3500 80GB SATA 1.8" MLC Enterprise Value SSD for IBM System x	5465	AC1	A4KV
S3500 400GB SATA 1.8" MLC Enterprise Value SSD for IBM System x	5465	AC1	A4KX
IBM NeXtScale PCIe Native Expansion Tray	5465	AC1	A4MB
Emulex VFA5 ML2 FCoE/iSCSI License for IBM System x (FoD)	5465	AC1	A4NZ
IBM 300GB 10K 6Gbps SAS 2.5" G3HS HDD	5465	AC1	A4TL
IBM 1.2TB 10K 6Gbps SAS 2.5" G3HS HDD	5465	AC1	A4TP
IBM 600GB 15K 6Gbps SAS 2.5" G3HS HDD	5465	AC1	A4TS
IBM 500GB 7.2K 6Gbps NL SATA 2.5" G3HS HDD	5465	AC1	A4TW
Broadcom NetXtreme Dual Port 10GbE SFP+ Adapter for IBM System x	5465	AC1	A4Z6
Solarflare SFN7122F 2x10GbE SFP+ Flareon Ultra for IBM System x	5465	AC1	A522
GPU Filler	5465	AC1	A562
NVIDIA Tesla K40	5465	AC1	A564
8GB TruDDR4 Memory (1Rx4, 1.2V) PC4-17000 CL15 2133MHz LP RDIMM	5465	AC1	A5B5
4GB TruDDR4 Memory (1Rx8, 1.2V) PC4-17000 CL15 2133MHz LP RDIMM	5465	AC1	A5B6
8GB TruDDR4 Memory (2Rx8, 1.2V) PC4-17000 CL15 2133MHz LP RDIMM	5465	AC1	A5B8
32GB TruDDR4 Memory (4Rx4, 1.2V) PC417000 CL15 2133MHz LP LRDIMM	5465	AC1	A5B9
Broadcom NetXtreme 2x10GbE BaseT Adapter for IBM System x	5465	AC1	A5GZ
ServeRAID M1200 Zero Cache/RAID 5 Upgrade for IBM Systems FOD	5465	AC1	A5H5
Intel Xeon Processor E5-2697 v3 14C 2.6GHz 35MB 2133MHz 145W	5465	AC1	A5HE
Intel Xeon Processor E5-2695 v3 14C 2.3GHz 35MB 2133MHz 120W	5465	AC1	A5HF
Intel Xeon Processor E5-2690 v3 12C 2.6GHz 30MB 2133MHz 135W	5465	AC1	A5HG
Intel Xeon Processor E5-2680 v3 12C 2.5GHz 30MB 2133MHz 120W	5465	AC1	A5HH
Intel Xeon Processor E5-2670 v3 12C 2.3GHz 30MB 2133MHz 120W	5465	AC1	A5HJ
Intel Xeon Processor E5-2660 v3 10C 2.6GHz 25MB 2133MHz 105W	5465	AC1	A5HK
Intel Xeon Processor E5-2650 v3 10C 2.3GHz 25MB 2133MHz 105W	5465	AC1	A5HL
Intel Xeon Processor E5-2650L v3 12C 1.8GHz 25-30MB 2133MHz 65W	5465	AC1	A5HM
Intel Xeon Processor E5-2640 v3 8C 2.6GHz 20MB 1866MHz 90W	5465	AC1	A5HN
Intel Xeon Processor E5-2620 v3 6C 2.4GHz 15MB 1866MHz 85W	5465	AC1	A5HQ
Intel Xeon Processor E5-2667 v3 8C 3.2GHz 20MB 2133MHz 135W	5465	AC1	A5HU
System Documentation and Software-US English	5465	AC1	A5JF
System Documentation and Software-Japanese	5465	AC1	A5JM
System Documentation and Software-Japan English	5465	AC1	A5JN

nx360 M5 Compute Node	5465	AC1	A5JU
nx360 M5 ML2 Riser	5465	AC1	A5JV
nx360 M5 ML2 Filler	5465	AC1	A5K8
nx360 M5 Name Bezel	5465	AC1	A5K9
nx360 M5 PCI-E Dummy Filler	5465	AC1	A5KA
nx360 M5 Interposer Dummy filler	5465	AC1	A5KB
nx360 M5 CPU Blank Filler	5465	AC1	A5KC
nx360 M5 PCI bracket KIT	5465	AC1	A5KD
nx360 M5 Computer Node Label GBM	5465	AC1	A5KF
nx360 M5 Top Cover	5465	AC1	A5LJ
nx360 M5 Computer Node Package	5465	AC1	A5NB
IBM 1.2TB 10K 6Gbps SAS 2.5" HDD for NeXtScale System	5465	AC1	A5NC
IBM 600GB 15K 6Gbps SAS 2.5" HDD for NeXtScale System	5465	AC1	A5NG
nx360 M5 DIMM Filler	5465	AC1	A5NK
nx360 M5 ML2 Bracket for Mellanox FDR / 40GbE Mellanox ConnectX-3 Pro ML2 2x40GbE/FDR VPI Adapter for IBM System x	5465	AC1	A5RK
IBM NeXtScale nx360 M5 with PCIe Native Expansion Tray	5465	AC1	A5US
nx360 M5 ML2 Bracket for Intel X540 ML2 Dual Port 10GbaseT	5465	AC1	A5UW
nx360 M5 ML2 Bracket for Emulex VFA5 ML2 Dual Port 10GbE SFP+	5465	AC1	A5UX
nx360 M5 ML2 Bracket -Broadcom NetXtreme II ML2 Dual Port 10GbE SFP+	5465	AC1	A5UY
nx360 M5 ML2 Bracket - Broadcom NetXtreme II ML2 Dual Port 10GbaseT	5465	AC1	A5UZ
Intel Xeon Processor E5-2683 v3 14C 2.0GHz 35MB 2133MHz 120W	5465	AC1	A5V0
IBM 2TB 7.2K 6Gbps NL SATA 3.5" 512e HDD for NextScale System	5465	AC1	A5VV
IBM 3TB 7.2K 6Gbps NL SATA 3.5" 512e HDD for NextScale System	5465	AC1	A5VW
IBM 4TB 7.2K 6Gbps NL SATA 3.5" 512e HDD for NextScale System	5465	AC1	A5VX
IBM 5TB 7.2K 6Gbps NL SATA 3.5" 512e HDD for NextScale System	5465	AC1	A5VY
IBM 6TB 7.2K 6Gbps NL SATA 3.5" 512e HDD for NextScale System	5465	AC1	A5VZ
Intel Xeon Processor E5-2698 v3 16C 2.3GHz 40MB 2133MHz 135W	5465	AC1	AS4L
Intel Xeon Processor E5-2699 v3 18C 2.3GHz 45MB 2133MHz 145W	5465	AC1	AS4M
Essential Package	5465	AC1	AS6D
Enhanced Package	5465	AC1	AS6E
Elite Package	5465	AC1	AS6F

