XPression

M9 2RU Maintenance Guide

VERSION 01

ROSS

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You've made a great choice. We expect you will be very happy with your purchase of Ross Technology.

Our mission is to:

1. Provide a Superior Customer Experience
    - offer the best product quality and support
2. Make Cool Practical Technology
    - develop great products that customers love

Ross has become well known for the Ross Video Code of Ethics. It guides our interactions and empowers our employees. I hope you enjoy reading it below.

If anything at all with your Ross experience does not live up to your expectations be sure to reach out to us at solutions@rossvideo.com.

David Ross

CEO, Ross Video

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Ross Video Code of Ethics

Any company is the sum total of the people that make things happen. At Ross, our employees are a special group. Our employees truly care about doing a great job and delivering a high quality customer experience every day. This code of ethics hangs on the wall of all Ross Video locations to guide our behavior:

1. We will always act in our customers' best interest.
2. We will do our best to understand our customers' requirements.
3. We will not ship crap.
4. We will be great to work with.
5. We will do something extra for our customers, as an apology, when something big goes wrong and it's our fault.
6. We will keep our promises.
7. We will treat the competition with respect.
8. We will cooperate with and help other friendly companies.
9. We will go above and beyond in times of crisis. *If there's no one to authorize the required action in times of company or customer crisis - do what you know in your heart is right. (You may rent helicopters if necessary.)*

XPression Maintenance Guide

- Ross Part Number: 3509DR-025-01
- Version: 01

The information contained in this guide is subject to change without notice or obligation.

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Patents

Patent numbers US 7,034,886; US 7,508,455; US 7,602,446; US 7,802,802 B2; US 7,834,886; US 7,914,332; US 8,307,284; US 8,407,374 B2; US 8,499,019 B2; US 8,519,949 B2; US 8,743,292 B2; GB 2,419,119 B; GB 2,447,380 B; and other patents pending.

Notice

The material in this manual is furnished for informational use only. It is subject to change without notice and should not be construed as commitment by Ross Video Limited. Ross Video Limited assumes no responsibility or liability for errors or inaccuracies that may appear in this manual.

Warranty and Repair Policy

Ross Video Limited (Ross) warrants its XPression systems to be free from defects under normal use and service for the following time periods from the date of shipment:

- XPression Server — 12 months
- XPression Software Upgrades — 12 months free of charge
- System and Media hard drives — 12 months

If an item becomes defective within the warranty period Ross will repair or replace the defective item, as determined solely by Ross.

Warranty repairs will be conducted at Ross, with all shipping FOB Ross dock. If repairs are conducted at the customer site, reasonable out-of-pocket charges will apply. At the discretion of Ross, and on a temporary loan basis, plug in circuit boards or other replacement parts may be supplied free of charge while defective items undergo repair. Return packing, shipping, and special handling costs are the responsibility of the customer.

This warranty is void if products are subjected to misuse, neglect, accident, improper installation or application, or unauthorized modification.

In no event shall Ross Video Limited be liable for direct, indirect, special, incidental, or consequential damages (including loss of profit). Implied warranties, including that of merchantability and fitness for a particular purpose, are expressly limited to the duration of this warranty.

This warranty is TRANSFERABLE to subsequent owners, subject to Ross' notification of change of ownership.

Extended Warranty

For customers that require a longer warranty period, Ross offers an extended warranty plan to extend the standard warranty period by one year increments. For more information about an extended warranty for your XPression system, contact your regional sales manager.

Environmental Information

The equipment that you purchased required the extraction and use of natural resources for its production. It may contain hazardous substances that could impact health and the environment.

To avoid the potential release of those substances into the environment and to diminish the need for the extraction of natural resources, Ross Video encourages you to use the appropriate take-back systems. These systems will reuse or recycle most of the materials from your end-of-life equipment in an environmentally friendly and health conscious manner.

The crossed-out wheeled bin symbol invites you to use these systems.

If you need more information on the collection, reuse, and recycling systems, please contact your local or regional waste administration.

You can also contact Ross Video for more information on the environmental performances of our products.

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Introduction

Thank you for choosing a Ross Video XPression system.

Ross Video designed XPression with the needs of live production in mind. XPression is an easy to use, yet powerful, 3D graphics and character generator. There are a range of XPression systems tailored to suit a variety of needs

We appreciate your business and sincerely hope that you have a great experience with your new XPression system. As always, if there is anything we at Ross Video can do to assist you, please do not hesitate to contact us.

About This Guide

This guide covers the installation and maintenance of the XPression system. Refer to this guide and the accompanying *Quick Start Guide* when you first install or need to reconfigure your system.

Please read the accompanying *Important Safety and Regulatory Notices* document (included in the shipping box) for instructions about safe handling of your XPression system and regulatory compliance.

If, at any time, you have questions pertaining to the operation of the XPression system, please contact Ross Video at the numbers listed in the section Getting Help 3. Our technical staff are always available for consultation, training, or service.

Documentation Conventions

Special text formats are used in this guide to identify parts of the user interface, text that a user must enter, or a sequence of menus and sub-menus that must be followed to reach a particular command.

Bold text	Bold text identifies a user interface element such as a dialog box, menu item, or button. For example: In the **Slug** column, type a slug name for the story.
Italic text	Italic text is used to identify the titles of referenced guides, manuals, or documents. For example: For more information, refer to the *DashBoard User Guide.*
`Courier text`	Courier text identifies text that a user must type. For example: In the **Username** box, type `postgres`.
Menu Sequences	Menu arrows are used in procedures to identify a sequence of menu items that you must follow. For example: If a step reads **Server > Save As**, you would select the **Server** menu and then select **Save As**.
Hypertext	Identifies a hyperlink to a related topic.

Getting Help

XPression documentation is available online at Product Documentation and is also accessible on the product USB key and by selecting the **Help** icon in the user interface.

Contacting Technical Support

At Ross Video, we take pride in the quality of our products, but if problems occur, help is as close as the nearest telephone.

Our 24-hour Hot Line service ensures you have access to technical expertise around the clock. After-sales service and technical support is provided directly by Ross Video personnel. During business hours (Eastern Time), technical support personnel are available by telephone. After hours and on weekends, a direct emergency technical support phone line is available. If the technical support person who is on call does not answer this line immediately, a voice message can be left and the call will be returned shortly. This team of highly trained staff is available to react to any problem and to do whatever is necessary to ensure customer satisfaction.

Technical Support:

- 1-844-652-0645 (North America)
- +800 3540 3545 (International)
- After Hours Emergency: (+1) 613-349-0006
- E-mail: techsupport@rossvideo.com
- Website: http://www.rossvideo.com

Hardware Overview

This chapter provides a brief overview of the XPression 2RU system hardware.

The topics described in this chapter are:

Front View of the System 5

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Rear Input/Output Connections (SDI) 8

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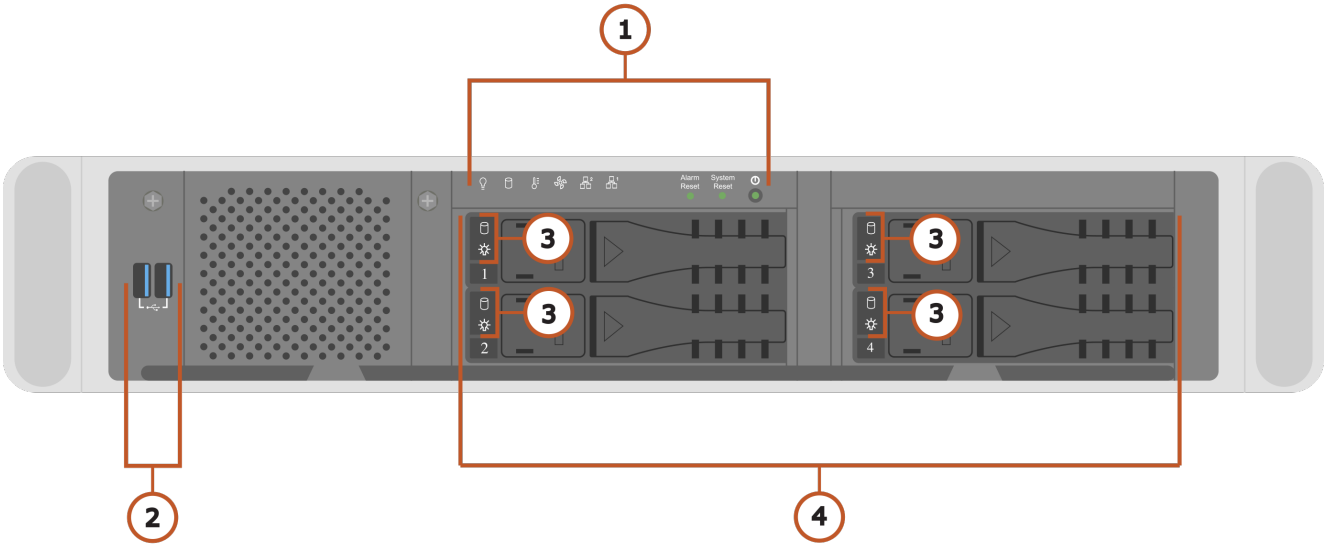
Rear Input/Output Connections (12G) 11

Rear Peripheral Connections 12

Power Supply 13

Front View of the System

The following diagram displays the front of the XPression 2RU system with the door removed. Descriptions of individual components are contained in the legend below the diagram.



Front View of XPression 2RU System

1) **Power and Alarm LED Area** — This area includes the XPression 2RU Power button and alarm LEDs for system components.

   Refer to the section Power and Alarm LED Area 6 for more information.

2) **USB Ports** — These ports can be used to transfer media to and from USB drives.

3) **HDD Power and Status LED Area** — This area includes the alarm LEDs for the HDD hardware.

   Refer to the section HDD Power and Status LED Area 7 for more information.

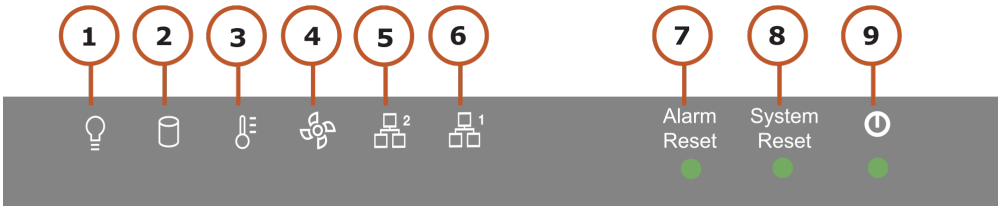
4) **System Drives** — XPression 2RU systems are equipped with four system drives in a RAID 1+0 configuration to provide redundancy in case of a drive failure.

   This arrangement allows for a single drive failure without loss of data or performance.

Power and Alarm LED Area

The Power and Alarm LED area is located on the front of the XPression 2RU system, in the middle top of the chassis above the first RAID array. This area contains the **Power** button for the XPression 2RU system, as well as activity and alarm LEDs for system components. Refer to the section Front View of the System 5 to locate the Power and Alarm LED Area on the front of the XPression system.

The following diagram displays the **Power LED** area of the XPression system. Individual components are described in the legend below the diagram.



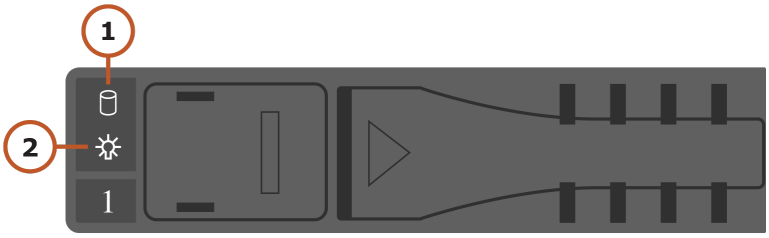
Power and Alarm LED Area

1) **Power Active Indicator LED** — This LED is active when the system is powered on.
2) **Hard Disk Activity LED** — This LED activates when there is read/write activity on any system hard disk.
3) **Temperature Status LED** — This LED is blue when the temperature in the chassis is normal. It is red when there is an alarm.
4) **Cooling Fan Status LED** — This LED is blue when the cooling fan in the chassis is operating normally. It is red when there is an alarm.
5) **Network 2 Activity LED** — This LED is not active.
6) **Network 1 Activity LED** — This LED is not active.
7) **Alarm Reset Button** — Press this button to stop the audible alarm beep when a system alarm is active. Always check that the system is running properly when the alarm is activated.
8) **System Reset Button** — Press this button to reset the system after a hardware or software failure. Pressing this button also reboots the system.
9) **Power Button** — Press this button to begin the boot procedure. When the system is turned on and there is a hardware or software failure, press this button to reboot the system.

HDD Power and Status LED Area

The HDD Power and Status LED area is located on the front left side of each of the four XPression 2RU system drives. Refer to the section Front View of the System 5 to locate the HDD Power and Status LED Area on the front of the XPression 2RU system.

The following diagram displays the HDD Power and Status LED Area of the XPression 2RU system. Individual components are described in the legend below the diagram.

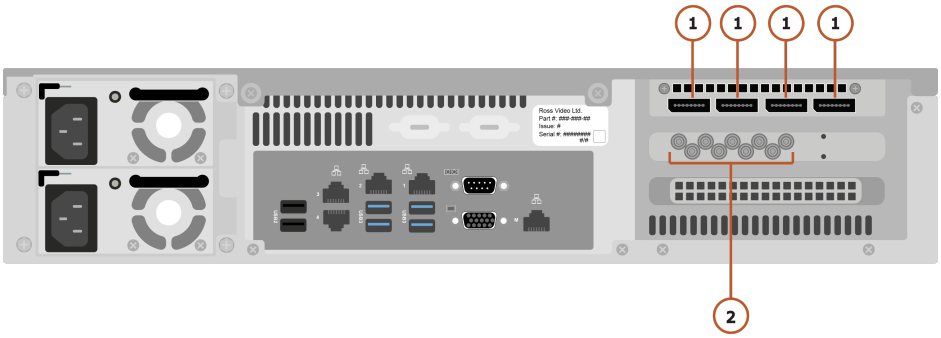


HDD Power and Status LED Area

1) **HDD Status LED** — This LED activates when there is read/write activity on the respective system hard disk.
2) **HDD Power Status LED** — This LED is green when the respective system hard disk powered on. If it is not turned on, check that the system hard disk is connected properly.

Rear Input/Output Connections (SDI)

The following diagram displays the input/output portion of the XPression 2RU base system. Individual components are described in the legend below the diagram.



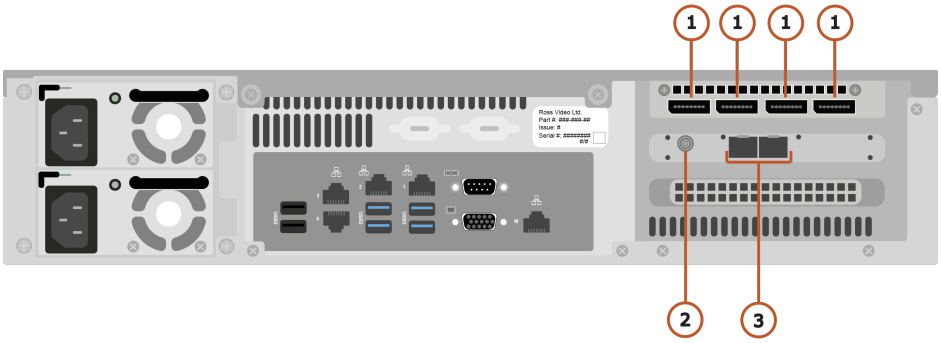
XPression 2RU SDI Rear Input/Output Connections

1) **Display Ports** — Four display ports provide output for computer monitors. Ensure the correct display port to DVI adapters are used (DVI-D or DVI-I).
2) **HD-BNC Connectors** — Provides SDI video input and output, as well as analog reference.

