Jupiter

Catalyst V Hardware Manual

Canvas Enabled

September 29, 2022

A-CAV-000-01, Rev. C

Notice of Regulatory Compliance

Note: 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 (RF) energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case users will be required to correct the interference at their expense. The user is cautioned that changes or modifications not expressly approved by Jupiter can void the user's authority to operate this equipment. The entire risk of the use or the result of the use of this Hardware and Software and documentation remains with the User. Information in this document is subject to change without notice. No part of this document may be reproduced, transmitted, transcribed, stored in a retrieval system, or translated into any language in any form or by any means, electronic or mechanical, including photocopying without express written permission of Jupiter. See also "Statement of Limited Warranty" on page 43.

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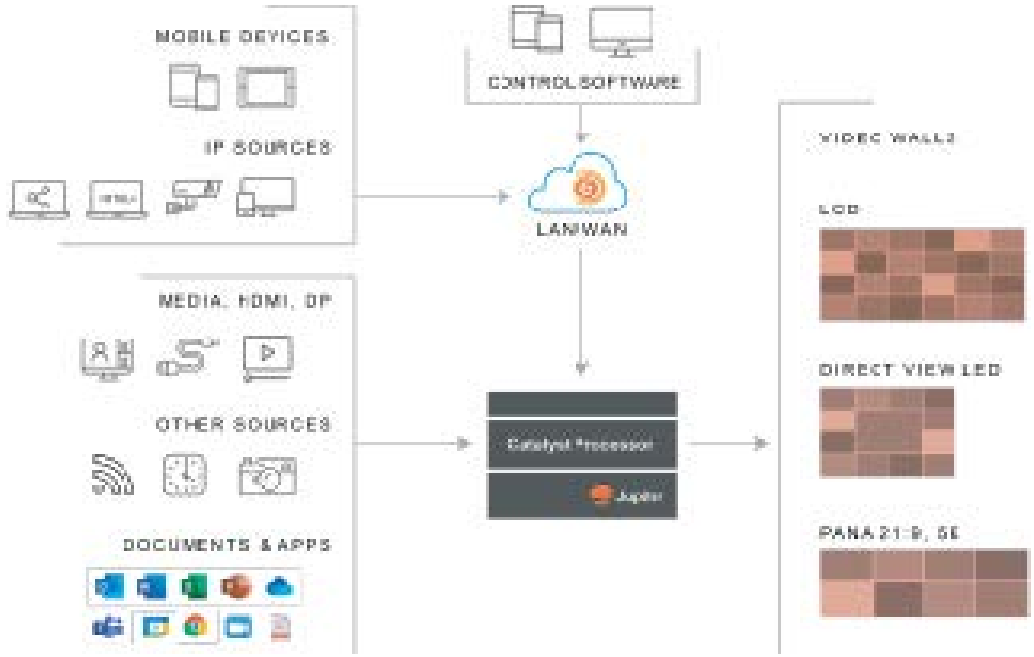
Chapter 1
INTRODUCTION

Catalyst display processors capture, distribute, display, and control digital and analog video streams. Catalyst input boards capture a wide variety of source signals and output boards display them on a single display or display wall array.

1.1 Solution Architecture

The Catalyst scaling and communications engine allows a single source to be replicated into 1,2 or 4 independently scaled windows, depending on the resolution and frame rate. This architecture provides the flexibility needed for control room projects, large or small.

Figure 1.1: Catalyst Solution Architecture



1.2 Catalyst V

The Catalyst V Windows 10 is a powerful, ultra-quiet, feature rich video processor designed for small to medium sized configurations.

- Latest power i9 processor
- Windows 10 Operating System
- Up to 16 4K inputs
- Standalone or Canvas Enterprise
- Compatible with Pana 21:9, 5K displays
- Compatible with LCD, LED, cubes and projectors display technologies
- RAID & redundant power suppliesWeb/VNC/Application support

1.2.1 Output Resolution

The Catalyst V Series feature hardware that supports 4K resolutions on the inputs and up to 5K outputs (with 4-540-337-00 output board).

1.2.2 PCI Express

Throughout the Catalyst product line, the full performance of PCI Express Gen 3 is leveraged. PCI Express 3.0 is a switched environment which creates a network of peripherals with the opportunity to communicate to other peripherals without waiting for access to shared resources (i.e. the bus) at the full performance of the interconnect. Jupiter uses a fully integrated, single switch, architecture that ensures every input or output can work at full speed. Systems with increasing configurations, in terms of inputs and outputs, no longer require a compromise in performance.

Chapter 2

CATALYST V HARDWARE SPECIFICATIONS

Catalyst V features

- Web/VNC Application support
- HDCP compliant
- Standalone or Canvas Enterprise
- Compatible with PANA 21:9, 5K displays
- Compatible with LCD, LED, cubes and projectors display technologies
- RAID & redundant power supplies

2.1 Catalyst V Chassis

The Catalyst V Chassis is a3RU, 19" chassis with five PCIe slots.

