NUTANIX™

Platform ANY

NX-1175S-G8 System Specifications

NX-1175S-G8

January 11, 2023

Contents

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SYSTEM SPECIFICATIONS

Node Naming (NX-1175S-G8)

Nutanix assigns a name to each node in a block, which varies by product type.

The NX-1175S-G8 is a single-socket platform that uses one Intel Icelake CPU.

The NX-1175S-G8 block contains a single node named Node A.

Two SSDs contain the Controller VM and metadata. Two SSDs or HDDs (if used) are data-only drives.

The NX-1175S-G8 contains one LSI HBA card. Optionally, you can put one or two NICs in the two PCIe slots.
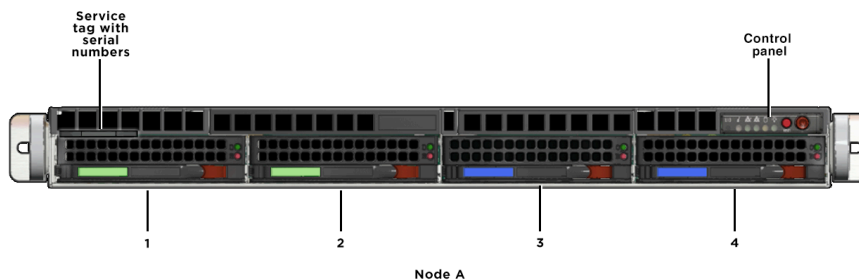
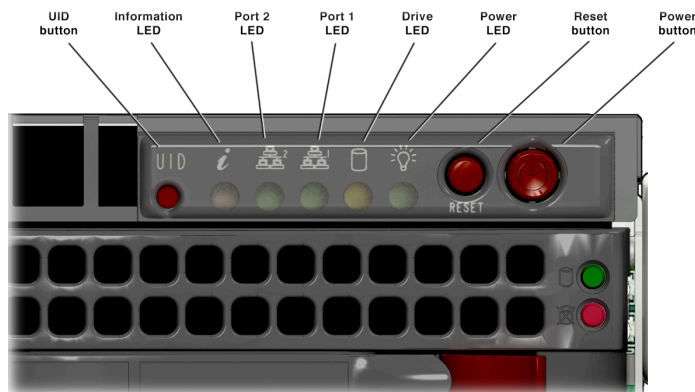Figure 1: NX-1175S-G8 Front Panel
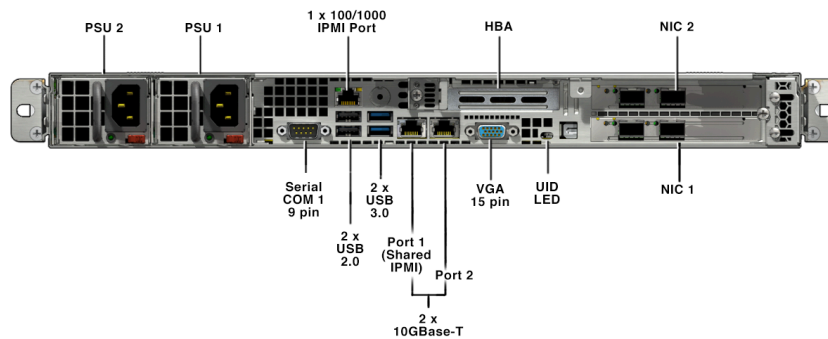
Figure 2: NX-1175S-G8 Control Panel

Figure 3: NX-1175S-G8 Back Panel

NX-1175S-G8 System Specifications

Table 1: System Characteristics

Boot Device	Single M.2 NVMe
	• 1 x 512GB M.2 Boot Device
CPU	Processor
	• 1 x Silver 4309Y [8 cores / 2.80 GHz]
	• 1 x Silver 4310 [12 cores / 2.10 GHz]
	• 1 x Silver 4310T [10 cores / 2.30 GHz]
	• 1 x Silver 4314 [16 cores / 2.40 GHz]
	• 1 x Silver 4316 [20 cores / 2.30 GHz]
	• 1 x Gold 5315Y [8 cores / 3.20 GHz]
	• 1 x Gold 5317 [12 cores / 3.00 GHz]
	• 1 x Gold 5318Y [24 cores / 2.10 GHz]
	• 1 x Gold 5320T [20 cores / 2.30 GHz]
	• 1 x Gold 6312U [24 cores / 2.40 GHz]
	• 1 x Gold 6326 [16 cores / 2.90 GHz]
	• 1 x Gold 6334 [8 cores / 3.60 GHz]