   Refer to Appendix B: HD-BNC Input and Output Configuration 56 for further information.

Rear Input/Output Connections (IP-D10)

The following diagram displays the input/output portion of the XPression 2RU IP-D10 system. Individual components are described in the legend below the diagram.

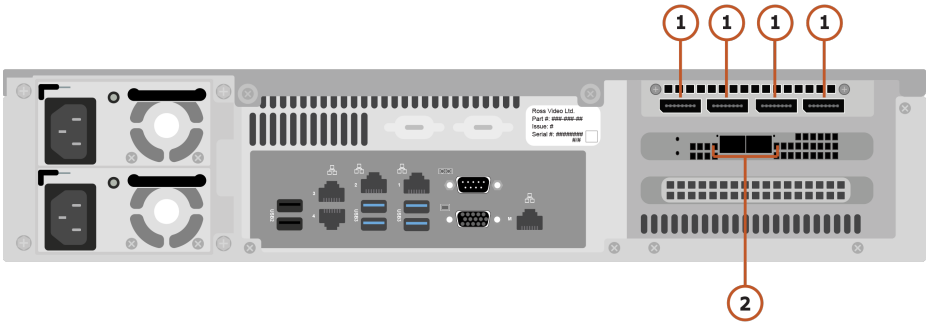


XPression 2RU IP-D10 Rear Input/Output Connections

1) **Display Ports** — Four display ports provide output for computer monitors. Ensure the correct display port to DVI adapters are used (DVI-D or DVI-I).
2) **Reference HD-BNC Connector —** Analog reference input when using SMPTE ST 2022-6 protocol.
3) **SFP Cages** — Two cages for a small form-factor pluggable (SFP) for attaching network cabling. The second cage is used if using redundancy.

Rear Input/Output Connections (IP-D25)

The following diagram displays the input/output portion of the XPression 2RU IP-D25 system. Individual components are described in the legend below the diagram.

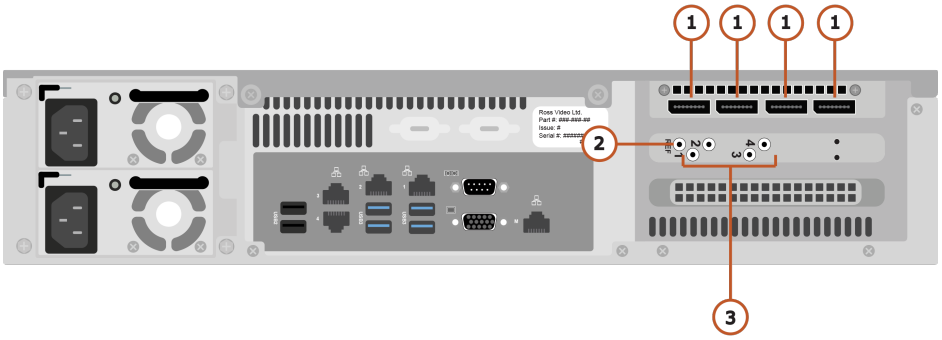


XPression 2RU IP-D25 Rear Input/Output Connections

1) **Display Ports** — Four display ports provide output for computer monitors. Ensure the correct display port to DVI adapters are used (DVI-D or DVI-I).
2) **SFP Cages** — Two cages for a small form-factor pluggable (SFP) for attaching network cabling. The second cage is used if using redundancy.

Rear Input/Output Connections (12G)

The following diagram displays the input/output portion of the XPression 2RU 12G system. Individual components are described in the legend below the diagram.

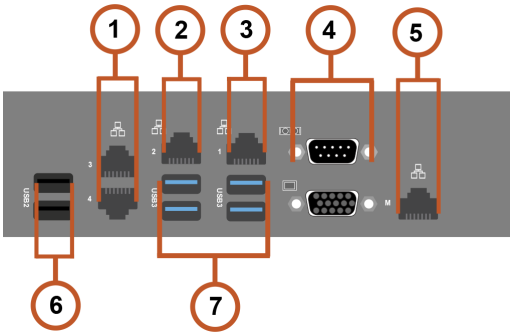


XPression 2RU 12G Rear Input/Output Connections

1) **Display Ports** — Four display ports provide output for computer monitors. Ensure the correct display port to DVI adapters are used (DVI-D or DVI-I).
2) **House Reference Genlock** — Provides an analog reference point.
3) **SDI-HD-BNC Out** — Provides 12G SDI video.

Rear Peripheral Connections

The following diagram displays the peripheral connections. Individual components are described in the legend below the diagram.



Rear Peripheral Connections

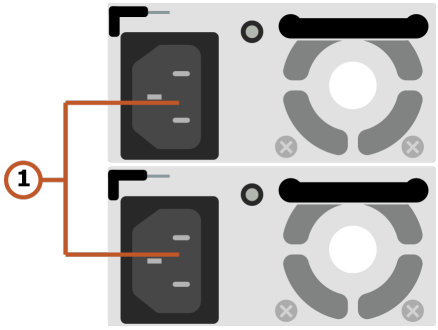
1) **10 GbE LAN Ports** — Use these ports to connect the XPression system to an internal network. These ports can be used for high-speed file transfer between the XPression system and other computers on the internal network.
2) **2.5 GbE LAN Port** — Use this port to connect the XPression system to an internal network. This port can be used for high-speed file transfer between the XPression system and other computers on the internal network.
3) **1 GbE LAN Port** — Use this port to connect the XPression system to an internal network. This port can be used for high-speed file transfer between the XPression system and other computers on the internal network.
4) **COM Port** — Use this port for GPI and CII command functionality.
5) **IPMI Management LAN Port** — Use this port to allow access to the baseboard management controller (BMC) over a LAN.
6) **USB 2.0 Ports** — Use these ports to connect peripheral devices such as a keyboard or mouse to the system. These ports can also be used to transfer media to and from USB drives.
7) **USB 3.1 Gen 1 Ports** — Use these ports to connect peripheral devices such as a keyboard or mouse to the system. These ports can also be used to transfer media to and from USB drives.

★Use of USB 3.1 certified cable and devices are required for USB 3.1 super-speed data rates.

Power Supply

The XPression 2RU system has two identical hot-swappable power supply modules, located at the rear of the system on the left-hand side. Since the system requires a minimum of one power supply module to operate, only one power supply module can be hot-swapped at a time. Each power supply module can be attached to a separate power circuit to provide redundancy in case of power failure.

The diagram displays the parts of the power supply modules for the XPression 2RU system. Individual components are described in the legend below the diagram.



XPression 2RU System Power Supply Module

1) **A/C Power Cord Connection** — Connect the female end of the power cord to this connector, and the male end to a power circuit.

Hardware Installation

This chapter provides installation instructions for the XPression 2RU system hardware.

The topics described in this chapter are:

Unpacking the Unit 14

Installation Requirements 15

Installing the System in an Equipment Rack 16

Attaching the Cables 17

Powering the System Up and Down 19

Unpacking the Unit

Unpack the XPression 2RU system from the shipping container(s), and check the contents against the packing list to ensure all items are included. If any items are missing or damaged, contact your sales representative or Ross Video for assistance.

Installation Requirements

For safe installation and operation of your equipment, note the following installation requirements:

- **Ambient Temperature** — Install the equipment in an environment compatible with the equipment's ambient temperature (Tma). If installed in a closed or multi-rack assembly, the ambient operating temperature of the rack environment may be greater than that of the room.

  This equipment has an operating temperature range of 32º F (0º C) to 95º F (35º C). The ambient temperature in the rack shall not exceed this temperature range.

- **Reduced Air Flow** — When installing the equipment in a rack, or as a desktop/tower, ensure that there is sufficient airflow to safely operate the equipment.

  A minimum clearance of 0.25” (0.635 cm) on each side of the equipment must be maintained after installation in the rack.

- **Mechanical Loading** — Equipment must be evenly balanced when loaded into a rack to ensure the stability of the unit. Uneven mechanical loading is hazardous.

- **Circuit Overloading** — Check the nameplate rating of the equipment when connecting to a supply circuit. Overloading the circuits may be hazardous to the overcurrent protection and supply wiring.

- **Reliable Earthing** — Maintain reliable earthing of rack and desktop/tower mounted equipment. Give particular attention to supplementary supply connections (e.g., use of power strips).

Installing the System in an Equipment Rack

The XPression 2RU system is designed to be mounted in a 19 inch (48.3 cm) wide equipment rack using the slide rails supplied in the rack mount kit.

- **Rack Units** — 2 RU
- **Width** — 16.9 inches (43.0 cm), 19 inches (48.3 cm) including handles
- **Height** — 3.46 inches (8.8 cm)
- **Depth** — 20.67 inches (52.5 cm), 24.4 inches (62.0 cm) including handles

The slide rails must be installed onto the XPression 2RU system before it can be mounted in an equipment rack. Instructions for mounting the slide rails onto the XPression 2RU system and equipment rack are included with the rack mount kit in the XPression 2RU system shipping box.

★Failure to install the XPression 2RU system into an equipment rack using the supplied rack mount kit will void the XPression 2RU system warranty.

Attaching the Cables

Follow the instructions below to attach the cables to the XPression 2RU system.

To attach the cables to the XPression 2RU system:

1. On the back of the XPression 2RU system, connect the supplied line cords to the two power supplies, then plug the line cord(s) into a grounded outlet.

   The power supplies are auto-sensing and can accept line voltages from 100 through 240 VAC. The XPression 2RU system is equipped with two power supplies in a 1+1 redundant configuration. One power supply is required to run the XPression 2RU system.

2. Plug the supplied **USB keyboard** into a **USB port** on the front or back of the unit.
3. Plug the supplied **USB mouse** into a **USB port** on the front or back of the unit.
4. Connect a monitor (customer supplied), to a **display port**.

   Ensure the correct display port to DVI adapters are used (DVI-D or DVI-I). A monitor can also be connected to the **USB-C port** using a **USB-C** to display port adapter.

   Additional monitors can be connected to either of the other two **display ports** to provide additional space for virtual preview channels, custom applications, web page capture, and more.

   If using analog output, connect a monitor to a display port connector using a display port to VGA converter.

   ★KVM extenders (customer supplied) are required when the XPression 2RU system monitor, keyboard, and mouse are located remotely from the rack room.

5. Plug an Ethernet cable from the internal network into one of the **10 Gigabit LAN Controller** ports.

   XPression 2RU systems can run standalone or accept a network connection if required to connect to a production network. XPression 2RU systems also use this TCP/IP network connection to support the Smart GPI / RossTalk Feature.

6. Connect the Genlock signal cable to the **REF** (reference in) **HD-BNC connector** (SDI and 12G only). This connection is required to lock the XPression 2RU system to the video timing of the facility. The XPression 2RU system supports the following types of Genlock signal:

   - **Analog Blackburst** — a composite color video signal comprised of sync, color burst, and black video. Also called "color black", "house sync", or "house black". Typically used as the house reference synchronization signal.
   - **Tri-Level Sync** — a three-level pulse synchronization signal used in high definition systems (recommended for HD installations).

7. The video connections are different, depending on the XPression system.

   - For the **XPression SDI** system, connect the **HD-BNC** end of the pigtail cables to HD-BNC connectors **1** to **8** and attach the **SDI** cables to the **BNC** end of the pigtails according to their required destination.

     See the *XPression User Guide* or **Help** file for information about configuring the key and fill for the **HD-BNC** connectors. The default configuration is displayed in the table in Appendix B: HD-BNC Input and Output Configuration 56. Not all **HD-BNC** connectors will be active depending on the XPression software edition.

   - For the **XPression IP-D10** and **IP-D25** system, insert **pluggable SFP connectors** into the **SFP** cages and attach the networking cables to the connectors.

- For the **XPression 12G** system, connect the **HD-BNC** end of the pigtail cables to **HD-BNC** connectors **1** to **4** and attach the **SDI** cables to the **BNC** end of the pigtails according to their required destination. See the *XPression User Guide* or **Help** file for information about configuring the **Key** and **Fill** for the **HD-BNC** connectors.

If your facility requires analog outputs, additional outboard digital to analog conversion equipment is available from Ross Video.

Powering the System Up and Down

This section describes how to power the system up and how to shut it down.

Powering Up the System

Once the cables are attached and the system has been connected to a power source, you can power up the XPression 2RU system.

To power up the system:

1. Open the front door of the XPression 2RU system.
2. Press the **Power** button to begin the boot procedure.
3. Close the front door to protect the system from dust.

Powering Down the System

Whenever the XPression 2RU system needs to be powered down, use the following procedure.

To power down the system:

- From the **Start** menu, select **Power** > **Shut down**.

  The XPression 2RU system shuts down.

Hard Drive Maintenance

XPression utilizes a software-based Redundant Array of Independent Drives (RAID) system in conjunction with an Intel® Virtual RAID on CPU enterprise. This setup relies on the Windows operating system and host processor to perform all of the RAID functionality.

The topics described in this chapter are:

Intel® Virtual RAID on CPU 21

RAID Array Drive Replacement 22

Warning — *Always use the proper Windows shutdown procedure. NEVER HARD POWER OFF THE UNIT. Hard shutdown may cause failures in the RAID, taking one or more drives offline.*

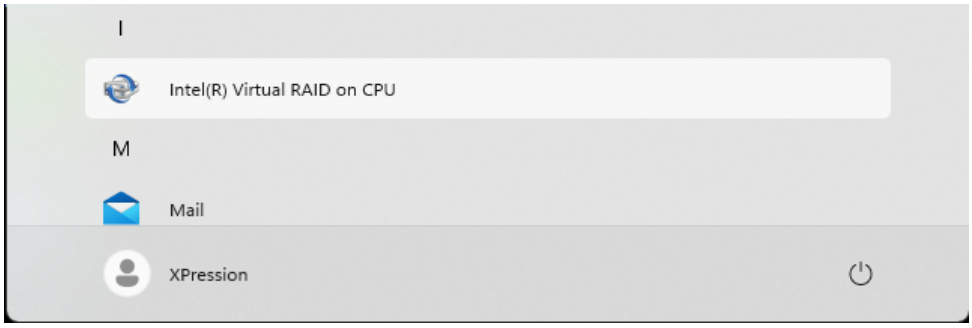
Intel® Virtual RAID on CPU

The Intel Virtual RAID on CPU is used to manage, maintain, and monitor the XPression 2RU server RAID array.

Use the following procedure to open the Intel Virtual RAID on CPU.

To open the Intel Virtual RAID on CPU:

1. Log in to the **XPression 2RU** system.
2. In **Windows**, go to the **Start** menu, and then select **Intel(R) Virtual RAID on CPU**.



RAID Array Drive Replacement

If a single drive fails in the XPression 2RU RAID array, the system is protected from data loss. Replace the failed drive as soon as possible and rebuild the data from the failed drive onto a new drive, to restore the system to fault tolerance.

In the **Intel Virtual RAID on CPU**, failed drives are highlighted by a yellow warning icon (⚠) in the **Status** section.

Rebuilding a drive consumes bandwidth on the XPression server and is ideally done during off hours, or when the server has a low workload.

