Hitachi Virtual Storage Platform One File 34 and File 38

NAS File OS 15.3 or later

Hardware Reference

This document describes the Hitachi VSP One File 34 and VSP One File 38 hardware.

MK-24VSP1F001-02
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Contents

Preface

This guide provides an overview of the Hitachi Virtual Storage Platform One File server hardware. This guide explains how to install and configure the hardware and software for the File 34 and File 38 server models, and how to replace faulty components.

For assistance with storage systems connected to the server, refer to the *Storage Subsystem Administration Guide*.

Note: The use of clustering in a production environment is required for data availability. Any differences herein to "single node" are taken in the context of a cluster of 2 or more nodes.

Audience

This guide provides reference information for anyone who repairs the system hardware and has a good working knowledge of computer systems and part replacement.

Accessing product documentation

Product user documentation is available on: https://docs.hitachivantara.com. Check this site for the most current documentation, including important updates that may have been made after the release of the product.

Getting help

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

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Thank you!

Conventions

The following conventions are used throughout this document:

Convention	Meaning
`Command`	This fixed-space font denotes literal items such as commands, files, routines, path names, signals, messages, and programming language structures.
variable	The italic typeface denotes variable entries and words or concepts being defined. Italic typeface is also used for book titles.
`user input`	This bold fixed-space font denotes literal items that the user enters in interactive sessions. Output is shown in nonbold, fixed-space font.
[and]	Brackets enclose optional portions of a command or directive line.
…	Ellipses indicate that a preceding element can be repeated.
GUI element	This font denotes the names of graphical user interface (GUI) elements such as windows, screens, dialog boxes, menus, toolbars, icons, buttons, boxes, fields, and lists.

The following types of icons are used throughout this manual. It is recommended that these icons and messages are read and clearly understood before proceeding:

Icon	Label	Description
	Note	Calls attention to important or additional information.
	Tip	Provides helpful information, guidelines, or suggestions for performing tasks more effectively.
	Caution	Warns the user of adverse conditions and/or consequences (for example, disruptive operations, data loss, or a system crash).

Icon	Label	Description
	WARNING	Warns the user of a hazardous situation which, if not avoided, could result in death or serious injury.

Før du starter (DANSK)

Følgende ikoner anvendes i hele guiden til at anføre sikkerhedsrisici. Det anbefales, at du læser og sætter dig ind i, og har forstået alle procedurer, der er markeret med disse ikoner, inden du fortsætter.

Bemærk: “Bemærk” indikerer informationer, som skal bemærkes.

FORSIGTIG: “Forsigtig” angiver en mulig risiko for beskadigelse af data eller udstyr. Det anbefales, at du ikke fortsætter længere end det afsnit, der er mærket med dette ord, før du helt har sat dig ind i og forstået proceduren.

ADVARSEL: “Advarsel” angiver en mulig risiko for den personlige sikkerhed.

Vorbereitung (DEUTSCH)

Die folgenden Symbole werden in diesem Handbuch zur Anzeige von Sicherheitshinweisen verwendet. Lesen Sie die so gekennzeichneten Informationen durch, um die erforderlichen Maßnahmen zu ergreifen.

Anmerkung: Mit einer Anmerkung wird auf Informationen verwiesen, die Sie beachten sollten.

VORSICHT: Das Wort “Vorsicht” weist auf mögliche Schäden für Daten oder Ihre Ausrüstung hin. Sie sollten erst dann fortfahren, wenn Sie die durch dieses Wort gekennzeichneten Informationen gelesen und verstanden haben.

WARNUNG: Mit einer Warnung wird auf mögliche Gefahren für Ihre persönliche Sicherheit verwiesen.

Antes de comenzar (ESPAÑOL)

Los siguientes iconos se utilizan a lo largo de la guía con fines de seguridad. Se le aconseja leer, y entender en su totalidad, cualquier procedimiento marcado con estos iconos antes de proceder.

Sugerencia: Una sugerencia indica información adicional que puede serle de utilidad en la finalización de una tarea.

PRECAUCIÓN: Una precaución indica la posibilidad de daños a los datos o equipo. Se le aconseja no continuar más allá de una sección marcada con este mensaje, a menos que entienda el procedimiento por completo.

ADVERTENCIA: Una advertencia indica la posibilidad de un riesgo a la seguridad personal.

Avant de commencer (FRANÇAIS)

Les icônes ci-dessous sont utilisées dans le manuel pour mettre en évidence des procédures de sécurité. Nous vous invitons à les lire et à bien comprendre toutes les procédures signalées par ces icônes avant de poursuivre.

Conseil : “Conseil” signale les informations complémentaires que vous pouvez trouver utiles pour mener à bien une tâche.

ATTENTION : “Attention” signale qu’il existe une possibilité d’endommager des données ou de l’équipement. Nous vous recommandons de ne pas poursuivre après une section comportant ce message avant que vous ayez pleinement assimilé la procédure.

AVERTISSEMENT : “Avertissement” signale une menace potentielle pour la sécurité personnelle.

Operazioni preliminari (ITALIANO)

Le seguenti icone vengono utilizzate nella guida a scopo cautelativo. Prima di procedere Vi viene richiesta un’attenta lettura di tutte le procedure, contrassegnate dalle suddette icone, affinché vengano applicate correttamente.

Suggerimento: “Suggerimento” fornisce indicazioni supplementari, comunque utili allo scopo.

ATTENZIONE: “Attenzione” indica il potenziale danneggiamento dei dati o delle attrezzature in dotazione. Vi raccomandiamo di non procedere con le operazioni, prima di aver ben letto e compreso la sezione contrassegnata da questo messaggio, onde evitare di compromettere il corretto svolgimento dell’operazione stessa.

PERICOLO: “Pericolo” indica l'eventuale pericolo di danno provocato alle persone, mettendo a rischio la vostra incolumità personale.

Vóór u aan de slag gaat (NEDERLANDS)

De volgende pictogrammen worden in de hele handleiding gebruikt in het belang van de veiligheid. We raden u aan alle procedure-informatie die door deze pictogrammen wordt gemarkeerd, aandachtig te lezen en ervoor te zorgen dat u de betreffende procedure goed begrijpt vóór u verder gaat.

VOORZICHTIG: “Voorzichtig” geeft aan dat er risico op schade aan data of apparatuur bestaat. We raden u aan even halt te houden bij de sectie die door dit woord wordt gemarkeerd, tot u de procedure volledig begrijpt.

WAARSCHUWING: Een waarschuwing wijst op een mogelijk gevaar voor de persoonlijke veiligheid.

Antes de começar (PORTUGUÊS)

Os ícones mostrados abaixo são utilizados ao longo do manual para assinalar assuntos relacionados como a segurança. Deverá ler e entender claramente todos os procedimentos marcados com estes ícones ande de prosseguir.

Sugestão: Uma sugestão assinala informações adicionais que lhe poderão ser úteis para executar uma tarefa.

CUIDADO: “Cuidado” indica que existe a possibilidade de serem causados danos aos dados ou ao equipamento. Não deverá avançar para lá de uma secção marcada por esta mensagem sem ter primeiro entendido totalmente o procedimento.

AVISO: Um aviso indica que existe um possível risco para a segurança pessoal.

Ennen kuin aloitat (SUOMI)

Seuraavilla kuvakkeilla kiinnitetään tässä oppaassa huomiota turvallisuusseikkoihin. Näillä kuvakkeilla merkityt menettelytavat tulee lukea ja ymmärtää ennen jatkamista.

Huomautus: Huomautus sisältää tietoja, jotka tulee ottaa huomioon.

VAROITUS: Varoitus varoittaa tietojen tai laitteiden vahingoittumisen mahdollisuudesta. Tällä merkillä merkitystä kohdasta ei tule jatkaa eteenpäin ennen kuin täysin ymmärtää kuvatun menettelyn.

VAARA: Vaara varoittaa henkilövahingon mahdollisuudesta.

Innan du startar (SVENSKA)

Följande ikoner används i hela handboken för att markera säkerhetsaspekter. Läs igenom handboken ordentligt så att du förstår steg som har markerats med dessa ikoner innan du fortsätter.

Obs: “Obs” anger vad du ska observera.

FÖRSIKT: “Försikt” anger vad som kan leda till data eller utrustningsskador. Fortsätt inte till nästa avsnitt innan du förstår det steg som har markerats med detta meddelande.

VARNING: “Varning” anger vad som kan leda till personskador.

Chapter 1: Safety information

This section lists important safety guidelines to follow when working with the equipment.

Electrostatic discharge precautions

To ensure proper handling of system components and to prevent hardware faults caused by electrostatic discharge, follow these safety precautions:

- Wear an anti-static wrist or ankle strap.
- Observe all standard electrostatic discharge precautions when handling plug-in modules or components that have been removed from any anti-static packaging.
- Avoid contact with backplane components and module connectors.

Safety and handling precautions

To ensure your safety and the safe handling and correct operation of the equipment, follow all safety precautions and instructions.

Caution: Observe safe lifting practices. Each server or each storage system can weigh 51 lb. (23 kg) or more. At least two people are required to handle and position a server in a rack.

Caution: There is a risk that a cabinet could fall over suddenly. To prevent this from occurring:

- If your system comes with a rack stabilizer plate, install it.
- Fill all expansion cabinets including all storage enclosures from the bottom to the top.
- Do not remove more than one unit from the rack at a time.