The following are features already announced for the 5465 machine type:

Description	MT	Model	Feature
5465-AC1	5465	AC1	
16GB TruDDR4 Memory (2Rx4, 1.2V) PC4-17000 CL15 2133MHz LP RDIMM	5465	AC1	A5B7
Addl Intel Xeon Processor E5-2697 v3 14C 2.6GHz 35MB 2133MHz 145W	5465	AC1	A5HX
Addl Intel Xeon Processor E5-2695 v3 14C 2.3GHz 35MB 2133MHz 120W	5465	AC1	A5HY
Addl Intel Xeon Processor E5-2690 v3 12C 2.6GHz 30MB 2133MHz 135W	5465	AC1	A5HZ
Addl Intel Xeon Processor E5-2680 v3 12C 2.5GHz 30MB 2133MHz 120W	5465	AC1	A5J0
Addl Intel Xeon Processor E5-2670 v3 12C 2.3GHz 30MB 2133MHz 120W	5465	AC1	A5J1
Addl Intel Xeon Processor E5-2660 v3 10C 2.6GHz 25MB 2133MHz 105W	5465	AC1	A5J2
Addl Intel Xeon Processor E5-2650 v3 10C 2.3GHz 25MB 2133MHz 105W	5465	AC1	A5J3
Addl Intel Xeon Processor E5-2650L v3 12C 1.8GHz 30MB 2133MHz 65W	5465	AC1	A5J4
Addl Intel Xeon Processor E5-2640 v3 8C 2.6GHz			

20MB 1866MHz 90W	5465	AC1	A5J5
Addl Intel Xeon Processor E5-2620 v3 6C 2.4GHz			
15MB 1866MHz 85W	5465	AC1	A5J7
Addl Intel Xeon Processor E5-2667 v3 8C 3.2GHz			
20MB 2133MHz 135W	5465	AC1	A5JB
nx360 M5 IMM Management Interposer	5465	AC1	A5JX
nx360 M5 Compute Node Front Riser	5465	AC1	A5JY
nx360 M5 RAID Riser	5465	AC1	A5JZ
nx360 M5 Remote Battery Holder	5465	AC1	A5K0
nx360 M5 Drive Cage with 1 LFF Assy 3.5" HDD Left	5465	AC1	A5K1
nx360 M5 1x2, 2.5" 12G HDD short cable, HW RAID (stack-up)	5465	AC1	A5K3
nx360 M5 2.5" HDD 2x cable right angle cable (no RAID)	5465	AC1	A5K4
nx360 M5 Rear SSD cable 1.8" server node 4 SSD to planar (no RAID)	5465	AC1	A5K5
nx360 M5 1.8" SSD 12G short cable vertical (HW RAID)	5465	AC1	A5K7
nx360 M5 2.5" Front Hot Swap Drive Cage	5465	AC1	A5NA
nx360 M5 1x2, 2.5" 12G HDD short cable, HW RAID (stack-up) Port 1	5465	AC1	A5QH
Addl Intel Xeon Processor E5-2683 v3 14C 2.0GHz			
35MB 2133MHz 120W	5465	AC1	A5V1
nx360 M5 2.5" Rear Drive Cage	5465	AC1	A5V2
nx360 M5 1.8" Rear Drive Cage	5465	AC1	A5V3
Addl Intel Xeon Processor E5-2698 v3 16C 2.3GHz			
40MB 2133MHz 135W	5465	AC1	AS4P
Addl Intel Xeon Processor E5-2699 v3 18C 2.3GHz			
45MB 2133MHz 145W	5465	AC1	AS4Q

The following are features already announced for the 3331 machine type:

Description	MT	Model	Feature
16GB TruDDR4 Memory (2Rx4, 1.2V) PC4-17000 CL15 2133MHz LP RDIMM	3331	HC1	A5B7
8GB TruDDR4 Memory (2Rx8, 1.2V) PC4-17000 CL15 2133MHz LP RDIMM	3331	HC1	A5B8
Addl Intel Xeon Processor E5-2697 v3 14C 2.6GHz 35MB 2133MHz 145W	3331	HC1	A5HX
Addl Intel Xeon Processor E5-2695 v3 14C 2.3GHz 35MB 2133MHz 120W	3331	HC1	A5HY
Addl Intel Xeon Processor E5-2690 v3 12C 2.6GHz 30MB 2133MHz 135W	3331	HC1	A5HZ
Addl Intel Xeon Processor E5-2680 v3 12C 2.5GHz 30MB 2133MHz 120W	3331	HC1	A5J0
Addl Intel Xeon Processor E5-2670 v3 12C 2.3GHz 30MB 2133MHz 120W	3331	HC1	A5J1
Addl Intel Xeon Processor E5-2660 v3 10C 2.6GHz 25MB 2133MHz 105W	3331	HC1	A5J2
Addl Intel Xeon Processor E5-2650 v3 10C 2.3GHz 25MB 2133MHz 105W	3331	HC1	A5J3
Addl Intel Xeon Processor E5-2650L v3 12C 1.8GHz 30MB 2133MHz 65W	3331	HC1	A5J4
Addl Intel Xeon Processor E5-2640 v3 8C 2.6GHz 20MB 1866MHz 90W	3331	HC1	A5J5
Addl Intel Xeon Processor E5-2620 v3 6C 2.4GHz 15MB 1866MHz 85W	3331	HC1	A5J7
Addl Intel Xeon Processor E5-2667 v3 8C 3.2GHz 20MB 2133MHz 135W	3331	HC1	A5JB
nx360 M5 IMM Management Interposer	3331	HC1	A5JX
nx360 M5 Compute Node Front Riser	3331	HC1	A5JY
nx360 M5 RAID Riser	3331	HC1	A5JZ
nx360 M5 Remote Battery Holder	3331	HC1	A5K0
nx360 M5 Drive Cage with 1 LFF Assy 3.5" HDD Left	3331	HC1	A5K1
nx360 M5 1x2, 2.5" 12G HDD short cable, HW RAID (stack-up)	3331	HC1	A5K3
nx360 M5 2.5" HDD 2x cable right angle cable (no RAID)	3331	HC1	A5K4
nx360 M5 Rear SSD cable 1.8" server node 4 SSD to planar (no RAID)	3331	HC1	A5K5
nx360 M5 1.8" SSD 12G short cable vertical (HW RAID)	3331	HC1	A5K7

nx360 M5 2.5" Front Hot Swap Drive Cage	3331	HC1	A5NA
nx360 M5 1x2, 2.5" 12G HDD short cable, HW RAID (stack-up) Port 1	3331	HC1	A5QH
Addl Intel Xeon Processor E5-2683 v3 14C 2.0GHz 35MB 2133MHz 120W	3331	HC1	A5V1
nx360 M5 2.5" Rear Drive Cage	3331	HC1	A5V2
nx360 M5 1.8" Rear Drive Cage	3331	HC1	A5V3
Addl Intel Xeon Processor E5-2698 v3 16C 2.3GHz 40MB 2133MHz 135W	3331	HC1	AS4P
Addl Intel Xeon Processor E5-2699 v3 18C 2.3GHz 45MB 2133MHz 145W	3331	HC1	AS4Q
nx360 M5 ML2 Riser	3331	HC1	AS70

The following feature numbers are automatically added to the 5372-SWX HIPO order whenever one of the hardware system units is configured in an order.

HIPO

feature

number Description

A85J 5465-AC1 Routing Code

Starting Point models:

Description	Part number
NeXtScale nx360 M5 Starting Point	5465-FT1

Note: All models are GAVs.

Description	MT	Mod	Part number
IBM NeXtScale nx360 M5	5465	22J	545622J
	5465	42J	545642J
	5465	62J	545662J

Note:

xxJ = Japan (Japanese)

Options

Description	Type	Model	Feature code	SEO	Part number
16GB TruDDR4 Memory (2Rx4, 1.2V)					
PC4-17000 CL15 2133MHz LP RDIMM	3331	HC1	A5B7	46W0796	46W0796
nx360 M5 ML2 Riser	3331	HC1	AS70	00FL180	00FL180
nx360 M5 RAID Riser	3331	HC1	A5JZ	00FL179	00FL179
nx360 M5 IMM Management Interposer	3331	HC1	A5JX	00FL177	00FL177
x360 M5 1x2, 2.5" 12G HDD short cable, HW RAID (stack-up)	3331	HC1	A5K3	00FL170	00FL170
nx360 M5 1.8" SSD 12G short cable vertical (HW RAID)	3331	HC1	A5K7	00FL173	00FL173
nx360 M5 Remote Battery Holder	3331	HC1	A5K0	00FL174	00FL174
x360 M5 2.5" Front Hot Swap Drive Cage	3331	HC1	A5NA	00FL175	00FL175
nx360 M5 1x2, 2.5" 12G HDD short cable, HW RAID (stack-up) Port 1	3331	HC1	A5QH	00KA360	00KA360
nx360 M5 Compute Node Front Riser	3331	HC1	A5JY	00FL464	00FL464
nx360 M5 Drive Cage with 1 LFF Assy 3.5" HDD Left	3331	HC1	A5K1	00FL465	00FL465
nx360 M5 2.5" HDD 2x cable right angle cable (no RAID)	3331	HC1	A5K4	00FL466	00FL466
nx360 M5 Rear SSD cable 1.8" server node 4 SSD to planar (no RAID)	3331	HC1	A5K5	00FL467	00FL467
nx360 M5 2.5" Rear Drive Cage	3331	HC1	A5V2	00KA894	00KA894
nx360 M5 1.8" Rear Drive Cage	3331	HC1	A5V3	00KA895	00KA895
Intel Xeon Processor E5-2697 v3 14C					