Memory	32GB RDIMM • 2 x 32 GB = 64 GB • 4 x 32 GB = 128 GB • 8 x 32 GB = 256 GB 64GB DIMM • 2 x 64 GB = 128 GB • 4 x 64 GB = 256 GB • 8 x 64 GB = 512 GB 128GB RDIMM • 2 x 128 GB = 256 GB • 4 x 128 GB = 512 GB • 8 x 128 GB = 1.0 TB
Network	Serverboard • 1x 1GbE Dedicated IPMI • 2x 10GBaseT (IPMI Failover) NICs in PCIe Slots • 0, 1 or 2 x 10GBaseT 2P NIC • 0, 1 or 2 x 10GBaseT 4P NIC • 0, 1 or 2 x 10GbE 4P NIC • 0, 1 or 2 x 25GbE 2P NIC
Network Cables	Network Cables • OPT,CBL,SFP28,1M,CU • OPT, CBL, 1M, SFP+ TO SFP+ • OPT,CBL,SFP28,3M,CU • OPT, CBL, 3M, SFP+ TO SFP+ • OPT,CBL,SFP28,5M,CU • OPT, CBL, 5M, SFP+ TO SFP+
Power Cable	Power Cable • 2 x C13/14 4ft Power Cable
Power Supply	Power Supply • 2 x 600W Platinum PSU

Server	Server • NX-1175S-G8 Server
Storage	
Storage : All SSD	2 or 4 x SSD • 1.92TB • 3.84TB • 7.68TB
Storage : All SSD SED	2 or 4 x SSD • 1.92TB • 3.84TB
Storage : SSD +HDD	2 x SSD • 1.92TB • 3.84TB • 7.68TB 2 x HDD • 6.0TB • 8.0TB • 12.0TB • 18.0TB
Storage : SSD +HDD SED	2 x SSD • 1.92TB • 3.84TB 2 x HDD • 6.0TB • 8.0TB • 12.0TB
TPM	TPM • 1 x Unprovisioned Trusted Platform Module
Transceiver	Transceiver • SR SFP+ Transceiver

Chassis fans	5x 40 mm heavy duty fans with PWM fan speed controls

Table 2: Block, power and electrical

Block	Weight : 14.5 kg
	Rack Units : 1 U
	Width : 437 mm
	Depth : 650 mm
	Height : 43.3 mm
Package	Weight : 23 kg
Shock	Operating : 2.5 ms
	Non-Operating : 10 ms
Thermal Dissipation	Maximum : 1671 BTU/hr
	Typical : 1166 BTU/hr
Vibration (Random)	Non-Operating : 0.98 Grms
	Operating : 0.4 Grms
Power consumption	Max Config
	• Maximum: 490 VA
	• Typical: 343 VA
Operating environment	Operating temperature : 10-35C
	Non-Operating temperature : -40-70C
	Operating relative humidity : 20-90%
	Non-operating relative humidity : 5-95%