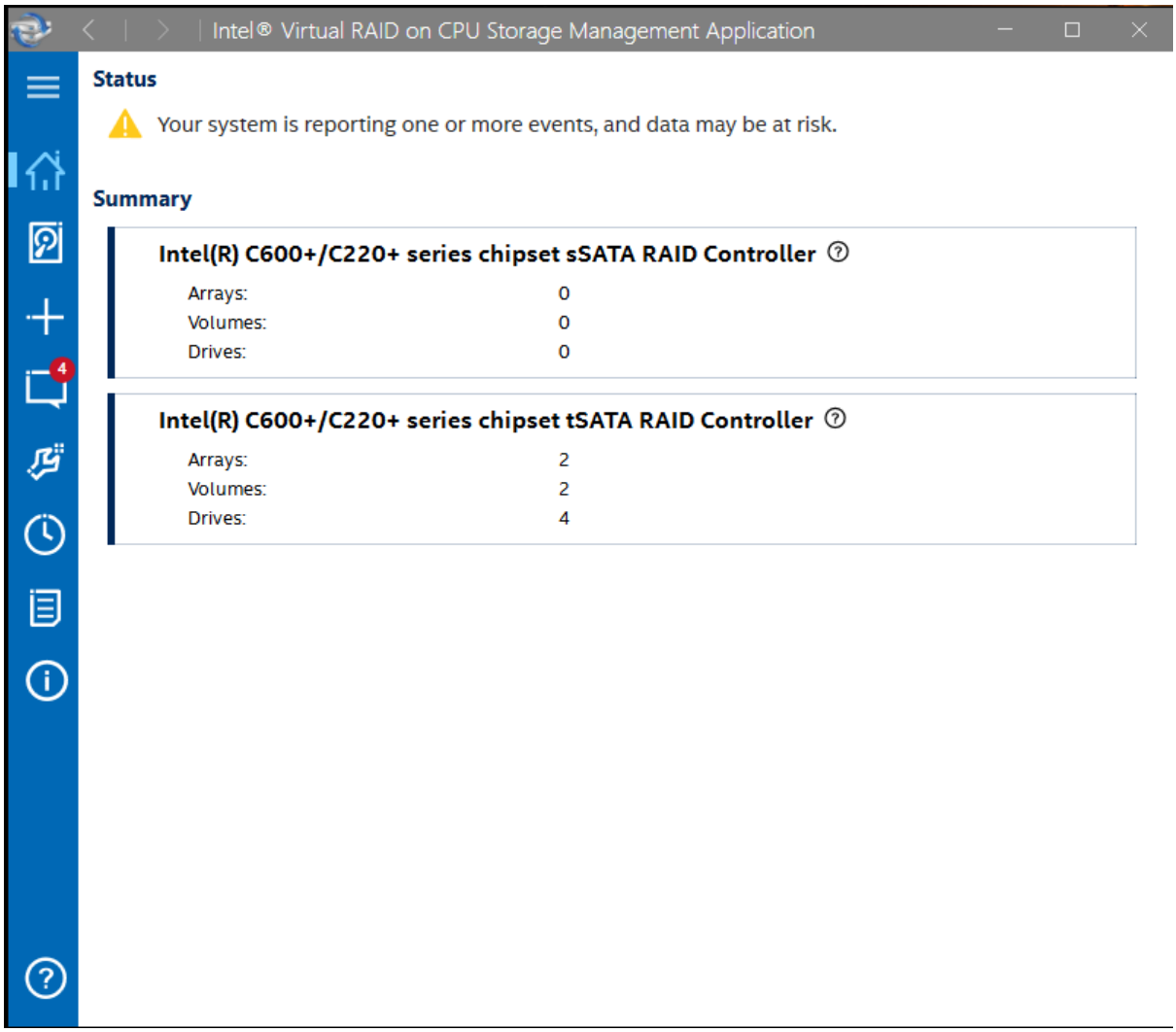
★To prevent accidental data loss, back up all data before replacing a drive in the XPression 2RU RAID array.

★Depending on the server workload, rebuilding a drive could take up to three hours to complete.

To rebuild a failed drive:

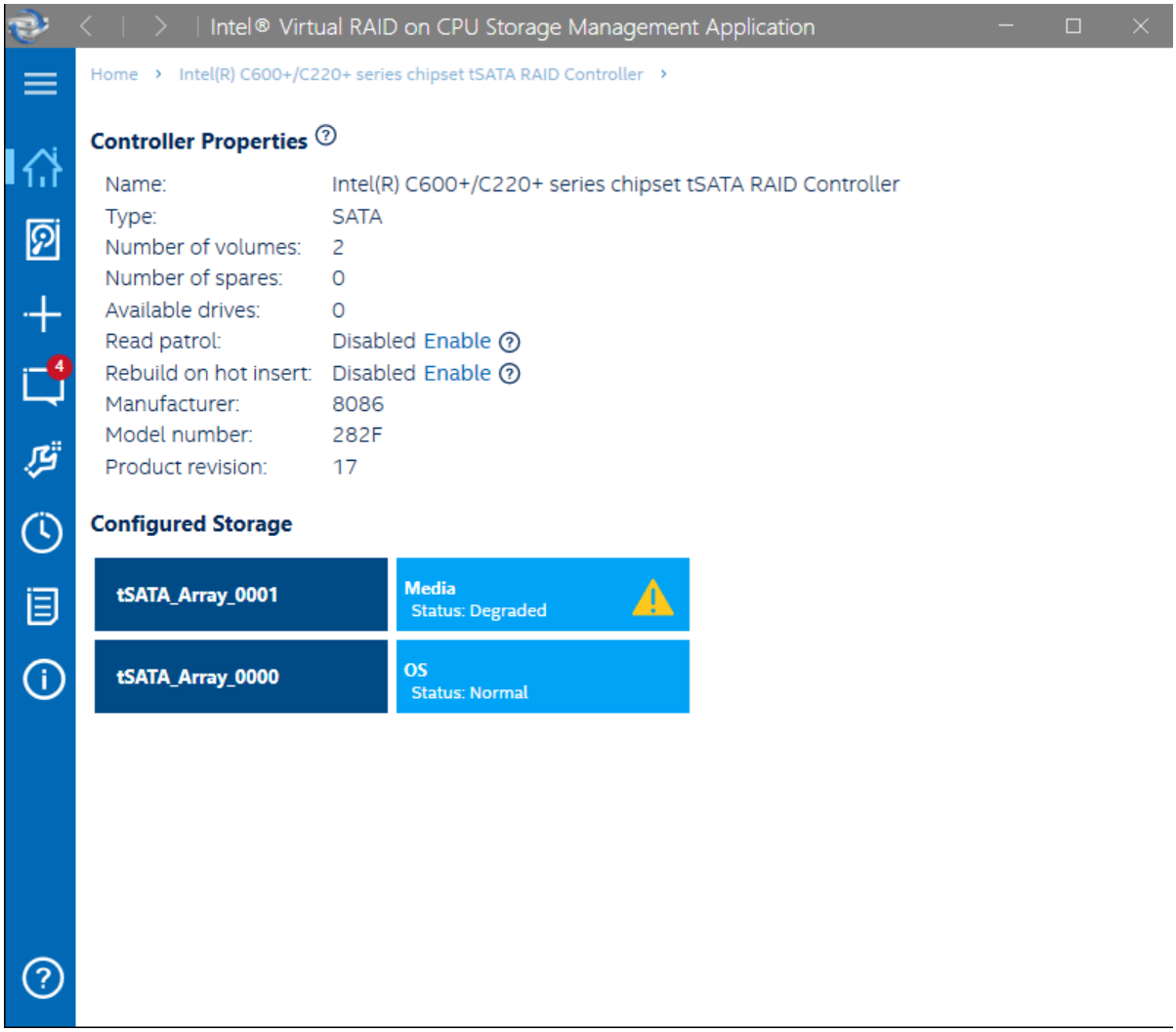
1. Open the **Intel Virtual RAID on CPU**.

   The **Status** section displays the yellow warning icon(⚠) and reports that data may be at risk.



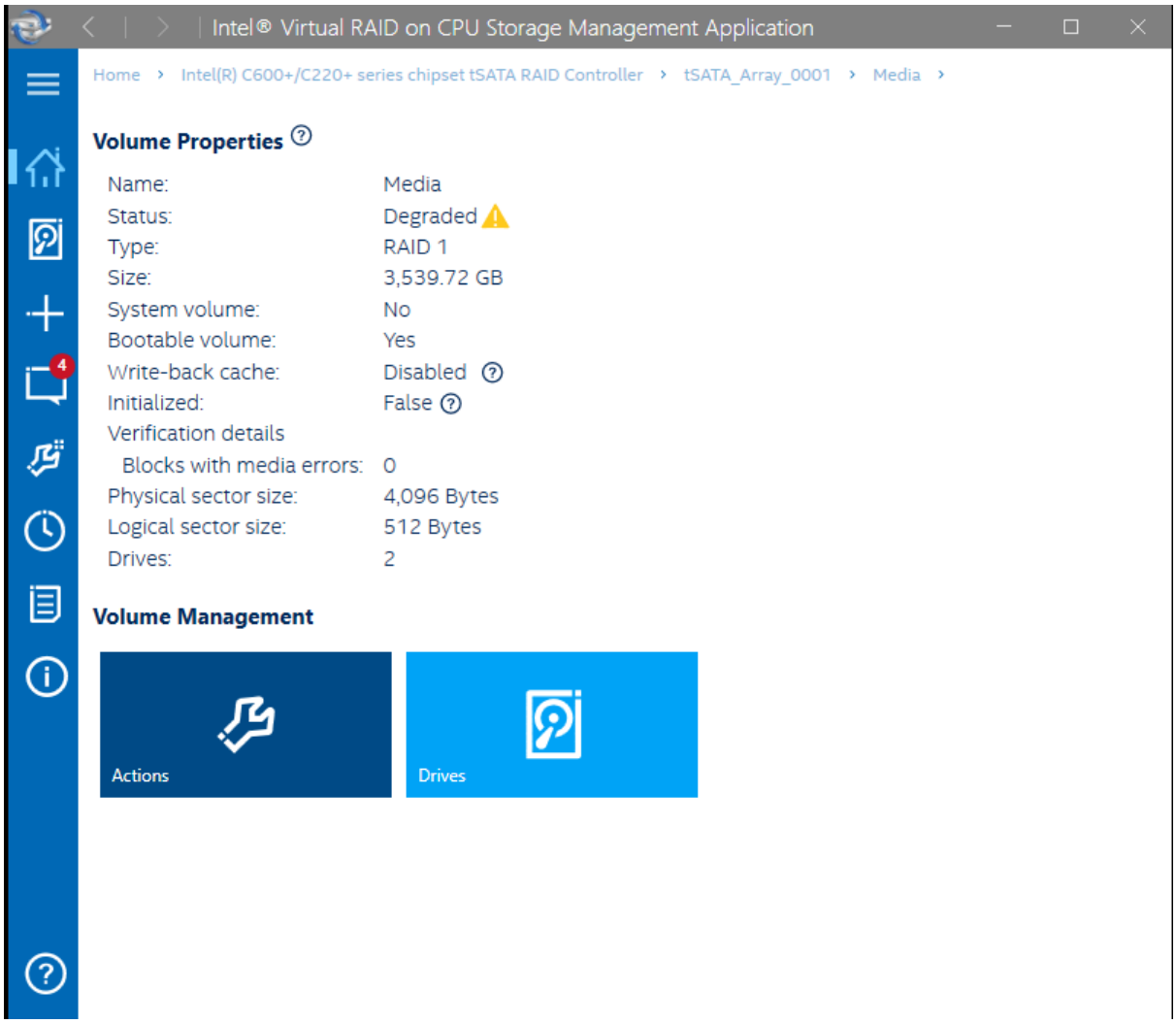
2. In the **Summary** section, select the **Inter(R) C600+/C220+ series chipset tSATA RAID Controller**.

   The **Controller Properties** section opens and indicates that the **Media** is in a degraded status (⚠).



3. Select **Media**.

   The **Volume Properties** section opens and the **Status** displays as **Degraded** (⚠).



4. Remove the failed drive.

   For instructions on removing a drive from the chassis, refer to the procedure To remove a system drive 28.

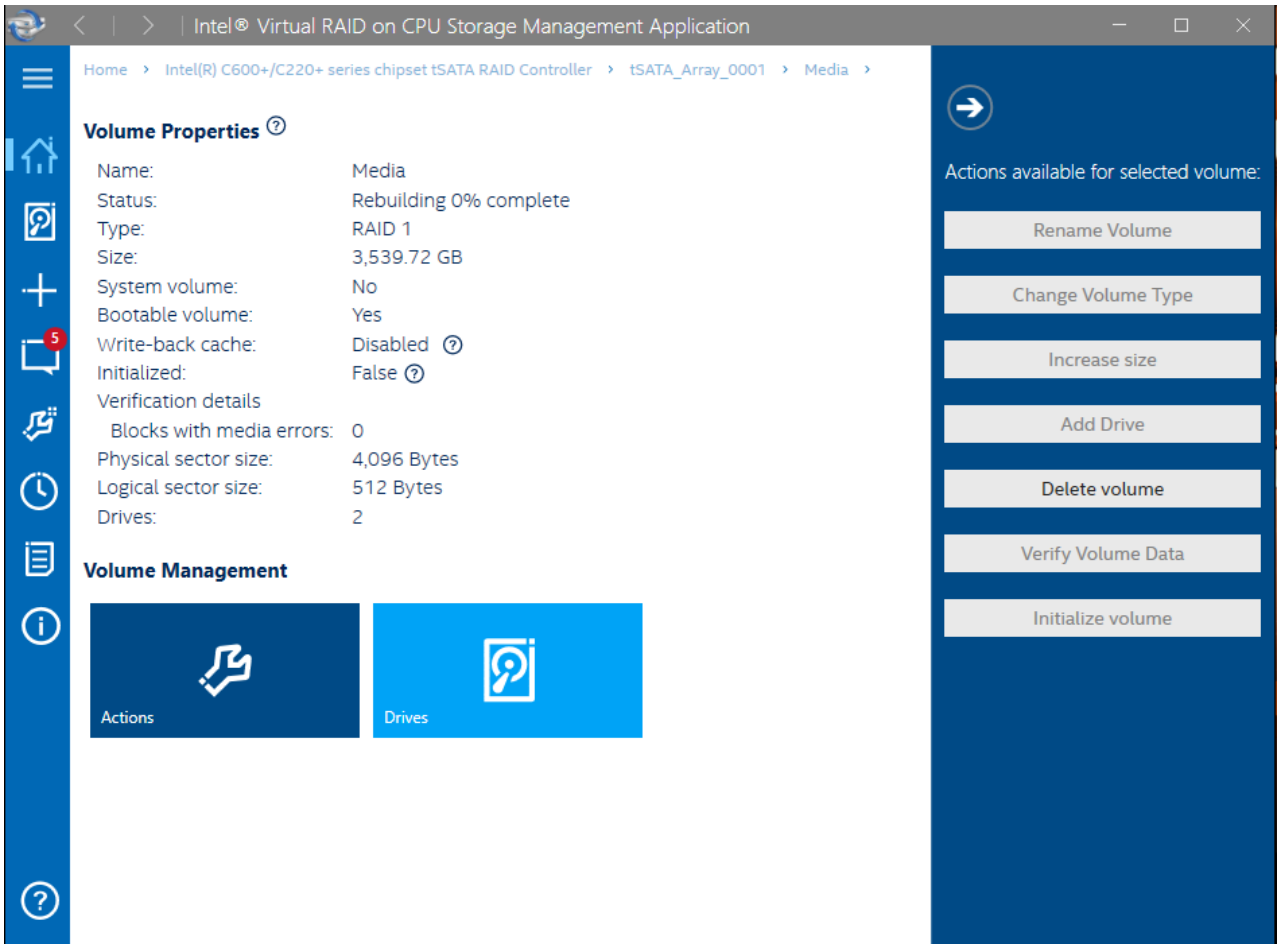
5. Insert a new replacement drive of the same size or greater.

   ★Do not use a smaller drive.