2.6GHZ 35MB Cache 2133MHz 145W	3331	HC1	A5HX	00FL153	00FL153
Intel Xeon Processor E5-2695 v3 14C					
2.3GHZ 35MB Cache 2133MHz 120W	3331	HC1	A5HY	00FL154	00FL154
Intel Xeon Processor E5-2690 v3 12C					
2.6GHZ 30MB Cache 2133MHz 135W	3331	HC1	A5HZ	00FL155	00FL155
Intel Xeon Processor E5-2680 v3 12C					
2.5GHZ 30MB Cache 2133MHz 120W	3331	HC1	A5J0	00FL156	00FL156
Intel Xeon Processor E5-2670 v3 12C					
2.3GHZ 30MB Cache 2133MHz 120W	3331	HC1	A5J1	00FL157	00FL157
Intel Xeon Processor E5-2660 v3 10C					
2.6GHZ 25MB Cache 2133MHz 105W	3331	HC1	A5J2	00FL158	00FL158
Intel Xeon Processor E5-2650 v3 10C					
2.3GHZ 25MB Cache 2133MHz 105W	3331	HC1	A5J3	00FL159	00FL159
Intel Xeon Processor E5-2650L v3 12C					
1.8GHZ 30MB Cache 2133MHz 65W	3331	HC1	A5J4	00FL160	00FL160
Intel Xeon Processor E5-2640 v3 8C					
2.6GHZ 20MB Cache 1866MHz 90W	3331	HC1	A5J5	00FL161	00FL161
Intel Xeon Processor E5-2620 v3 6C					
2.4GHZ 15MB Cache 1866MHz 85W	3331	HC1	A5J7	00FL163	00FL163
Intel Xeon Processor E5-2667 v3 8C					
3.2GHZ 20MB Cache 2133MHz 135W	3331	HC1	A5JB	00FL167	00FL167
Intel Xeon Processor E5-2683 v3 14C					
2.0GHZ 35MB Cache 2133MHz 120W	3331	HC1	A5V1	00KA829	00KA829
Intel Xeon Processor E5-2698 v3 16C					
2.3GHZ 40MB Cache 2133MHz 135W	3331	HC1	AS4P	00KA945	00KA945
Intel Xeon Processor E5-2699 v3 18C					
2.3GHZ 45MB Cache 2133MHz 145W	3331	HC1	AS4Q	00KA947	00KA947

8GB TruDDR4 Memory (2Rx8, 1.2V) PC4-17000

CL15 2133MHz LP RDIMM	3331	HC1	3331	HC1	A5B8	46W0792	46W0792
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Pseudo parts

Note: The following pseudo part numbers cannot be ordered as stand-alone parts and can be ordered only as part of a configuration created in x-config.

Pseudo
part
numbers Description

00KA398	nx360	M5	CPU Blank Filler
00KA395	nx360	M5	Name Bezel
00FL463	nx360	M5	Computer Node Label GBM
00KA377	Intel Xeon Processor	E5-2697 v3 14C	2.6GHz 35MB 2133MHz 145W
00KA378	Intel Xeon Processor	E5-2695 v3 14C	2.3GHz 35MB 2133MHz 120W
00KA379	Intel Xeon Processor	E5-2690 v3 12C	2.6GHz 30MB 2133MHz 135W
00KA380	Intel Xeon Processor	E5-2680 v3 12C	2.5GHz 30MB 2133MHz 120W
00KA381	Intel Xeon Processor	E5-2670 v3 12C	2.3GHz 30MB 2133MHz 120W
00KA382	Intel Xeon Processor	E5-2660 v3 10C	2.6GHz 25MB 2133MHz 105W
00KA383	Intel Xeon Processor	E5-2650 v3 10C	2.3GHz 25MB 2133MHz 105W
00KA384	Intel Xeon Processor	E5-2650L v3 12C	1.8GHz 30MB 2133MHz 65W
00KA385	Intel Xeon Processor	E5-2640 v3 8C	2.6GHz 20MB 1866MHz 90W
00KA387	Intel Xeon Processor	E5-2620 v3 6C	2.4GHz 15MB 1866MHz 85W
00KA391	Intel Xeon Processor	E5-2667 v3 8C	3.2GHz 20MB 2133MHz 135W
00KA301	System Documentation and Software-US English		
46W0793	8GB TruDDR4 Memory (2Rx8, 1.2V) PC4-17000	CL15	2133MHz LP RDIMM
00KA891	IBM NeXtScale nx360 M5 with PCIe Native Expansion Tray		
46W0797	16GB TruDDR4 Memory (2Rx4, 1.2V) PC4-17000	CL15	2133MHz LP RDIMM
00FL181	nx360	M5	ML2 Bracket for Intel X540 ML2 Dual Port 10GbaseT
00FL182	nx360	M5	ML2 Bracket for Emulex VFA5 ML2 Dual Port 10GbE SFP+
00FL183	nx360	M5	ML2 Bracket - Broadcom NetXtreme II ML2 Dual Port 10GbE SFP+
00FL184	nx360	M5	ML2 Bracket - Broadcom NetXtreme II ML2 Dual Port 10GbaseT
00KA346	nx360	M5	Top Cover
00KA828	Intel Xeon Processor	E5-2683 v3 14C	2.0GHz 35MB 2133MHz 120W
00KA862	nx360	M5	DIMM Filler
00KA942	Intel Xeon Processor	E5-2698 v3 16C	2.3GHz 40MB 2133MHz 135W
00KA944	Intel Xeon Processor	E5-2699 v3 18C	2.3GHz 45MB 2133MHz 145W
00KA394	nx360	M5	ML2 Filler
00KA396	nx360	M5	PCI-E Dummy Filler

00KA397 nx360 M5 Interposer Dummy filler
00KA399 nx360 M5 PCI bracket KIT
00FL185 nx360 M5 ML2 Bracket for Mellanox FDR / 40GbE
00KG556 nx360 M5 ML2 Riser
00KA840 nx360 M5 Computer Node Package
00KA307 System Documentation and Software-Japanese
00KA308 System Documentation and Software-Japan English

Publications

The Installation and Service Guide for NeXtScale solutions, in US English, is available from

<https://www.ibm.com/support/>

Under Product Support, select NeXtScale, and under Popular links, select Publications lookup. Select the Product family and click on continue.