Certifications

- Energy Star
- CSAus
- FCC
- CSA
- UL
- cUL
- ICES
- CE

- UKCA
- KCC
- RCM
- VCCI-A
- BSMI
- EAC
- SABS
- S-MARK
- UKRSEPRO
- BIS
- SII

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COMPONENT SPECIFICATIONS

Controls and LEDs
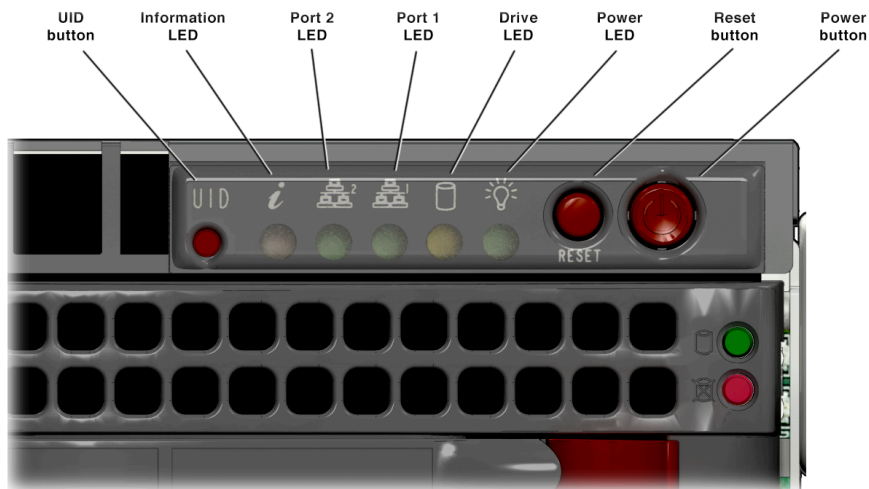
Figure 4: Controls and LEDs for NX-1175S-G8

Table 3: Front Panel Controls and Indicators

LED or Button	Function
Power button	System on/off (Press and hold 4 seconds to power off.)
Reset button	System reset
Power LED	Solid green when block is powered on
Drive LED	Flashing orange on activity
10 GbE LAN 1 LED (Port 1)	Activity = green flashing
10 GbE LAN 2 LED (Port 2)	Activity = green flashing
Multiple Function *i* LED	
i Unit identification	Solid blue
i Overheat condition	Solid red
i Power supply failure	Flashing red at 0.25Hz
i Fan failure	Flashing red at 1Hz
Unit Identifier button (UID)	Press button to illuminate the *i* LED (blue)

Table 4: Drive LEDs

Top LED: Activity	Blue or green, blinking = I/O activity, off = idle
Bottom LED: Status	Red solid = failed drive, On five seconds after boot = power on

Table 5: Back Panel Controls and Indicators

LED	Function
PSU1 and PSU2 LED	Green = OK (PSU normal)
	Yellow = no node power or PSU is not inserted completely
	Red for Fail
10 GbE LAN 1 LED (Port 1)	Activity = green flashing, Link = solid green
10 GbE LAN 2 LED (Port 2)	Activity = green flashing, Link = solid green
1 GbE dedicated IPMI	Left LED green for 100 Mbps, Left amber for 1 Gbps, Right yellow flashing for activity
i Unit identification LED	Solid blue
2 x 10 GbE and 4 x 10 GbE NIC LEDs	Link and Activity = green flashing 10 Gbps, Amber = 1 Gbps

Table 6: Power Supply LED Indicators

Power supply condition	LED status
No AC power to all power supplies	Off
Power supply critical events that cause a shutdown: **Failure**, **Over Current Protection**, **Over Voltage Protection**, **Fan Fail**, **Over Temperature Protection**, **Under Voltage Protection**.	Steady amber
Power supply warning events. Power supply continues to operate. High temperature, over voltage, under voltage and other conditions.	Blinking amber (1 Hz)
When AC is present only: 12VSB on (PS off) or PS in sleep state	Blinking green (1 Hz) minute
Output on and OK	Steady green
AC cord unplugged	Steady amber
Power supply firmware updating mode	Blinking green (2 Hz)

For LED states for add-on NICs, see LED Meanings for Network Cards on page 10.

LED Meanings for Network Cards

Descriptions of LEDs for supported NICs.

Different NIC manufacturers use different LED colors and blink states. Not all NICs are supported for every Nutanix platform. See the system specifications for your platform to verify which NICs are supported.

Table 7: On-Board Ports

NIC	Link (LNK) LED	Activity (ACT) LED
1 GbE dedicated IPMI	Green: 100 Mbps Yellow: 1 Gbps	Blinking yellow: activity
1 GbE shared IPMI	Green: 1 Gbps Yellow: 100 Mbps	Blinking yellow: activity
i Unit identification LED	Blinking blue: UUID has been activated.	