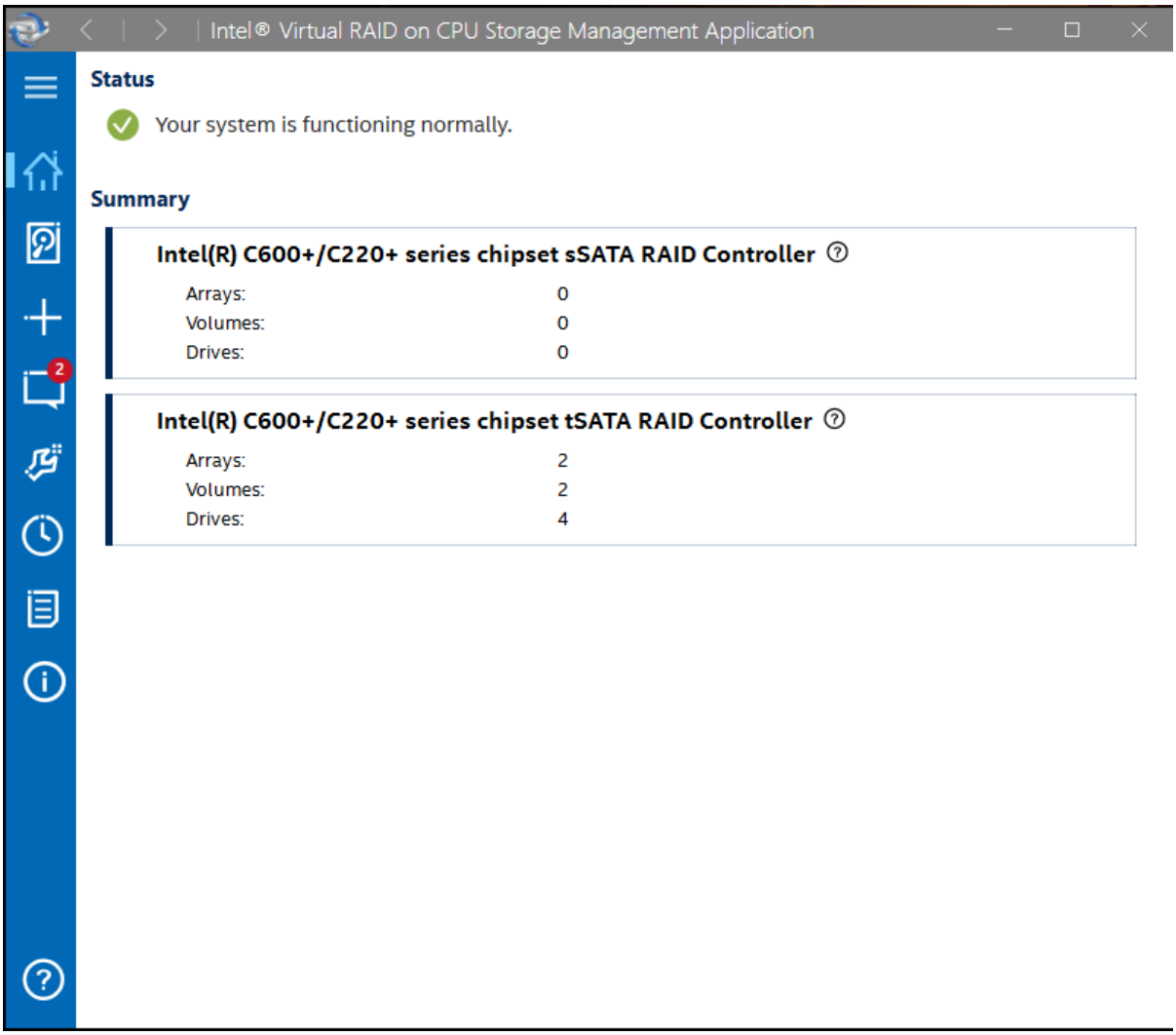
   For instructions on inserting a new drive into the chassis, refer to the procedure To install a system drive 30.

6. Once the new drive has been inserted into the chassis, select **Drives**.

   The **Status** now indicates that the drive is rebuilding.



Once the rebuild is finished, the **Status** indicates that the system is functioning normally.



For more information on:

- opening the Intel(R) Virtual RAID on CPU, refer to the procedure To open the Intel(R) Virtual RAID on CPU 22.

Hardware Maintenance

This chapter provides information on maintaining the XPression 2RU systems.

The topics described in this chapter are:

Replacing a System Drive 28

Removing and Reinstalling the Top Panel 35

Replacing Cooling Fans 39

Replacing Power Supplies 51

Accessing the USB Security Dongle 54

★This section uses images from the XPression 2RU SDI system for demonstrative purposes.

Caution — *Danger of explosion if the system lithium battery is incorrectly replaced. Replace **only** with the same or equivalent type of battery recommended by the manufacturer. A qualified service person must dispose of the used batteries according to the manufacturer's instructions.*

Replacing a System Drive

This topic describes how to replace a system drive by first removing the old drive, and then installing a new drive. The XPression system drives are capable of being hot-swapped while the system is running.

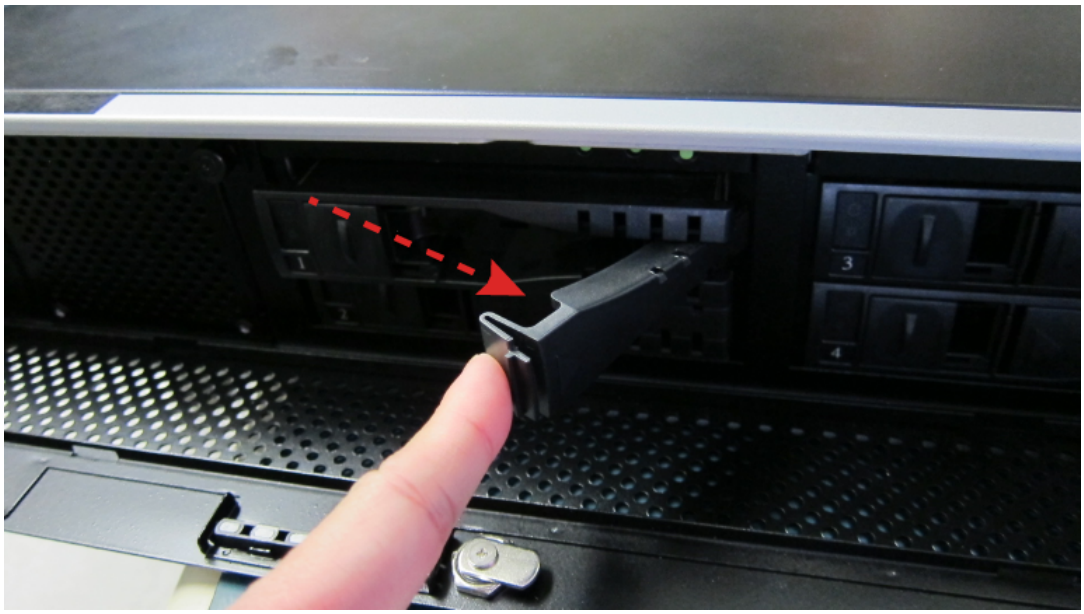
★When hot-swapping system drives, only one system drive can be removed at any time.

Protective Earth — *Static discharge can cause serious damage to sensitive devices. Avoid handling any hard drive in high static environments such as carpeted areas and when synthetic fiber clothing is worn. Touch the chassis to dissipate static charge before removing hard drives from the system, and exercise proper grounding precautions when working around the XPression system.*

To remove a system drive:

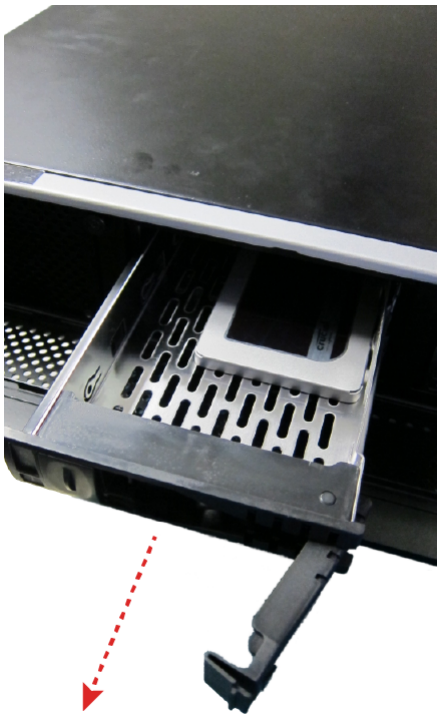
1. Open the front door of the XPression 2RU system.
2. On the front of the drive sled, slide the lock button to the left to unlock the drive sled lever.

3. Press the left end of the drive sled lever and pull the lever outward.



4. Gently slide the drive sled out of the drive bay using the black lever.

   As the drive sled is pulled from the drive bay, place a hand underneath it for support.



5. Using a Phillips head screwdriver, remove the four screws from the drive sled.

6. Gently remove the drive from the drive sled, placing it to one side on a flat surface.

   The drive sled is now empty and ready for the installation of a new drive.

To install a system drive:

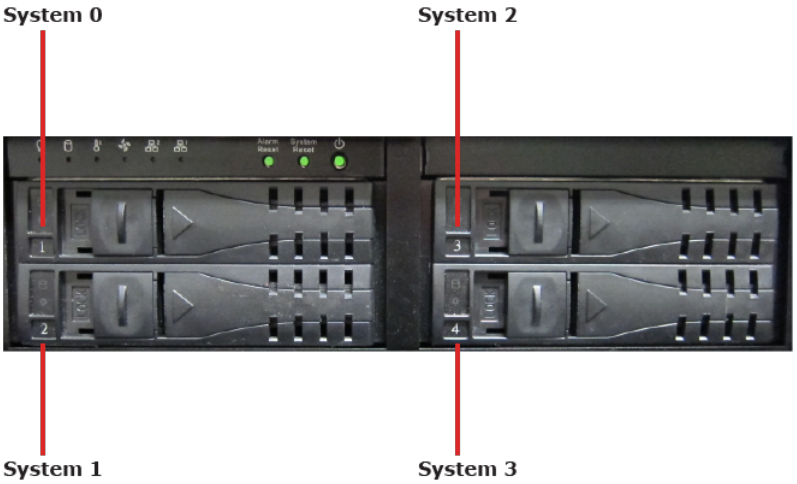
1. Place the new drive onto the sled with the with label facing upwards and the connectors at the open end of the sled.

2. Align the 4 screw holes on the drive with the screw holes on the bottom of the sled.

3. Insert the 4 screws into the screw holes, and tighten using a Phillips head screwdriver.

The drive is now ready to be re-inserted into the XPression system.

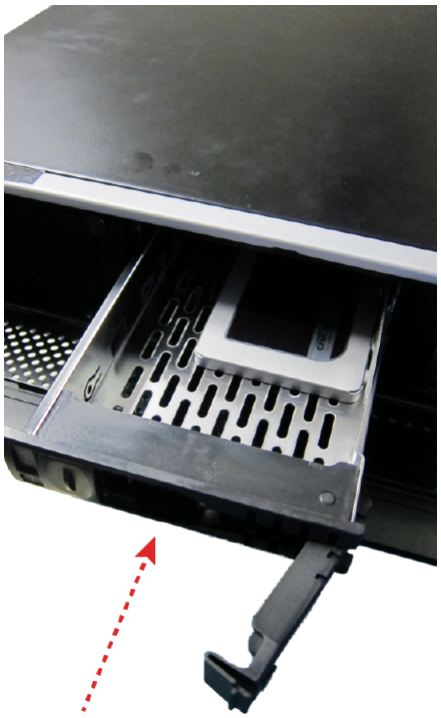
4. Use the drive bay map below to locate the drive in the XPression system that matches the drive sled being returned to the XPression system.



★The drive number on the drive sled is not representative of the drive number in the storage manager software. The physical numbers on the drive sleds represent the system drives in the RAID storage manager as follows:

- Drive Sled 1 = System 0
- Drive Sled 2 = System 1
- Drive Sled 3 = System 2
- Drive Sled 4 = System 3

5. If the drive sled lever has been closed and relocked since removal:
    a. On the front of the drive sled, slide the lock button to the left to unlock the drive sled lever.
    b. Then press the left end of the drive sled lever and pull the lever outward to open it.
6. Align the drive sled so that the rear connector area is at the bottom of the drive sled and facing the correct drive bay for the drive sled.
7. Slide the drive sled into the drive bay.



8. Push the drive sled firmly into place and close the black lever flush to the drive sled face.

9. Slide the lock button to the right to lock the drive sled lever.

The green LED on the bottom left-hand side of the drive sled activates to indicate that the drive is connected to the system.

10. Close the front door of the XPression 2RU system.

For more information on:

- hard drive replacement, refer to the section: Hard Drive Maintenance 20.

Removing and Reinstalling the Top Panel

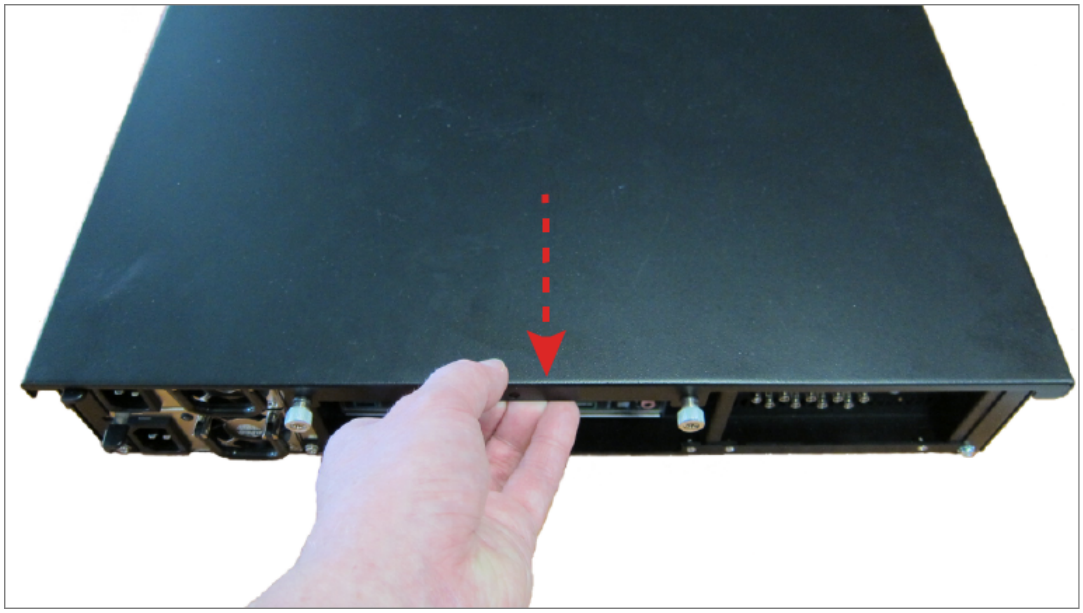
The top panel can be removed to gain access to internal components such as fans and cards. This topic describes how to first remove, and then reinstall the top panel of the XPression 2RU system.

Caution — *Do not operate the XPression 2RU system with the top panel removed.*

To remove the top panel of the XPression 2RU system:

1. Shut down the XPression 2RU system, remove all cabling, remove the system from the equipment rack, and place the system on a flat, non-slip surface.
2. Loosen the 2 thumbscrews at the back of the XPression 2RU system until the top panel can be separated from the chassis.