Figure 2.1: Catalyst V Chassis with Cover

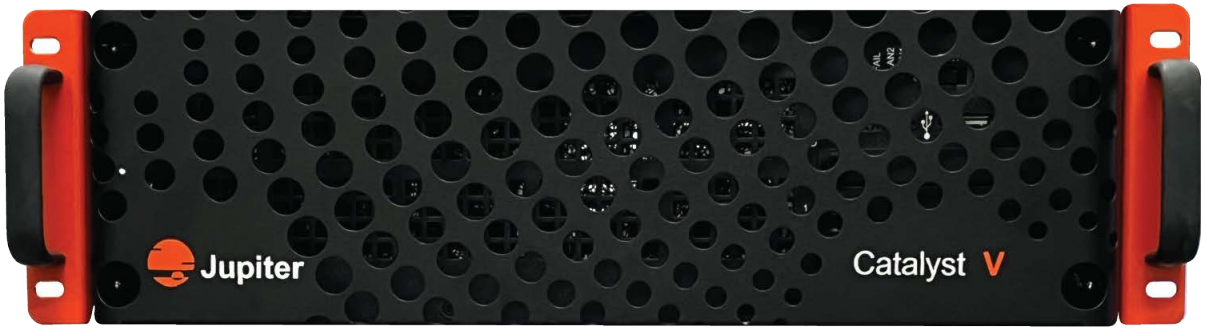


Figure 2.2: Catalyst V Chassis Front Panel, Cover Removed

Figure 2.3: Catalyst V Chassis Rear Panel

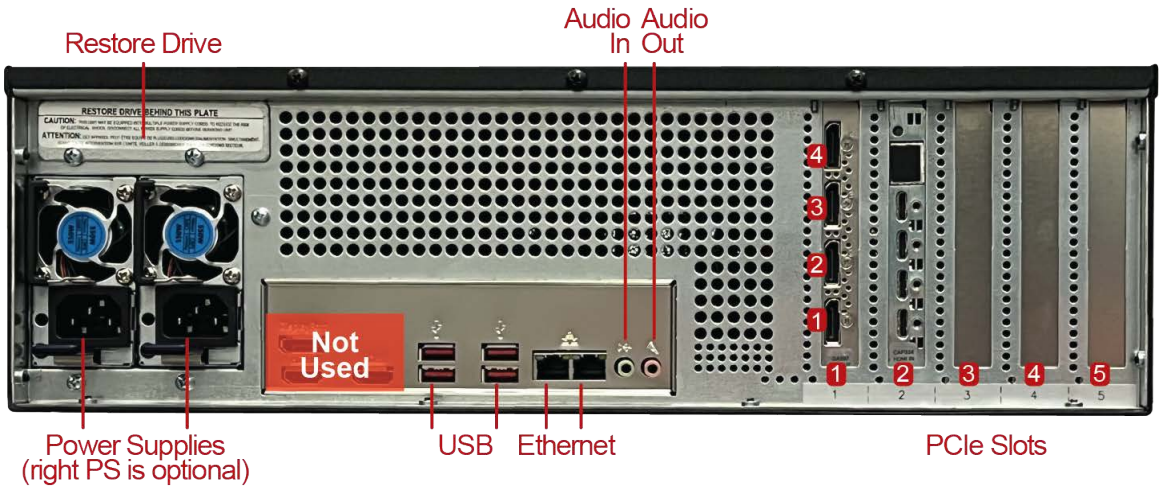


Table 2.1: Catalyst V Chassis Feature Specifications

System
Intel® Core™ i9 2.8 GHz, i5 4.1 GHz, i3 3.2 GHz
250GB Solid State Drive (SSD) (Optional 2nd and 3rd SSDs and 500GB and 1TB SSDs)
16 - 64GB DDR4 SODIMM (32GB standard)
PCI Express 3.0 Chassis, five 8 Lane slots
Front Panel
2x USB 2.0 ports
Power switch
FAIL, LAN, drive activity and POWER LEDs
Back Panel
5 slots for Input and Output Cards
Power supplies (one standard and one optional)
2 Ethernet ports, 100/1000 Mbps RJ45
4x USB 3.0 ports
Audio in/out jacks
1 DisplayPort (not used for display wall)
2 HDMI Ports (not used for display wall)

Table 2.1: Catalyst V Chassis Feature Specifications

Configuration Capacity	
up to 16	3840X2160@60Hz outputs
up to 3	5120X2160@60Hz outputs
up to 4	4K30p DVI HDCP inputs
up to 4	4K60p HDMI inputs
up to 8	4K30p HDMI inputs
up to 16	1080p HDMI inputs

Table 2.2: Catalyst V Chassis Power Specifications

Rated voltage range	100–240 VAC auto ranging
Maximum power	500W nominal
Frequency range	50–60 Hz

Table 2.3: Catalyst V Chassis Mechanical Specifications

Rack mount chassis	19” x 16.5” x 5.25” (W x D x H)
Weight	22 lbs
Shipping weight	40 lbs.

Table 2.4: Catalyst V Chassis Environmental Specifications

Parameter	Operating	Non-Operating
Temperature	32°–104° F (0°–40° C)	14°F-150°F (-10°C - 66°C)
Relative Humidity (Non-Condensing)	10% - 90%	5–95%
Maximum Altitude	10,000 ft	10,000 ft

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Chapter 3

CHASSIS CONFIGURATION

The Catalyst V Chassis has 5 PCI-E Gen 3 slots, numbered left to right.

Figure 3.1: Catalyst V Chassis Rear Panel

PCIe Slots

The slots in the Catalyst V Chassis are allocated to specific functions:

- Input Boards may be in slots 2-5.
- Output Boards may be in slots 1-4.

Slots are numbered from left to right. Ports on a board are number from bottom to top.

Table 3.1: Chassis Slot Allocations

Slot Number	Boards
1	Output Board
2	Output, Input Boards
3	Output, Input Boards
4	Output, Input Boards
5	Input Board

Figure 3.2 Board Allocation Example 1 has 4 Output (also called Graphics) boards in slots 1-4 and an Input (also called Capture) board in slot 5.

Figure 3.2: Board Allocation Example 1

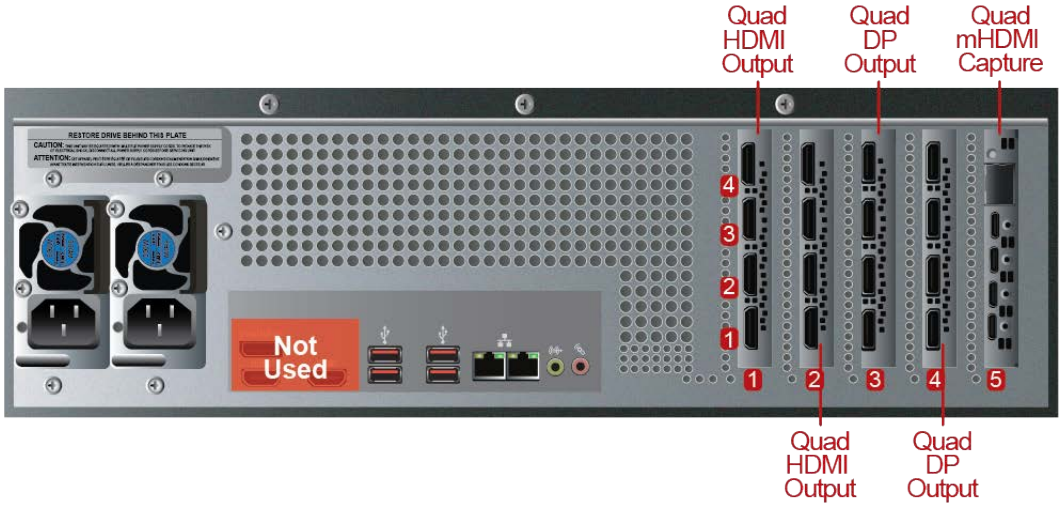
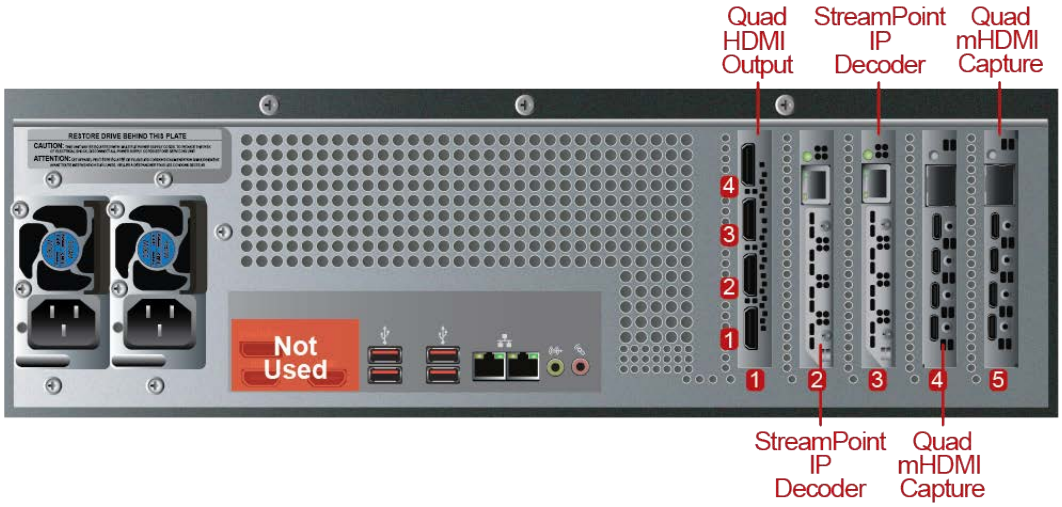


Figure 3.3 Board Allocation Example 2 has 1 Output in slot 1 and Input boards in slots 2-5. The IP Decorder board is also and Input/Capture board.

Figure 3.3: Board Allocation Example 2



Chapter 4

BOARDS AND ACCESSORIES

Catalyst V is a modular design which provides for adding or swapping input boards, output boards or multi-monitor control boards. Catalyst input boards capture a wide variety of source signals and output boards display them on a single display or display wall array. Mulit-monitor control boards extend the number of display a single output can support.

4.1 Output Boards

Jupiter output boards have advanced capabilities:

- Drive up to four high resolution displays (DisplayPort or HDMI)
  - 5K DP output may be extended to 4 FHD HDMI with J4DPe multi-monitor board
  - 4K HDMI may be extended to 4 FHD HDMI with J4HDMIe multi-monitor board
- Smooth video playback and graphics performance with up to 4 GB of graphics memory
- Secure connectors
- HDCP Compliant

4.1.1 Quad DisplayPort Graphics (3-540-337-00)

The Quad DisplayPort Output has 4 x DP 1.4 video outputs. Maximum resolution 4x 5120x3200 @ 60Hz.

