Hitachi Advanced Server HA820 G3

v9.1

TechSpecs

This document provides at-a-glance information about the Hitachi Advanced Server HA820 G3. It includes platform information, standard and optional features, core options, and technical specifications.

MK-97HAS8040-00

November 2023

© 2023 Hitachi Vantara LLC. All rights reserved.

No part of this publication may be reproduced or transmitted in any form or by any means, electronic or mechanical, including copying and recording, or stored in a database or retrieval system for commercial purposes without the express written permission of Hitachi, Ltd., or Hitachi Vantara LLC (collectively “Hitachi”). Licensee may make copies of the Materials provided that any such copy is: (i) created as an essential step in utilization of the Software as licensed and is used in no other manner; or (ii) used for archival purposes. Licensee may not make any other copies of the Materials. “Materials” mean text, data, photographs, graphics, audio, video and documents.

Hitachi reserves the right to make changes to this Material at any time without notice and assumes no responsibility for its use. The Materials contain the most current information available at the time of publication.

Some of the features described in the Materials might not be currently available. Refer to the most recent product announcement for information about feature and product availability, or contact Hitachi Vantara LLC at https://support.hitachivantara.com/en_us/contact-us.html.

Notice: Hitachi products and services can be ordered only under the terms and conditions of the applicable Hitachi agreements. The use of Hitachi products is governed by the terms of your agreements with Hitachi Vantara LLC.

By using this software, you agree that you are responsible for:

.1) Acquiring the relevant consents as may be required under local privacy laws or otherwise from authorized employees and other individuals; and

2) Verifying that your data continues to be held, retrieved, deleted, or otherwise processed in accordance with relevant laws.

Notice on Export Controls. The technical data and technology inherent in this Document may be subject to U.S. export control laws, including the U.S. Export Administration Act and its associated regulations, and may be subject to export or import regulations in other countries. Reader agrees to comply strictly with all such regulations and acknowledges that Reader has the responsibility to obtain licenses to export, re-export, or import the Document and any Compliant Products.

Hitachi and Lumada are trademarks or registered trademarks of Hitachi, Ltd., in the United States and other countries.

AIX, AS/400e, DB2, Domino, DS6000, DS8000, Enterprise Storage Server, eServer, FICON, FlashCopy, GDPS, HyperSwap, IBM, Lotus, MVS, OS/390, PowerHA, PowerPC, RS/6000, S/390, System z9, System z10, Tivoli, z/OS, z9, z10, z13, z14, z15, z16, z/VM, and z/VSE are registered trademarks or trademarks of International Business Machines Corporation.

Active Directory, ActiveX, Bing, Excel, Hyper-V, Internet Explorer, the Internet Explorer logo, Microsoft, Microsoft Edge, the Microsoft corporate logo, the Microsoft Edge logo, MS-DOS, Outlook, PowerPoint, SharePoint, Silverlight, SmartScreen, SQL Server, Visual Basic, Visual C++, Visual Studio, Windows, the Windows logo, Windows Azure, Windows PowerShell, Windows Server, the Windows start button, and Windows Vista are registered trademarks or trademarks of Microsoft Corporation. Microsoft product screen shots are reprinted with permission from Microsoft Corporation.

All other trademarks, service marks, and company names in this document or website are properties of their respective owners.

Copyright and license information for third-party and open source software used in Hitachi Vantara products can be found in the product documentation, at https://www.hitachivantara.com/en-us/company/legal.html or https://knowledge.hitachivantara.com/Documents/Open_Source_Software.

Table of Contents

Preface

About this document

This document describes the Hitachi Advanced Server HA820 G3. It includes platform information, standard and optional features, core options, and technical specifications.

Document conventions

This document uses the following typographic convention:

Convention	Description
Bold	• Indicates text in a window, including window titles, menus, menu options, buttons, fields, and labels. Example: **Click OK**. • Indicates emphasized words in list items.
Italic	Indicates a document title or emphasized words in text.
`Monospace`	Indicates text that is displayed on screen or entered by the user. Example: `pairdisplay -g oradb`

Intended audience

This document is intended for the person who installs, administers, and troubleshoots servers and storage systems. Hitachi Vantara assumes you are qualified in the servicing of computer equipment and trained in recognizing hazards in products with hazardous energy levels.

Accessing product downloads

Product software, drivers, and firmware downloads are available on Hitachi Vantara Support Connect: https://support.hitachivantara.com/.

Log in and select Product Downloads to access the most current downloads, including updates that may have been made after the release of the product.

Getting Help

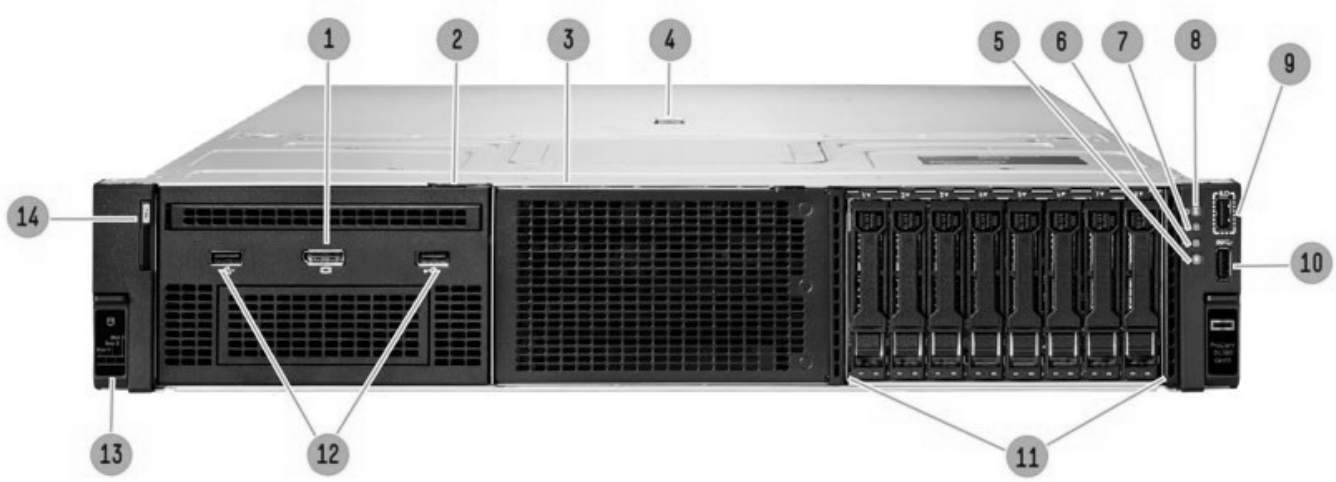
Hitachi Vantara Support Connect is the destination for technical support of products and solutions sold by Hitachi Vantara. To contact technical support, log on to Hitachi Vantara Support Connect for contact information: https://support.hitachivantara.com/en_us/contact-us.html.