The languages that are available are:

- English
- French
- German
- Italian
- Japanese
- Brazilian Portuguese
- Simplified Chinese
- Traditional Chinese

Services

Global Technology Services®

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<http://www.ibm.com/services/continuity>

Technical information

Specified operating environment

Physical specifications

IBM NeXtScale nx360 M5 node

5465-22x

Processor - E5-2620 V3 6c 85W
 Internal speed - 2.4 GHz
 External speed - 1866 MHz
 Intel QPI Up to 8.0 GT/s
 Number standard - 2
 Maximum - 2
 Cache 15 MB
 Memory (DDR4) 2133
 DIMMs standard - 2 x 8 GB
 DIMM sockets - 16
 Address capability 256 GB
 Video - SH7758
 Memory - 16 MB (shared with IMMv2)
 HDD controller SATA
 Channels - 1
 Connector internal - 1
 Connector external - 0
 Internal HDD 0/B S/S 3.5in LFF SATA
 Total slots - 3
 PCIe Gen3 x16 FH/HL 1
 ML2 PCIe Gen3 x16 HH/HL 1
 PCIe Gen3 x8 LP/HL 1
 Slots available - 3
 Management proc - IMM
 Ethernet controller - 2 x 1 Gb
 DVD-ROM - None

5465-42x

Processor - E5-2650 V3 10c 105W
 Internal speed - 2.3 GHz
 External speed - 2133 MHz
 Intel QPI Up to 9.6 GT/s
 Number standard - 2
 Maximum - 2
 Cache 25 MB
 Memory (DDR4) 2133
 DIMMs standard - 2 x 8 GB
 DIMM sockets - 16
 Address capability 256 GB
 Video - SH7758
 Memory - 16 MB (shared with IMMv2)
 HDD controller SATA
 Channels - 1
 Connector internal - 1
 Connector external - 0
 Internal HDD 0/B S/S 3.5in LFF SATA
 Total slots - 3
 PCIe Gen3 x16 FH/HL 1
 ML2 PCIe Gen3 x16 HH/HL 1
 PCIe Gen3 x8 LP/HL 1
 Slots available - 3
 Management proc - IMM
 Ethernet controller - 2 x 1 Gb
 DVD-ROM - None

5465-62x

Processor - E5-2680 V3 12c 120W
 Internal speed - 2.5 GHz
 External speed - 2133 MHz
 Intel QPI Up to 9.6 GT/s
 Number standard - 2
 Maximum - 2
 Cache 30 MB
 Memory (DDR4) 2133
 DIMMs standard - 2 x 16 GB
 DIMM sockets - 16
 Address capability 256 GB
 Video - SH7758
 Memory - 16 MB (shared with IMMv2)
 HDD controller SATA
 Channels - 2
 Connector internal - 2

Connector external -	0
Internal HDD	0/B S/S 2.5in SFF SATA
Total slots -	3
PCIe Gen3 x16 FH/HL	1
ML2 PCIe Gen3 x16 HH/HL	1
PCIe Gen3 x8 LP/HL	1
Slots available -	3
Management processor -	IMM
Ethernet controller -	2 x 1 Gb
DVD-ROM -	None

Supported Xeon processors

- Intel Xeon Processor E5-2699 v3 18C 2.3GHz 45MB 2133MHz 145W
- Intel Xeon Processor E5-2698 v3 16C 2.3GHz 40MB 2133MHz 135W
- Intel Xeon Processor E5-2697 v3 14C 2.6GHz 35MB 2133MHz 145W
- Intel Xeon Processor E5-2695 v3 14C 2.3GHz 35MB 2133MHz 120W
- Intel Xeon Processor E5-2683 v3 14C 2.0GHz 25MB 2133MHz 120W
- Intel Xeon Processor E5-2690 v3 12C 2.6GHz 30MB 2133MHz 135W
- Intel Xeon Processor E5-2680 v3 12C 2.5GHz 30MB 2133MHz 120W
- Intel Xeon Processor E5-2670 v3 12C 2.3GHz 30MB 2133MHz 120W
- Intel Xeon Processor E5-2660 v3 10C 2.6GHz 25MB 2133MHz 105W
- Intel Xeon Processor E5-2650 v3 10C 2.3GHz 25MB 2133MHz 105W
- Intel Xeon Processor E5-2650L v3 12C 1.8GHz 30MB 2133MHz 65W
- Intel Xeon Processor E5-2640 v3 8C 2.6GHz 20MB 1866MHz 90W
- Intel Xeon Processor E5-2620 v3 6C 2.4GHz 15MB 1866MHz 85W
- Intel Xeon Processor E5-2667 v3 8C 3.2GHz 20MB 2133MHz 135W

IBM NeXtScale nx360 M5 server

Dimensions

- Height: 41.0 mm (1.6 in)
- Depth: 658.8 mm (25.9 in)
- Width: 216 mm (8.5 in)

IBM NeXtScale n1200 Enclosure

Dimensions

- Height: 262.2 mm (10.3 in)
- Depth: 914.5 mm (36.0 in) (back side of mounting flange to rear of chassis)
- Width: 447 mm (17.6 in)

NeXtScale nx360 M5 server specifications

Electrical

- 100 - 127 (nominal) V ac; 50 Hz or 60 Hz; 10.0 A (900 W PSU)
- 200 - 240 (nominal) V ac; 50 Hz or 60 Hz; 5.0 A (900 W PSU) or 6.9 A (1300 W PSU)
- Input kilovolt-amperes (kVA) (approximately):
 - Minimum configuration: 0.100 kVA
 - Maximum configuration: 6.000 kVA
- Btu output:
 - Ship configuration: 341.18 Btu/hr (110 watts)
 - Full configuration: 20,470.84 Btu/hr (6,000 watts)

900-watt PSU electrical power specifications:

- Input: 100 - 127 V ac, 200 - 240 V ac auto-ranging operation
- Built-in overload and surge protection
- 100 - 127 (nominal) V ac; 50 or 60 Hz; 10 A (maximum) output power: 900 W
- 200 - 240 (nominal) V ac; 50 or 60 Hz; 5.0 A (maximum) output power: 900 W

1300-watt PSU electrical power specifications:

- Input: 200 - 240 V ac; 50 or 60 Hz; 6.9 A (maximum)
- Built-in overload and surge protection
- Output: DC +12.2 V; 106.6 A (maximum), 12 Vaux/2.5 A maximum output power 1300 W

Equipment approvals and safety

- Japan VCCI, Class A
- Australia/New Zealand AS/NZS CISPR 22, Class A; AS/NZS 60950.1
- IEC 60950-1 (CB Certificate and CB Test Report)
- China CCC GB4943.1, GB9254 Class A, GB17625.1
- Taiwan BSMI CNS13438, Class A; CNS14336-1
- Korea KN22, Class A, KN24

Operating environment

The IBM NeXtScale nx360 M5 products are designed to operate in a general business environment, such as a Class A or A1, temperature and humidity-controlled room.