Electrical precautions

Follow these guidelines to ensure your safety and the safe handling of equipment:

- Provide a suitable power source with electrical overload protection to meet the power requirements of the entire system (the server/cluster and all storage systems and switches).
- Provide a power cord suitable for the country of installation (if a power cord is not supplied).
- Power cords supplied with this server or system may be less than 1.5m in length. These cords are for use with a power distribution unit (PDU), which is mounted inside the 19-inch rack. If you require longer cables, contact your Hitachi representative.
- Provide a safe electrical ground connection to the power cord. Check the grounding of an enclosure before applying power.
- Only operate the equipment from nominal mains input voltages in the range 100 - 240Vac, 6A max, 50/60Hz.

  Caution: Turn off all power supplies or remove all power cords before undertaking servicing of the system.

- Unplug a system component if it must be moved or if it is damaged.

  Note: For additional data protection, use an external UPS to power the server. Also, each of the redundant power supplies in the server and in the storage systems must be operated from a different main power circuit to provide a degree of protection from main power supply failures. If one circuit fails, the other continues to power the server and the storage system.

Chapter 2: Mandatory regulations

The following sections provide the mandatory regulations governing the installation and operation of the system. Adhere to these instructions so that regulatory compliance requirements are met.

European Union (EU) Statement

This product conforms to the protection requirements of the following EU Council Directives:

- Electromagnetic Compatibility (2014/30/EU)
- Low Voltage Directive (2014/35/EU)
- RoHS Directive (2011/65/EU) and amendment (2015/863/EU)
- WEEE Directive (2012/19/EU)
- Commission Regulation (EU) 2019/424, pursuant to Directive 2009/125/EC and amending Commission Regulation (EU) No 617/2013

The manufacturer cannot accept responsibility for any failure to satisfy the protection requirements resulting from a non-recommended modification of the product.

This product has been tested and found to comply with the limits for Class A Information Technology Equipment according to European Standard EN 55022. The limits for Class A equipment were derived for commercial and industrial environments to provide reasonable protection against interference with licensed communication equipment.

Caution: For products that are compliant with Class A of EN 55032: In a residential environment, this equipment may cause radio interference.

Federal Communications Commission (FCC)

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if it is not installed and used in accordance with the instruction manual, might cause harmful interference to radio communications.

Operation of this equipment in a residential area is likely to cause harmful interference, in which case the users will be required to correct the interference at their own expense.

Properly shielded and grounded cables and connectors must be used in order to meet FCC emission limits. Neither the provider nor the manufacturer is responsible for any radio or television interference caused by using non-recommended cables and connectors, or by unauthorized changes or modifications to this equipment.

Unauthorized changes or modifications could void the user's authority to operate the equipment.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

1. The device can not cause harmful interference.
2. The device must accept any interference received, including interference that might cause undesired operation.

International standards

Safety

The safety standards include:

- IEC 62368-1:2018 (Third Edition)

EMC

The EMC standards are as follows:

- EN 55032:2015 + A11:2020
- FCC/CFR 47:Part 15
- Canadian Standard ICES-003:Issue 7
- AS/NZS CISPR 32:2015 + A1:2020
- EN 61000-3-2:2019 + A1:2021
- EN 61000-3-3:2013 + A2:2021
- EN 55035:2017 + A11:2020
- VCCI-CISPR32:2016

Certification for approval marks

Certification for the following approval marks have been granted:

- European Union CE mark, including RoHS and WEEE
- China: CCC
- Korea: KC
- USA/Canada: CSA
- Eurasian Economic Union (EEU), Belarus, Russia, Kyrgyzstan, Kazakhstan and Armenia: EAC & RoHS
- Taiwan: BSMI
- Argentina: IRAM
- Japan: VCCI
- India: BIS
- Ukraine: UKrSEPR & RoHS
- UK: UKCA

Korea Certification (KC) Statement

A 급 기기 (업무용 정보통신기기)
이 기기는 업무용으로 전자파적합등록을 한 기기이오니 판매자 또는 사용자는 이 점을 주의하시기 바라며, 만약 잘못 판매 또는 구입하였을 때에는 가정용으로 교환하시기 바랍니다.

Taiwan Certification (BSMI)

警告使用者：
此為甲類資訊技術設備，於居住環境中使用時，可能會造成射頻擾動，在此種情況下，使用者會被要求採取某些適當的對策。

警告：為避免電磁干擾，本產品不應安裝或使用於住宅環境。
警告：更換不正確之電池形式會有爆炸的風險請依製造商說明書處理用過之電池

設備名稱：存儲陣列服務器， 型號（型式）：File 34
Equipment name Type designation (Type)

單元Unit	限用物質及其化學符號 Restricted substances and its chemical symbols					
	鉛Lead (Pb)	汞 Mercury (Hg)	鎘 Cadmium (Cd)	六價鉻 Hexavalent chromium (Cr^{+6})	多溴聯苯 Polybrominated biphenyls (PBB)	多溴二苯醚 Polybrominated diphenyl ethers (PBDE)
電源線組	○	○	○	○	○	○
電源供應器組件	○	○	○	○	○	○
電路板組件	—	○	○	○	○	○
主機板組件	○	○	○	○	○	○
硬碟組件	○	○	○	○	○	○
風扇組件	○	○	○	○	○	○
螺絲及金屬組件	○	○	○	○	○	○

備考1. 〝超出0.1 wt %〞及〝超出0.01 wt %〞係指限用物質之百分比含量超出百分比含量基準值。
Note 1：“Exceeding 0.1 wt %” and “exceeding 0.01 wt %” indicate that the percentage content of the restricted substance exceeds the reference percentage value of presence condition.

備考2. 〝○〞係指該項限用物質之百分比含量未超出百分比含量基準值。
Note 2：“○” indicates that the percentage content of the restricted substance does not exceed the percentage of reference value of presence.

備考3. 〝—〞係指該項限用物質為排除項目。
Note 3：The “–” indicates that the restricted substance corresponds to the exemption.

Japan Certification (VCCI) Statement

この装置は、クラスA情報技術装置です。この装置を家庭環境で使用すると電波妨害を引き起こすことがあります。この場合には使用者が適切な対策を講ずるよう要求されることがあります。

VCCI-A

Canadian Department of Communication Compliance Statement

This Class A digital apparatus meets all the requirements of the Canadian Interference-Causing Equipment Regulations.

Avis de conformité aux normes du ministère des Communications du Canada

Cet appareil numérique de la classe A respecte toutes les exigences du Règlement sur le matériel brouilleur du Canada.

Radio Protection for Germany

Dieses Gerät erfüllt die Bedingungen der EN 55022 Klasse A.

Food and Drug Administration (FDA)

The product complies with FDA 21 CFR 1040.10 and 1040.11 regulations, which govern the safe use of lasers.

Chinese Compulsory Statement

China Compulsory Certificate Statement

此为 A 级产品，在生活环境中，该产品可能会造成无线电干扰。在这种情况下，可能需要用户为其干扰采取切实可行的措施。

Chinese RoHS Compliance Statement

有毒有害物质名称标识
Toxic and Hazardous Substances Table

部件名称 Part Name	有毒有害物质或元素 Toxic and Hazardous Substances and Elements					
	鉛 (Pb)	汞 (Hg)	鎘 (Cd)	六价鉻 (Cr(VI))	多溴联苯 (PBB)	多溴二苯醚 (PBDE)
机箱 Chassis	O	O	O	O	O	O
电源 Power Supply Module	O	O	O	O	O	O
风扇模块 Fan Module	O	O	O	O	O	O
硬盘 Hard Disk Drive	O	O	O	O	O	O

O：表示该有毒有害物质在该部件所有均质材料中的含量均在 SJ/T 11363-2006 规定的限量要求以下
O：Indicates that the toxic or hazardous substances contained in all of the homogeneous materials for this part is below this limit requirement in SJ/T 11363-2006.

X：表示该有毒有害物质至少在该部件的某一均质材料中的含量超出 SJ/T 11363-2006 规定的限量要求
X：Indicates that the toxic or hazardous substances contained in at least one of the homogeneous materials used for this part is above the limit requirement in SJ/T 11363-2006.

Note: The Hard Disk Drive is a solid state disk (SSD) device.

Figure 1 Chinese RoHS Compliance Statement

Chapter 3: Hitachi Virtual Storage Platform One File 34 or File 38 server components

A Hitachi Virtual Storage Platform One File 34 or File 38 system can contain several servers that operate as a cluster. In standard clusters of more than two servers (N-way clusters, not GEfN) include two 10/25 Gbps Ethernet switches for cluster connectivity (this is standard in Hitachi Vantara Configurator).