Hitachi Vantara Community is a global online community for customers, partners, independent software vendors, employees, and prospects. It is the destination to get answers, discover insights, and make connections. **Join the conversation today!** Go to community.hitachivantara.com, register, and complete your profile.

Chapter 1: Overview

Hitachi Advanced Server HA820 G3

The HA820 G3 server is adaptable for diverse workloads and environments, the secure 2P 2U HA820 G3 server delivers world-class performance with the right balance of expandability and scalability. Designed for supreme versatility and resiliency while being backed by a comprehensive warranty make it ideal for multiple environments from Containers to Cloud to Big Data. Standardize the industry's most trusted compute platform.

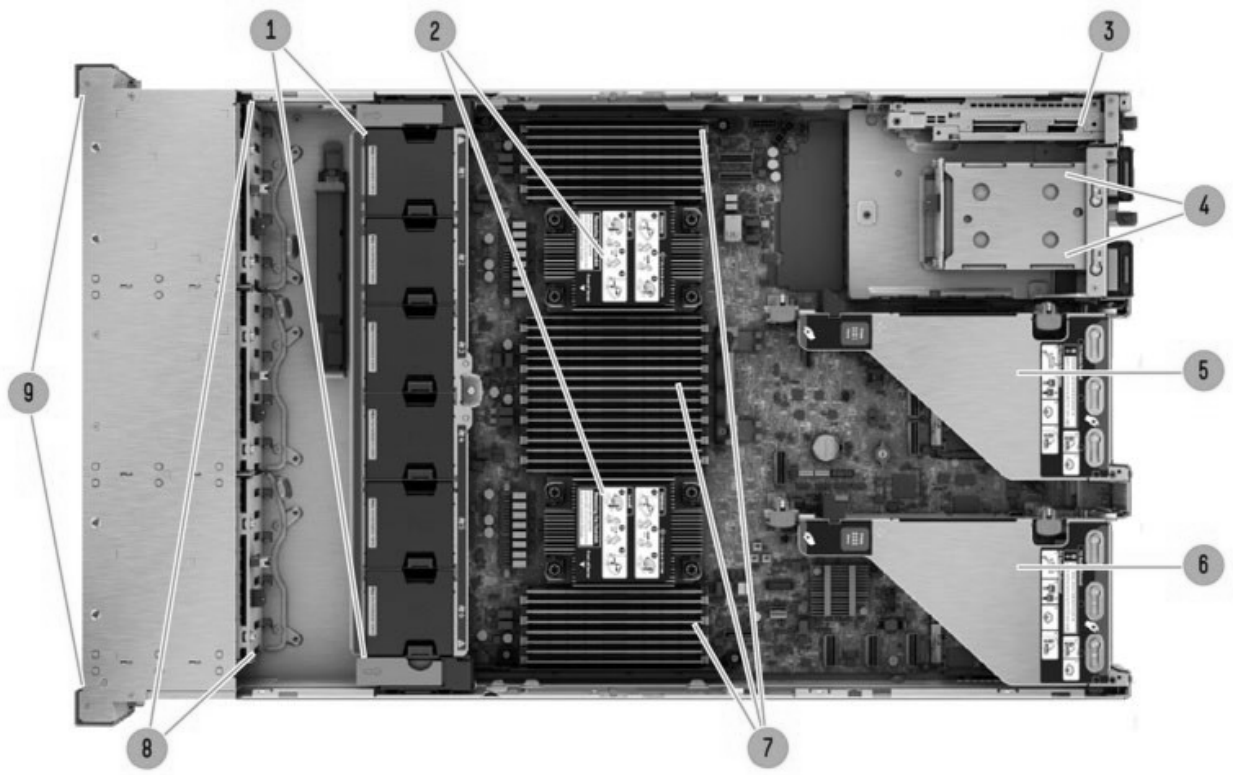


Front View – SFF chassis with optional Universal Media bay shown

1. Optional Front Display Port (via Universal Media Bay)
2. Box 1 (shown with optional Universal Media Bay installed)
3. Box 2 (shown blank)
4. Quick removal access panel
5. UID button/LED
6. NIC Status
7. Health LED
8. Power On / Standby button and LED
9. iLO Service Port
10. USB 3.0
11. Box 3 (shown with 8 SFF drives populated)
12. Optional USB 2.0 (via Universal Media Bay)
13. Drive Support Label
14. Serial Number Label Pull Tab

Front view – 12LFF chassis shown

1. Quick removal access panel
2. UID Button / LED
3. NIC Status
4. Health LED
5. Power On / Standby button and LED
6. iLO Service Port
7. USB 3.0
8. 12 x LFF Media
9. Drive support label
10. Serial Number Label Pull Tab



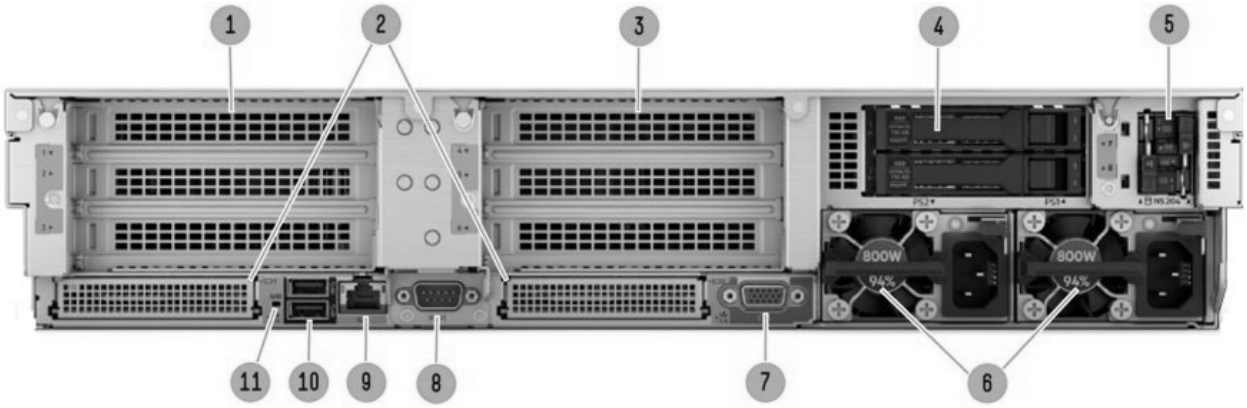
Internal view 8SFF chassis

1. Hot Plug Fans[1]
2. Processors, heatsinks showing
3. Optional NS204i-u Boot Device
4. Hot Plug redundant Flexible Slot Power Supplies
5. Secondary Riser (Optional) (Requires second processor)
6. Primary Riser
7. DDR5 DIMM slots, shown fully populated in 32 slots[2]
8. Drive Backplanes
9. Drive Cages

Notes:

[1]High performance temperature fans optional

[2]Shown fully populated in 32 slots (16 per processor)



Rear view – Standard for all Hitachi Advanced Server HA820 G3

1. Primary Riser. PCIe 5.0 Slots (Slots 1-3)
2. OCP 3.0 Slots, shown covered
3.. Secondary Riser. PCIe 5.0 Slots (Slots 4-6)
4. Tertiary Riser (Slots 7-8) shown with optional 2SFF drive cage installed
5. Optional NS204i-u Boot Device
6. Power Supply 1 and 2
7. VGA Connector
8. Optional Serial Port
9. Dedicated iLO Management Port
10. USB 3.0 Connectors (2)
11. UID Indicator LED

Notes:
[1] Supports various NICs, and Storage controllers.