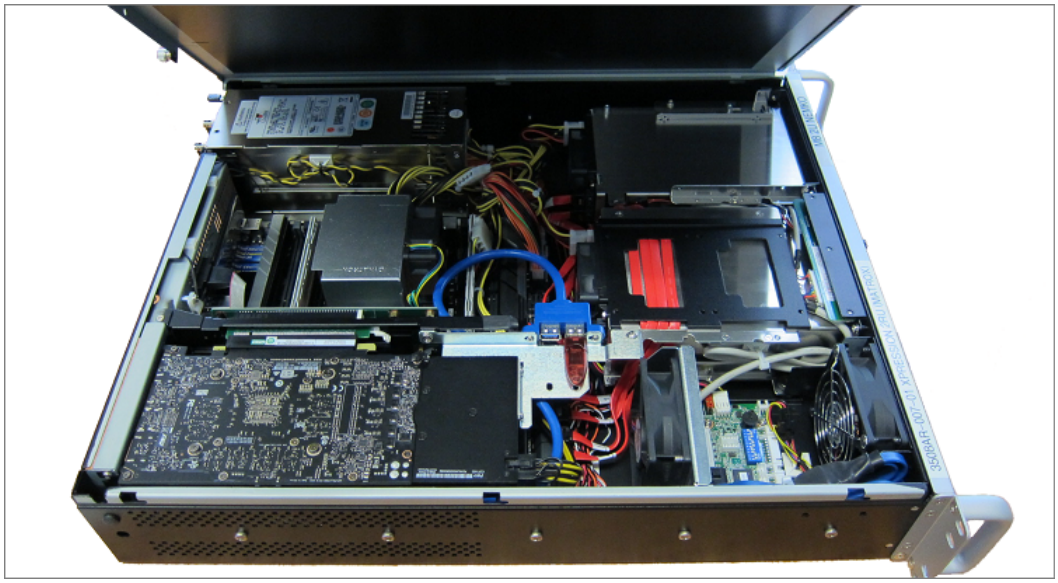
3. Gently pull the top panel back towards the rear of the unit, creating a gap between the top panel of the unit and the front of the chassis.



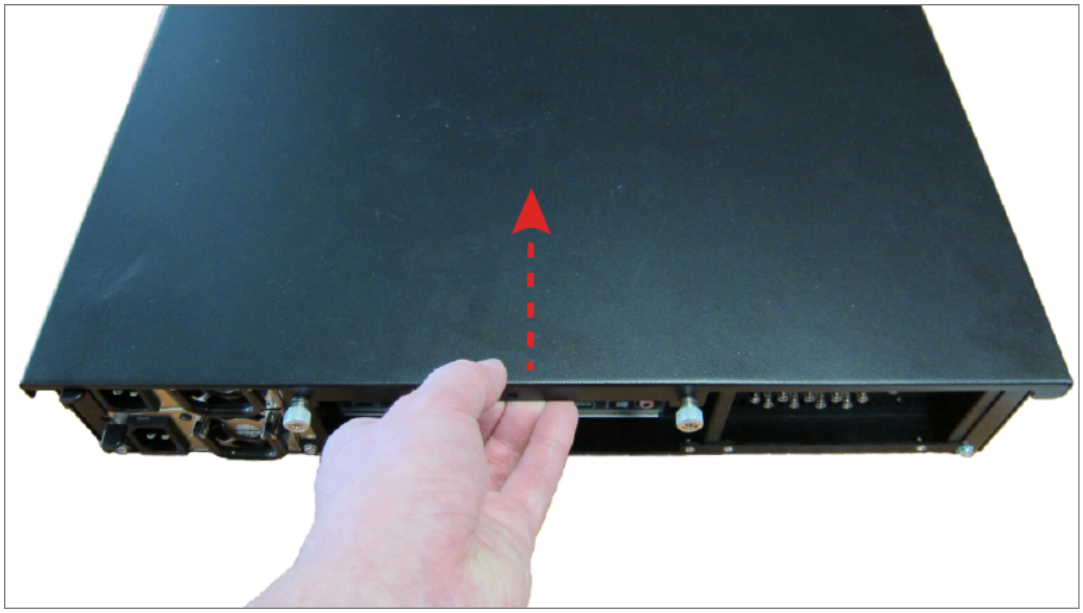
4. Lift the top panel off the chassis.

To reinstall the top panel of the XPression 2RU system:

1. Place the top panel onto the top of the XPression 2RU system as follows:
   a. Face the sides of the top panel down around the sides of the system.
   b. Line up the 3 nubs on the inside of the sides of the top panel with the L-shaped grooves on the sides of the system.



2. Gently slide the top panel into place until the top panel is flush to the front top of the XPression 2RU system.



3. Insert and tighten the two thumbscrews into the back of the XPression RU system.

Replacing Cooling Fans

The XPression 2RU system has 5 cooling fans. There are 4 cooling fans in the XPression 2RU system that can be replaced if they fail, 1 front chassis fan, 1 inside chassis fan, and 2 system drive fans.

This topic describes:

Replacing the Front Chassis Fan 40

Replacing the Inside Chassis Fan 45

Replacing the System Drive Fans 48

There is 1 fan on the CPU cooler. To replace the CPU cooler fan, please contact Ross Video Technical Support (techsupport@rossvideo.com) for assistance.

★The XPression 2RU system must be shut down when replacing the cooling fans.

Protective Earth — *Static discharge can cause serious damage to sensitive devices. Avoid handling any hard drive in high static environments such as carpeted areas and when synthetic fiber clothing is worn. Touch the chassis to dissipate static charge before removing hard drives from the system, and exercise proper grounding precautions when working around the XPression system.*

★If a fan fails, the fan failure alarm will trigger. Refer to the section Power and Alarm LED Area 6 for further information on XPression 2RU system hardware alarms.

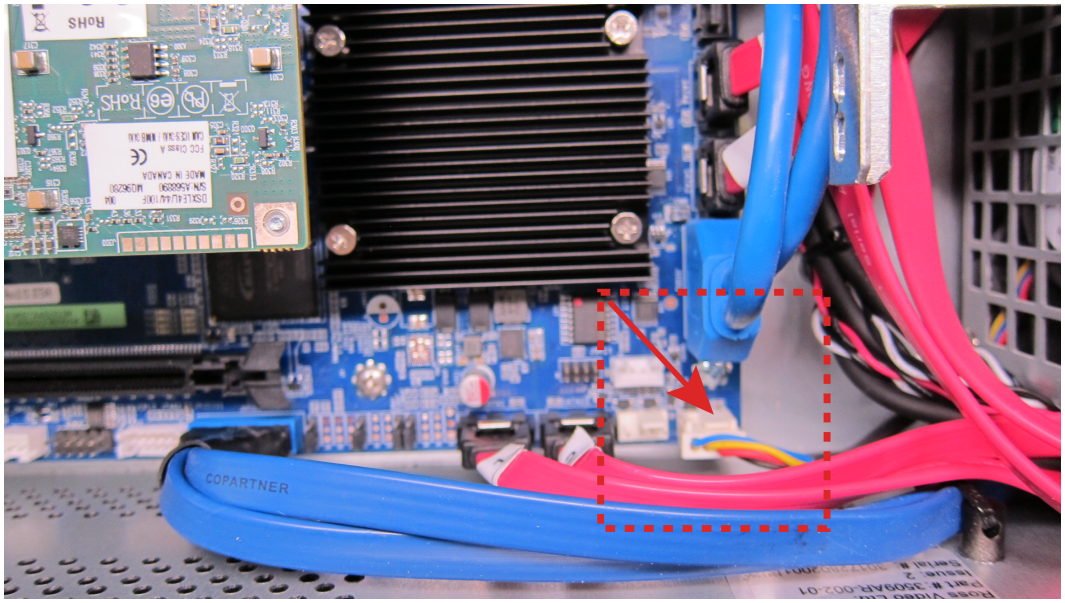
Replacing the Front Chassis Fan

This section describes how to remove and reinstall the front chassis fan.

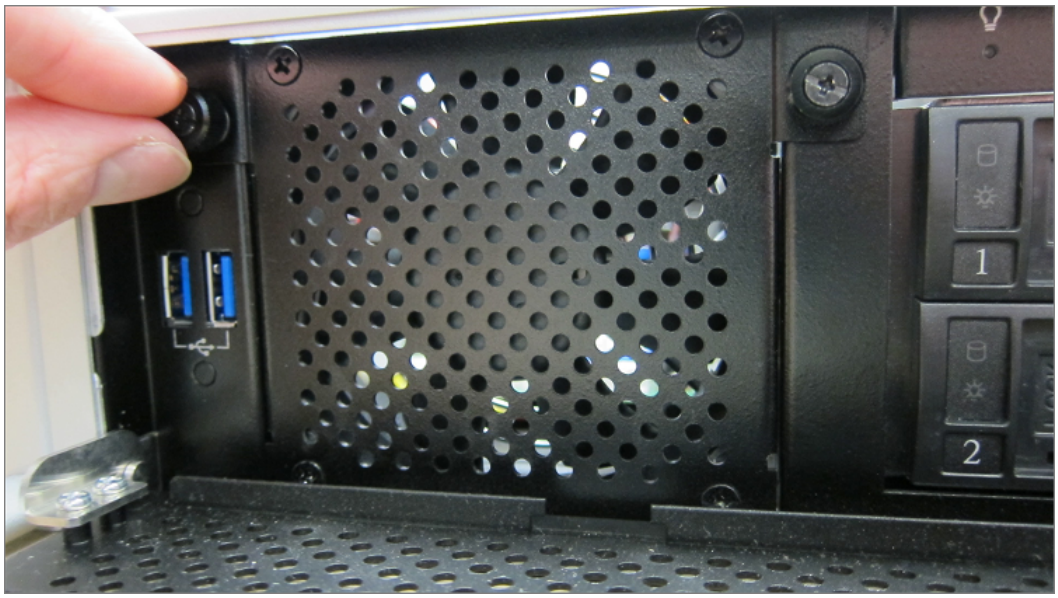
To remove the front chassis fan:

1. Shut down the XPression 2RU system, remove all cabling, remove the system from the equipment rack, and place the system on a flat, non-slip surface.
2. Remove the top panel from the XPression 2RU system.

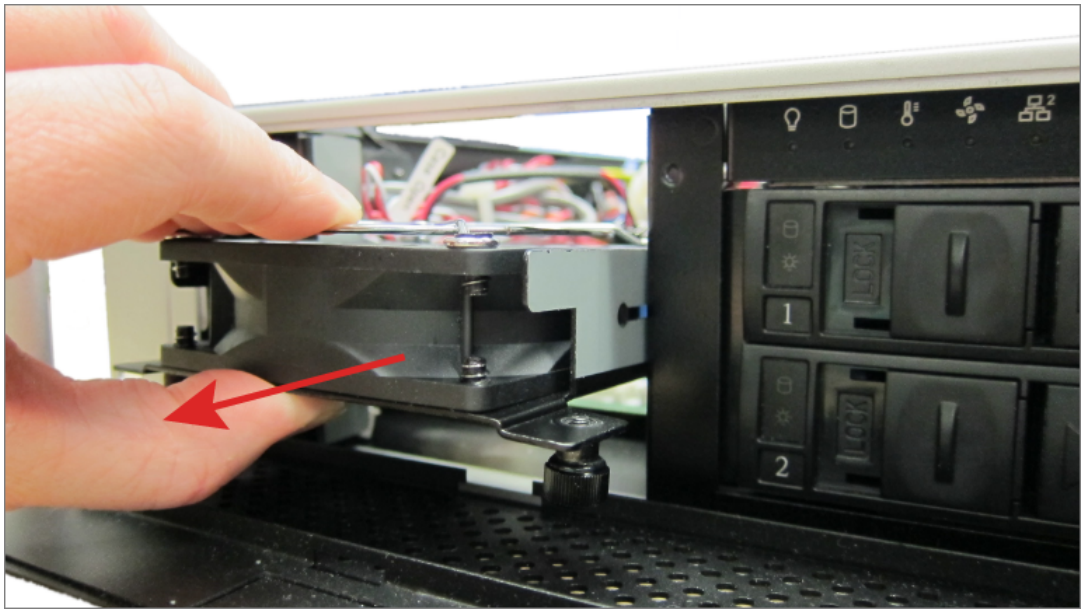
   Refer to the procedure To remove the top panel of the XPression 2RU system 35 for instructions.
3. Disconnect the front chassis fan power supply wire.



4. Open the front door of the XPression 2RU system.
5. Loosen the 2 thumb screws on the front fan cage until the fan cage is separated from the chassis.

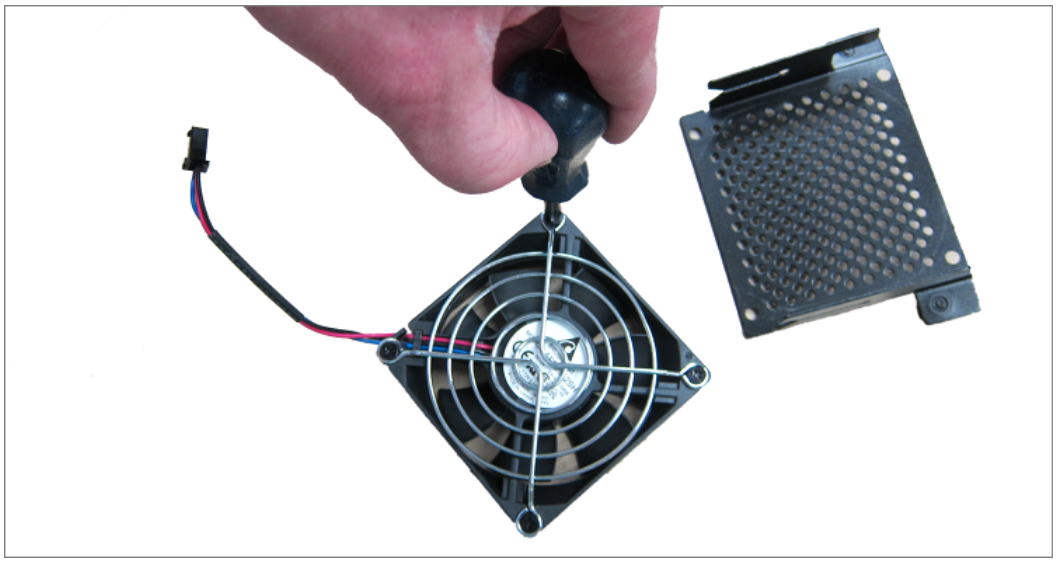


6. Tilt the top of the front fan cage downward and then slide it forward to remove from the XPression 2RU system.



7. Using a Phillips head screwdriver, remove the 4 screws from the fan cage.

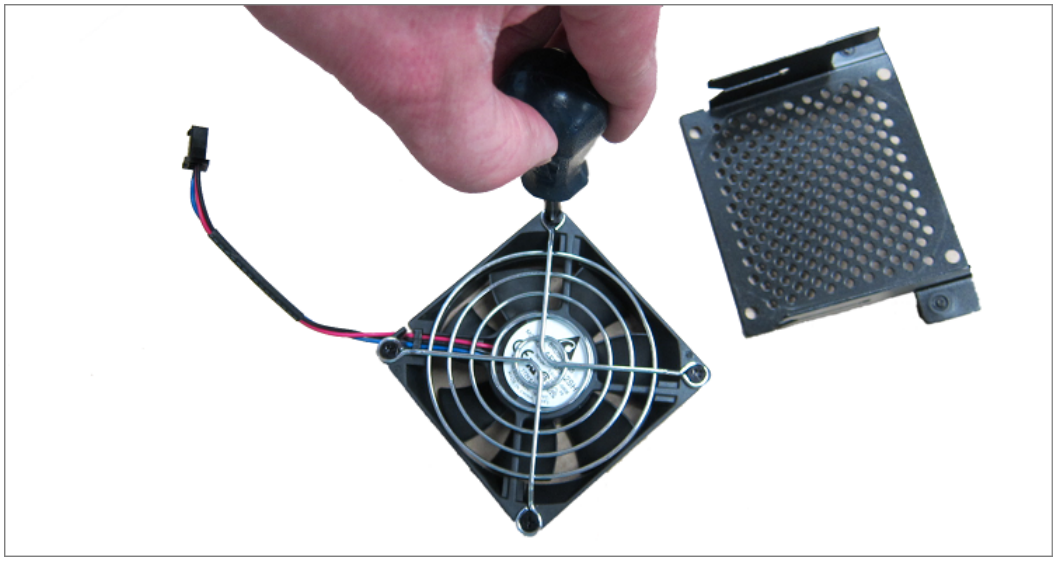
8. Remove the 4 screws from the fan grill and remove the grill.



The fan is now removed and ready for replacement.