System components

Component	Description
VSP One File 34 or File 38 server	This file server is the main component of the system. Several servers can operate as a cluster.
Hitachi Virtual Storage Platform One - File Administrator	The File Administrator is the management component for the other components in a system. File Administrator provides administration and monitoring tools. It supports data migration and replication, and acts as a quorum device in a cluster configuration. Although integral to the system, the File Administrator does not move data between the network client and the servers. In clustered systems, the File Administrator provides the management functionality. In some cases, multiple File Administrator are advisable. For the File 34 and File 38 models, the legacy NAS Manager and File Administrator are supported.
Storage systems	A Hitachi Virtual Storage Platform One File system can control several storage enclosures. The maximum number of storage enclosures in a rack depends on the model of storage enclosures being installed. Refer to the *Storage Subsystem Administration Guide* for more information on supported storage systems or the Product Compatibility Guide : https://compatibility.hitachivantara.com/products/hnas.
Fibre Channel (FC) switches	The File 34 or File 38 system supports FC switches that connect multiple servers and storage systems. See Hitachi Vantara Support Connect for information about which FC switches are supported.
External 10/25 Gigabit Ethernet switch	All cluster configurations require an external Ethernet switch for client IO communication. The server connects to a 10/25 GbE switch for connection with the public data network (customer data network). These switches are almost always part of the existing customer infrastructure and there is no compatibility matrix for this connectivity. Also, a 10/25 GbE switch is required for internal cluster communications (ICC) for clusters of three or more nodes. Hitachi Vantara requires dual 10/25 GbE switches for redundancy. In a dual-switch configuration, if one switch fails, the cluster nodes remain connected through the second switch. See Hitachi Vantara Support Connect for information about the 10/25 GbE switches that have been qualified for use with the system, and to find out about the availability of those switches.

Server components

The VSP One File server comes in two models: VSP One File 34 and VSP One File 38.

These server models have a chassis that is 3U (5.25 inches) high, 480 millimeters (19 inches) wide, rack mountable, and a maximum of 686 millimeters (27 inches) deep, excluding the bezel. The chassis contains:

- Front bezel
- VSP One File Base Server
- Dual hot-swappable fan assemblies
- Dual hot-swappable power supplies
- Dual hot-swappable 2.5" O/S disk drive

If there is a fault with the VSP One File Base Server, the server must be returned for repair. Some of the other components can be replaced in the field, and some are hot-swappable (they can be changed without shutting down the server).

Field replaceable units (FRUs) include power supplies, fan assemblies, and disk drives. For more information, see Parts list for Hitachi Virtual Storage Platform One File servers (on page 47).

Server specifications

Physical specifications:

- Weight: 23 kg (51 lb.) including 3 kg rail kit assemblies and metal bezel.
- Height: 132 mm. (5 in.)
- Depth (bezel to PSU): 725 mm. (28.6 in.)
- Width: 440 mm. (17.3 in.)
- Rack space required: 3U (5.25 in.)

Note: A rack unit, or U, is a unit of measure that is used to describe the height of equipment intended to be mounted in a rack. One rack unit is equivalent to 1.75 inches or 44.45 millimeters.

The power and cooling information is shown as follows:

Note: The power supplies and cooling fans are hot-swappable.

Table 1 Power and cooling details

Power or cooling detail	Hitachi Virtual Storage Platform One File
Voltage range (Typ./Max.)	100 VAC – 3.4/4.1A 110 VAC – 3.0/3.6A

Power or cooling detail	Hitachi Virtual Storage Platform One File
	200 VAC – 1.6/1.9A 208 VAC – 1.5/1.8A 230 VAC – 1.4/1.7A
Power supply rating	495W
Typical thermal (BTU/hour)	1160
Max. thermal (BTU/hour)	1400
Max. power usage	410W

Other thermal specifications:

- Temperature range (operational): 10° to 35° C (50° to 95° F)
- Maximum rate of temperature change per hour (operational) 10° C (18° F)
- Temperature range (storage): -10° to 45° C (14° to 113° F)
- Maximum rate of temperature change per hour (storage) 15° C (27° F)
- Temperature range (transit): -20° to 60° C (-4° to 140° F)
- Maximum rate of temperature change per hour (transit) 20° C (36° F)

Humidity specifications:

- Operational: 20-80%
- Storage: 10-90%
- Transit: 5-95%

Noise specifications: A-weighted Sound Power Level, Lwa (db re 1pW):

- Typical: 65
- Max: 72

Shock and vibration specifications:

- Operational random vibration: 10 to 350 Hz @ 0.18 Grms
- Non-operational sinusoidal vibration: 60 to 350 Hz: @ 1g
- Non-operational shock: 3g 11ms, half sine

Packaged transport specification:

- Drops from 356mm and 508mm as per ASTM D5276
- Vibration at up to 0.53 Grms as per ASTM D4728

Altitude specification:

- Maximum of 2000 meters

Ventilation

There are vents and fan openings on the front and the rear of the server. These openings are designed to allow airflow, which prevents the server from overheating.

Note: At least four inches of clearance must be present at the rear of the server rack so that airflow is unrestricted.

Caution:

- Do not place the server in a built-in installation unless proper ventilation is provided.
- Do not operate the server in a cabinet with an internal ambient temperature that exceeds 35º C (95º F).

Server front panel

The following figure shows the front panel of the server:

Figure 2 Server front panel metal bezel

Once the bezel is removed, the front-facing components on the server chassis are visible.

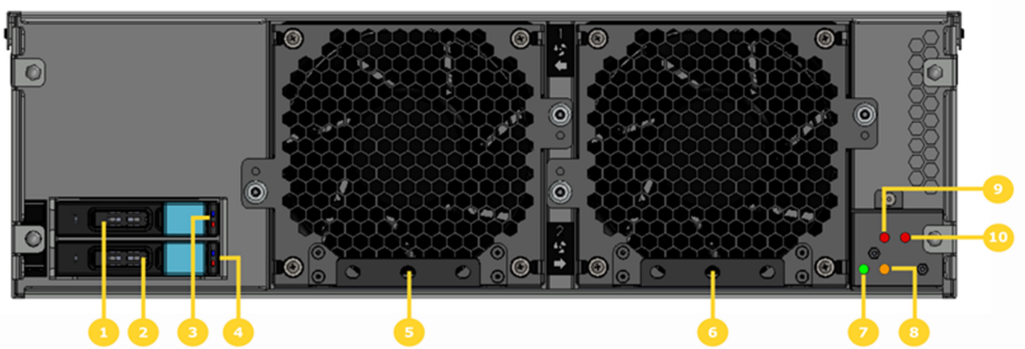


Figure 3 Server model VSP One File 34 / VSP One File 38 front panel components (bezel removed)

Table 2 Server front panel component descriptions

Item	Description
1	O/S disk drive A (top)
2	O/S disk drive B (bottom)
3	Disk A status LED
4	Disk B status LED
5	Fan 1
6	Fan 2
7	Power status LED
8	Server status LED
9	Fan 1 status LED
10	Fan 2 status LED

Power and Server LED status indicators

The following tables describe the Power and Server status LED indicators for the Hitachi Virtual Storage Platform One File.

Table 3 Power status LED (green)

LEDs	Meaning
Green	Normal operational mode of an active cluster node.
Medium flash (once every .8 seconds)	The server is available to host file services but is not currently doing so. This also occurs if no EVS is configured, or if all EVSs are running on the other node in a cluster.
Fast flash (five flashes per second)	The server is rebooting.
Off	The server is not powered up.

Table 4 Server status LED (amber)

LEDs	Meaning
Amber	Critical failure and the server is not operational.

LEDs	Meaning
Slow flash (once every three seconds)	System shutdown has failed. Flashes once every three seconds.
Medium flash (once every 0.8 seconds)	The server needs attention, and a non-critical failure has been detected, for example, a fan or power supply has failed. Flashes once every 0.8 seconds.
Off	Normal operation.

O/S drives

O/S drives are located behind the bezel on the left side of the chassis.

Note:

- Failed O/S drives are hot-swappable, however, there are serious risks in trying to swap a drive that has not failed. It is strongly recommended that you avoid performing replacement procedures during busy periods to minimize the risk of any disruption caused by the procedure.
- Do not attempt to replace or recover a O/S drive without the assistance of Hitachi Vantara Customer Support.

The O/S drive A and B status and activity status LEDs of the File 34 and File 38 server models are shown as follows:

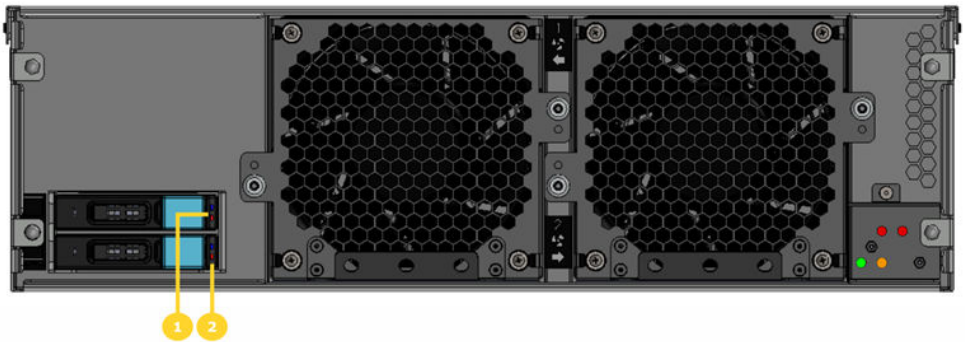


Table 5 Drive A and B status and activity LEDs

Item	Description
1	Drive A status and activity LEDs
2	Drive B status and activity LEDs

Fans

The server features dual hot-swappable fan assemblies. The fans provide for front-to-back airflow to be consistent with other storage system components.