Table 8: SuperMicro NICs

NIC	Link (LNK) LED	Activity (ACT) LED
Dual-port 1 GbE	Green: 100 Mbps Yellow: 1 Gb/s OFF: 10 Mb/s or No Connection	Blinking yellow: activity
Dual-port 10G SFP+	Green: 10 Gb Yellow: 1 Gb	Blinking green: activity

Table 9: Silicom NICs

NIC	Link (LNK) LED	Activity (ACT) LED
Dual-port 10G SFP+	Green: all speeds	Solid green: idle Blinking green: activity
Quad-port 10G SFP+	Blue: 10 Gb Yellow: 1 Gb	Solid green: idle Blinking green: activity
Dual-port 10G BaseT	Yellow: 1 Gb/s Green: 10 Gb/s	Blinking green: activity

Table 10: Mellanox NICs

NIC	Link (LNK) LED	Activity (ACT) LED
Dual-port 10G SFP+ ConnectX-3 Pro	Green: 10 Gb speed with no traffic Blinking yellow: 10 Gb speed with traffic Not illuminated: no connection	Blinking yellow and green: activity
Dual-port 40G SFP+ ConnectX-3 Pro	Solid green: good link	Blinking yellow: activity Not illuminated: no activity
Dual-port 10G SFP28 ConnectX-4 Lx	Solid yellow: good link Blinking yellow: physical problem with link	Solid green: valid link with no traffic Blinking green: valid link with active traffic
Dual-port 25G SFP28 ConnectX-4 Lx	Solid yellow: good link Blinking yellow: physical problem with link	Solid green: valid link with no traffic Blinking green: valid link with active traffic

Power Supply Unit (PSU) Redundancy and Node Configuration

Note: Nutanix recommends that you carefully plan your AC power source needs, especially in cases where the cluster consists of mixed models.

Nutanix recommends that you use 180 V ~ 240 V AC power source to secure PSU redundancy. However, according to the following table, and depending on the number of nodes in the chassis, some NX platforms can work with redundant 100 V ~ 210 V AC power supply units.

Table 11: PSU Redundancy and Node Configuration

Nutanix model	Number of nodes	Redundancy at 110 V	Redundancy at 208-240 V
NX-1065-G8	1	YES	YES
	2, 3, or 4	NO	YES
NX-1175S-G8	1	YES	YES
NX-3060-G8	1	YES	YES
	2, 3, or 4	NO	YES
NX-3155G-G8	1	NO	YES
NX-3170-G8	1	NO	YES

Nutanix model	Number of nodes	Redundancy at 110 V	Redundancy at 208-240 V
NX-8035-G8	1	YES	YES
	2	No	YES
NX-8150-G8	1	NO	YES
NX-8155-G8	1	For CPUs with a thermal design profile equal to or less than 130 W: redundant at 110 V over the entire supported ambient temperature range of 10° C to 35° C. For all other CPUs, use the following rule: • Ambient temperature is 25° C or less: YES • Ambient temperature is greater than 25° C: NO	YES
NX-8170-G8	1	NO	YES

Nutanix DMI Information

Format for Nutanix DMI strings.

VMware reads model information from the direct media interface (DMI) table.

For platforms with Intel Icelake CPUs, Nutanix provides model information to the DMI table in the following format:

`NX-motherboard_idNIC_id-HBA_id-G8`

motherboard-id has the following options:

Argument	Option
T	X12 multi-node motherboard
U	X12 single-node motherboard
W	X12 single-socket single-node motherboard

NIC_id has the following options:

Argument	Option
D1	dual-port 1G NIC
Q1	quad-port 1G NIC
DT	dual-port 10GBaseT NIC

Argument	Option
QT	quad-port 10GBaseT NIC
DS	dual-port SFP+ NIC
QS	quad-port SFP+ NIC

HBA_id specifies the number of nodes and type of HBA controller. For example:

Argument	Option
1NL3	single-node LSI3808
2NL3	2-node LSI3808
4NL3	4-node LSI3808

Table 12: Examples

DMI string	Explanation	Nutanix model
NX-TDT-4NL3-G8	X12 motherboard with dual-port 10GBase-T NIC, 4 nodes with LSI3808 HBA controllers	NX-1065-G8, NX-3060-G8
NX-TDT-2NL3-G8	X12 motherboard with dual-port 10GBase-T NIC, 2 nodes with LSI3808 HBA controllers	NX-8035-G8
NX-UDT-1NL3-G8	X12 motherboard with dual-port 10GBase-T NIC, 1 node with LSI3808 HBA controller	NX-3155G-G8, NX-3170-G8, NX-8150-G8, NX-8155-G8, NX-8170-G8
NX-WDT-1NL3-G8	X12 single-socket motherboard with dual-port 10GBase-T NIC, 1 node with LSI3808 HBA controller	NX-1175S-G8

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MEMORY CONFIGURATIONS

Supported Memory Configurations

DIMM installation information for all Nutanix G8 platforms.