Power on

- Temperature: 5° C - 40° C (41° F - 104° F) up to 950 mm (3,117 ft); above 950 m, derated maximum air temperature 1° C per 175 m
- Humidity, noncondensing: -12° C dew point (10.4° F) and 8% - 85% relative humidity
- Maximum dew point: 24° C (75.2° F)
- Maximum altitude: 3050 m (10,000 ft) and 5° C - 28° C (41° F - 82° F)
- Maximum rate of temperature change: 5° C per hour (41° F per hour) for tape drive, 20° C per hour (68° F per hour) for HDDs
- Declared noise level: 7.0 bels (idling)

Power off

- Temperature: 5° C - 45° C (41° F - 113° F)
- Relative humidity: 8% - 85%
- Maximum dew point: 27° C (80.6° F)

Storage (nonoperating):

- Temperature: 1° C to 60° C (33.8° F - 140° F)
- Altitude: 3,050 m (10,000 ft)
- Relative humidity: 5% - 80%
- Maximum dew point: 29° C (84.2° F)

Shipment (nonoperating)

- Temperature: -40° C to 60° C (-40° F - 140° F)
- Altitude: 10,700 m (35,105 ft)
- Relative humidity: 5% - 100%
- Maximum dew point: 29° C (84.2° F)

Design to ASHRAE Class A3, ambient of 40° C, with relaxed support:

- The system will support cloud-like workload with no performance degradation acceptable (Turbo-Off).
- Under no circumstance can any combination of worst-case workload and configuration result in system shutdown or design exposure at 40° C.

Specific processors supported environment:

- Processor E5-2680:
 - Temperature: 5° C - 30° C (41° F - 86° F)
 - Altitude: 0 - 950 m (3,117 ft)
- Processor E5-2690 v2:
 - Temperature: 5° C - 35° C (41° F - 95° F)
 - Altitude: 0 - 950 m (3,117 ft)
- Processor E5-2697 v2:
 - Temperature: 5° C - 35° C (41° F - 95° F)
 - Altitude: 0 - 950 m (3,117 ft)

Japan energy saving standard

Energy value tables - NeXtScale nx360 M5

- Category 2005/2007/2011 = C/B/F
- Input voltage = 100 V ac
- Frequency = 60 Hz

Machine type/Model	CPU model	System Idle Power Consumption (Watts)	Energy Consumption (W1/GT0PS)
546522x	E5-2620 v3, 2.4GHz, 6C	113.43	0.226152
546542x	E5-2650 v3, 2.3GHz, 10C	123.41	0.155428
546562x	E5-2680 v3, 2.5GHz, 12C	126.34	0.122264

Processor	CTP	W1/CTP	2011 criteria	W1 judgement
E5-2620 v3 2.4GHz 6C	288400	0.226152	6.2	Pass
E5-2650 v3 2.3GHz 10C	456550	0.155428	6.2	Pass
E5-2680 v3 2.5GHz 12C	594167	0.122264	6.2	Pass

Hardware requirements

For service, the NeXtScale requires a compatible:

- Monitor
- Combination USB keyboard and pointing device, such as IBM part number 40K5372
- USB CD-RW/DVD drive, such as the IBM and Lenovo part number 73P4515 or 73P4516

Note: Rack must have 784.86 mm (30.9 in) minimum clearance on the front and back sides of the rack to allow service.

Software requirements

The following network operating systems are supported in the NeXtScale:

- Microsoft
 - Microsoft Windows Server 2012
 - Microsoft Windows Server 2012 R2
- Linux

- Red Hat Enterprise Linux 6 Server x64 Edition
- Red Hat Enterprise Linux 7
- SUSE Linux Enterprise Server 11 x64 Edition
- SUSE Linux Enterprise Server 11 for AMD64/EM64T
- SUSE Linux Enterprise Server 11 with Xen for AMD64/EM64T
- SUSE Enterprise Linux Server (SLES) 12
- SUSE Linux Enterprise Server 12 with XEN
- VMware
 - vSphere 5.5 (ESXi)
 - vSphere 5.1 (ESXi)

Note: For additional support, certification, and version information on network operating systems, visit

<http://www-03.ibm.com/servers/eserver/serverproven/compat/us/>

Compatibility

All components of the System x NeXtScale are compatible when purchased as a supported NeXtScale solution.

Limitations

The IBM NeXtScale PCIe Native Expansion Tray will not support 900 W PSUs when installed in the chassis.

NeXtScale options are supported only when ordered and deployed in a NeXtScale solution. They will not be supported when ordered without a corresponding order for a NeXtScale configuration.

Regarding the use of solid-state disk drives, solid-state memory cells have an intrinsic, finite number of write cycles that each cell can incur. As a result, each solid-state device has a maximum amount of write cycles to which it can be subjected, documented as TBW (Total Bytes Written). IBM is not responsible for replacement of hardware that has reached the maximum guaranteed number of write cycles. This limit may be revealed as the device failing to respond to system-generated commands or becoming incapable of being written to. Additional information is available at

<http://www-03.ibm.com/systems/x/options/storage/solidstate/index.html>

Planning information

Customer responsibilities

Customer setup. Customers are responsible for installation on the NeXtScale according to the instructions IBM provides with the machine.