What’s new

New Intel® Data Center GPU Max 1100.

Platform information

Form factor - 2U rack

Chassis types

- 8 SFF (SAS/SATA/NVMe) with optional SFF Universal Media Bay (P50728-B21), and/or up to 6 SFF rear drive bay options.
- 24 SFF bay (SAS/SATA/NVMe) with up to 6 SFF rear drive bay options to a total 30 SFF drives.
- 8 LFF supporting 2SFF front, and up to 4 LFF rear or 2 SFF rear drive bay options.
- 12 LFF with optional 4LFF rear for a total 16 LFF drives.

Notes:

- The 8 SFF chassis can be upgraded to support up to 24 SFF (front) with a variety of 8SFF Drive Cages to select from, including 8 SFF U.3 x4/x2 Trimode, 8 SFF U.3 (x1 Trimode), and 8 SFF SAS/SATA. See "Drive Cages" section within this document for options.
- The 8 SFF chassis comes with an 8SFF U.3 x1 drive bay by default in bay 3.
- The Universal Media Bay (P50728-B21) is only available as an option for the 8 SFF chassis and can only be populated in Box 1.
- The 2 LFF primary and 2LFF secondary rear cages will consume all PCIe slots for the primary and secondary riser, respectively.
- The 8 LFF chassis cannot be upgraded to 12 LFF front in the field.
- The 2 LFF primary and 2LFF secondary rear cages supported in LFF chassis only.

System Fans - High Performance Fan Kit – required for all CPUs over 205W TDP.

Note:

- On 8 SFF CTO server models ship with 4 standard fans.
- The 12 LFF and 8 LFF CTO server models ship with 4 standard fans.
- The 24 SFF CTO server model ships with 6 high performance fans.
- The High Performance fan kit (P48820-B21) is available to meet ambient temperature requirements.
- In general, the Maximum Performance fan kit is required when rear drives, or >205W Processors SKUs, or High Performance NVMe drives, three drive cages, mid-tray, GPU card, or certain backplanes are populated. See notes under each option category or each individual option for specifics.

Chapter 2: Standard features

Processors – Up to 2 of the following depending on model.

The 2nd digit of the processor model number “x4xx” is used to denote the processor generation (i.e., 4=4th generation Intel Scalable Series Processors).

For more information regarding Intel Xeon processors, please see the following http://www.intel.com/xeon.

The following table covers the public Intel offering only:

Processor suffix	Description	Offering
H	DB and Analytics	Highest core counts. Database and Analytics usages benefit from DSA and IAA accelerators.
M	Media Transcode	Optimized around AVX frequencies to deliver better performance/watt around Media, AI, and HPC workloads.
N	Network/5G/Edge (High TPT/Low Latency)	Designed for NFV and networking workloads, such as: L3 fwding, 5G UPF, OVS DPDK, VPP FIB router, VPP IPsec, web server/NGINX, vEPC, vBNG, and vCMTS.
S	Storage and HCI	Optimized for Storage UMA use cases with increased UPI Bandwidth vs Mainline SKUs.
P	Cloud - IAAS	Designed for cloud IaaS environments to deliver higher frequencies at constrained TDPs.
Q	Liquid Cooling	Liquid cooled processors with higher frequency and performance at same TDP.
U	1 Socket Optimized	Optimized for targeted platforms adequately served by the cores, memory bandwidth and IO capacity available from a single processor
V	Cloud - SAAS	Optimized for orchestration efficiency that delivers higher core counts and VMs per rack.
Y	Speed Select	Intel® SST-PP increases base frequency when fewer cores are enabled. Allows greater flexibility, deployment options and platform longevity.

4th Generation Intel® Xeon® Scalable Processor Family (Platinum)							
Intel Xeon Models	**CPU frequency**	**Cores**	**L3 cache (MB)**	**Power**	**UPI links**	**DDR5**	**SGX enclave size (GB)**
Platinum 9462 Processor[2]	2.7GHz	32	75	350W	3	4800 MT/s	128
Platinum 8490H Processor	1.9GHz	60	112.5	350W	4	4800 MT/s	512
Platinum 8480+ Processor	2.0GHz	56	105	350W	4	4800 MT/s	512
Platinum 8470 Processor	2.0GHz	52	105	350W	4	4800 MT/s	512
Platinum 8470N Processor	1.7GHz	52	97.5	300W	4	4800 MT/s	128
Platinum 8470Q Processor[1]	2.1GHz	52	105	350W	4	4800 MT/s	512
Platinum 8468 Processor	2.1GHz	48	105	350W	4	4800 MT/s	512
Platinum 8468V Processor	2.4GHz	48	97.5	330W	3	4800 MT/s	128
Platinum 8462Y+ Processor	2.8GHz	32	60	300W	3	4800 MT/s	128
Platinum 8460Y+ Processor	2.0GHz	40	105	300W	4	4800 MT/s	128
Platinum 8458P Processor	2.7GHz	44	82.5	350W	3	4800 MT/s	512
Platinum 8452Y Processor	2.0GHz	36	67.5	300W	3	4800 MT/s	128
Platinum 8444H Processor	2.9GHz	16	45	270W	4	4800 MT/s	512

Notes:

- Processors do not ship with heatsinks or fan kits, these must be ordered separately.
- Processors with TDP equal to or greater than 150W through 350W require High Performance Heatsink (P48818-B21.P).
- Processors with TDP greater than 150W through 350W and mid-tray drive cage require Hitachi Advanced Server HA820 G3 High Performance Heatsink (P48905-B21.P).
- “Q” processors require Max Performance Heatsink (P48817-B21.P).
- Processors with TDP equal to or less than 150W require Standard Heatsink (P49145-B21.P).
- 8-Channel DDR5 @ 4800 MT/
- 2 socket capable, 4 UPI @ 16 GT/s.
- [1]Liquid cooled CPUs require Maximum Performance Heat Sink (P48817-B21.P). One heatsink covers both CPUs.
- [2]This is Intel High Bandwidth Memory (HBM) CPU.