DIMM Restrictions

DIMM type

Each G8 node must contain only DIMMs of the same type. So, for example, you cannot mix RDIMM and LRDIMM in the same node.

DIMM capacity

Each G8 node must contain only DIMMs of the same capacity. So, for example, you cannot mix 32 GB DIMMs and 64 GB DIMMs in the same node.

DIMM speed

G8 nodes ship with 3200 MHz DIMMs. 3200 MHz is the highest speed Nutanix currently supports, so you cannot currently mix DIMM speeds in any G8 node.

DIMM manufacturer

You can mix DIMMs from different manufacturers in the same *node*, but not in the same *channel*.

Multi-node platforms

Multi-node G8 platforms contain only one active DIMM slot per channel, so mixing DIMMs in the same channel is not possible.

Single-socket platforms

The single-socket NX-1175S-G8 platform contains only one DIMM slot per channel, so mixing DIMMs in the same channel is not possible.

Single-node platforms

- Single-node G8 platforms contain two DIMM slots per channel. Within a channel, all DIMMs must be from the same manufacturer.

- When replacing a failed DIMM, if there are two DIMMs in the channel, either replace the failed DIMM with a new DIMM form the same manufacturer, or else replace both DIMMs in the channel and make sure that both new DIMMs are from the same manufacturer.

- When adding new DIMMs to a node, if the new DIMMs and the original DIMMs have different manufacturer part numbers, arrange the DIMMs so that the original DIMMs and the new DIMMs are not mixed in the same channel.

  - EXAMPLE: You have an NX-8155-G8 node that has sixteen 32GB DIMMs for a total of 512 GB. You decide to upgrade to thirty-two 32GB DIMMs for a total of 1024 GB. When you remove the node from the chassis and look at the server board, you see that each CPU has eight DIMMs. Remove all DIMMs from one CPU and place them in the empty DIMM slots for the other CPU.

Then place all the new DIMMs in the DIMM slots for the first CPU, filling all slots. This way you can ensure that the original DIMMs and the new DIMMs do not share channels.

Note: You do not need to balance numbers of DIMMs from different manufacturers within a node, so long as you never mix them in the same channel.

Memory Installation Order for Multi-Node G8 Platforms

A memory channel is a group of DIMM slots.

For G8 multi-node platforms, each CPU is associated with eight active memory channels that contain one blue slot each, plus two inactive black slots.
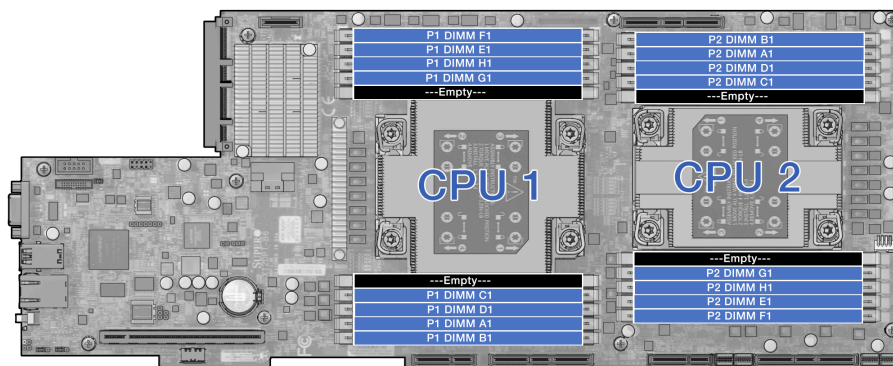
Note: The black slots (C2 and G2 on each CPU) are inactive.