The server's cooling airflow enables the system to operate in an ambient temperature range of 10°C to 35°C when mounted in a rack or cabinet with associated components required to make up a storage system. The storage system administrator is responsible for ensuring that the ambient temperature within the rack does not exceed the 35°C operating limit.

The server continues to operate following the failure of a single fan and during the temporary removal of a fan for replacement. Replace a failed fan as soon as possible.

Caution: If a fan has failed, replace the fan as soon as possible to reduce the amount of time the server is operating with reduced airflow.

The fans are contained within two assemblies, each containing a single variable-speed fan. Fan assemblies are located behind the front bezel. Each fan assembly is secured to the chassis with two thumbscrews and a blind-mate electrical connector; no tools are required to remove or install a fan assembly.

Two fan status LEDs provide fan status information. These LEDs are located behind the bezel on the right side of the chassis.

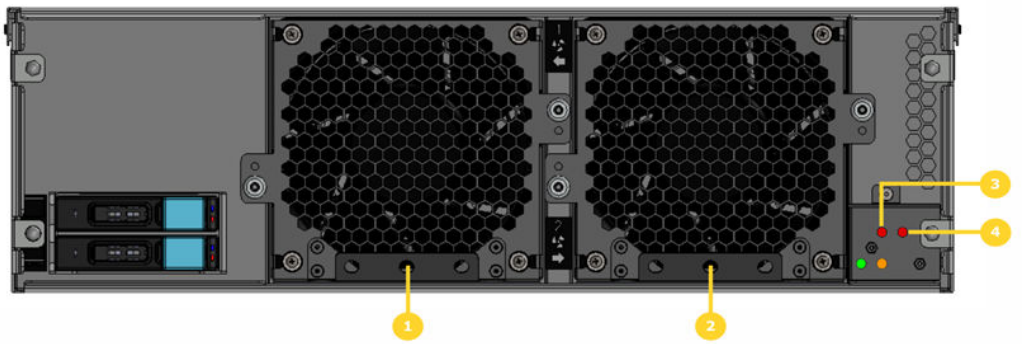


Table 6 Fans and fan status LEDs

Item	Description
1	Fan 1 (left)
2	Fan 2 (right)
3	Fan 1 status LED
4	Fan 2 status LED

Server rear panel

The following figure shows the rear panel components for the Hitachi Virtual Storage Platform One File server models:

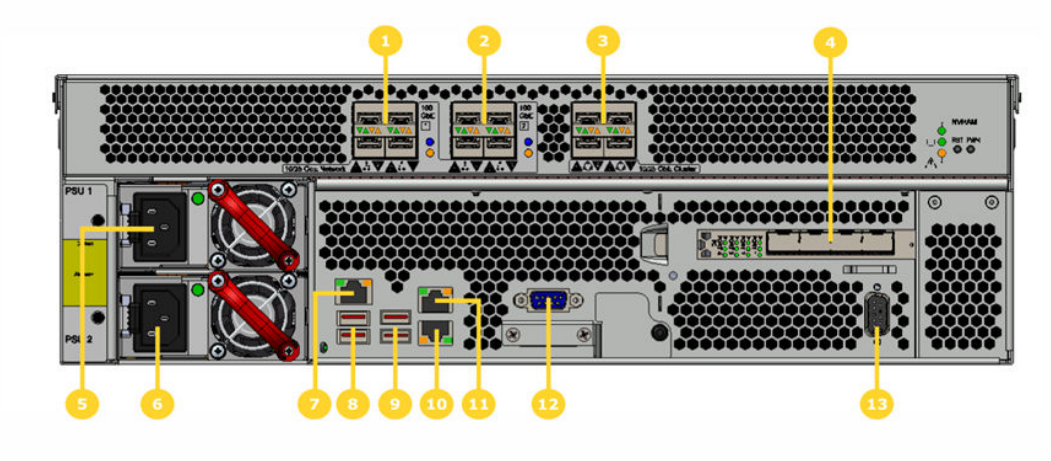


Figure 4 Server rear panel components for models VSP One File 34 / VSP One File 38

The following table shows the ports and connectors on the server rear panel:

Note: Do not use any ports or connectors that are not described in this table without guidance from technical support.

Table 7 Server rear panel components

Item	Connectivity	Qty	Description
1 & 2	10/25 GbE network ports	8	Connection to external 10/25 Gbps Ethernet data network. Ports 1-6 are 10/25 Gbps capable, ports 7 & 8 are 25 Gbps only.
3	10/25 GbE Clustering ports	4	For cluster management and heartbeat, connect to: ▪ Two-way configuration: Connect to the corresponding cluster server ports (left port to left port and right port to right port). ▪ N-way configuration: Connect to the 10/25 GbE switches.
4	FC ports	4	Direct connection to disk systems or tape libraries or SAN fabric.

Item	Connectivity	Qty	Description
5	PSU 1	1	Power Supply Unit 1 **Caution:** Do not lift the server by the PSU handle.
6	PSU 2	1	Power Supply Unit 2 **Caution:** Do not lift the server by the PSU handle.
7	IPMI v2.0 port	1	Connection to the internal Ethernet switch of the rack
8 & 9	USB Ports	4	USB port. *(Reserved for Customer Service Engineer access only.)*
10	ETH1 1000baseT Ethernet	1	Management port. Connect to the internal Ethernet switch of the rack.
11	ETH0 1000baseT Ethernet	1	External system management. Connect to the customer's management switch.
12	Video port	1	Video management interface port. *(Reserved for Customer Service Engineer access only.)*
13	RS-232	1	Management interface. *(Reserved for Customer Service Engineer access only.)*

Rear panel server LED and button locations

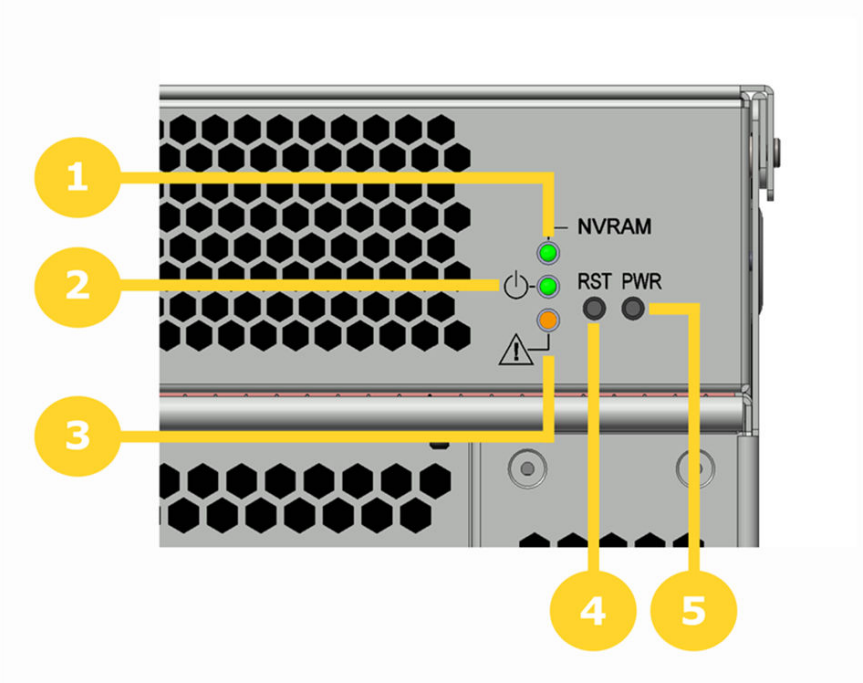


Figure 5 Rear panel server LEDS and buttons

Table 8 Rear panel server LEDS and buttons

Item	Meaning
1	NVRAM status LED
2	Power status symbol and LED
3	Server status LED
4	Reset button
5	Power button

Rear panel LED state descriptions

The NVRAM, power, and server status LEDs indicate whether the server is powered, its operational state, and whether the NVRAM is currently being protected by the super capacitor's backup power. The way an LED flashes provides further information about what is currently occurring.

The following tables describe the various power status LEDs.

Table 9 NVRAM status LED (green/amber)

State	Meaning
Green (solid)	Normal operation.

State	Meaning
Green (flashing)	Contents protected.
Amber (solid)	The NVDIMM or Supercapacitor backup energy source is faulty.
Off	Disabled or system powered down. The NVDIMM may contain data in internal flash memory that will be restored on boot.

Table 10 Power status LED (green)

LEDs	Meaning
Green	Normal operational mode of an active cluster node.
Medium flash (once every .8 seconds)	The server is available to host file services but is not currently doing so. This also occurs if no EVS is configured, or if all EVSs are running on the other node in a cluster.
Fast flash (five flashes per second)	The server is rebooting.
Off	The server is not powered up.

Table 11 Server status LED (amber)

LEDs	Meaning
Amber	Critical failure and the server is not operational.
Slow flash (once every three seconds)	System shutdown has failed. Flashes once every three seconds.
Medium flash (once every .8 seconds)	The server needs attention, and a non-critical failure has been detected, for example, a fan or power supply has failed. Flashes once every .8 seconds.
Off	Normal operation.

Power button (PWR)

Under normal circumstances, the power button is rarely used. However, the power button can be used to restore power to the system when the server is in a standby power state.

When power cables are connected to the PSUs, the server normally powers up immediately. If, after 10 seconds, the LEDs on the power supplies are lit, but the Power Status LED is not lit, press the PWR button to restore power to the system. Open a case with Hitachi Vantara Support Connect to get the problem resolved.