4th Generation Intel® Xeon® Scalable Processor Family (Gold)							
Intel Xeon models	**CPU frequency**	**Cores**	**L3 cache (MB)**	**Power**	**UPI links**	**DDR5**	**SGX enclave size (GB)**
Gold 6454S Processor	2.2GHz	32	60	270W	4	4800 MT/s	128
Gold 6448H Processor	2.4GHz	32	60	250W	3	4800 MT/s	512
Gold 6430 Processor	2.1GHz	32	60	270W	3	4800 MT/s	128
Gold 6414U Processor[1]	2.0GHz	32	60	250W	0	4800 MT/s	128
Gold 6458Q Processor	3.1GHz	32	60	350W	3	4800 MT/s	128
Gold 6448Y Processor	2.1GHz	32	60	225W	3	4800 MT/s	128
Gold 6444Y Processor	3.6GHz	16	45	270W	3	4800 MT/s	128
Gold 6442Y Processor	2.6GHz	24	60	225W	3	4800 MT/s	128
Gold 6438N Processor	2.0GHz	32	60	205	3	4800 MT/s	128
Gold 6438Y+ Processor	2.0GHz	32	60	205W	3	4800 MT/s	128
Gold 6434 Processor	3.7GHz	8	22.5	195W	3	4800 MT/s	128
Gold 6426Y Processor	2.5GHz	16	37.5	185W	3	4800 MT/s	128
Gold 6421N Processor	1.8GHz	32	60	185	0	4400 MT/s	128
Gold 6418H	2.1GHz	24	60	185W	3	4800 MT/s	512
Gold 6416H	2.2GHz	18	45	165W	3	4800 MT/s	512
Gold 5415+ Processor	2.9GHz	8	22.5	150W	3	4400 MT/s	128
Gold 5416S Processor	2.0GHz	16	30	150W	3	4400 MT/s	128
Gold 5418N Processor	1.8GHz	24	45	165W	3	4000 MT/s	128
Gold 5418Y Processor	2.0GHz	24	45	185W	3	4400 MT/s	128
Gold 5420+ Processor	2.0GHz	28	52.5	205W	3	4400 MT/s	128
Gold 5411N Processor	1.9GHz	24	45	165W	0	4400 MT/s	128

Notes:

- Processors do not ship with heatsinks or fan kits, these must be ordered separately.
- Processors with TDP greater than 150W through 350W require High Performance Heatsink (P48818-B21.P).
- Processors with TDP greater than 150W through 350W and mid-tray drive cage require Hitachi Advanced Server HAxxx G3 High Performance Heatsink (P48905-B21.P).
- "Q" processors require Max Performance Heatsink (P48817-B21.P).
- Processors with TDP equal to or less than 150W require Standard Heatsink (P49145-B21.P).
- 8-Channel DDR5 @ 4800 MT/s.
- [1]Single socket processor. No dual socket support.

4th Generation Intel® Xeon® Scalable Processor Family (Silver)							
Intel Xeon models	**CPU frequency**	**Cores**	**L3 cache (MB)**	**Power**	**UPI links**	**DDR5**	**SGX enclave size (GB)**
Silver 4410Y Processor	2.0GHz	12	30	150W	2	4000 MT/s	64
Silver 4416+ Processor	2.0GHz	20	37.5	165W	2	4000 MT/s	64

Notes:

- Processors do not ship with heatsinks or fan kits, these must be ordered separately.
- Processors with TDP greater than 150W through 350W require High Performance Heatsink (P48818-B21).
- Processors with TDP greater than 150W through 350W and mid-tray drive cage require Hitachi Advanced Server HAxxx G3High Performance Heatsink (P48905-B21).
- Processors with TDP equal to or less than 150W require Standard Heatsink (P49145-B21).

4th Generation Intel® Xeon® Scalable Processor Family (Bronze)							
Intel Xeon models	**CPU frequency**	**Cores**	**L3 cache (MB)**	**Power**	**UPI links**	**DDR5**	**SGX enclave size (GB)**
Bronze 3408U	1.8GHz	8	22.5	125W	0	4000 MT/s	64

Notes:

- Processors do not ship with heatsinks or fan kits, these must be ordered separately.
- Processors with TDP equal to or less than 150W require Standard Heatsink (P49145-B21).

Chipset

Intel C741 Chipset

Note: For more information regarding Intel® chipsets, please see the following URL: https://www.intel.com/content/www/us/en/products/chipsets/server-chipsets.html

On-system management chipset

Hitachi Advanced Server iLO 6 ASIC

Memory

Type	DDR5 Smart Memory Registered (RDIMM)
DIMM Slots Available	32 16 DIMM slots per processor, 8channels per processor, 2 DIMMs per channel
Maximum capacity (RDIMM)	8.0 TB 32 x 256 GB RDIMM @ 4800 MT/s (32 DIMMs only with 8SFF or 16SFF, 16 DIMMs maximum with 24SFF)

Note: The maximum memory speed is limited by the processor selection.

Expansion slots

Primary riser

Notes:

- Bus width indicates the number of physical electrical lanes running to the connector.
- There are 2 types of risers supported on the Primary Slot.
- x16 cards installed on x8 slots could observe sub-optimal performance.

Primary Riser1					
Slots #	**Technology**	**Bus width**	**Connector width**	**Slot Form Factor**	**Notes**
1	PCIe 5.0	X8	X16	Full-height, full-length slot	Proc 1
2	PCIe 5.0	X16	X16	Full-height, full-length slot	Proc 1
3	PCIe 5.0	X8	X16	Full-height, half-length slot	Proc 1

Primary Riser2					
Slots #	**Technology**	**Bus width**	**Connector width**	**Slot Form Factor**	**Notes**
1 (see note)	NA	NA	NA	NA	NA
1	PCIe 5.0	X16	X16	Full-height, full-length slot	Proc 1
2	PCIe 5.0	X16	X16	Full-height, full-length slot	Proc 1
3	PCIe 5.0	X16	X16	Full-height, half-length slot	Proc 1

Note: If Slot 1 of Hitachi Advanced Server HA820 G3 2U 3x16 Prim Riser Kit needs to be enabled, then 3 x16 Primary Cable Kit (P56073- B21.P) must be selected.

Secondary riser

Note:

- Bus width Indicates the number of physical electrical lanes running to the connector.
- There are 2 types of risers supported on the Secondary Slot.
- x16 cards installed on x8 slots could observe sub-optimal performance.