Figure 5: DIMM Slots for a G8 Multinode Serverboard

Table 13: DIMM Installation Order for Multi-node G8 Platforms

Number of DIMMs	Slots to Use	Supported Capacities	
		NX-1065-G8	NX-3060-G8 and NX-8035-G8
4	CPU1: A1, E1 CPU2: A1, E1	32 GB, 64 GB	32 GB, 64 GB, 128 GB
8	CPU1: A1, C1, E1, G1 CPU2: A1, C1, E1, G1	32 GB, 64 GB	32 GB, 64 GB, 128 GB
12	CPU1: A1, B1, C1, E1, F1, G1 CPU2: A1, B1, C1, E1, F1, G1	32 GB, 64 GB	32 GB, 64 GB, 128 GB
16	Fill all blue slots.	32 GB, 64 GB	32 GB, 64 GB

Memory Installation Order for Single-node G8 Platforms

A memory channel is a group of DIMM slots.

For G8 single-node platforms, each CPU is associated with eight memory channels that contain one blue slot and one black slot each, for a total of 32 DIMM slots.
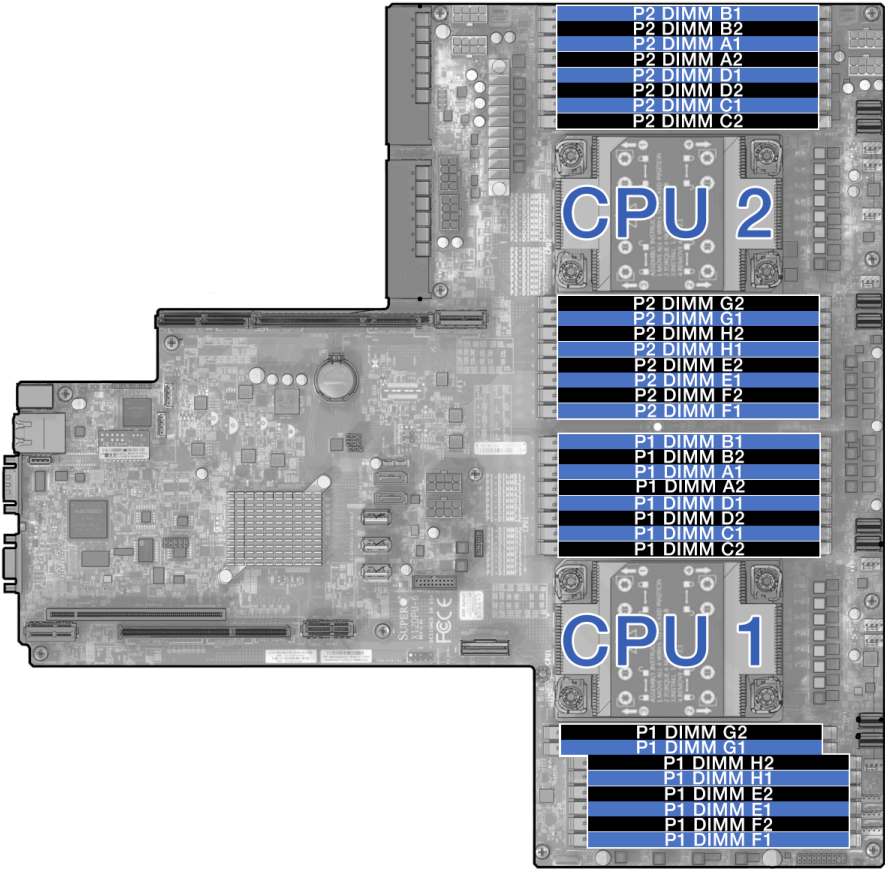

Figure 6: DIMM Slots for a G8 Single-Node Serverboard

Table 14: DIMM Installation Order for Single-Node G8 Platforms

Number of DIMMs	Slots to Use	Supported Capacities	
		NX-3170-G8, NX-8155-G8, NX-8170-G8	NX-3155G-G8, NX-8150-G8
4	CPU1: A1, E1 (blue slots) CPU2: A1, E1 (blue slots)	32 GB, 64 GB	32 GB, 64 GB, 128 GB
8	CPU1: A1, C1, E1, G1 (blue slots) CPU2: A1, C1, E1, G1 (blue slots)	32 GB, 64 GB	32 GB, 64 GB, 128 GB