Figure 4.1: Quad DisplayPort Graphics Output Board

Table 4.1: Quad DisplayPort Graphics Output Specifications

Bus Type	PCIe 3.0 x16
Video Output Connectors	4x DisplayPort 1.4
Maximum Resolution	4x 5120x3200 @ 60Hz
Memory	4 GB GDDR5
HDCP Compliance	Yes
Cooling	Active
Power Consumption	50 W

4.1.2 Quad HDMI Output (3-540-338-00)

The Quad HDMI Output has 4 x HDMI video outputs. Maximum resolution 4x 4096x2160 @ 60Hz

Figure 4.2: Quad HDMI Output Board

Table 4.2: Quad HDMI Output Specifications

Bus Type	PCIe 3.0 x16
Video Output Connectors	4x HDMI
Maximum Resolution	4x 4096x2160 @ 60Hz
Memory	4 GB GDDR5
HDCP Compliance	Yes
Cooling	Active
Power Consumption	50 W

4.2 Input Boards

4.2.1 Dual DP Video Capture (3-540-313-01)

Dual DP Video Capture card provides 4K video capture in true 24-bit color on up to two DisplayPort sources.

Figure 4.3: Dual DP Video Capture Board

Table 4.3: Dual DP Video Capture Specifications

Bus Type	PCIe x16 Gen 2 mechanical (x8 electrical)
Video Input Connectors	2 x DisplayPort 1.2
Memory	8 GB (34 GB/sec)
HDCP Compliance	Capture, display, and scale HDCP sources
Typical Power Consumption	24.6W (12V), 6.105W (3.3V) [Total: 30.705W]

4.2.2 Quad Mini-HDMI Video Capture (3-540-334-01)

The Quad Mini-HDMI Video Capture board includes 4 mini-HDMI input channels. Automatic format detection provides plug-and-play simplicity. The inputs support custom resolutions.

Figure 4.4: Quad Mini-HDMI Video Capture

Table 4.4: Quad Mini-HDMI Video Capture Specifications

Connections	Four mini-HDMI Female HDMI to Mini-HDMI Male adapters are included. See *Figure 4.5. Female HDMI to Male Mini-HDMI Adapter (4-750-163-00)*
HDMI Support	• 4 x 1080P60 inputs • 2 x 4K30 YUV4:2:0 inputs • 1 x 4K60 YUV4:2:0 inputs* * Captures signals up to 4096x2160 @ 60Hz resolution In YUV 4:2:0, 12 bits per pixel (8 bits per component).
Video Modes	RGB 24, YUV 4:2:2, YUV 4:2:0 Future
Memory	8 GB (34 GB/sec)
Backplane Connection	PCIe x16 Gen 2 mechanical (x8 electrical)

Figure 4.5: Female HDMI to Male Mini-HDMI Adapter (4-750-163-00)

4.2.3 IP Decoder (3-450-304-02)

Figure 4.6: IP Decoder

Table 4.5: IP Decoder Specifications

Connections	1 x RJ-45	
Memory	8 GB (34 GB/sec)	
Bus Type	PCIe x16 Gen 2 mechanical (x8 electrical)	
Decoding Capability	**Resolution**	**Number of Streams per Board**
	3840x2160x60	2
	3840x2160x30	4
	1920x1080x60	8
	1920x1080x30	16
	1280x720x60	32
	704x480	50

4.2.4 Quad BNC SDI Video Capture (3-540-312-01)

The Quad BNC SDI Video Capture board includes 4 SDI Input capture channels. Automatic format detection provides plug-and-play simplicity.

Figure 4.7: Quad BNC SDI Video Capture Board

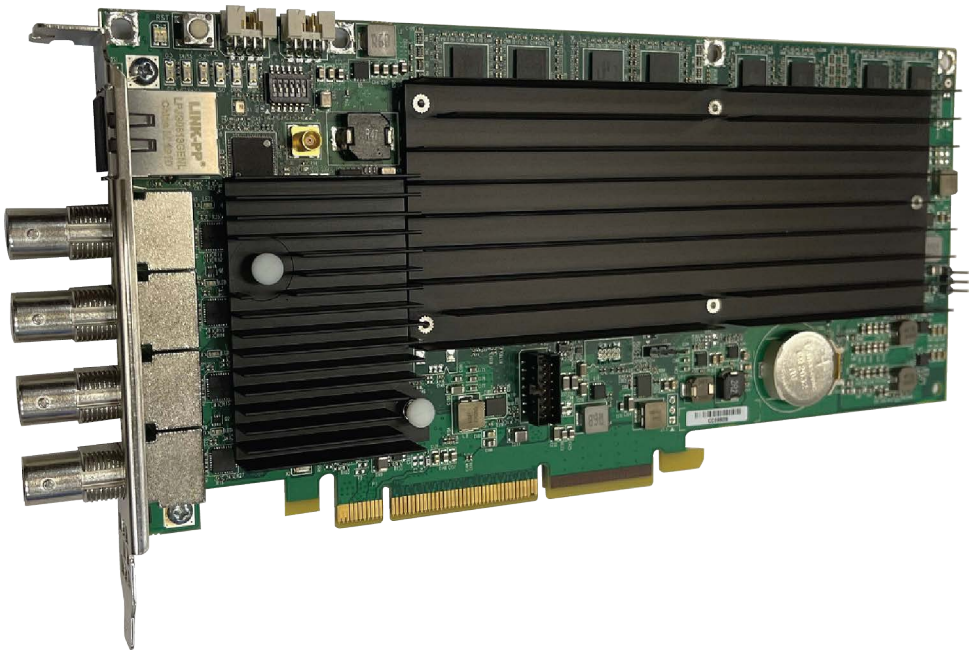


Table 4.6: Quad BNC SDI Video Capture Specifications

Connections	2 x 12G SDI, 2x 3G SDI
Customer Resolutions	• SD-SDI • HD-SDI • 3G-SDI
Memory	8 GB (34 GB/sec)
Bus Type	PCIe x16 Gen 2 mechanical (x8 electrical)

4.3 J4 Multi-Monitor Control Boards

Like Jupiter's J4 standalone solutions which provide the means to extend displays from a single source onto multiple monitors quickly and easily, each J4 board, depending on whether it is HDMI or DP from a single 4K source can be drive up to four full HD displays.

Each display can have its own resolution, be independently rotated (90, 180, and 270 degrees), cropped, upscaled, downscaled, and positioned anywhere.

4.3.1 J4DPe Board (4-540-371-00)

Easily expand one 4K DP output from Catalyst V (using a DP to mini-DP adapter) to four FHD mini-HDMI to extend the number of displays in a video wall.

Figure 4.8: J4DPe Mini-DP 4K to 4 Mini-HDMI 1080P Multi-Monitor Control Board

Table 4.7: J4DPe Multi-Monitor Control Board Specifications

Input Connector	1x Mini DisplayPort 1.2 with video & audio support
Max Input Resolutions	3840x2160 @60Hz, 3840x2160 @30Hz, 7680x1080 @60Hz, 7680x1080 @30Hz, 1920x4320 @60Hz, 1920x4320 @30Hz Other input resolutions including 8Kx8K are supported. Contact your Jupiter Sales Representative for more details.
Output Connectors	4x mini-HDMI with video & audio support
Max Output Resolutions	1920x1080 @60Hz, 1920x1080 @30Hz, 1920x1200 @60Hz, 1920x1200 @30Hz Other output resolutions are supported. Contact Jupiter Sales Representative for more details
Out-of-box Supported Configurations	2x2 (default), 4x1, 3x1, 2x1, 1x2, 1x3, 1x4, Clone in both landscape and portrait modes and other non-rectangular/artistic configurations
Features	Rotation, Multi-unit support, Bezel management, Clone mode, and HDCP support
Video & Audio Processing	Multi-channel Video Scaling, Video Cropping, AAC, PCM, Stereo, and Mono Audio format. Audio sampling rate 44.1 KHz and 48 KHz, 16-bit stereo

4.3.2 J4HDMIe Board (4-540-372-00)

Easily expand one 4K HDMI output from Catalyst V (using an HDMI to mini-HDMI adapter) to four FHD Mini-HDMI to extend the number of displays in a video wall.