Secondary Riser1					
Slots #	**Technology**	**Bus width**	**Connector width**	**Slot Form Factor**	**Notes**
4	PCIe 5.0	X8	X16	Full-height ,full-length slot	Proc 2
5	PCIe 5.0	X16	X16	Full-height, full-length slot	Proc 2
6	PCIe 5.0	X8	X16	Full-height, half-length slot	Proc 2

Secondary Riser2					
Slots #	**Technology**	**Bus Width**	**Connector width**	**Slot Form Factor**	**Notes**
4 (see note)	NA	NA	NA	NA	NA
4	PCIe 5.0	X16	X16	Full-height, full-length slot	Proc 2
5	PCIe 5.0	X16	X16	Full-height, full-length slot	Proc 2
6	PCIe 5.0	X16	X16	Full-height, half-length slot	Proc 2

Note: If Slot 4 of Hitachi HA820 G3 2U 3x16 Sec Riser Kit needs to be enabled, then 3 x16 Secondary Cable Kit (P56074- B21.P) must be selected.

Tertiary riser

Note:

- Bus width Indicates the number of physical electrical lanes running to the connector.
- There is 1 type of riser supported on the Tertiary Slot.
- x16 cards installed on x8 slots could observe sub-optimal performance.

Tertiary Riser1 (default)					
Slots #	**Technology**	**Bus width**	**Connector width**	**Slot Form Factor**	**Notes**
7	PCIe 5.0	X16	X16	Full-height, full-length slot	Proc 2
8	PCIe 4.0	X16	X16	Full-height, full-length slot	Proc 2

Tertiary Riser1 (with Optional Tertiary Riser FIO x8 Enablement Kit P53632-B21)					
Slots #	**Technology**	**Bus width**	**Connector width**	**Slot Form Factor**	**Notes**
7	PCIe 5.0	X16	X16	Full-height, full-length slot	Proc 2
8	PCIe 5.0	X8	X16	Full-height, full-length slot	Proc 2

Graphics

Integrated video standard

- Video modes up to 1920 x 1200@60Hz (32 bpp)
- 16MB Video Memory

Maximum internal storage

Drive	Capacity	Configuration
Hot Plug SFF SAS HDD	91.2 TB	24+8+6 x 2.4TB
Hot Plug SFF SAS SSD	583.3 TB	24 +8+6 15.35TB
Hot Plug SFF SATA HDD	76 TB	24+8+6 x 2 TB
Hot Plug SFF SATA SSD	291.84 TB	24 +8+ 6 x 7.68 TB
Hot Plug LFF SAS HDD	360 TB	12+4+4x 18 TB (with optional rear LFF drive cage)
Hot Plug LFF SATA HDD	360 TB	12+4+4 x 18 TB (with optional rear LFF drive cage)
Hot Plug SFF NVMe PCIe SSD	374.4 TB	24+ x 15.36TB + 6 x 960GB<10W (with optional rear Primary and Secondary 2SFF and rear 2SFF drive cages)

Internal storage devices

Optical drive

Optional: DVD-ROM, DVD-RW

Hard drives

None ship standard

Power supply

- 1800W-2200W Flex Slot Titanium Hot Plug Low Halogen Power Supply Kit
  Note: 1 available in 96% efficiency.

- 1600W Flex Slot Platinum Hot Plug Low Halogen Power Supply Kit
  Note: 1 available in 94% efficiency.

- 1600W Flex Slot Platinum Hot Plug Low Halogen Power Supply Kit
- 1000W Flex Slot Titanium Hot Plug Low Halogen Power Supply Kit
  Note: 1 available in 96% efficiency.

- 800W Flex Slot Platinum Hot Plug Low Halogen Power Supply Kit
  Note: 1 available in 94% efficiency.

Flexible Slot (Flex Slot) Power Supplies share a common electrical and physical design that allows for hot plug, tool-less installation into Hitachi Vantara G3 Performance Servers. Flex Slot power supplies are certified for high-efficiency operation and offer multiple power output options, allowing users to "right-size" a power supply for specific server configurations. This flexibility helps to reduce power waste, lower overall energy costs, and avoid "trapped" power capacity in the data center.

The standard 6-foot IEC C-13/C-14 jumper cord (A0K02A) is included with each standard AC power supply option kit.

Storage controllers

The available controllers are depicted below.

Tri-mode controller

- MR416i-p Controller
- MR416i-o Controller
- MR216i-p Controller
- MR216i-o Controller
- MR408i-o Controller
- SR932i-p Controller[1,2]

Notes:

- PE80xx NVMe drives are not supported.
- [1]Requires x16 physical and electrical riser slot.
- [2]If second controller is required, must select secondary riser.
- Controllers with cache require either P02377-B21 Smart Storage Hybrid Capacitor with 145mm Cable Kit or P01366-B21 96W Smart Storage Lithium-ion Battery with 145mm Cable Kit.

Interfaces

Serial	Optional, rear
Display Port	1 optional front display port via Universal Media Bay
VGA Port	1 standard, rear for all chassis. 1 Optional front display port (Via Universal Media Bay) Note: Both ports are not active simultaneously.
Network Ports	Nonstandard. Choice of OCP networking card or stand-up networking card required. BTO models will come pre-selected with a primary networking card.
iLO Remote Management Network Port	1 Gb Dedicated, rear
Front iLO Service Port	1 standard (Not available when System Insight Display Kit is ordered).
USB 3.0	Up to 4 total: 1 front (3.0), 2 rear (3.0), 2 internal (secure – 1 – 3.0, 1 – 2.0), 1 optional USB 2.0 front via Universal Media Bay.
Systems Insight Display (SID)	Optional **Note:** Not shipping as standard. Available as a CTO option or as a field upgrade (P48819- B21).

Operating systems and virtualization software support for Advanced Servers

- Microsoft Windows Server
- VMware ESXi
- Red Hat Enterprise Linux (RHEL)
- SUSE Linux Enterprise Server (SLES)
- Oracle Linux and Oracle VM

Industry standard compliance

- ACPI 6.3 Compliant
- PCIe 5.0 Compliant
- Wake on LAN (WoL) Support
- Microsoft® Logo certifications
- PXE Support
- VGA
- Display Port
  Note: This support is on the optional Universal Media Bay.
- USB 3.0 Compliant
- USB 2.0 Compliant (via Universal Media Bay)
  Note: This support is on the optional Universal Media Bay.
- Energy Star
- SMBIOS 3.2
- Redfish API
- IPMI 2.0
- Secure Digital 4.0
- TPM **1.20 and 2.0 Support**
- Advanced Encryption Standard (AES)
- Triple Data Encryption Standard (3DES)
- SNMP v3
- TLS 1.2
- DMTF Systems Management Architecture for Server Hardware Command Line Protocol (SMASH CLP)
- Active Directory v1.0
- ASHRAE **A3/A4**
- European Union Erp Lot 9 Regulation
  Note:
  - Beginning on January 1st, 2024, units sold into the European Union (EU), European Economic Area (EEA), the United Kingdom, or Switzerland must include more efficient AC power supplies: 94% for multi-output and 96% for single-output. Hitachi HA G820 G3 Flexible Slot power supplies are single-output, thus meeting requirements.