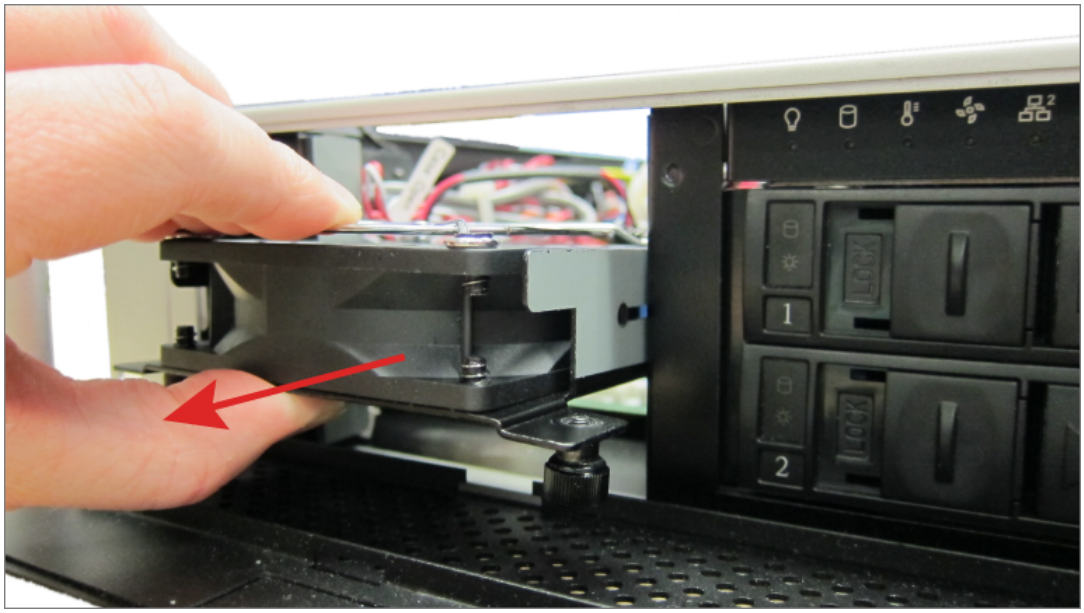
To install the front chassis fan:

1. On the side of the fan with the wires and label, place the fan grill on the fan and insert and tighten the 4 Phillips head screws into the screw holes.

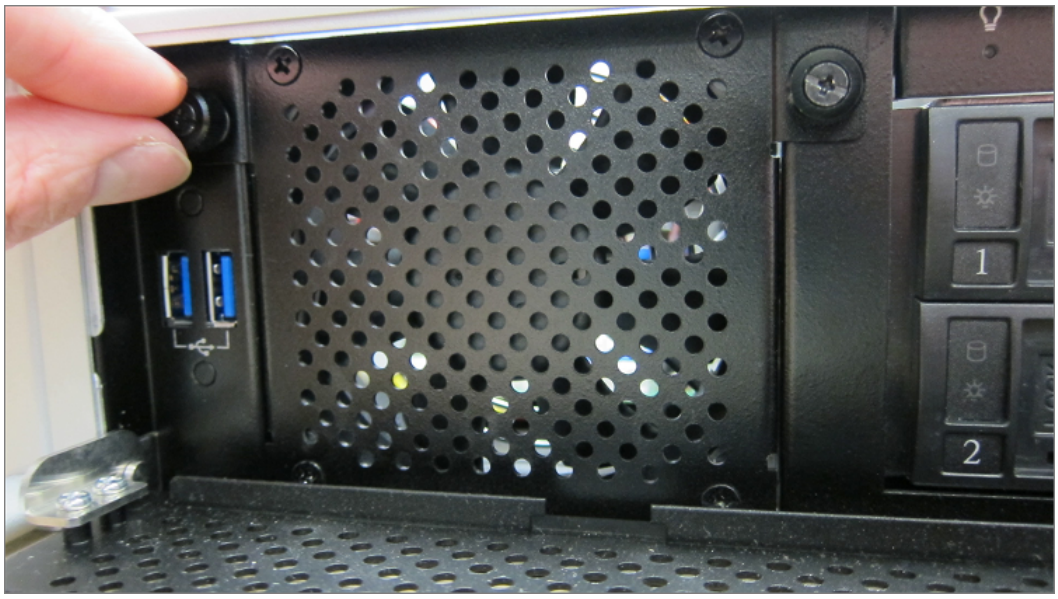


2. On the opposite side to the fan grill, place the fan cage on the fan and insert and tighten the 4 Phillips head screws in the screw holes.

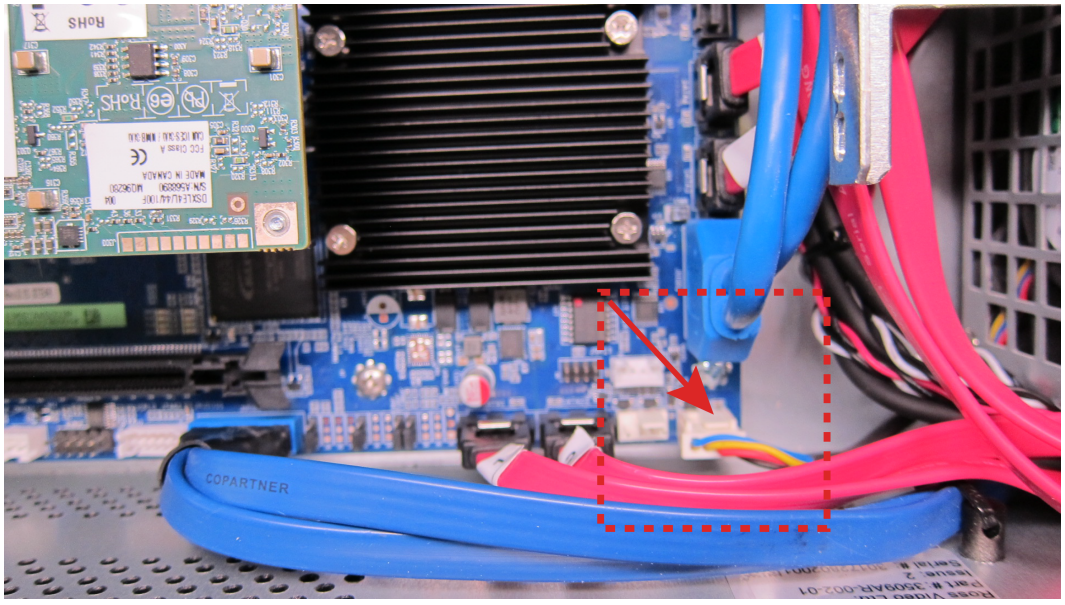
3. With the thumbscrews facing down and the fan wire inside the chassis, align the inserts on the side of the fan cage with the nubs on the chassis and slide the fan cage inward.



4. Tilt the front fan cage upward and tighten the 2 thumb screws on the front fan cage.



5. Connect the front chassis fan power supply wire.



6. Replace the top panel.

   Refer to the procedure To reinstall the top panel of the XPression 2RU system 37 for instructions.

7. Close the front door of the XPression 2RU system.

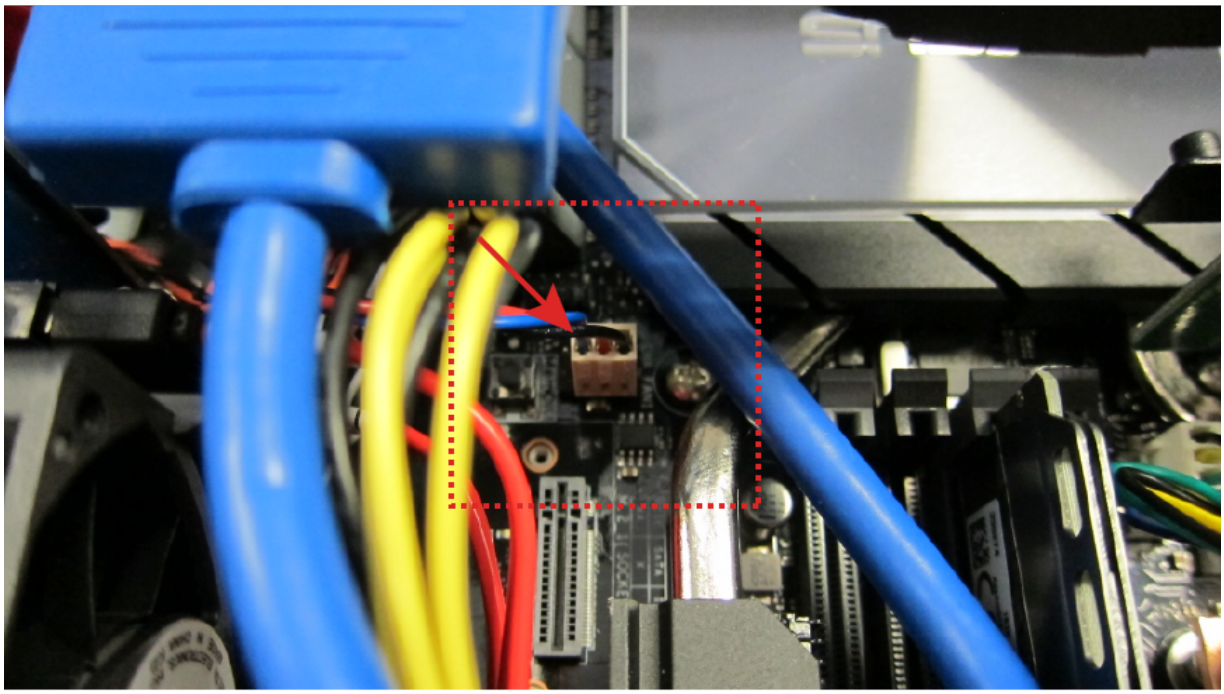
Replacing the Inside Chassis Fan

This section describes how to remove and reinstall the inside chassis fan.

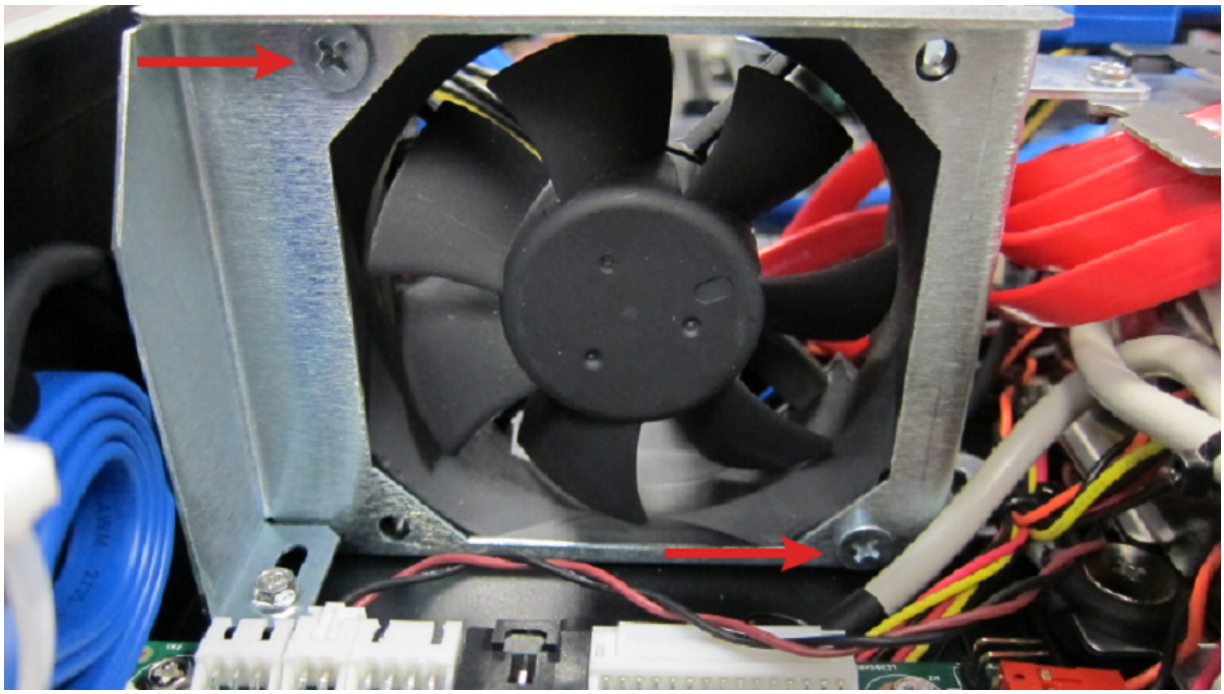
To remove the inside chassis fan:

1. Shut down the XPression 2RU system, remove all cabling, remove the system from the equipment rack, and place the system on a flat, non-slip surface.
2. Remove the top panel from the XPression 2RU system.

   Refer to the procedure To remove the top panel from the XPression 2RU system 35 for instructions.
3. Disconnect the inside chassis fan power supply wire.



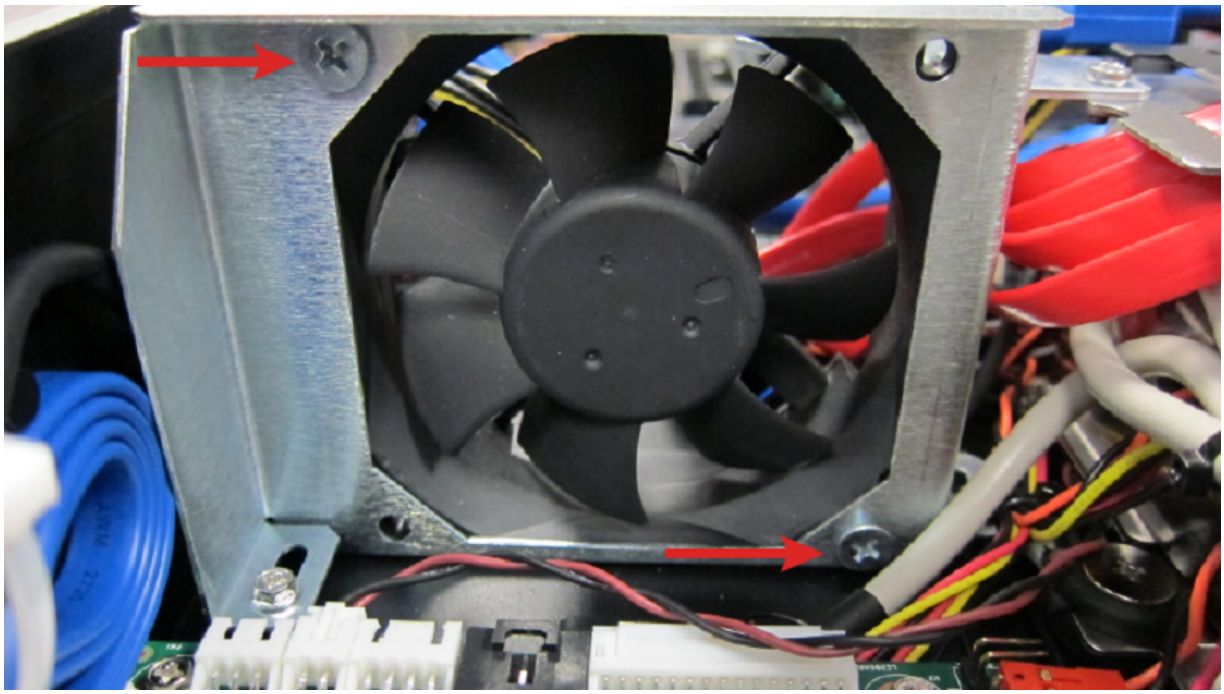
4. Using a Phillips head screwdriver, remove the 2 screws from the fan cage.