Clients are responsible for preparing their site for installation.

You are expected to review the Installation Planning Guide before the delivery of your NeXtScale product. Clients' responsibilities must be verified as complete before scheduling an IBM installer to come on site. Visit

<http://www.ibm.com/support/>

To service your NeXtScale or obtain IBM service, the NeXtScale requires a compatible:

- Monitor
- Combination USB keyboard and pointing device, such as IBM part number 40K5372
- USB CD-RW/DVD drive, such as the IBM and Lenovo part number 73P4515 or 73P4516

Note: Rack must have 784.86 mm (30.9 in) minimum clearance on the front and back sides of the rack to allow service.

Cable orders

All cables are supplied with the NeXtScale. Depending on the applications, the cables may be fully installed, partially installed (plugged at one end and packaged for shipping), or included as part of a shipment group.

Installability

Customer setup. Customers are responsible for installation on the NeXtScale according to the instructions IBM provides with the machine.

Security, auditability, and control

This offering uses the security and auditability features from standard IBM offerings and supported Linux distributions.

The customer is responsible for evaluation, selection, and implementation of security features, administrative procedures, and appropriate controls in application systems and communications facilities.

IBM Electronic Services

Electronic Service Agent™ and the IBM Electronic Support web portal are dedicated to providing fast, exceptional support to IBM Systems customers. The IBM Electronic Service Agent tool is a no-additional-charge tool that proactively monitors and reports hardware events, such as system errors, performance issues, and inventory. The Electronic Service Agent tool can help you stay focused on your company's strategic business initiatives, save time, and spend less effort managing day-to-day IT maintenance issues. Servers enabled with this tool can be monitored remotely around the clock by IBM Support all at no additional cost to you.

Now integrated into the base operating system of AIX® 5.3, AIX 6.1, and AIX 7.1, Electronic Service Agent is designed to automatically and electronically report system failures and utilization issues to IBM, which can result in faster problem resolution and increased availability. System configuration and inventory information collected by the Electronic Service Agent tool also can be viewed on the secure Electronic Support web portal, and used to improve problem determination and resolution by you and the IBM support team. To access the tool main menu, simply type "smitty esa_main", and select "Configure Electronic Service Agent." In addition, ESA now includes a powerful web user interface, giving the administrator easy access to status, tool settings, problem information, and filters. For more information and documentation on how to configure and use Electronic Service Agent, refer to

<http://www.ibm.com/support/electronic>

The IBM Electronic Support portal is a single Internet entry point that replaces the multiple entry points traditionally used to access IBM Internet services and support. This portal enables you to gain easier access to IBM resources for assistance in resolving technical problems. The My Systems and Premium Search functions make it even easier for Electronic Service Agent tool-enabled customers to track system inventory and find pertinent fixes.

Benefits

Increased uptime: The Electronic Service Agent tool is designed to enhance the Warranty or Maintenance Agreement by providing faster hardware error reporting and uploading system information to IBM Support. This can translate to less wasted time monitoring the "symptoms," diagnosing the error, and manually calling IBM Support to open a problem record. Its 24x7 monitoring and reporting mean no more dependence on

human intervention or off-hours customer personnel when errors are encountered in the middle of the night.

Security: The Electronic Service Agent tool is designed to be secure in monitoring, reporting, and storing the data at IBM. The Electronic Service Agent tool securely transmits via either the Internet (HTTPS or VPN) or modem, and can be configured to communicate securely through gateways to provide customers a single point of exit from their site. Communication is one way. Activating Electronic Service Agent does not enable IBM to call into a customer's system. System inventory information is stored in a secure database, which is protected behind IBM firewalls. It is viewable only by the customer and IBM. The customer's business applications or business data is never transmitted to IBM.

More accurate reporting: Since system information and error logs are automatically uploaded to the IBM Support center in conjunction with the service request, customers are not required to find and send system information, decreasing the risk of misreported or misdiagnosed errors. Once inside IBM, problem error data is run through a data knowledge management system and knowledge articles are appended to the problem record.

Customized support: Using the IBM ID entered during activation, customers can view system and support information in the "My Systems" and "Premium Search" sections of the Electronic Support website at

<http://www.ibm.com/support/electronic>

My Systems provides valuable reports of installed hardware and software using information collected from the systems by Electronic Service Agent. Reports are available for any system associated with the customer's IBM ID. Premium Search combines the function of search and the value of Electronic Service Agent information, providing advanced search of the technical support knowledgebase. Using Premium Search and the Electronic Service Agent information that has been collected from their systems, customers are able to see search results that apply specifically to their systems.

For more information on how to utilize the power of IBM Electronic Services, contact your IBM Systems Services Representative, or visit

<http://www.ibm.com/support/electronic>

Terms and conditions

Products - terms and conditions

To obtain copies of the IBM Statement of Limited Warranty, contact your reseller or IBM.

Warranty period

- Machine type 5465 - Three years
- Optional features - One year

An IBM part or feature installed during the initial installation of an IBM machine is subject to a full warranty effective on the date of installation of the machine. An IBM part or feature that replaces a previously installed part or feature assumes the remainder of the warranty period for the replaced part or feature. An IBM part or feature added to a machine without replacing a previously installed part or feature is subject to a full warranty effective on its date of installation. Unless specified otherwise, the warranty period, type of warranty service, and service level of a part or feature are the same as those for the machine in which it is installed.