Figure 4.9: J4HDMIe Mini-HDMI 4K to 4 Mini-HDMI 1080P Multi-Monitor Control Board

Table 4.8: J4HDMIe Multi-Monitor Control Board Specifications

Input Connector	1x mini-HDMI with video & audio support
Max Input Resolutions	3840x2160 @60Hz, 3840x2160 @30Hz, 7680x1080 @60Hz, 7680x1080 @30Hz, 1920x4320 @60Hz, 1920x4320 @30Hz Other input resolutions including 8Kx8K are supported. Contact your Jupiter Sales Representative for more details.
Output Connectors	4x mini-HDMI with video & audio support
Max Output Resolutions	1920x1080 @60Hz, 1920x1080 @30Hz, 1920x1200 @60Hz, 1920x1200 @30Hz Other output resolutions are supported. Contact Jupiter Sales Representative for more details
Out-of-box Supported Configurations	2x2 (default), 4x1, 3x1, 2x1, 1x2, 1x3, 1x4, Clone in both landscape and portrait modes and other non-rectangular/artistic configurations
Features	Rotation, Multi-unit support, Bezel management, Clone mode, and HDCP support
Video & Audio Processing	Multi-channel Video Scaling, Video Cropping, AAC, PCM, Stereo, and Mono Audio format. Audio sampling rate 44.1 KHz and 48 KHz, 16-bit stereo

4.4 Chassis, Drives and Accessories

4.4.1 Catalyst V Solid State Drives

- 4-619-061-06 250 GB SSD on Carrier
- 4-619-067-06 500 GB SSD on Carrier
- 4-619-070-04 1 TB SSD on Carrier

Figure 4.10: Catalyst V SSD on Carrier

4.4.2 Catalyst V Power Supplies (5-612-058-00)

The Catalyst V chassis is powered by one or two 550W power supplies. The second power supply (the right hand one) is optional.

Figure 4.11: Catalyst V Power Supply

Chapter 5

HARDWARE INSTALLATION

The front panel of the Catalyst V Chassis is shown in the figure below. The front panel power switch is a soft power switch, which leaves some standby power applied to the system.

5.1 Indicators, Interfaces and Buttons

Figure 5.1: Catalyst V Chassis Front Buttons and LEDs

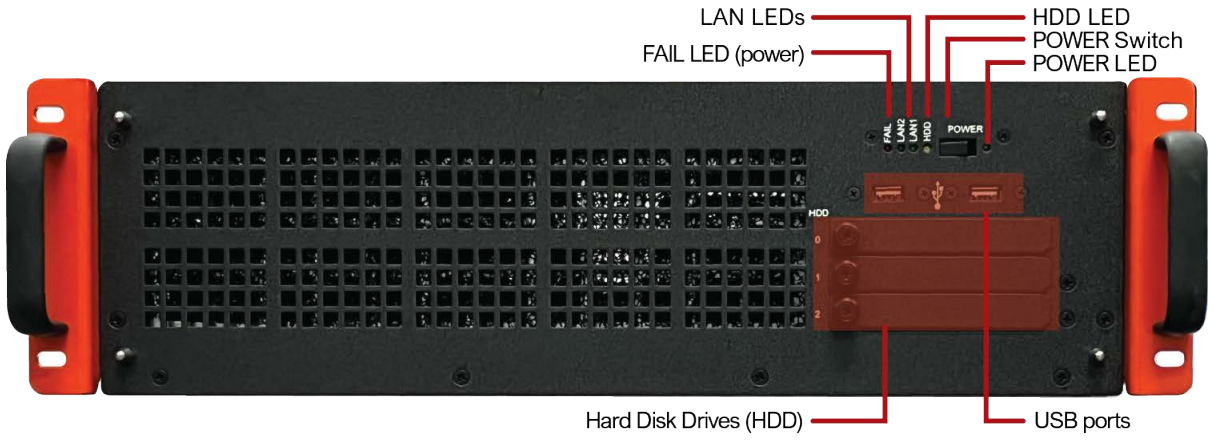


Table 5.1: Catalyst V CPU Chassis Front Buttons and LEDs

Indicator/Button	Description
Power Switch and LED	A single press of the front panel power switch will apply power to the Catalyst V. Only when momentary pressing of the power switch yields no results should the power switch be held for 4 seconds to turn power on/ off. The front panel power LED will light-up when the power switch is pressed. The power supply LEDs will not light-up until the front panel power switch has been turned on.
Power FAIL LED	When either of the two power supplies is turned off or fails the front panel FAIL LED shows red. Replace the failed power supply. Check the LEDs on the rear of the power supplies. Remove the power supply with a red or off LED. The FAIL LED should be off when the system is operating normally. Refer to *Chapter 6, Removing & Replacing Components on page 23* for details on replacing a power supply.
LAN LEDs	The LAN 1 and LAN 2 LEDs are illuminated when there is network activity.
Drive Activity LED	The HDD (Hard Drive) LED is illuminated when there is hard drive activity.

5.2 Rack Mount Installation

Note: Provide sufficient clearance behind the chassis to remove the 9” long power supplies.

The Catalyst V rack mounting kit is designed for a standard 19-inch racks. Rear rack rails are required for supporting the rear of the chassis.

To secure the rack, refer to the instructions that came with it from the rack manufacturer. One method for securing the rack is to bolt it to the floor or wall. Another method for securing the rack is to fasten it to another rack that is bolted to the floor or the wall, or to anchor the rack to something stable.

WARNING! If a rack is not properly secured, adding the Catalyst V or other equipment to the rack may make the rack unstable.

CAUTION: Adhere to the following guidelines for optimal and safe use of the system.

1 *Keep the maximum recommended ambient temperature (TMRA) below +40° C (104° F)*

   a *Beware of elevated operating ambient temperature*
   If the Catalyst V is installed in a closed or multi-unit rack assembly, the operating ambient temperature of the rack environment may be greater than room ambient. Therefore, consideration should be given to installing the Catalyst V in an environment compatible with the TMRA.

   b *Beware of reduced air flow*
   Installation of the Catalyst V in a rack should be such that the amount of airflow required for safe operation of the Catalyst V is not compromised.

2 *Be aware of uneven mechanical loading*
Mounting of the Catalyst V in the rack should be such that a hazardous condition is not achieved due to uneven mechanical loading. Consult rack manufacturers loading instructions for proper load distribution.

3 *Be aware of circuit overloading*
Consideration should be given to the connection of the Catalyst V to the supply circuit and the effect that overloading of circuits might have on over current protection and supply wiring. Appropriate consideration of the Catalyst V nameplate ratings should be used when addressing this concern.

4 *Make sure the Catalyst V is reliably grounded*
Reliable grounding (earthing) of the Catalyst V should be maintained. Particular attention should be given to supply connections other than direct connections to the branch circuit (i.e. use of power strips).

5.2.1 Rack Mount Parts Kit

The Rack Mount Parts Kit includes the following parts for installing the Catalyst V into a 19-inch rack:

- One set of slides with mounting hardware
- Four 10-32 clip-on nuts
- Four 10-32 x 1/2” front panel screws

5.2.2 Required Tools

To install the Catalyst V in the rack, you need the following tool:

- Phillips head screwdriver
- Flat head screw driver
- 3/8” nut driver

CAUTION: For safety and protection of the equipment, it is recommended that two people lift and install the Catalyst V chassis into the rack.

5.2.3 Rack Mounting Procedure

1. *Mount the inner left and right chassis portions of the slides on either side of the Catalyst V chassis.*
2. *Mount the outer portion of the slides in the rack with the provided hardware. Location of the slides in the cabinet will be determined by the desired front panel position.*
3. *After installing the slide sections on the Catalyst V and in the cabinet, slide the Catalyst V into the cabinet.*
4. *The Catalyst V may be slid into the rack and secured using the two 10-32 x 3/4” front panel screws.*

5.3 Cabling

5.3.1 Power Connections

Install the power cord(s) to the Catalyst V power supply inlet. Plug the power cord(s) into power outlet.