- UEFI (Unified Extensible Firmware Interface Forum) 2.7

Server UEFI

Unified Extensible Firmware Interface (UEFI) is an industry standard that provides better manageability and more secured configuration than the legacy ROM while interacting with your server at boot time. Hitachi Vantara Advanced G3 servers have a UEFI Class 2 implementation to support UEFI Mode.

UEFI enables numerous new capabilities specific to HA820 G3 servers such as:

- Secure Boot and Secure Start enable for enhanced security.
- Embedded UEFI Shell
- Operating system specific functionality
- Mass Configuration Deployment Tool using iLO RESTful API that is Redfish API Conformant
- Support for > 2.2 TB (using GPT) boot drives.
- PXE boot support for IPv6 networks
- USB 3.0 Stack
- Workload Profiles for simple performance optimization.

UEFI Boot Mode only:

- TPM 2.0 Support
  Note: Enabling TPM 2.0 no longer requires TPM module option kit for Gen1.It is an embedded feature.
- iSCSI Software Initiator Support.
- NVMe Boot Support
- HTTP/HTTPs Boot support as a PXE alternative.
- Platform Trust Technology (PTT) can be enabled.
- Boot **support for option cards that only support a UEFI option ROM.**
  Note: For UEFI Boot Mode, boot environment and OS image installations should be configured properly to support UEFI.

Embedded management

Integrated Lights-Out (iLO)

Monitor your servers for ongoing management, service alerting, reporting, and remote management with iLO.

UEFI

Configure and boot your servers securely with industry-standard Unified Extensible Firmware Interface (UEFI).

Intelligent provisioning

Hassle-free server and OS provisioning for 1 or more servers with Intelligent Provisioning.

OpenBMC support

OpenBMC Capable through iLO6 Transfer of Ownership Process. Learn more at OpenBMC Support.

iLO RESTful API

iLO RESTful API is DMTF Redfish API implementation and offers simplified server management automation such as configuration and maintenance tasks based on modern industry standards.

Operating systems and virtualization software support for Hitachi Advanced Servers

- Windows Server 2019
- Windows Server 2022
- Red Hat Enterprise Linux (RHEL) 8.6
- Red Hat Enterprise Linux (RHEL) 9.0
- SUSE Linux Enterprise Server (SLES) 15 SP4
- VMware ESXi 7.0 U3
- VMware ESXi 8.0

Industry standard compliance

- ACPI 6.1 Compliant
- PCIe 5.0 Compliant
- WOL Support
- Microsoft® Logo certifications
- PXE Support
- VGA/Display Port
- USB 3.2 Gen1 Compliant
- USB 2.0 Compliant
- Energy Star
- SMBIOS 3.1
- UEFI 2.7
- UEFI Class 3
- Redfish API
- IPMI 2.0
- Secure Digital 2.0
- Advanced Encryption Standard (AES)
- Triple Data Encryption Standard (3DES)
- SNMP v3
- TLS 1.2
- DMTF Systems Management Architecture for Server Hardware Command Line Protocol (SMASH CLP)
- Active Directory v1.0
- ASHRAE A3/A4
- UEFI (Unified Extensible Firmware Interface Forum)
- APML 1.0

Security

- UEFI Secure Boot and Secure Start support
- Immutable Silicon Root of Trust
- FIPS 140-3 validation (iLO 6 certification in progress)
- Common Criteria certification (iLO 6 certification in progress)
- Configurable for PCI DSS compliance
- Advanced Encryption Standard (AES) and Triple Data Encryption Standard (3DES) on browser
- Support for Commercial National Security Algorithms (CNSA)
- Tamper-free updates – components digitally signed and verified.
- Secure Recovery – recover critical firmware to a known good state on detection of compromised firmware
- Ability to rollback firmware
- Secure erase of NAND/User data
- TPM (Trusted Platform Module) 2.0 option

Note: TPM is embedded on Hitachi Advanced Server mainboards and does not require additional option kit selection to enable this function.

- Bezel Locking Kit option
- Chassis Intrusion detection option

Warranty

This product is covered by a global limited warranty and supported by Hitachi Vantara Services and a worldwide network of Authorized Channel Partners resellers. Hardware diagnostic support and repair are available for three years from the date of purchase.

Server management

Hitachi Advanced Server iLO

iLO licenses offer smart remote functionality without compromise, for all Hitachi Advanced servers. The license includes the fully integrated remote console, virtual keyboard, video, and mouse (KVM), multi-user collaboration, console record and replay, and GUI-based and scripted virtual media and virtual folders. You can also activate the enhanced security and power management functionality.

Additional Options

Choice of support services.

Chapter 3: Service and Support

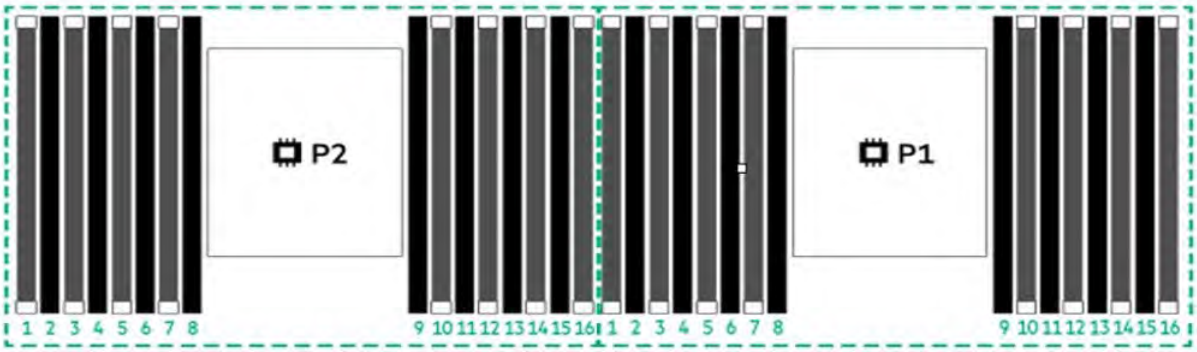
Parts and materials

Hitachi Vantara will provide supported replacement parts and materials necessary to maintain the covered hardware product in operating condition, including parts and materials for available and recommended engineering improvements.

Parts and components that have reached their maximum supported lifetime and/or the maximum usage limitations as set forth in the manufacturer's operating manual, product QuickSpecs, or the technical product data sheet will not be provided, repaired, or replaced as part of these services.

The defective media retention service feature option applies only to Disk or eligible SSD/Flash Drives.