Note: Do not use the power button during normal operation of the server. Pressing the power button immediately causes an improper shutdown of the system. The PSUs will continue to run.

Reset button (RST)

Pressing the reset button when the server is powered on causes a hard reset of the server.

This reset occurs after a 30-second delay, during which the server status LED flashes rapidly and the server attempts to shut down properly. Even with the delay, pressing the reset button does not guarantee a complete shutdown before rebooting. Only press the reset button when the server is powered on to recover a server which has become unresponsive. Pressing the reset button at this time may produce a diagonostic bundle automatically.

Caution: If the server is non-responsive, see Restarting an unresponsive server. Do not pull the power cord. Pulling the power cord does not produce a diagonostic bundle.

Fibre Channel storage ports

The four FC ports operate at speeds of 8/16/32 Gbps. FC ports use an enhanced small form factor pluggable (SFP+) optical connector.

The SFP+ ports can be removed from the chassis.

Note: When removed, the 10/25 GbE Network SFP28 and the 32 GB Fiber Channel (FC) SFP+ storage ports are indistinguishable from one another except for their vendor information. The information is located on the transceiver housing and is only visible when the transceiver is removed. For more information, see Parts list for Hitachi Virtual Storage Platform One File servers (on page 47).

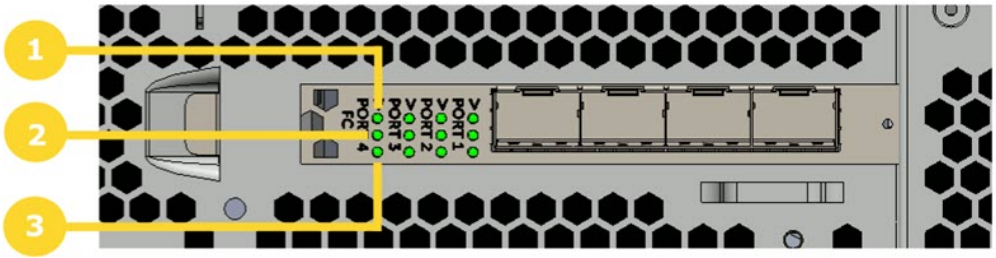


Figure 6 Fibre Channel storage ports label

Table 12 Fibre Channel storage ports label

Item	Meaning
1	32G FC link
2	16G FC link
3	8G FC link

Table 13 Status and Activity (per port) descriptions

Status/Activity (per port)		Meaning
Status	Green solid	Server booting
	Off	Link down
Activity	Green flashing	FC link activity
	HBA fault (LEDs flash in sequence)	Host Bus Adapter fault

10/25 gigabit cluster ethernet interconnect ports

The 10/25 gigabit per second Ethernet (10/25 GbE) cluster ports allow you to connect cluster nodes together. The cluster ports are used only in a cluster configuration. The 10/25 GbE ports operate at speeds of ten 10/25 gigabits per second. The VSP One File 34 and VSP One File 38 10/25 GbE cluster ports use a small form factor pluggable (SFP28) optical connector.

Do *not* use the 10/25 GbE cluster interconnect ports to connect to the customer data network (also known as the public data network).

When connecting the cluster ports (ICC) to a network switch running at 25GbE, please be aware that the switch must be configured with a compatible FEC setting. Ports may need to have Forward Error Correction (FEC) disabled at both ends.

If the network switch only supports 10GbE, then the VSP One File ports must be configured to 10GbE speed. Please see the CLI man page, `ethernet-link-config` or refer to the *ICC Network Switch Reference guide* for more details.

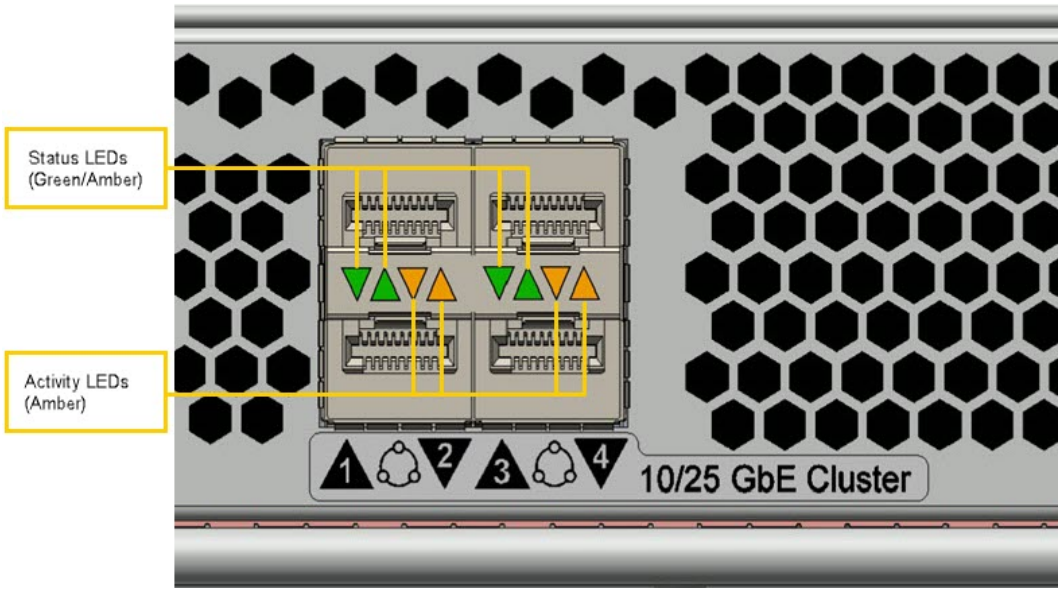


Figure 7 10/25 GbE cluster interconnect ports

Once connected, each 10/25 GbE port has two indicator LEDs; one green/amber and one amber. These LEDs provide link status and network activity status information as follows:

Table 14 Status and activity per port

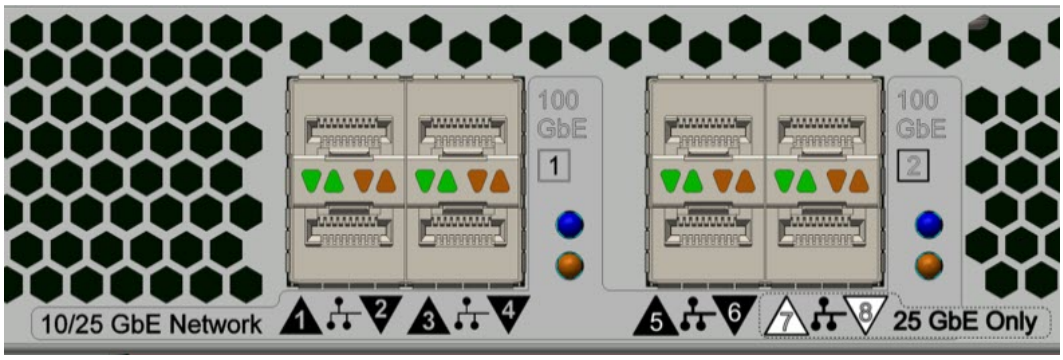
Status/Activity (per port)		Meaning
Status	Green (solid)	25 Gbps link present.
	Amber (solid)	10 Gbps link present.
	Off	No link.
Activity	Amber (flashing)	10/25 GbE cluster port activity.

10/25 gigabit ethernet customer data network ports

See the *Network Administration Guide* or the *Hitachi Virtual Storage Platform One File Administrator User Guide* for more information on creating aggregations.

There are eight 10/25 GbE ports that use enhanced small form factor pluggable (SFP28) optical connectors, shown as follows:

Figure 8 10/25 gigabit ethernet customer data network ports



Note: Ports 1-6 are 10/25GbE capable, while ports 7 & 8 are 25GbE only.

The ports may need to be configured to be compatible with the network switch that they are attached to using the command `ethernet-link-config` under the following circumstances:

- **Forward Error Correction (FEC):** When using 25GbE connection mode on the server, Forward Error Correction (FEC) is enabled by default. Make sure that FEC is configured on each port of the network switch. If the network switch does not support the correct type of FEC, it may be necessary to disable FEC at both the VSP One File server port and switch port.

  See the CLI man page, `ethernet-link-config` for more details on FEC.

- **10GbE speed.** If the network switch only supports 10GbE, the speed will need to be configured accordingly in the VSP One File server using the `ethernet-link-config` command.

  See the CLI man page, `ethernet-link-config` for more details.

Once connected, each 10/25GbE port has two indicator LEDs; one green/amber and one amber. These LEDs provide link and network activity status information as follows:

Table 15 Status/activity description

Status/Activity (per port)		Meaning
Status	Green (solid)	25 Gbps link present.
	Amber (solid)	10 Gbps link present.
	Off	No 10/25 Gbps link.
Activity	Amber (flashing)	10/25 Gbps link activity

100 gigabit ethernet customer data network ports (File 38 only)

File 38 servers support a connection of a 100GbE link from a 100GbE switch fitted with a QSFP28 pluggable transceiver to the server network ports fitted with SFP28 transceivers using a breakout cable.

The breakout cable splits out the four 25GbE RX/TX pairs of the 100GbE connection from the MTP® (MPO) 8-fiber connector at the switch (QSFP28 transceiver) to four 25GbE LC fiber connectors.