The following have been designated as consumables, supply items, or structural parts and therefore not covered by this warranty:

- Air divider
- SB tray cover
- HDD filler 3.5 SS
- HDD filler 2.5 SS
- PCI slot blank filler
- Node expansion MISC kit
- 6U bracket kit
- Battery holder
- 6U chassis
- 6U chassis top cover
- Rail kit
- Rack rail kit
- Rail kit with power cord bracket
- 6U chassis kit

Warranty service

If required, IBM provides repair or exchange service, depending on the type of warranty service specified below for the machine. IBM will attempt to resolve your problem over the telephone or electronically by access to an IBM website. Certain machines contain remote support capabilities for direct problem reporting, remote problem determination, and resolution with IBM. You must follow the problem determination and resolution procedures that IBM specifies. Following problem determination, if IBM determines On-site Service is required, scheduling of service will depend upon the time of your call, machine technology and redundancy, and availability of parts. Service levels are response-time objectives and are not guaranteed. The specified level of warranty service may not be available in all worldwide locations. Additional charges may apply outside IBM's normal service area. Contact your local IBM representative or your reseller for country- and location-specific information.

The type of service is Customer Replaceable Unit (for example, keyboard, mouse, speaker, memory, or hard disk drive) Service and On-site Service.

Customer Replaceable Unit (CRU) Service

IBM provides a replacement CRU to you for you to install. CRU information and replacement instructions are shipped with your machine and are available from IBM at any time on your request. A CRU is designated as being either a Tier 1 (mandatory) or a Tier 2 (optional) CRU. Installation of Tier 1 CRUs, as specified in this announcement, is your responsibility. If IBM installs a Tier 1 CRU at your request, you will be charged for the installation. You may install a Tier 2 CRU yourself or request IBM to install it, at no additional charge, under the type of warranty service designated for your Machine.

Based upon availability, a CRU will be shipped for next business day (NBD) delivery. IBM specifies in the materials shipped with a replacement CRU whether a defective CRU must be returned to IBM. When return is required, return instructions and a container are shipped with the replacement CRU, and you may be charged for the replacement CRU if IBM does not receive the defective CRU within 15 days of your receipt of the replacement.

The following parts or features have been designated as Tier 1 CRUs:

- CMOS battery
- Memory
- Power supplies
- Power paddle board
- Cables

- Adapters
- Line cords
- HDDs
- Fan pack
- Power supply cage
- Jumper cords
- 6U chassis label kit
- PCI riser
- Label kit
- PCI cards

On-site Service

At IBM's discretion you will receive CRU service or IBM or your reseller will repair the failing machine at your location and verify its operation. If required, On-site Repair is provided, 9 hours per day, Monday through Friday excluding holidays, NBD response. You must provide a suitable working area to allow disassembly and reassembly of the IBM machine. The area must be clean, well lit, and suitable for the purpose. On-site Service is not available in all countries, and some countries have kilometer or mileage limitations from an IBM service center. In those locations where On-site Service is not available, the normal in-country service delivery is used.

International Warranty Service

International Warranty Service (IWS) is available in selected countries or regions.

The warranty service type and the service level provided in the servicing country may be different from that provided in the country in which the machine was purchased.

Under IWS, warranty service will be provided with the prevailing warranty service type and service level available for the IWS-eligible machine type in the servicing country, and the warranty period observed will be that of the country in which the machine was purchased.

To determine the eligibility of your machine and to view a list of countries where service is available, visit

<http://www-947.ibm.com/support/entry/portal/docdisplay?lnocid=GCOR-3FBJK2>

For more information on IWS, refer to Services Announcement [AA01-3100](#), dated September 28, 2001.

Licensing

Programs included with this product are licensed under the terms and conditions of the License Agreements that are shipped with the system.

Warranty service upgrades

IBM hourly service rate classification

One

General terms and conditions

Field-installable features

Yes

Model conversions

No

Machine installation

Customer setup. Customers are responsible for installation according to the instructions IBM provides with the machine.

Graduated program license charges apply

No

Licensed Machine Code

IBM Machine Code is licensed for use by a customer on the IBM machine for which it was provided by IBM under the terms and conditions of the IBM License Agreement for Machine Code, to enable the machine to function in accordance with its specifications, and only for the capacity authorized by IBM and acquired by the customer. You can obtain the agreement by contacting your IBM representative or visiting

http://www-304.ibm.com/servers/support/machine_warranties/machine_code.html

IBM may release changes to the Machine Code. IBM plans to make the Machine Code changes available for download from the IBM System x technical support website

<http://www.ibm.com/support>

If the machine does not function as warranted and your problem can be resolved through your application of downloadable Machine Code, you are responsible for downloading and installing these designated Machine Code changes as IBM specifies. If you would prefer, you may request IBM to install downloadable Machine Code changes; however, you may be charged for that service.

Access to IBM Flex System® fix downloads will be granted upon entitlement validation. The terms and conditions for fixes will be covered under the License Agreement for Machine Code, International Program License Agreement, International License Agreement for Non-Warranted Programs and/or other terms provided with the fix, as applicable.

Machine Code license acceptance requirement

Acceptance-By-Use Machine: Yes, acceptance of the Machine Code license terms is conveyed through the user's initial use of the machine.

Educational allowance

None

Prices

For all local charges, contact your IBM representative.

ServicePac® prices

For additional information and pricing on all Japanese ServicePacs, visit

<http://www-935.ibm.com/services/jp/ja/it-services/jp-of-its-servicespac-no-hatena.html>

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AP distribution

Country/Region	Announced	Date
AP IOT		
ASEAN*	Yes	September 9, 2014
India/South Asia**	Yes	September 9, 2014
Australia	Yes	September 9, 2014
People's Republic of China	Yes	September 9, 2014
Hong Kong S. A. R of the PRC	Yes	September 9, 2014
Macao S. A. R of the PRC	Yes	September 9, 2014
Taiwan	Yes	September 9, 2014
Korea	Yes	September 9, 2014
New Zealand	Yes	September 9, 2014
Japan IOT		
Japan	Yes	September 9, 2014

* Brunei Darussalam, Indonesia, Cambodia, Lao People's Democratic Republic, Malaysia, Philippines, Singapore, Thailand, and Vietnam

** Bangladesh, Bhutan, India, Sri Lanka, Maldives, Nepal, and Afghanistan

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