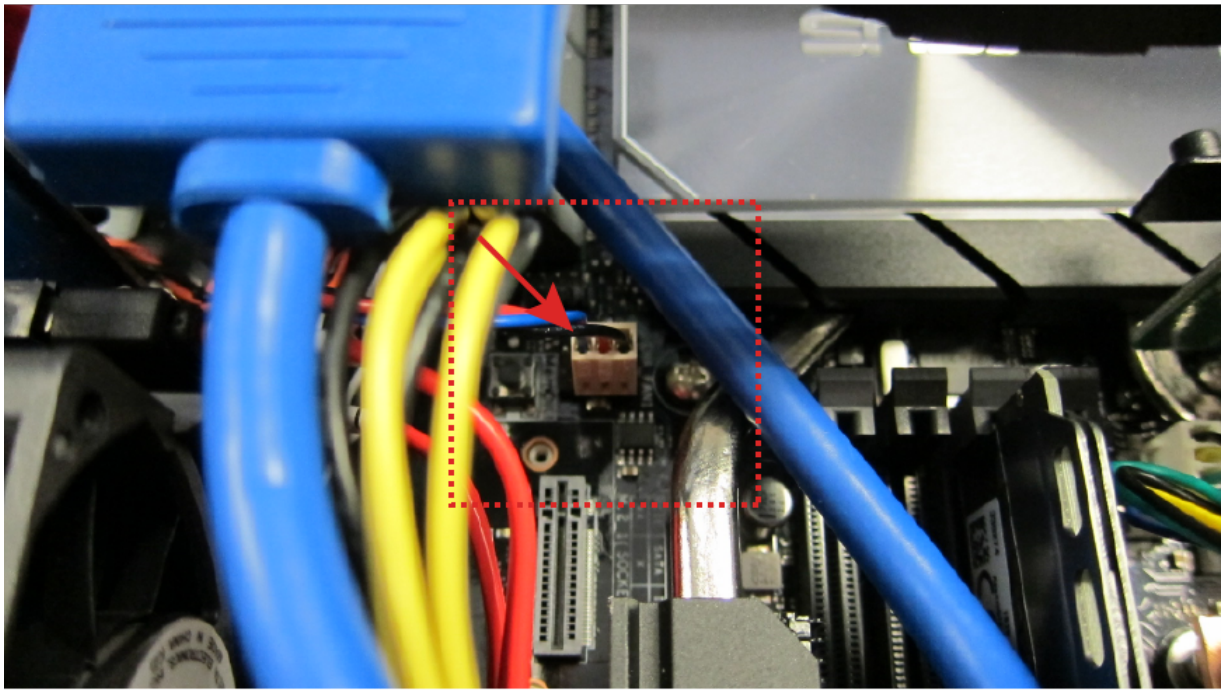
5. Remove the fan from the cage.

To install the inside chassis fan:

1. Line up the fan screw holes with the fan cage screw holes.
2. Insert the 2 screws into the fan cage screw holes, and tighten using a Phillips head screwdriver.



3. Connect the inside chassis fan power supply wire.



4. Replace the top panel from the XPression 2RU system.

   Refer to the procedure To reinstall the top panel of the XPression 2RU system 37 for instructions.

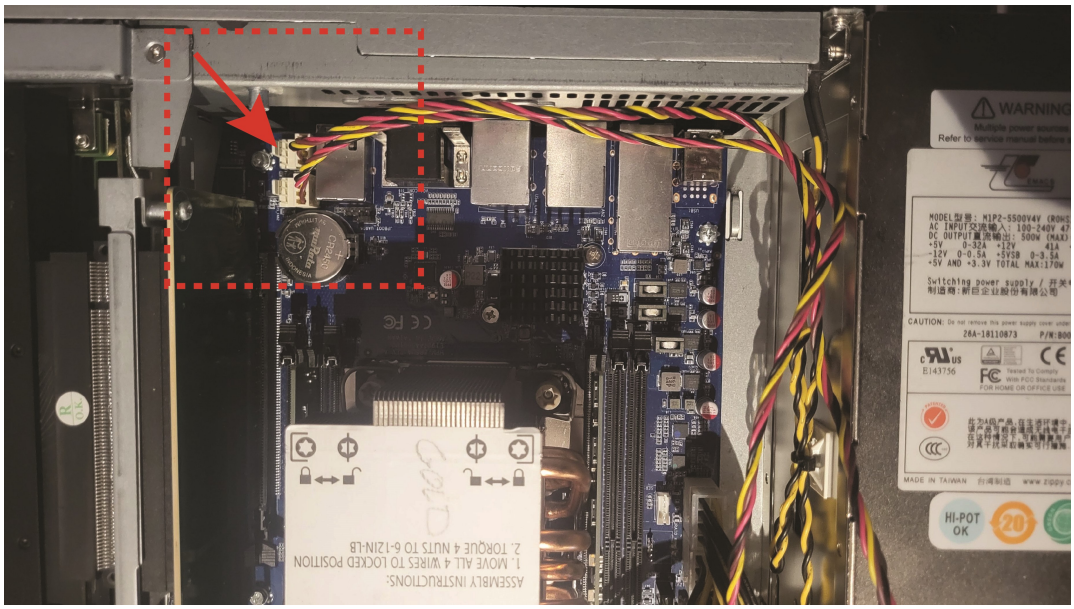
Replacing the System Drive Fans

This section describes how to remove and reinstall the system drive fans.

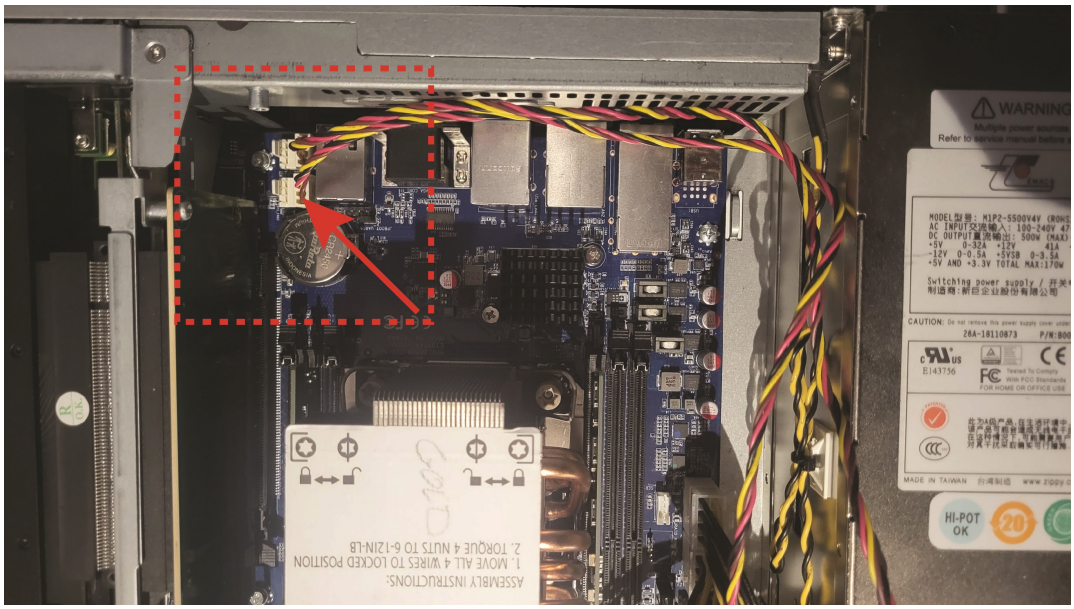
To remove a drive cage fan:

1. Shut down the XPression 2RU system, remove all cabling, remove the system from the equipment rack, and place the system on a flat, non-slip surface.
2. Remove the top panel from the XPression 2RU system.

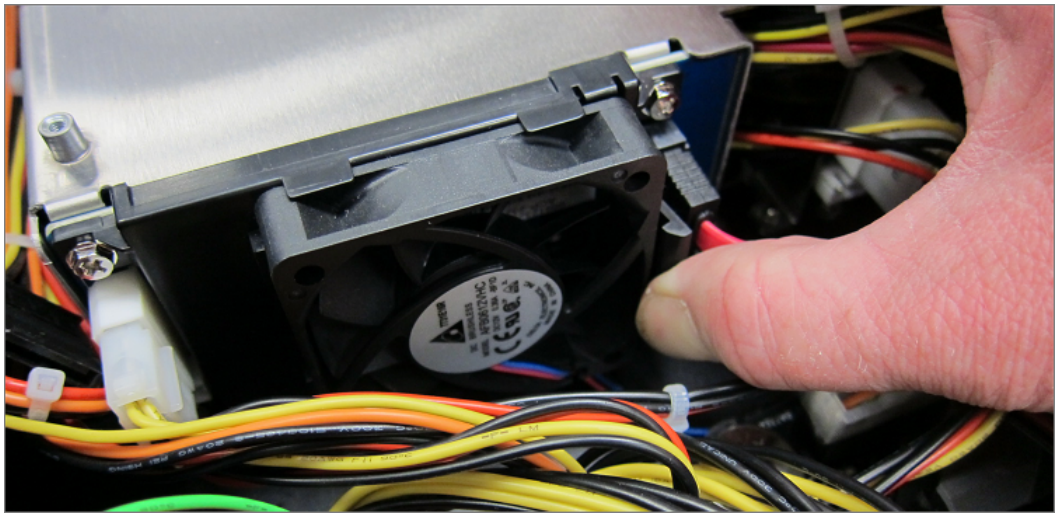
   Refer to the procedure To remove the top panel of the XPression 2RU system 35 for instructions.
3. Disconnect the necessary system drive fan power supply wire from the power supply:
   - Drive cage one (system drives 0 and 1):



   - Drive cage two (system drives 2 and 3):



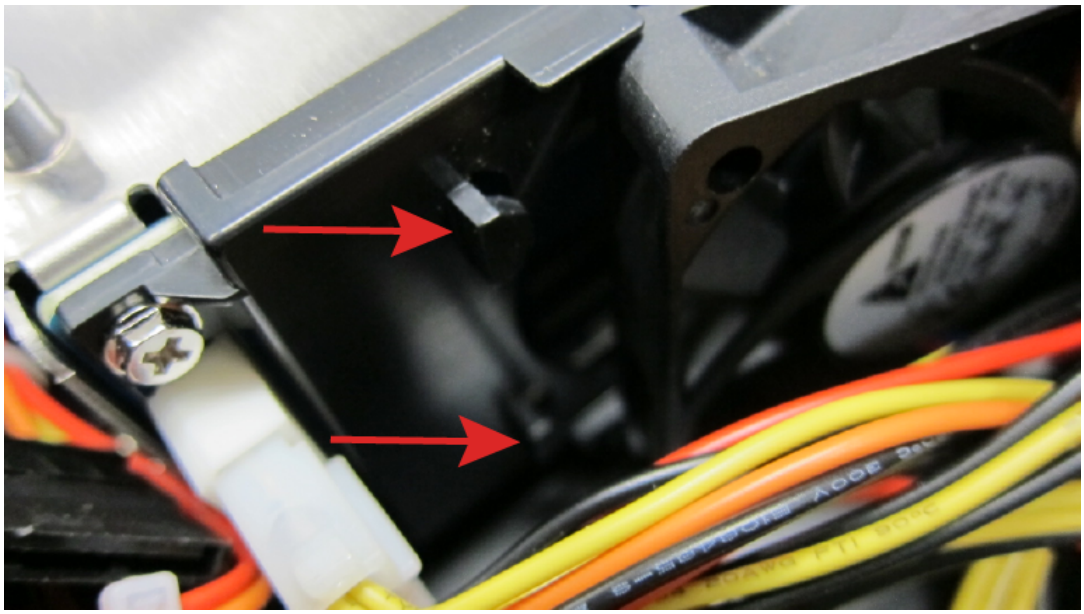
4. Push the lever outward to the right on the right side of the system drive fan casing of the respective drive cage fan.



5. Remove the fan by pulling the system drive fan casing away from the system drive cage.

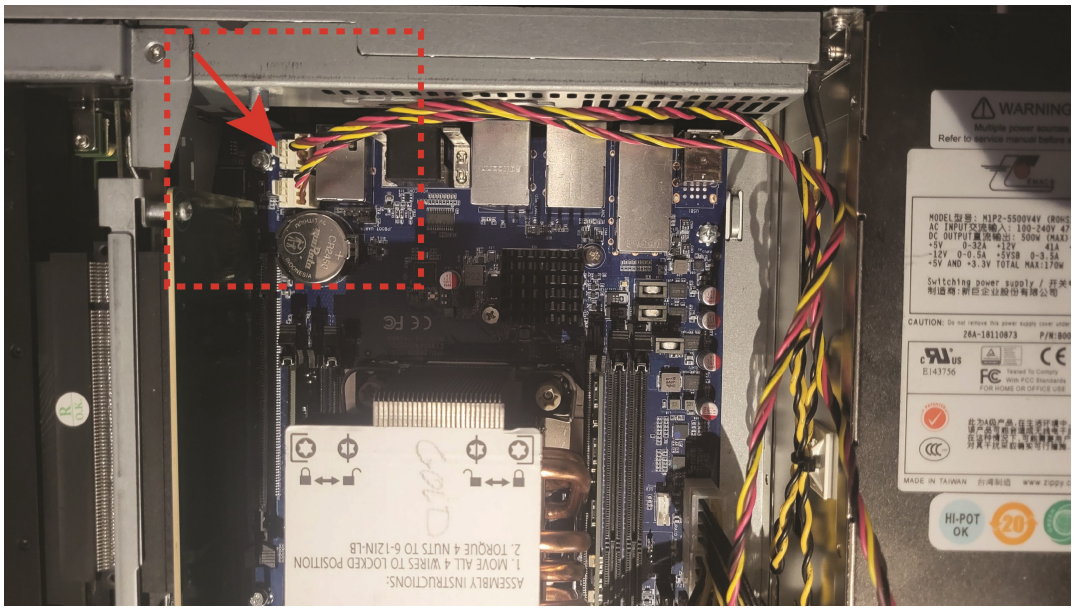
To install the system drive fan:

1. Place the left side of the fan on the 2 black clasps on the left side of the drive cage and push the right side of the fan in towards the drive cage.

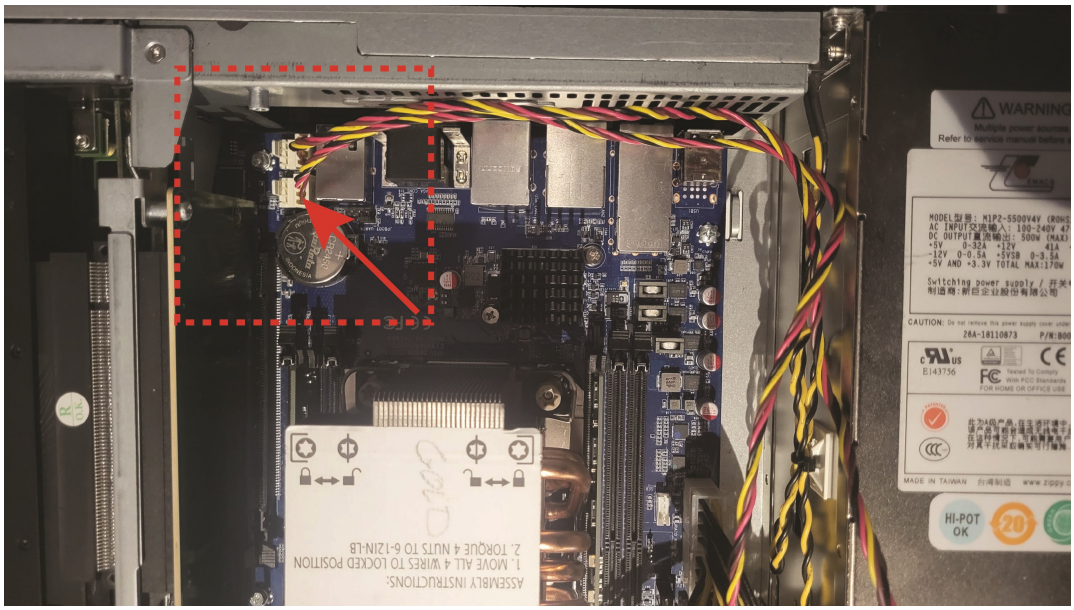


The lever that locks the fan casing in place will click when the fan is secured to the system drive cage.