Number of DIMMs	Slots to Use	Supported Capacities	
		NX-3170-G8, NX-8155-G8, NX-8170-G8	NX-3155G-G8, NX-8150-G8
12	CPU1: A1, B1, C1, E1, F1, G1 (blue slots) CPU2: A1, B1, C1, E1, F1, G1 (blue slots)	32 GB, 64 GB	32 GB, 64 GB, 128 GB
16	CPU1: A1, B1, C1, D1, E1, F1, G1, H1 (blue slots) CPU2: A1, B1, C1, D1, E1, F1, G1, H1 (blue slots)	32 GB, 64 GB	32 GB, 64 GB, 128 GB
24	CPU1: A1, B1, C1, E1, F1, G1 (blue slots) CPU1: A2, B2, C2, E2, F2, G2 (black slots) CPU2: A1, B1, C1, E1, F1, G1 (blue slots) CPU2: A2, B2, C2, E2, F2, G2 (black slots)	32 GB, 64 GB	32 GB, 64 GB, 128 GB
32	Fill all slots.	32 GB, 64 GB	32 GB, 64 GB, 128 GB

Memory Installation Order for the Single-socket NX-1175S-G8 Platform

A memory channel is a group of DIMM slots.

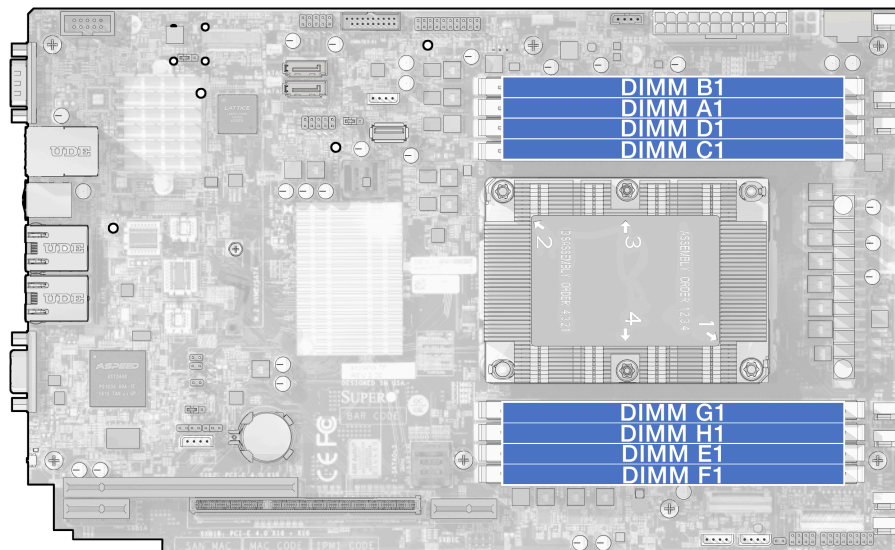On the NX-1175S-G8, the single CPU is associated with eight memory channels that contain one slot each.

Figure 7: DIMM slots for an NX-1175S-G8 server board

Table 15: DIMM Installation Order for NX-1175S-G8

Number of DIMMs	Slots to use	Supported DIMM capacities
2	A1, E1	32 GB, 64 GB, 128 GB
4	A1, C1, E1, G1	32 GB, 64 GB, 128 GB
8	Fill all slots.	32 GB, 64 GB, 128 GB

4

NUTANIX HARDWARE NAMING CONVENTION

Every Nutanix block has a unique name based on the standard Nutanix naming convention.

The Nutanix hardware model name uses the following format.

Prefix-*body-suffix*

The prefix is NX for all Nutanix platforms.

Table 16: Prefix

Prefix	Description
NX	Indicates that the platform is sold directly by Nutanix and support calls are handled by Nutanix. *NX* stands for *Nutanix*.