Memory population guidelines



Hitachi Advanced Server HA820 G3

Hitachi Advanced Server G3 16 slot per CPU DIMM population order																
DIMM population order																
DIMM slot	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**
1 DIMM										**10**						
2 DIMMs[2]			**3**							**10**						
4 DIMMs[2]			**3**				**7**			**10**				**14**		
6 DIMMs			**3**		**5**		**7**			**10**				**14**		**16**
8 DIMMs[1,2]	**1**		**3**		**5**		**7**			**10**		**12**		**14**		**16**
12 DIMMs	**1**	**2**	**3**		**5**	**6**	**7**			**10**	**11**	**12**		**14**	**15**	**16**
16 DIMMs[1,2]	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**

Note:

- Omitted DIMM counts/socket not qualified by Intel.
- [1] Supports SGX (Software Guard Extensions).
- [2] Supports Hemi (hemisphere mode).

General memory population rules and guidelines

- DIMMs should be installed in quantities of even numbers.
- Install DIMMs only if the corresponding processor is installed.
- If only one processor is installed in a two-processor system, only half of the DIMM slots are available.
- To maximize performance, it is recommended to balance the total memory capacity between all installed processors.
- When two processors are installed, balance the DIMMs across the two processors.
- White DIMM slots denote the first slot to be populated in a channel.
- Mixing of DIMM types (UDIMM, RDIMM, and LRDIMM) is not supported.
- Mixing of x4 and x8 memory is not allowed.
- The maximum memory speed is a function of the memory type, memory configuration, and processor model.
- The maximum memory capacity is a function of the number of DIMM slots on the platform, the largest DIMM capacity qualified on the platform, and the number and model of installed processors qualified on the platform.

SKU P/N	**P43322-B21.P**	**P43328-B21.P**	**P43331-B21.P**
SKU Description	16GB (1x16GB) Single Rank x8 DDR5-4800 CAS-40-39-39 EC8 Registered Smart Memory Kit	32GB (1x32GB) Dual Rank x8 DDR5-4800 CAS-40-39-39 EC8 Registered Smart Memory Kit	64GB (1x64GB) Dual Rank x4 DDR5-4800 CAS-40-39-39 EC8 Registered Smart Memory Kit
DIMM Capacity	16GB	32GB	64GB
DIMM Rank	Single Rank (1R)	Dual Rank (2R)	Dual Rank (2R)
Voltage	1.1 V	1.1 V	1.1 V
DRAM Depth [bit]	2G	2G	4G
DRAM Width [bit]	x8	x8	x4
DRAM Density	16Gb	16Gb	16Gb
CAS Latency	40-39-39	40-39-39	40-39-39
DIMM Native Speed	4800 MT/s	4800 MT/s	4800 MT/s

SKU P/N	**P43334-B21.P**
SKU Description	128GB (1x128GB) Quad Rank x4 DDR5-4800 CAS-46-39-39 EC8 Registered 3DS Smart Memory Kit
DIMM Capacity	128GB
DIMM Rank	Quad Rank (4R)
Voltage	1.1 V
DRAM Depth [bit]	4G
DRAM Width [bit]	x4
DRAM Density	16Gb
CAS Latency	40-39-39
DIMM Native Speed	4800 MT/s

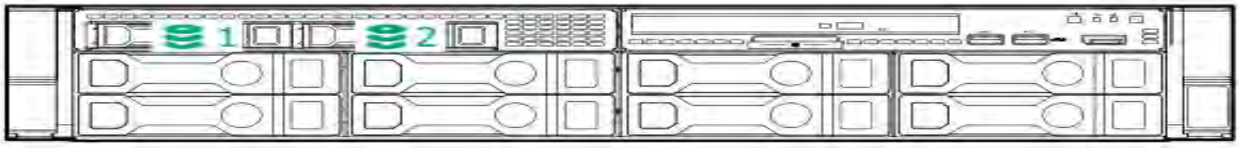
Note: The maximum memory speed is a function of the memory type, memory configuration, and processor model.

DDR5 memory options part number decoder

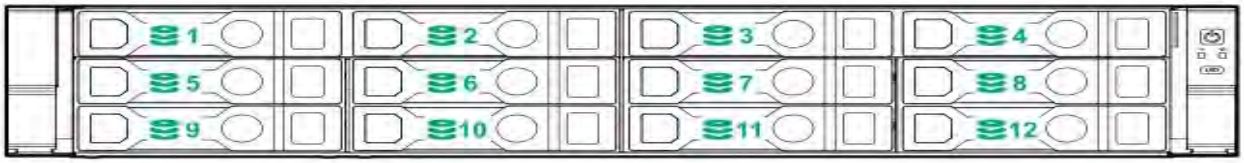
Note: Capacity references are rounded to the common gigabyte (GB) values.

- 8GB = 8,192 MB
- 16GB = 16,384 MB
- 32GB = 32,768 MB
- 64GB = 65,536 MB
- 96GB = 98,304 MB
- 128GB = 131072 MB
- 256GB = 262144 MB
- 512GB = 524288 MB

Memory Speed Table for Hitachi Advanced Server HA820 G3



8LFF chassis with Universal media bay and optional 2SFF and optical drive shown



12 LFF chassis

24 SFF + rear 2 SFF drives

Chapter 4: Technical specifications

System unit

Dimensions

- SFF CTO servers:
  - 8.75 x 44.8 x 72.7. cm
  - 3.44 x 17.64 x 28.62 in
- LFF CTO servers:
  - 8.75 x 44.8 x 73.25 cm
  - 3.44 x 17.64 x 28.84 in

Weight (approximate)

- Maximum: 8 SFF hard drives (no rear drives), 2x processors, 2x power supplies, 1x RAID controller, 2x Risers installed
  - Maximum: 33kg/72.75 lbs
  - Minimum: 16kg/35.27 lbs
- Maximum: 12 LFF hard drives (no rear drives), 2x processors, 2x power supplies, 1x RAID controller, 2x Risers installed
  - Maximum: 37kg/81.57 lbs
  - Minimum: 18kg/39.68 lbs

Input requirements (per power supply)

Rated line voltage

- For 1800W-2200W (Titanium) Power Supply: 200-240 VAC
- For 1600W (Platinum) Power Supply: 200-240 VAC
- For 800W (Titanium) Power Supply: 200-240 VAC
- For 800W (Platinum) Power Supply: 100-240 VAC
- For 800W (Universal) Power Supply: 200-277 VAC

British Thermal Unit (BTU) rating

Maximum

- For 1800W-2200W Power Supply: 6497 BTU/hr (at 200 VAC), 6868 BTU/hr (at 208 VAC), 7230 BTU/hr (at 220 VAC), 7596 BTU/hr (at 230VAC), 7962 BTU/hr (at 240VAC)
- For 1600W Power Supply: 5918 BTU/hr (at 200 VAC), 5888 BTU/hr (at 220 VAC), 5884 BTU/hr (at 240 VAC)

- For 800W (Titanium) Power Supply: 2905 BTU/hr (at 200 VAC), 2899 BTU/hr (at 220 VAC), 2893 BTU/hr (at 240 VAC)
- For 800W (Platinum) Power Supply: 3067 BTU/hr (at 100 VAC), 2958 BTU/hr (at 200 VAC), 2949 BTU/hr (at 240 VAC)
- For 800W (Universal) Power Supply: 2964 BTU/hr (at 200 VAC), 2951 BTU/hr (at 230 VAC), 2936 BTU/hr (at 277 VAC)

Relative Humidity (non-condensing)

- Operating: 8% to 90% - Relative humidity (Rh), 28°C maximum wet bulb temperature, non-condensing.
- Non-operating: 5 to 95% relative humidity (Rh), 38.7°C (101.7°F) maximum wet bulb temperature, non-condensing.