Ports 1-4 form 100GbE port group 1 and ports 5-8 form 100GbE port group 2. The breakout cable LC connectors can be connected in any order to the ports within a group.

- **Forward Error Correction (FEC):** When using 100GbE connection mode on the server, Forward Error Correction (FEC) is enabled by default. Make sure that FEC is configured on each port of the network switch. If the network switch does not support the correct type of FEC, it may be necessary to disable FEC at both the VSP One File server port and switch port.

  See the CLI man page, `ethernet-link-config` for more details on FEC.

- When using the 100GbE connection, use the `ethernet-link-config` command to configure lane bonding.

  See the CLI man page, `ethernet-link-config` for more details.

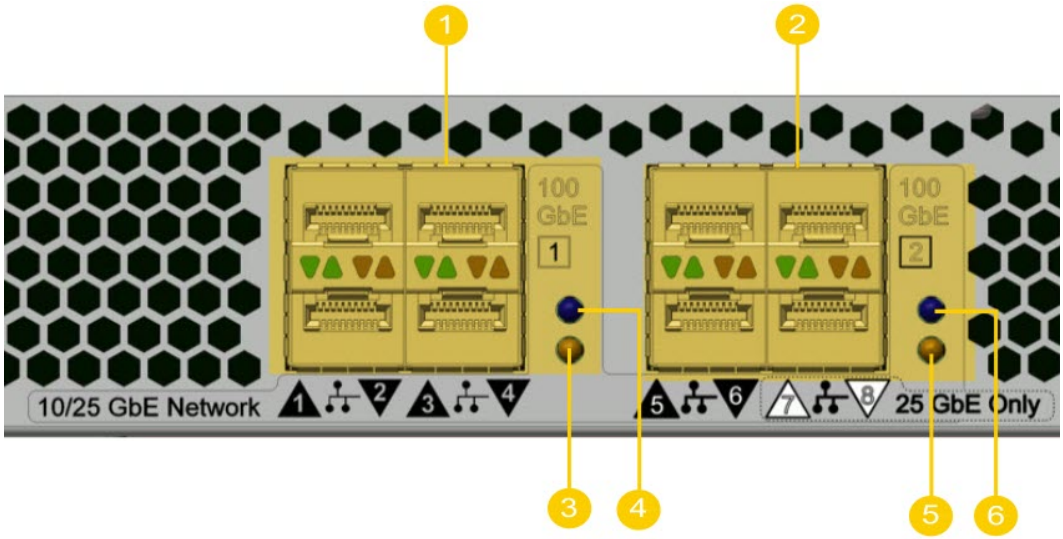


Figure 9 100 gigabit ethernet customer data network port groups

Table 16 100 gigabit ethernet customer data network port groups label

Item	Meaning
1	100 GbE network port group 1.
2	100 GbE network port group 2.
3	100 GbE port group 1 activity LED.
4	100 GbE port group 1 status LED.
5	100 GbE port group 2 activity LED.
6	100 GbE port group 2 status LED.

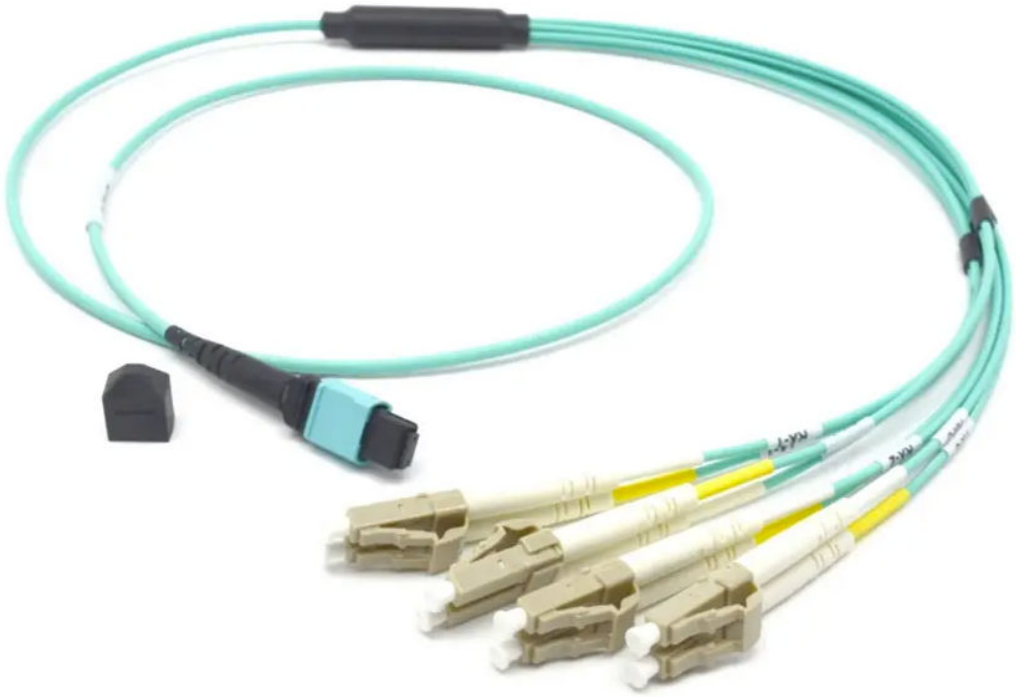


Figure 10 MTP® (MPO) 8-fiber breakout cable

Breakout cable lengths can be increased by linking patch cables using MPO adapters. Patch cables may also be required to resolve type and gender compatibility when connecting breakout cables to trunk cables at the patch panel.

Rules and recommendations for MPO cabling:

- The total number of cross-over (Type-B) cables including the breakout cable must be an odd number.
- Use multimode UPC patch cables throughout the connection. Do not mix UPC and APC polished connectors.
- Limit the number of adapters including the patch panel adapters to a maximum of three in any connection.
- Use straight-through (Type-A) adapters also known as key-up or key-down adapters. If crossover (Type-B) adapters are used, the total number of cross-overs must be odd.
- Observe gender compatibility of the adapters. Do not connect female to female adapters or male to male adapters. Do not remove alignment pins of the adapters.
- The maximum total connection length is 100m for multi-mode (OM4) cabling. OM3 cabling can be used with a reduced total maximum cable length of 70m.
- Breakout cables are available in all genders and types. Other combinations are compatible with a direct connection from File 38 server to a QSFP28 transceiver.

Table 17 100GbE port LED status/activity description

Status/Activity (per port)		Meaning
Status	Blue (solid)	100 Gbps link present.
	Off	No 100 Gbps link.
Activity	Amber (flashing)	100 Gbps link activity.

Power Supply units

The server has dual, hot-swappable, load sharing, AC power supply units (PSUs). The PSUs are accessible from the rear of the server.

The server monitors the operational status of the power supply modules so that the management interfaces can indicate the physical location of the failed PSU. LED indicators provide PSU status information for the state of the PSU.

Power supply unit details

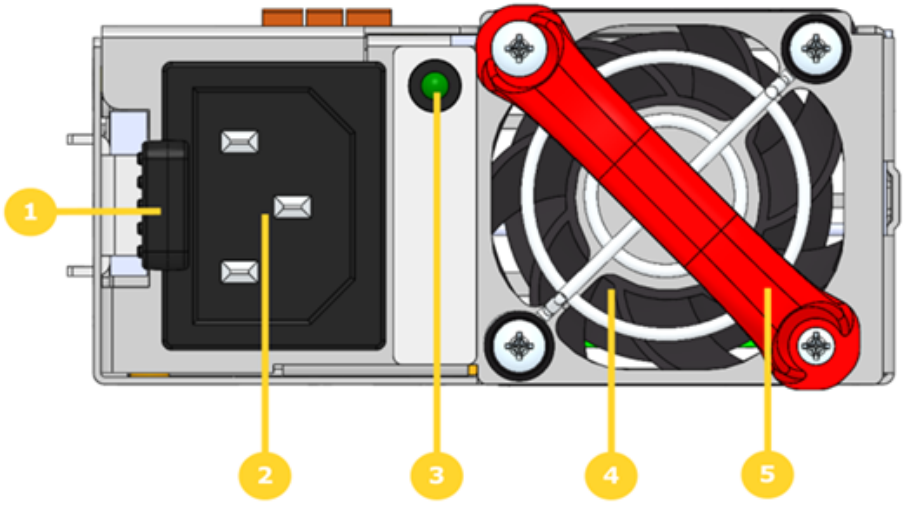


Table 18 Power supply descriptions

Item	Description
1	PSU retention latch
2	Power cord connector
3	PSU status LED
4	PSU fan exhaust
5	PSU handle

Note: There are no field-serviceable parts in the PSU. If a PSU unit fails for any reason, replace it. See Replacing a power supply unit for information about replacing a power supply.

Table 19 Power status LED

Status	Meaning
Green (solid)	DC output operating normally
Green (flashing)	No AC power or DC output fault
Off	Standby power fault or neither PSU is powered from AC mains
Amber (flashing)	Internal PSU fault (over voltage, over-current, over temperature or fan failure)

If the PSU status LED is off, unplug the power cable, wait 10 seconds, then reconnect the cable. If the Power Status LED remains off, the PSU has failed and must be replaced.