Table 17: Body

Body	Description
W	Indicates the product series, and takes one of the following values. • *1* – small or Remote Office/Branch Office (ROBO) businesses • *3* – heavy compute • *8* – high-performance

Body	Description
X	Indicates the number of nodes, and takes one of the following values. • *1* – single-node platforms • *2* – multinode platforms • *3* – multinode platforms • *4* – multinode platforms Note: Though multinode platforms can have two, three, or four nodes, the documentation always uses a generic zero, *0*.
Y	Indicates the chassis form-factor, and takes one of the following values. • *3* – 2U2N (two rack units high, two nodes) • *5* – 2U1N (two rack units high with one node) • *6* – 2U4N (two rack units high with four nodes) • *7* – 1U1N (one rack unit high with one node)
Z	Indicates the drive form-factor, and takes one of the following values. • *0* – 2.5 inch drives • *5* – 3.5 inch drives
• *G* • *S*	Indicates one of the following: • *G* at the end of the body stands for "graphics" and means that the platform is optimized for using Graphics Processing Unit (GPU) cards. • *S* at the end of the body stands for "single socket" and means that the motherboard has only one CPU instead of the usual two.

Table 18: Suffix

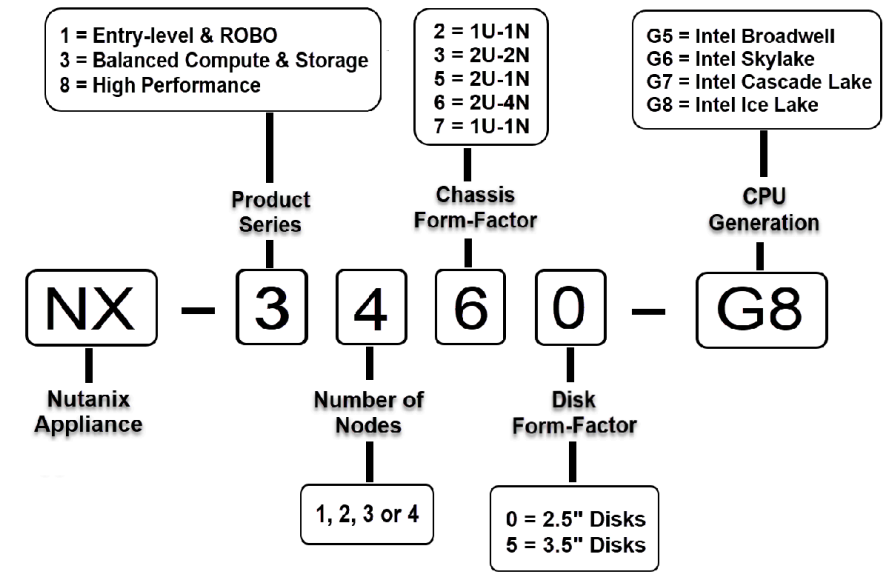| Suffix	Description
G4	The platform uses the Intel Haswell CPU
G5	The platform uses the Intel Broadwell CPU
G6	The platform uses the Intel Skylake CPU
G7	The platform uses the Intel Cascade Lake CPU
G8	The platform uses the Intel Ice Lake CPU

Figure 8: Nutanix Hardware Naming Convention

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Conventions

Convention	Description
`variable_value`	The action depends on a value that is unique to your environment.
`ncli> command`	The commands are executed in the Nutanix nCLI.
`user@host$ command`	The commands are executed as a non-privileged user (such as nutanix) in the system shell.
`root@host# command`	The commands are executed as the root user in the vSphere or Acropolis host shell.
`> command`	The commands are executed in the Hyper-V host shell.
`output`	The information is displayed as output from a command or in a log file.

Default Cluster Credentials

Interface	Target	Username	Password
Nutanix web console	Nutanix Controller VM	admin	Nutanix/4u
vSphere Web Client	ESXi host	root	nutanix/4u
vSphere client	ESXi host	root	nutanix/4u
SSH client or console	ESXi host	root	nutanix/4u
SSH client or console	AHV host	root	nutanix/4u
SSH client or console	Hyper-V host	Administrator	nutanix/4u
SSH client	Nutanix Controller VM	nutanix	nutanix/4u
SSH client	Nutanix Controller VM	admin	Nutanix/4u

Interface	Target	Username	Password
SSH client or console	Acropolis OpenStack Services VM (Nutanix OVM)	root	admin

Version

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