5.3.2 Display Device Cables

For each display device, connect the graphics cables to the connectors on the back of the displays.

5.3.3 Mouse and Keyboard Cables

Plug the mouse and keyboard cables into any one of the USB ports.

5.3.4 Ethernet Cables

Connect the Twisted Pair (Cat 6) cable to the appropriate RJ45 connector on the rear panel of the Catalyst V.

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Chapter 6
REMOVING & REPLACING COMPONENTS

This section describes how to remove and replace the components listed below in the Catalyst V:

- Battery
- Memory modules (SODIMMs)
- PCI Express moards
- Power supplies
- Chassis fans
- Solid State Drives (SSDs)

WARNING! Due to the risk of personal injury and damage to the equipment, **only a qualified technician should attempt to remove and/or replace components in the Catalyst V chassis!** There are **NO** user serviceable parts inside the Catalyst V chassis.

CAUTION: Static electricity can damage integrated circuits. Always use static protection when handling any internal components! **Always make sure you are properly grounded.**

6.1 First Things First

1 Perform an orderly shutdown of the system
   - **a** Close/Stop Remote Sessions
   - **b** Save Layouts as needed
   - **c** Close Canvas Client(s)
   - **d** Quit Canvas Server
   - **e** Shut down Windows

2 Disconnect all appropriate cables from the Rear Panel connector(s) on the board/assembly you are replacing.

CAUTION: Unplug the AC power cords from the **Catalyst V Chassis.**
.

Note: In most cases, you will only need to reverse the component removal procedure to replace any component.

6.2 Remove the Cover

1. *Perform the steps in Section 6.1, First Things First on page 23.*
2. *Remove the 12 screws which retain the top cover on the Catalyst V chassis*
3. *Remove top cover from Catalyst V chassis*

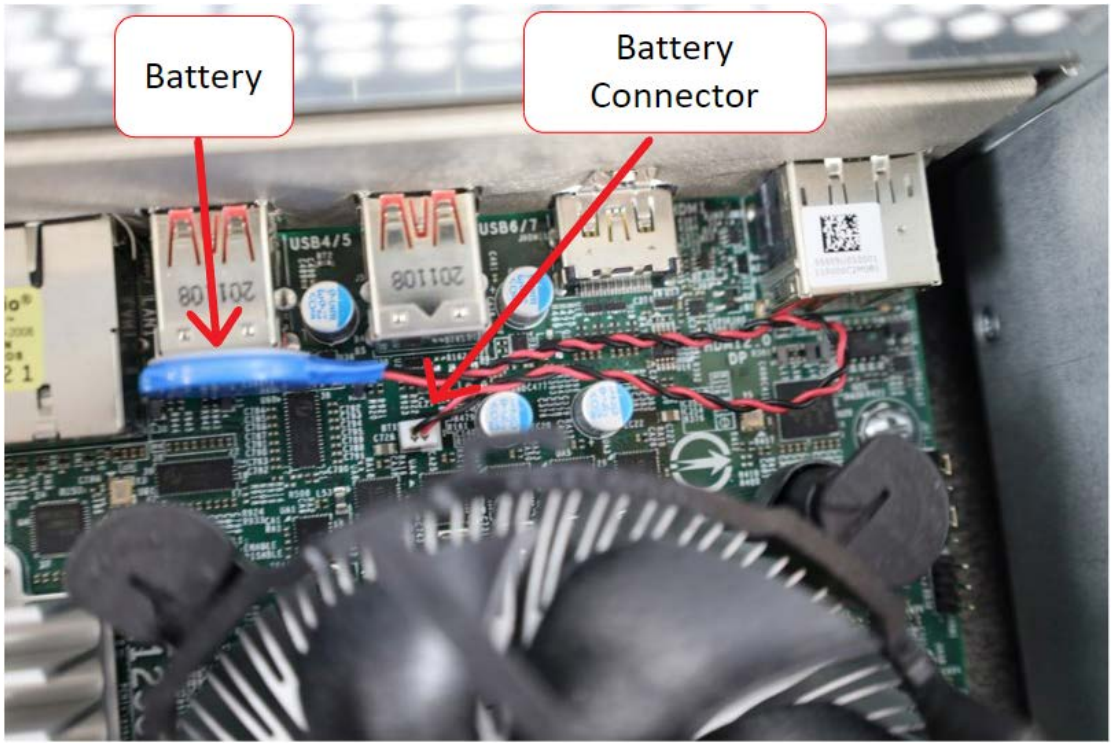
Figure 6.1: Catalyst V Chassis Interior

6.3 Battery Replacement

WARNING! There is danger of explosion if the battery is incorrectly replaced. Replace only with the same or equivalent type recommended by Jupiter Systems. Dispose of used batteries according to the manufacturer's instructions

Attention: Il y a danger d'explosion s'il y a remplacement incorrect de la batterie. Remplacer uniquement avec une batterie du même type ou d'un type équivalent recommandé par le constructeur. Debarrassez-vous et recyclez les piles usagées conformément aux instructions du fabricant.

Figure 6.2: Catalyst V CMOS Battery



CAUTION: Removing the battery will erase key information such as the date, boot order, and RAID settings. Therefore, write down the current values for the aforementioned settings before removing the battery.

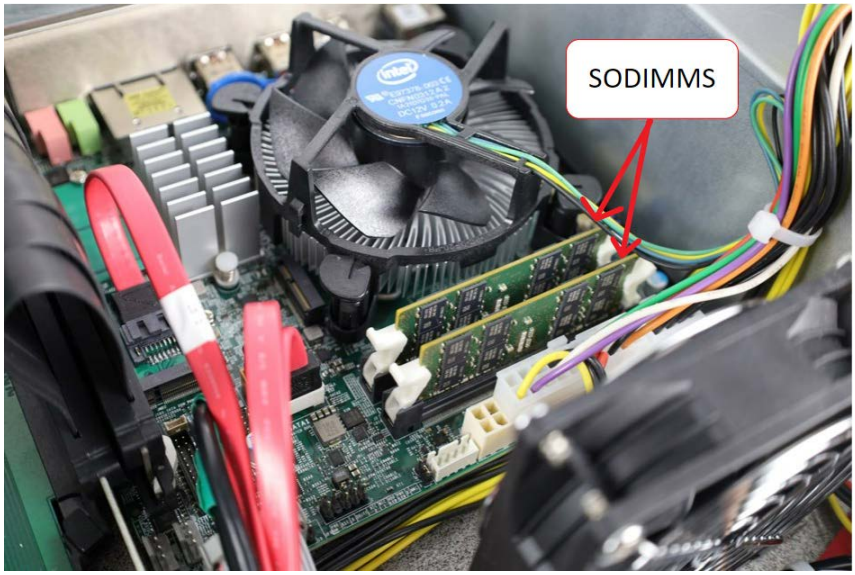
1. *Perform the steps in Section 6.1, First Things First on page 23*
2. *Perform the steps in Section 6.2, Remove the Cover on page 24*
3. *Locate the battery assembly adhered to the USB connector. The battery has two wires with a female connector and plugs into a two position male connector (BT1) on the motherboard*
4. *Remove the battery assembly and unplug the female connector from BT1 on the motherboard*
5. *Install the new battery assembly by first adhering it to the USB connector and then plugging its female connector into BT1 on the motherboard*

6.4 Motherboard SODIMM Memory Replacement

6.4.1 Memory Support

The Catalyst V chassis supports up to 64 GB using 2666 MHz non-ECC DDR4 SDRAM 64-bit, 260-pin 1.2V SODIMMs.