If the PSU status LED is flashing amber, unplug the power cable, wait 10 minutes, then reconnect the cable. If the PSU status LED remains flashing amber, the PSU has failed and must be replaced. See Replacing a power supply unit (on page 44) for more information on replacing a PSU.

Mains power connections are an IEC inlet in each power supply. Each PSU is only powered from its mains inlet. Two power feeds are required for the system. PSU units do not have an on/off switch. To turn on power, simply connect the power cable. To turn off the unit, remove the power cable.

When both PSUs are installed, if only one PSU is connected and receiving adequate power, the fans on both PSUs will operate, but only the PSU receiving power will provide power to the server.

Each power supply auto-ranges over an input range of 100V to 240V AC, 50 Hz to 60 Hz.

Caution: If the server is non-responsive do not pull the power cord. Please contact Hitachi Vantara Customer Support.

GigE management ports

The GigE management port (Eth1) is used to provide management and quorum services between the server and the File Administrator through the customer facing management network.

The GigE port (Eth1) operates at a speed of one (1) Gigabit per second and requires the use of a CAT6 shielded RJ45 cable. Once connected the GigE port has two indicator LEDs; one on the top left and the second on the top right of the port. These LEDs provide link status and network activity status information.

Refer to the following tables for more information.

Table 20 GigE management port LEDs

Left LED - Link or Activity	Right LED - Speed	Meaning
Amber (flashing)	Off	10 Mbps link present
Amber (flashing)	Green (solid)	100 Mbps link present
Amber (flashing)	Amber (solid)	1 Gbps link present
Off	Off	No link

Serial port

A standard serial (RS-232) port, used to connect to the server for management purposes. See RS-232 serial management port for more information.

USB ports

Standard USB connectors. These ports are used to connect USB devices to the server during some operations.

Valid USB devices include:

- Flash drives
- External hard drives
- USB keyboards

Valid operations include:

- Management
- Install
- Upgrade
- Update
- Repair

Note: The USB ports should not be used without guidance from Hitachi Vantara customer support.

IPMI port

In addition to eth0 and eth1, an IPMI LAN is also located on the I/O back panel. The amber LED on the right indicates activity, while the green LED on the left indicates the speed of the connection. Refer to the following table for more information.

Table 21 IPMI LAN LEDs

Left LED - Speed	Right LED - Link or Activity	Meaning
Green (solid)	Amber (flashing)	100 Mbps link present
Amber (solid)	Amber (flashing)	1 Gbps link present
Off	Off	No link

Management interfaces

Management interface ports on rear panel - models VSP One File 34 / VSP One File 38

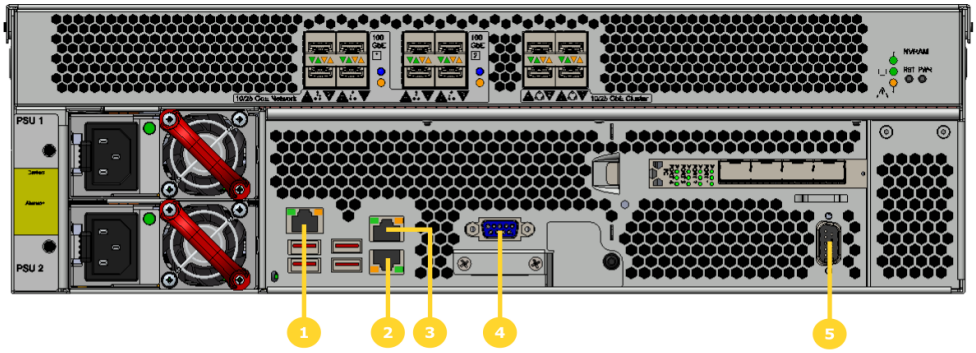


Table 22 Management interface ports and descriptions

Item	Description
1	IPMI port
2	Eth 1 - System management and quorum. Connect to the customer management switch (RJ45 connector)
3	Eth 0 - Not used
4	VGA management port
5	Serial management port (RS-232 DB-9 connector)

RS-232 serial management port

The server has one RS-232 connection port, located on the rear panel of the server. This serial port is intended to be used during system setup or maintenance, and is not intended as a customer management connection. The primary management interface to the server is

through File Administrator or through server's command line interface (CLI), which can be accessed through the network.

The server serial connection can be used in certain instances to access to the CLI to perform management and configuration functions by maintenance personnel. Connect a workstation using puTTy to the serial port on the rear panel of the server, then set the host settings to the values shown in the following table to ensure proper communication between the workstation and the server.

Table 23 Host setting values

Terminal	Requirement
Connection	Crossover (null modem) cable
Emulation	VT100
Baud rate	115,200 Bps
Data bits	8
Stop bits	1
Parity	None
Flow control	None

Once the initial setup has been completed, disconnect the serial cable. If you need to manage the server through a serial connection, connect to the server’s System Administrator and use SSH to access the server's CLI.

To monitor the boot cycle of a server:

1. Establish a serial connection using SSH software (puTTY).
2. Login as `root`.
3. Type `screen -R`. After a period of time the sceen shows the boot sequence.
4. To exit `screen -R`, press `<Ctrl+a(then d)>`.

Ethernet cables

CAT6 RJ45 cables that fully comply with the CAT6 shielded standard for the 1000Base-T GE Ethernet network ports are required.

Chapter 4: Replacing server components

This section describes which components are field replaceable units (FRUs) and how to replace them. This section also describes which components are hot-swappable.

Field replaceable units

Important: The field replaceable units (FRUs) can only be replaced by certified engineers. These components are not customer-replaceable units (CRUs).

FRUs include the following components:

- Whole node (except rail kit, bezel, and PSU)
- SSDs
- Fans
- Bezel
- Power Supply Units (PSUs)
- SFP+ port adapters (Network and cluster port SFP+, and HBA Fibre Channel port SFP+)

Hot-swappable components

Some components are hot-swappable. Such components can be changed without shutting down the server.

Before replacing a component that is not hot-swappable, you must shut down and power off the server. See Rebooting or shutting down a server for details.

Removing and replacing the front bezel

To access some server components or field replaceable units (FRUs), you must first remove the front bezel. Replace the bezel after the part replacement is complete.

Replacing a fan

Replace a fan assembly, which is one of the server's hot-swappable components, as follows:

Procedure

1. Remove the front bezel. The fan assemblies are now visible.
2. Identify the fan to be replaced.

   Fans are labeled on the chassis, and are numbered 1 and 2, with fan 1 on the left and fan 2 on the right. Refer to the fan status LEDs on front panel of the server (behind the bezel) to see which fan has failed. In the following figure, number 1 indicates the status LED for fan 1 (the left-side fan), and number 2 indicates the status LED for fan 2 (the right-side fan).

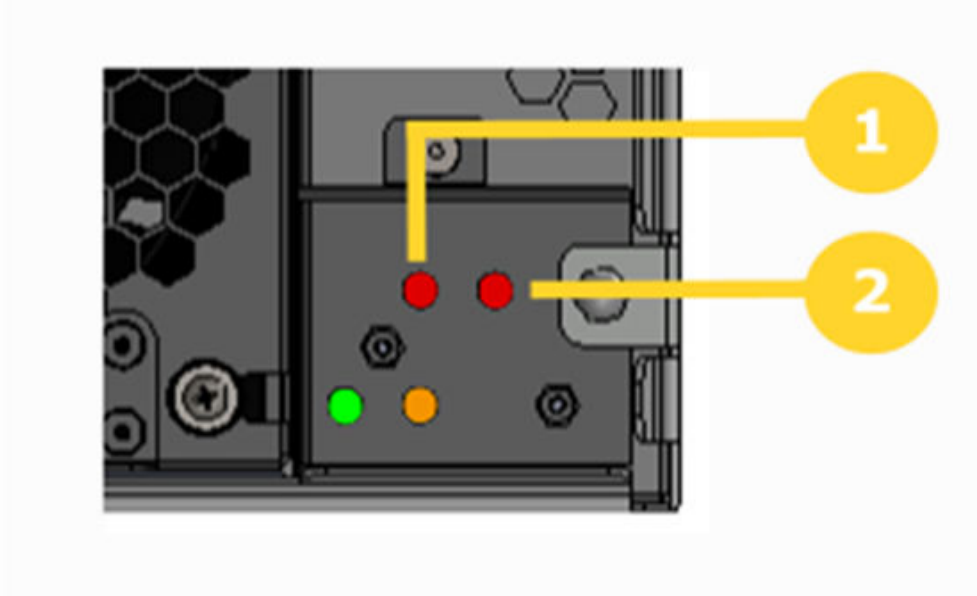


Figure 11 Fan status LEDs

Table 24 Fan status LED descriptions

Item	Description
1	Fan 1 status LED
2	Fan 2 status LED

3. Remove the faulty fan by loosening the thumbscrews (turning them counter-clockwise) until they are loose, then pulling the fan unit straight out of the chassis. (The fan lead connector disengages automatically as you remove the fan assembly.)
4. Put the new fan assembly into place.
5. Gently press the fan assembly back into the chassis. The fan electrical connector is aligned automatically when the fan is fully inserted into the chassis.
6. Secure the fan assembly in position by tightening the thumbscrews (turning them clockwise).
7. Replace the front bezel.