Power supply output

(per power supply)

Rated steady-state power

- For 1800W-2200W Power Supply: 1800W(at 200 VAC), 1900W(at 208 VAC), 2000W(at 220 VAC), 2100W(at 230VAC), 2200W(at 240VAC)
- For 1600W Power Supply: 1600W (at 240 VAC), 1600W (at 240 VDC) for China only
- For 800W (Titanium) Power Supply: 800W (at 200 VAC), 800W (at 240 VAC), 800W (at 240 VDC) for China only
- For 800W (Platinum) Power Supply: 800W (at 100 VAC), 800W (at 240 VAC), 800W (at 240 VDC) input for China only
- For 800W (Universal) Power Supply: 800W (at 200 VAC), 800W (at 277 VAC)

Maximum peak power

- For 1800W-2200W Power Supply: 1800W (at 200 VAC), 1900W(at 208 VAC), 2000W(at 220 VAC), 2100W(at 230VAC), 2200W(at 240VAC)
- For 1600W Power Supply: 1600W (at 240 VAC), 1600W (at 240 VDC) for China only
- For 800W (Titanium) Power Supply: 800W (at 200 VAC), 800W (at 240 VAC), 800W (at 240 VDC) for China only
- For 800W (Platinum) Power Supply: 800W (at 100 VAC), 800W (at 240 VAC), 800W (at 240 VDC) input for China only
- For 800W (Universal) Power Supply: 800W (at 200 VAC), 800W (at 277 VAC)

System inlet temperature

Standard operating temperature

10° to 35°C (50° to 95°F) at sea level with an altitude derating of 1.0°C per every 305 m (1.8°F per every 1000 ft) above sea level to a maximum of 3050 m (10,000 ft), no direct sustained sunlight. Maximum rate of change is 20°C/hr (36°F/hr). The upper limit and rate of change may be limited by the type and number of options installed.

System performance during standard operating support may be reduced if operating with a fan fault or above 30°C (86°F).

Extended ambient operating temperature

For approved hardware configurations, the supported system inlet range is extended to be: 5° to 10°C (41° to 50°F) and 35° to 40°C (95° to 104°F) at sea level with an altitude derating of 1.0°C per every 175 m (1.8°F per every 574 ft) above 900 m (2953 ft) to a maximum of 3050 m (10,000 ft).

For approved hardware configurations, the supported system inlet range is extended to be: 40° to 45°C (104° to 113°F) at sea level with an altitude derating of 1.0°C per every 125 m (1.8°F per every 410 ft) above 900 m (2953 ft) to a maximum of 3050 m (10,000 ft).

System performance may be reduced if operating in the extended ambient operating range or with a fan fault.

Non-operating

-30° to 60°C (-22° to 140°F). Maximum rate of change is 20°C/hr (36°F/hr).

Altitude

Operating

3050 m (10,000 ft). This value may be limited by the type and number of options installed. Maximum allowable altitude change rate is 457 m/min (1500 ft/min).

Non-operating

9144 m (30,000 ft). Maximum allowable altitude change rate is 457 m/min (1500 ft/min).

Acoustic noise

Listed are the declared A-Weighted sound power levels (LwA,m) and declared average bystander position A-Weighted sound pressure levels (LpA,m) when the product is operating in a 23°C ambient environment. Noise emissions were measured in accordance with ISO 7779 (ECMA 74) and declared in accordance with ISO 9296 (ECMA 109). The listed sound levels apply to standard shipping configurations. Additional options may result in increased sound levels. Please contact your Hitachi Vantara representative for further technical details regarding the configurations listed below.

Acoustic Noise	
Idle	
LwA,m	4.2 B Entry 4.2 B Base 4.2 B Performance
LpAm	28 dBA Entry 27 dBA Base 30 dBA Performance
Operating	
LwA,m	4.2 B Entry 4.2 B Base 4.2 B Performance
LpAm	29 dBA Entry 27 dBA Base 29 dBA Performance
Kv	0.4 B Entry 0.4 B Base 0.4 B Performance

Note:

- The declared mean A-weighted sound power level, LwA,m, is computed as the arithmetic average of the measured.
- A-weighted sound power levels for a randomly selected sample, rounded to the nearest 0,1 B.
- The declared mean A-weighted emission sound pressure level, LpA,m, is computed as the arithmetic average of the measured A-weighted emission sound pressure levels at the bystander positions for a randomly selected sample, rounded to the nearest 1 dB.
- The statistical adder for verification, Kv, is a quantity to be added to the declared mean A-weighted sound power level, LwA,m, such that there will be a 95 % probability of acceptance, when using the verification procedures of ISO 9296, if no more than 6,5 % of the batch of new equipment, has A-weighted sound power levels greater than (LwA,m + Kv).
- The quantity, LwA,c (formerly called LwAd), can be computed from the sum of LWA,m and Kv.
- All measurements made to conform to ISO 7779 / ECMA-74 and declared to conform to ISO 9296 / ECMA-109.
- B, dB, abbreviations for bels and decibels, respectively, where 1 B = 10 dB.
- The results in this declaration apply only to the model numbers listed above when operating and tested according to the indicated modes and standards. A system with additional configuration components or increased operating functionality may increase the noise emission values.
- Systems under abnormal conditions may increase the noise level, persons in the vicinity of the product [cabinet] for extended periods of time should consider wearing hearing protection or using other means to reduce noise exposure.

Hitachi Vantara

Corporate Headquarters 2535 Augustine Drive
Santa Clara, CA 95054 USA www.HitachiVantara.com community.HitachiVantara.com

Regional Contact Information
Americas: +1 866 374 5822 or info@hitachivantara.com
Europe, Middle East and Africa: +44 (0) 1753 618000 or info.emea@hitachivantara.com
Asia Pacific: +852 3189 7900 or info.marketing.apac@hitachivantara.com