Figure 6.3: Memory Locations



Memory is provided in 8, 16, and 32 GB SODIMMs. The picture above shows the 32 GB configuration, consisting of two 16 GB SODIMMs.

6.4.2 Memory Module Replacement

1. *Perform the steps in Section 6.1, First Things First on page 23*
2. *Perform the steps in Section 6.2, Remove the Cover on page 24*
3. *Release SODIMM by gently pushing the release tabs down and outward on each end of the SODIMM socket*
4. *Lift the SODIMM straight up and out of its connector*
5. *Align the notch in the SODIMM with the receptive point in the SODIMM socket*
6. *Insert SODIMM into socket. For optimal performance, please use SODIMMs of the same type and speed*
7. *Use two thumbs to press SODIMM into socket until it snaps into place*
8. *Press the locking/release tabs inward to verify the SODIMM is locked in the socket*

6.5 PCI Express Board Removal

1. *Perform the steps in Section 6.1, First Things First on page 23*
2. *Perform the steps in Section 6.2, Remove the Cover on page 24*
3. *Remove any cables attached to the board to be removed*
4. *Remove the screw holding the PCI Express board in place at the rear panel*
5. *Rock the board out of its socket and gently remove the board from the chassis. It is sometimes helpful to use the connector on the outside of the board bracket to help lift it out of the socket. Be careful not to rock the board against the adjacent boards*

6.6 Power Supply Removal

The power supply modules are located at the left side of the rear panel of the chassis. One power supply is standard and a second module is optional. See *Section 4.4.2, Catalyst V Power Supplies (5-612-058-00) on page 18*,

The power supplies are hot-swappable, so the system can stay on IF only one power supply is removed and the other is operating properly.

CAUTION: The system must be shut down before removing both power supplies.

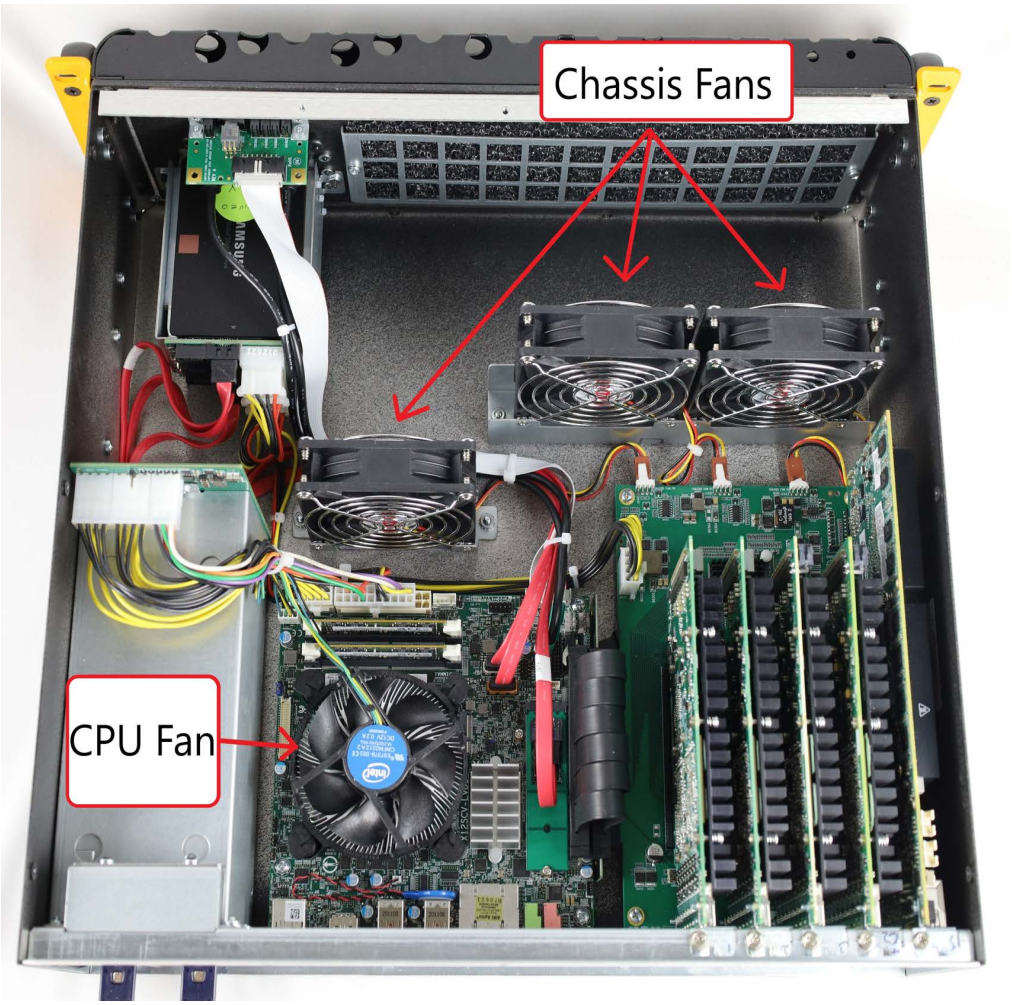
Figure 6.4: Dual Power Supplies

Unplug the power cord, hold the release latch up and carefully pull the power supply module out of the Catalyst V chassis.

6.7 Chassis Fan Replacement

The Catalyst V has three chassis fans (4-615-050-00). One blows air across the motherboard and two fans cool the PCI Express input and output boards.

Figure 6.5: Catalyst V Chassis Fans



To replace the fan:

1. *Perform the steps in Section 6.1, First Things First on page 23*
2. *Perform the steps in Section 6.2, Remove the Cover on page 24*
3. *Remove the fan wire harness connector from the baseboard or motherboard*
4. *Unscrew the fan holder bracket from the chassis*
5. *Unscrew the fan from the fan holder bracket*
6. *Reverse removal process to install a chassis fan*

6.8 SSD Replacement

The Catalyst V must go through an orderly shutdown before removing a drive carrier from the receiver bay. See *Section 4.4.1, Catalyst V Solid State Drives on page 18*.

Figure 6.6: SSD Carrier

1. *Perform the steps in Section 6.1, First Things First on page 23*
2. *Unscrew the fastener securing the drive sled*
3. *Carefully pull the SSD carrier out from the chassis.*
4. *To install insert the replacement SSD carrier into the SSD bay. It is important to make sure the carrier is inserted in the card guides and is completely seated into the SSD bay to insure correct electrical contact is made.*

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Chapter 7

RAID CONFIGURATION

A Catalyst V processor will not boot with a failed RAID array. Follow the procedure below if it is necessary to rebuild the array:

Installing wipes the information on the drives. Before installing RAID:

- Completely backup your drives and reformat them

(or)

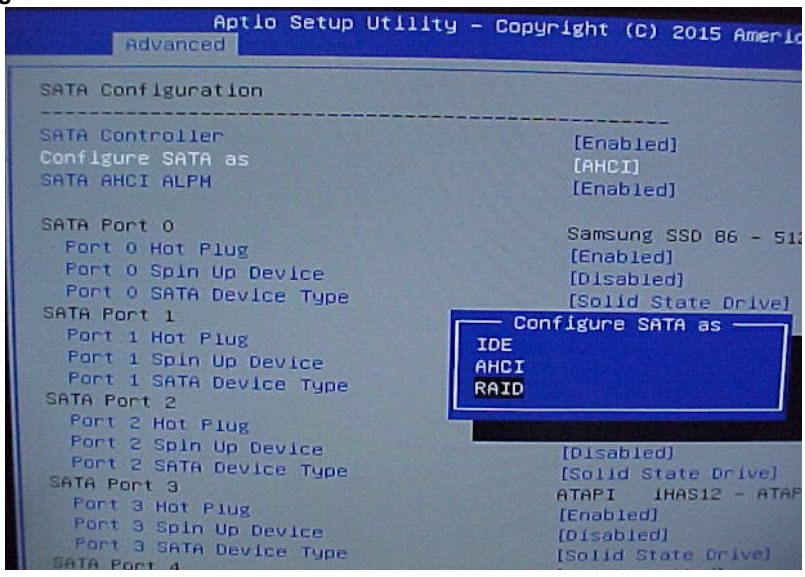
- Use entirely new drives.