Recovering or replacing a drive

Some drive failures require drive replacement, others only require performing a recovery process. Use the recovery process to ensure that all partitions are recovered before proceeding with any further drive recovery or replacement procedures. Unless you are certain the drive has failed, perform a drive recovery.

Important: Do not attempt to replace or recover a drive without the assistance of Hitachi Vantara Customer Support.

Drives can fail for a number of reasons, including corrupt sectors or erroneous blocks of data. Typically, the RAID controller handles these types of errors and they do not cause the server to fail.

More serious errors may cause a drive failure, causing one or both drives to fall out of the RAID. Should one partition of a drive fail, attempt a disk recovery. If a partition fails repeatedly, replace the drive. If all the partitions fall out of RAID, replace the failed drive.

Caution: When removing a drive, take extreme care to only press one lever. The push button latch mechanisms are close together and, if not careful, both latches can easily be depressed at one time. This causes an immediate loss of access.

Important: Before you consider replacing a drive, note the following points:

- Failed drives are hot-swappable, so a failed drive can be replaced without shutting down the server. However, there are serious risks in trying to swap a drive that has not failed.
- Do not assume that because the red LED is illuminated that a drive is faulty. Under a RAID rebuild/recovery, the red LED is illuminated. If the drive fails and must be replaced, remove it from the server.
- If the drive shows signs of failure (through warning events in the event log), the drive can be replaced as it is hot-swappable.
- Do not pull out a drive that is in a known good configuration. Doing so can potentially lead to data corruption.
- Unless you are certain the drive has failed, perform a disk recovery.
- Drive redundancy is unsupported if the drive is removed from the server.
- The new drive does not require the same capacity as the drive being replaced.

WARNING: It is strongly recommended that you perform drive replacement procedures during a maintenance window to minimize risk of any disruption caused by the procedure and to allow for the movement of EVSs and other unexpected events that may occur.

Replacing a power supply unit

You can replace a power supply unit (PSU) as a hot-swappable server component. The server can operate on a single PSU if necessary, making it possible to replace a failed PSU without shutting down the server. If a PSU fails, it must be replaced as quickly as possible because operating on a single PSU means that there is no redundancy in that area, increasing the risk of an interruption in service to clients.

LED indicators on each PSU indicate the PSU status.

Note: Refer to the section on Power Supply units (on page 36) for more information.

Procedure

1. Remove the power cord from the PSU.
2. Move the retaining latch to the right. You may hear a slight click if the PSU moves when the latch disengages.
3. Using the handle on the PSU, pull the PSU out from the back of the server until you can completely remove the PSU from the chassis.
4. Insert the replacement PSU. The retention latch should click into position all the way to the left when the PSU is fully inserted.
   If the PSU that is not being replaced is receiving mains power when the replacement PSU is fitted, the fan on the replacement PSU becomes active.
5. Connect the power cord to the back of the PSU.
   The PSU should start as soon as the power connection is made. If the PSU does not start immediately, make sure the main power circuit is live and that the other end of the power cable is connected to a live outlet.

Chapter 5: Rebooting, shutting down, and powering off

This section provides instructions on how to reboot, shut down, and power off a server or cluster.

Rebooting the server

The server or cluster can be rebooted using the File Administrator or from the VSP One File operating system console. When rebooting a cluster, nodes may be rebooted sequentially (--cluster) or simultaneously (--all).

Procedure

1. From the VSP One File operating system console, enter the command: `reboot --all` to reboot nodes simultaneously or `reboot --cluster` to reboot sequentially.

   Note: A reboot stops all file serving EVSs on the selected node or all cluster nodes, then reboots the node/nodes. Rebooting may take up to five minutes.

Powering down the server

Follow this procedure whenever a server is about to be powered down for shipment or storage, and will be left off for more than a day. If the system is being restarted or power-cycled, this procedure is not required.

Contact your Hitachi Vantara representative for special instructions if servers will be in storage for more than one year.

Procedure

1. From the VSP One File operating system console, enter the command: `shutdown --powerdown`
2. Wait until the rear panel LEDs turn off.

   Note: The PSUs continue to run and the PSU LEDs stay on.

3. Power down the server by removing the power cables from the PSU modules.

Powering on the server or cluster

To start/power on a server or cluster:

Procedure

1. Verify that all servers are switched off.
2. Start all storage systems, beginning with the expansion enclosures.

   Wait until the disk LEDs on all of the expansion enclosures have stopped blinking (which indicates that they are spinning up) or two minutes, whichever comes first, then start the storage system RAID controller enclosures. Note that the disk drives in some storage enclosures do not spin up until commanded to do so by the RAID controller, so the LEDs may continue to blink until after the RAID controller enclosure has sent those commands and the drives have spun up.
3. For a cluster configuration, verify the System Administrator has been installed and configured in the customer VMware or HyperV environment.
   Wait one minute to allow the external System Administrator to start.
4. If you are starting a cluster, wait 5 - 10 seconds before powering on the next node in the cluster.

Recovering from power stand-by

When the server is in a power standby state, the power supplies are powered and the PSU LEDs are lit, but the Power Status LED on the rear panel is not.

The server enters a stand-by power state due to any the following conditions:

- The **`shutdown --powerdown`** command has been issued.
- The PWR button is pressed when the server is running.
- The server has shut down automatically due to an over-temperature condition.

You can restore the server to its normal power state by either of the following methods:

- Press the PWR button.
- Remove the power cables from both PSUs, wait for 10 seconds, then reconnect the cables to the PSUs.

Chapter 6: Parts list for Hitachi Virtual Storage Platform One File servers

Table 25 Parts for VSP One File servers

Part number	Description	Notes
SX325157	Server	Does not include PSUs, bezel, or rail kit
SX325152	PSU	80 Plus Platinum rated
SX325155	SSD	2 per server
SX325158	Fan tray	2 per server
SX325142	Clip-in rail kit	
SX325159	Bezel	

Note: The PSU, SSD and the Clip-in rail kit are existing HNAS 5000 parts supported on VSP One File servers.

Table 26 Switch Parts

Although this particular table is geared towards the ICC switch connectivity, when using either the eight host ports or the four ICC ports at 25G, please be aware that ports can be configured to disable Forward Error Correction (FEC). Please see the CLI man page, `ethernet-link-config` for more details.

Part number	Description	Notes
N3K-C3524P-10GX N3K-C3524P-XL	▪ Cisco Nexus 3524-X or XL switch ▪ 10 GbE Switch 24 ports enabled, but upgradeable to 48 ports ▪ Port-side exhaust is default	This switch is not a recommended part but can be used if already in existing environment and there is a wish to keep the ICC links operating at 10G.

Part number	Description	Notes
N9K-C93180YC-FX-24	▪ Nexus 9300-FX w/24p 1/10/25G & 6p 40/100G	FEC settings on both server and switch may need to be disabled.
N9K-C93180YC-FX3 (FX3H)	▪ Nexus 9300 48p 1/10/25G, 6p 40/100G, MACsec UP. SyncE	FEC settings on server and switch are enabled at 25Gbps.
HITUCP7050SX3-48YC8-F (or R)	▪ Arista7050X3, 48x25GSFP, 8x100GQSFP switch, f-r, 2AC, 2C13-C14 cords	FECsettings on server and switch are enabled at 25Gbps.
N9K-C93180YC-FX N9K-C93180YC-FX-24 N9K-C93180YC-EX N9K-C93180YC-EX	▪ N/A	FECsettings on both server and switch need to be disabled for host links to operate. ***These switches are not officially supported (or orderable via Hitachi configrurator) for ICC connections but are listed here for reference as a host connection.***

Table 27 Optics used with VSP One File servers

Part number	Description	Notes
E25GSFP28SR.P (Intel SFP28 10/25 GbE Optic kit)	▪ 3.3v ▪ 850 nm. multi-mode	Supported in: ▪ 8 x 10/25 GbE network ports ▪ 4 x 10/25 GbE cluster ports Not supported in 4 x Fibre Channel ports
SFP32-SR-SP	▪ 32GFC SFP+ ▪ 850nm. multi-mode ▪ 3.3v ▪ 8.5-28.05 Gb/s	Supported in: 4 x Fibre Channel ports Not supported in: ▪ 8 x 10/25GbE Network ports or 4 x 10/25GbE Cluster ports

Table 28 100GbE fiber breakout cables for VSP One File 38 servers

Part number	Description	Notes
M404-EFLC-08CCA-SR4-001-B	MTP® (MPO) to 4x LC 8-Fiber OM4 Breakout cable for 1m, 2m, 3m, 5m and 10m. ▪ Connector A: MTP® (MPO) Female ▪ Connector B: 4x LC Duplex ▪ Fiber: Multimode (OM4) UPC 50/125µm ▪ Polarity: Type B ▪ Insertion Loss: 0.35dB Max	Supported in: ▪ 8 x 10/25GbE Network ports Not supported in: ▪ 4 x Fibre Channel ports or or 4 x 10/25GbE Cluster ports
M404-EFLC-08CCA-SR4-002-B		
M404-EFLC-08CCA-SR4-003-B		
M404-EFLC-08CCA-SR4-005-B		
M404-EFLC-08CCA-SR4-010-B		

Note: The 100GbE fiber breakout cable part numbers are for reference only. The part numbers are not part of the Hitachi Vantara ordering system. Customers can choose to order parts with similar specifications for connection from the server to the switching infrastructure.

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