2. Connect the respective system drive fan power supply wire to the power supply:
   - Drive cage one (system drives 0 and 1):



   - Drive cage two (system drives 2 and 3):



3. Replace the top panel.

   Refer to the procedure To reinstall the top panel of the XPression system 37 for instructions.

Replacing Power Supplies

The XPression 2RU system has 2 identical hot-swappable power supply modules, located at the rear of the system on the left-hand side. Since the system requires a minimum of one power supply module to operate, one power supply module can be hot-swapped at a time.

This section describes how to remove and install a power supply module.

Protective Earth — *Static discharge can cause serious damage to sensitive devices. Avoid handling any hard drive in high static environments such as carpeted areas and when synthetic fiber clothing is worn. Touch the chassis to dissipate static charge before removing hard drives from the system, and exercise proper grounding precautions when working around the XPression system.*

Keep the following safety information in mind while removing a power supply module from the XPression 2RU system:

- Always ground yourself before touching electronic equipment.
- When removing a power supply module, always support the module with both hands to help prevent dropping it.

Warning Hazardous Voltages — *Hazardous voltages capable of delivering electric shock remain within the power supply module for a period of time after removal from the system.*

Ross Video power supply modules are intended to be factory serviced by qualified Ross Video service personnel only. Users should only remove and replace the power supply modules. When removing or replacing a power supply module, follow the instructions below:

- *Disconnect the power cord from the power supply module or the power supply from AC mains before removing or replacing a power supply module.*
- *Do not open or try to remove the casing of the power supply module.*

Failure to follow these instructions can result in death or serious injury.

To remove a power supply module:

1. At the back of the XPression 2RU system, disconnect the power cord from the power supply module.
2. Push the black release lever inward to the right.

3. While pushing on the black release lever, hold the removal handle and gently pull on the power supply module to disengage the power supply module from the power supply bay.

4. Support the power supply module with your other hand, and continue pulling until the power supply module is completely removed from the power supply bay.

To install a new power supply module in the XPression system:

1. In front of the open power supply bay, align the power supply module so that the black release lever is positioned to the left-hand side.
2. Slide the power supply module into the open bay and push it firmly until it snaps into place.

3. Connect the power cord to the new power supply module.

Accessing the USB Security Dongle

You may be required to remove or replace the USB security dongle if instructed to do so by Ross Video Technical Support.

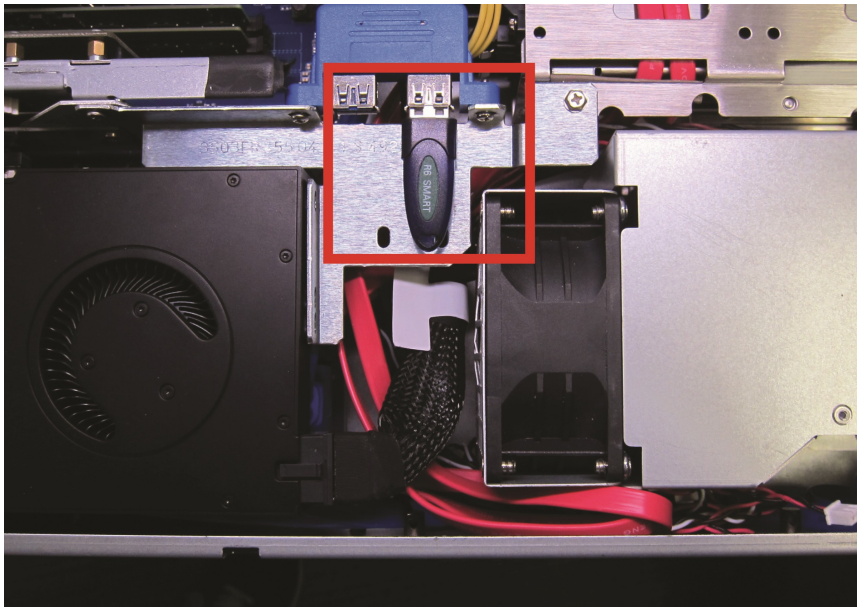
To access the USB security dongle:

1. Remove the top panel from the XPression system:

   Refer to the procedure To remove the top panel from the XPression 2RU system 35 for instructions.

2. Remove and replace the security dongle as instructed by Ross Video Technical Support.

   The USB security dongle is located above the inside chassis fan behind the front chassis fan. The security dongle connects to the XPression system via a USB interface.

   Use the second USB interface to install an additional dongle if necessary.

3. Replace the top panel.

   Refer to the procedure To reinstall the top panel of the XPression 2RU system 37 for instructions.

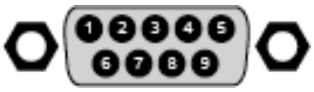
Appendix A: RS232 Pinouts

This appendix provides information on the RS232 port pinouts.

XPression offers two **GPI** options:

- **GPI 1**: Data Set Ready pin 6 and pin 7
- **GPI 2**: Clear to Send pin 8 and pin 7

The RS232 port can also be used for CII using the XPression CII Gateway option.



The following table lists the signals associated with each pin of the RS232 port.

Table A.1 RS232 Pinouts

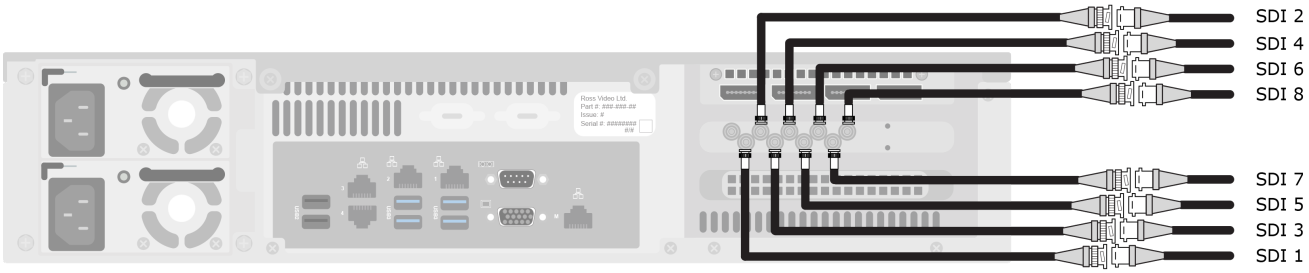
Pin #	Signal
1	Data Carrier Detect
2	Received Data
3	Transmitted Data
4	Data Terminal Ready
5	Signal Ground

Pin	Signal
6	Data Set Ready
7	Request to Send
8	Clear to Send
9	Ring Indicator

★When creating an RS232 GPI trigger, create a device that short-circuits either pin 8-7 or 6-7 on the nine pin female connector. No additional power can be added to the circuit or it will damage the RS232 port.

Appendix B: HD-BNC Input and Output Configuration

This appendix provides information on the HD-BNC cables and the accompanying input and output configurations.



The following table lists the possible input and output configurations for the HD-BNC connectors on the XPression 2RU system.

Table B.1 HD-BNC Configurations

HD-BNC	0 In 8 Out	1 In 7 Out	2 In 6 Out	3 In 5 Out	4 In 4 Out
1	Out 1 Fill	In 1	In 1	In 1	In 1
2	Out 2 Fill	Out 1 Fill	Out 1 Fill	Out 1 Fill	Out 2 Fill
3	Out 3 Fill	Out 2 Fill	Out 2 Fill	In 2	In 2
4	Out 4 Fill	Out 3 Fill	Out 3 Fill	Out 2 Fill	Out 2 Fill
5	Out 1Key	Out 4 Fill	In 2	In 3	In 3
6	Out 2 Key	Out 1 Key	Out 1 Key	Out 1 Key	Out 1 Key
7	Out 3 Key	Out 2 Key	Out 2 Key	Out 3 Fill	In 4
8	Out 4 Key	Out 3 Key	Out 3 Key	Out 2 Key	Out 2 Key

★Physical relays are present between HD-BNC 1 & 2, 3 & 4, 5 & 6, and 7 & 8.

Appendix C: IPMI Management LAN Port

This appendix provides information on the IPMI management LAN port for XPression systems.

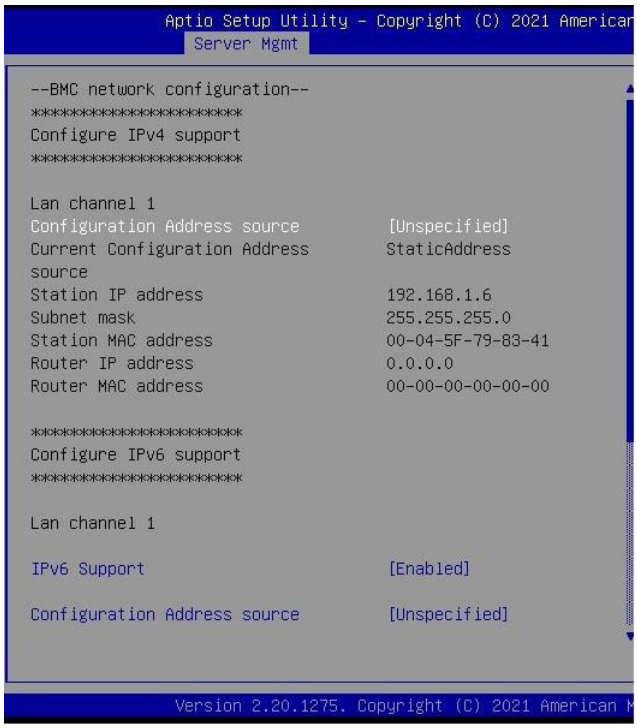
Configure the IPMI Management LAN Port

The following procedure explains how to configure the IPMI management LAN port.

To configure the IPMI management LAN port:

1. Power on the system and press **DELETE** or **ESC** to enter the BIOS.
2. In the BIOS, select **Server Mgmt** > **BMC Network Configuration** > **Configure IPv4 Support**.

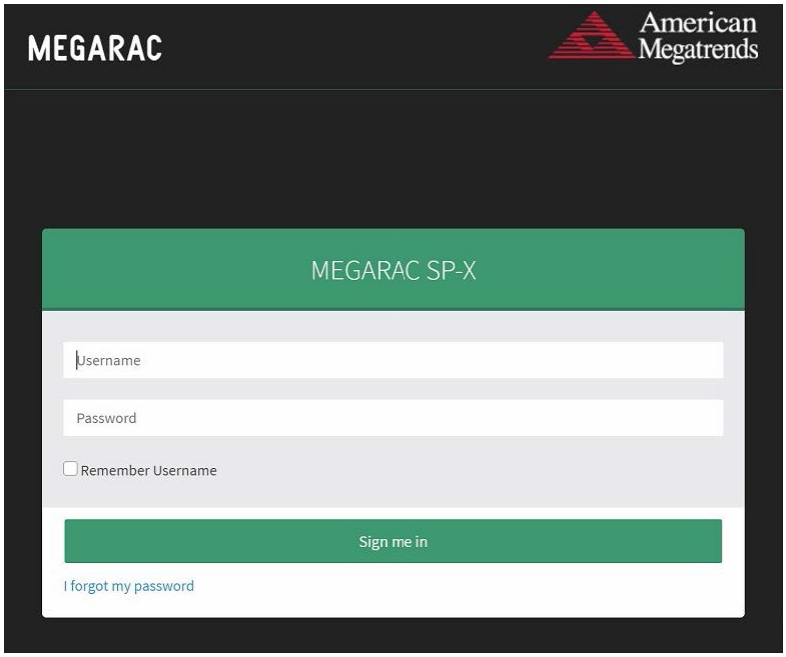
   The **Configure IPv4 Support** section of the **Server Mgmt** opens.



3. In the **Configure IPv4 support** section, select **Configuration Address source**.
4. Select **Static**.
5. Configure the IPv4 network settings to your network.
6. Connect the IPMI management LAN interface to your network.

7. From a web browser that has access to the interface on the network, navigate to the IPMI web interface using the assigned IP address.

   The login page opens.



8. Enter the login credentials (**Username**: admin, **Password:** admin) and select **Sign me in**.

Change the IPMI Interface User and Login

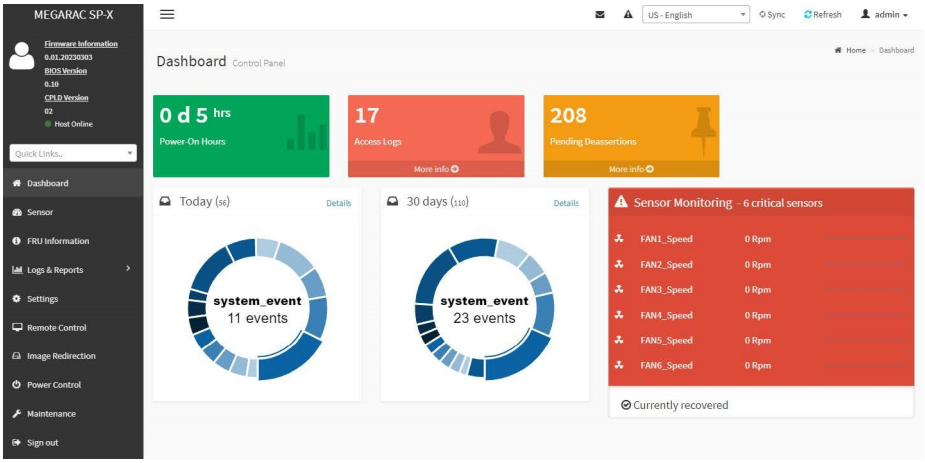
The following procedure explains how to change the IPMI interface user and login.

To change the IPMI interface user and login:

1. In the BIOS, select **Server Mgmt** > **BMC User Settings** > **Change User Settings**.
2. In **Change User Settings**:
   a. Enter a new or existing user name in **User Name**.
   b. Enter a new password in **Change User Password**.

IPMI Dashboard Interface

This section provides an overview of the IPMI dashboard interface.



1) **Firmware Information** — Displays BMC, BIOS, and CPLD firmware version.
2) **Quick Links Menu** — Use this drop-down for the available menu and sub-menu pages.
3) **Menu Bar** — Provides a list of available functions:
   - **Dashboard** — displays the overall status of the system.
   - **Sensor** — displays real-time on-board sensor status.
   - **FRU Information** — displays the system information store in FRU.
   - **Logs & Reports** — displays the IPMI event log/system event log/audit log/video log.
   - **Settings** — displays various settings related to BMC.
   - **Remote Control** — Remote control through H5view or Jview.
   - **Image Redirection** — use this to configure the images into BMC for redirection.
   - **Power Control** — use this to power on/reset/shutdown system.
   - **Fan Control** — provides several methods to control fan.
   - **Maintenance** — firmware image maintenance and factory default settings.
   - **Sign Out** — use this to log out from the web UI.
4) **Tool Bar** — Provides tools for items such as notifications, messages, and sync:
   - **Messages icon** — select the icon to view the event log alert messages. Clicking a message will navigate to the Logs and Reports page.
   - **Notification icon** — select the icon to view notifications received.
   - **Sync** — select the icon to synchronize with the latest sensor and event log updates.
   - **Refresh** — select the icon or press **F5** to reload the current page.
   - **Admin** — select this drop-down to view the logged-in user name and privileges. There are five kinds of privileges:
     - ➢ **User** — only valid commands are allowed.
     - ➢ **Operator** — all BMC commands are allowed, except for the configuration commands that can change the behavior of the out-of-hand interfaces.
     - ➢ **Administrator** — all BMC commands are allowed.
     - ➢ **No Access** — login access denied.
     - ➢ **OEM** — all OEM commands are allowed.

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