Note: Jupiter recommends doing both of the above: backing-up the old drives and installing on new drives.

7.1 RAID 1 BIOS Setup

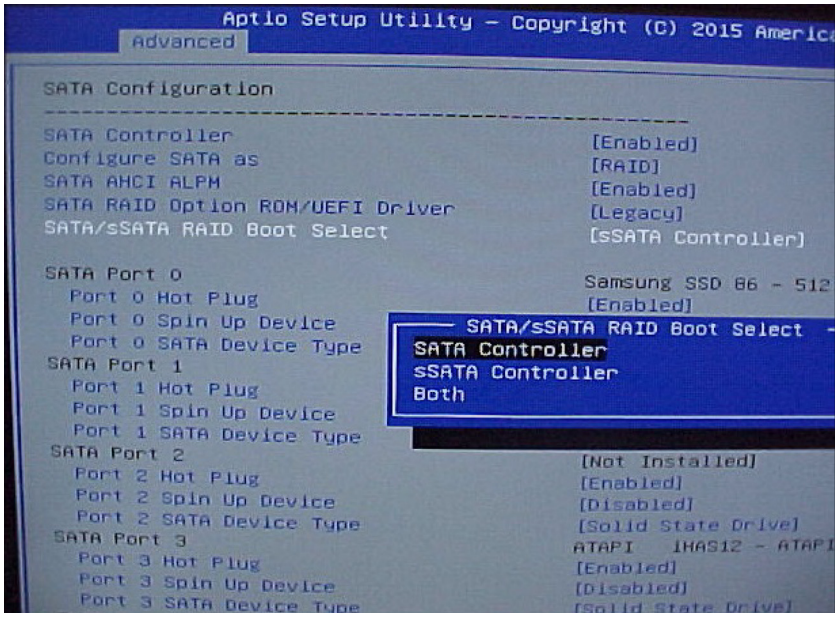
1. *Enter the* **BIOS Setup** *by holding down the* **Delete** *key while the system is booting.*
2. *In* **BIOS** *setup, go to* **Advanced > SATA Configuration** *and press* **<enter>**
3. *Next screen, arrow to* **SATA Controller***; set to* **[Enabled]**
4. *Arrow to* **Configure SATA as***, press* **<enter>** *and select* **[RAID]**

Figure 7.1: Configure SATA as RAID



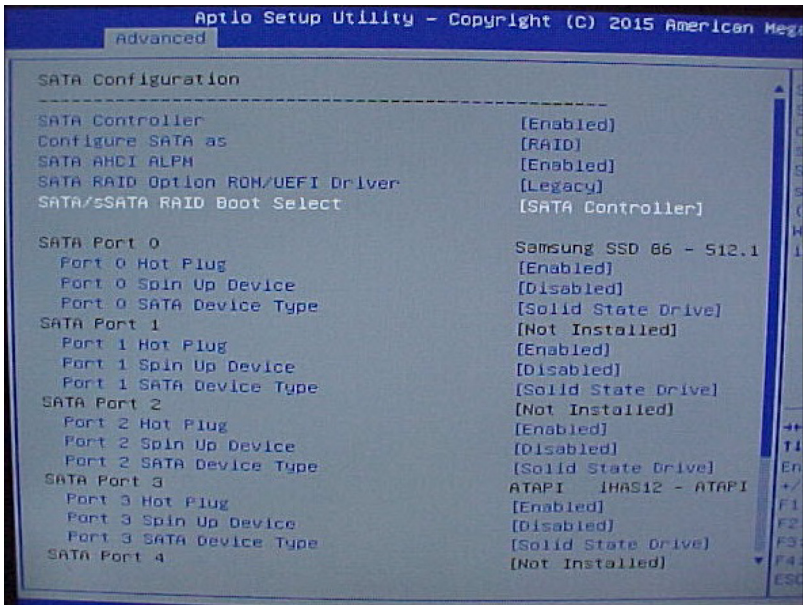
5 *Arrow down to* **SATA/sSATA RAID Boot Select***, press enter and select* **[SATA Controller]**

Figure 7.2: sSATA RAID Boot Select SATA CONTROLLER



6 *Typical settings for RAID 1 mode*

Figure 7.3: Typical settings for RAID 1



7 *Save changes and exit* **BIOS Setup**

7.2 Setup the RAID Array

Assign Drives to RAID Array

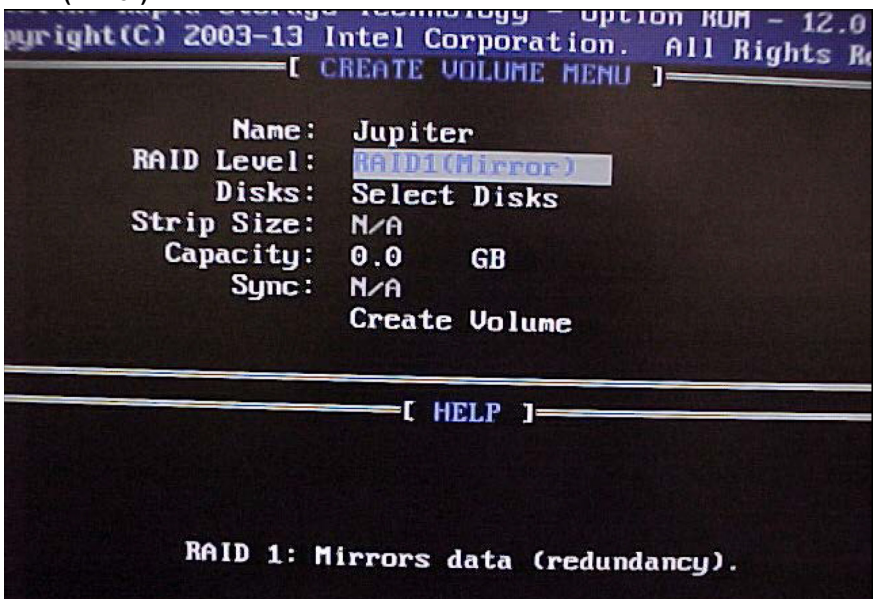
1. *Restart the Catalyst V. After the flash screen appears, press <Cntrl> < I> to enter into Intel Rapid Storage Tech set-up*
2. *At Main Menu (reference screen shot below), you should see both hard drives with status of Non-RAID Disk. If any of the hard drives are something other than non-RAID, you will need to reset each disk to Non-RAID.*
   - **a** *Select Main menu item 3 to reset disk; press <enter> key*
   - **b** *Next screen: Arrow up/down to highlight the disk intended to be reset*
   - **c** *Space bar to select disk.*
   - **d** *Press* **<enter>** *key to reset disk.*
   - **e** *Press* **<escape>** *key to return to* **Main Menu**
3. *Once both drive's show status as* **Non-RAID Disk***, use arrow keys to select menu item:* **1.Create RAID Volume** *then press* **<enter>**

Figure 7.4: Create RAID Volume

4. *Create Volume Menu*
   - **a** *In* **Name** *enter* **Jupiter***, then click* **<enter>**

In RAID Level arrow through the RAID level selections and select RAID 1 (Mirror)

Figure 7.5: Select RAID1 (Mirror)



5 *When prompted "Are you sure you want to create this volume?", enter* **Y** *for* **Yes** *to create volume*

6 *the status of the RAID drives should appear as shown in*

7 *Move the arrow to menu item* **6. Exit**

This action will exit you out of the Intel RAID setup. The System will reboot.

Chapter 8
TECHNICAL SUPPORT

This chapter includes the following sections:

8.1 Hardware Faults

If you require assistance with any suspected hardware fault, please contact the vendor from whom you purchased the device while within the full warranty period for the device.

If you require technical assistance, please contact Jupiter Systems' technical support team. Please provide as much information to the support team about the fault and any steps you have taken in trying to resolve the issue.

8.2 Contact Information

- Website
  www.jupiter.com /support
- Phone
  1-510-675-1000, option 1
- Email
  support@jupiter.com
- Mail (physical)
  ATTN: Technical Support
  Jupiter Systems
  31015 Huntwood Avenue
  Hayward, CA 94544-7007

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Appendix A

RETURN MERCHANDISE AUTHORIZATIONS

This appendix details RMA policies and procedures.

9.1 Return Merchandise Authorization (RMA) Policy

To return any product for repair or replacement you MUST get an RMA number from Jupiter Systems BEFORE returning the product to us. In order to get an RMA number, you MUST speak to (or e-mail) a Tech Support person. The only person who can authorize an RMA is a Tech Support Representative.

Do NOT send products of any kind to Jupiter Systems – if they do not have a RMA number plainly displayed on the outside of the package they will be refused by the receiving department and returned. When receiving the RMA number, it is recommended that printing the page received in the email (See *Section 9.3 Return Merchandise Authorization (RMA) Instructions on page 39*). This instruction set contains a shipping label with the RMA number on it, cut this label out and use it. All instructions for returning your product are in these instructions.

Often, we find that the wall controller is not defective and the problem is in the installation setup. Please check our web site (www.jupiter.com) for the latest installation, software update, setup, and troubleshooting information for your wall controller.

If your system is no longer covered by a warranty, you will need to supply a credit card number or Purchase Order Number to cover repairs. We must have the PO# or credit card number BEFORE we issue an RMA.

9.2 Shipping Policy

In all cases the Customer must obtain an RMA number from Jupiter Systems and ship the unit or board to Jupiter Systems freight prepaid with the RMA number clearly indicated on the shipping label and on the waybill. Shipments that arrive without an RMA number will be refused and returned to the Customer at Customer's expense.

Proper packaging must be used on all return shipments. Customer is liable for any damage incurred in transit and will be charged if new shipping materials are required for return shipment.

9.2.1 Domestic

- Customer ships unit or board to Jupiter freight prepaid.
- Jupiter returns the unit or board to Customer according to Customer's shipping instructions. Freight is prepaid and added to bill.

9.2.2 International

- Customer ships unit or board to Jupiter freight prepaid.
- Jupiter returns the unit or board to Customer freight collect according to Customer's shipping instructions.
- On ALL international returns, Customer is responsible for any duties, broker's fees, or freight charges assessed to Jupiter Systems.
- All international returns must be marked:
  U.S. manufactured goods being returned for repair
- Foreign shipments should include our Customs Broker on all shipping documents:
  RF International, Ltd.
  Phone: 650-697-8150
  Fax: 650-697-8105
- All returns should be shipped freight prepaid. Any customs charges incurred by Jupiter on in-bound non-warranty shipments will be added to the repair charges. All systems are shipped back to the customer freight collect. Customer pays all customs charges incurred by using their own Customs Broker.

9.3 Return Merchandise Authorization (RMA) Instructions

1. *Make sure the product is securely and safely packaged or in its original packaging.*
2. *Place a letter using your letterhead inside the package describing the problem with the product and your PO# or credit card number, (or letter of credit for international customers). There are reasons for this request:*
   - We have an address and contact that we can keep with the unit and a method of contacting you if we have questions
   - Your description aids us in determining how to repair the product
   - There is an address on the inside of the box if the external address is destroyed in shipping
3. *Make sure you have adequate insurance on the product to cover its value before shipping*
4. *Make sure that the RMA number is plainly visible on the outside of the package you are sending. Receiving will refuse any packages without RMA numbers visible on the outside of the package.*

Note: Note Please print the next page, cut out and use the mailing label with the RMA number in the space provided.

Jupiter Systems

31015 Huntwood Avenue

Hayward, CA 94544-7007

USA

RMA # _____

Appendix B
SUPPORTED ADAPTERS

Table B.1: Jupiter Adapters

Description	Jupiter Part Number	For Use With...	Photo
DP to HDMI Active Adapter	4-750-158-00	4-540-337-00, Quad DisplayPort Output Board. Adapter purchased separately	
Mini-HDMI to HDMI Adapter	4-750-163-00	2-540-334-01, Video Capture Board, HDMI. Four Adapters come with board	
Mini-DisplayPort 1.2 to HDMI 2.0 Active Adapter	4-750-159-00	4-540-371-00, J4DPe Board Multi-monitor control board which takes 1 mini DP input to extend to 4 FHD mini HDMI output.	

Table B.2: Supported Adapters, 4-750-159-00

Description	Adapter Information		Photo
HDMI Adapter-Active Mini-DisplayPort 1.2 to HDMI 2.0 4K **Resolutions:** 4K3840 x 2160 @ 60 Hz 4096 x 2160 @ 24 Hz	Accell	Model# B086B-012B	
	Plugable	MDP-HDMI (UPC: 819927010692)	

Appendix C
WARRANTY

11.1 Statement of Limited Warranty

FOR CATALYST DISPLAY WALL CONTROLLERS

Jupiter Systems, (Jupiter) warrants that the Catalyst V Display Wall Controllers sold by Jupiter are free from defects in material and workmanship and will perform in accordance with the product specification for a period of 24 months from the date of shipment from Jupiter. This warranty is in effect whether the product was purchased directly from Jupiter or through an authorized Jupiter distributor. Any product becoming defective within the time period specified will be repaired or replaced, at Jupiter's option and at Jupiter's factory or authorized repair center. The defective product must be returned to Jupiter or to the Jupiter authorized repair center at the expense of the customer. Expense for the return shipment of the product to the customer within the U.S. will be borne by Jupiter.

Products returned to Jupiter must have a Return Merchandise Authorization (RMA) number. To obtain an RMA number contact the Jupiter repair service center at the phone number listed on the Copyright page. PRODUCTS SHIPPED TO JUPITER WITHOUT A RETURN AUTHORIZATION NUMBER WILL NOT BE ACCEPTED.

JUPITER'S TOTAL LIABILITY UNDER THIS WARRANTY SHALL BE LIMITED TO THE REPAIR OR REPLACEMENT OF THE DEFECTIVE PRODUCT OR, AT JUPITER'S OPTION, RETURN OF THE PRODUCT TO JUPITER FOR A REFUND OF THE FULL PURCHASE PRICE. THE ABOVE WARRANTY IS THE ONLY WARRANTY APPLICABLE TO JUPITER'S PRODUCTS AND IS THE CUSTOMER'S SOLE AND EXCLUSIVE REMEDY FOR ANY DEFECT IN THE PRODUCTS.

Jupiter does not warrant the product for fitness for any particular purpose or application. Jupiter has no liability for statements of functionality, performance, or configurability beyond the written product specification for the specific Jupiter product. Jupiter shall not be held liable for incidental, indirect, consequential, general or special damages resulting from the use or the inability to use or the failure of a Jupiter product used in any application. No warranty, including this warranty, shall apply to any Jupiter products that have been modified in any way, by any organization other than the Jupiter factory. The warranty is void for products that have been subjected to misuse, improper maintenance, negligence, and/or damage by excessive current, temperature, or accident.

Jupiter neither assumes nor authorizes any representative or other person to assume for Jupiter any other warranty or liability in connection with the sale or shipment of Jupiter products. Jupiter reserves the right to make changes or improvements in its products without incurring any obligation to similarly alter products previously purchased.

11.2 Software Warranty and Special Provisions

11.2.1 Limited Warranty

Jupiter Systems warrants that the SOFTWARE will perform substantially in accordance with the accompanying written materials for a period of ninety (90) days from the date of sale. Any implied warranties on the SOFTWARE are limited to ninety (90) days.

11.2.2 Customer Remedies

Jupiter Systems' entire liability and your exclusive remedy shall be, at Jupiter's option, either (a) return of the price paid, or (b) repair or replacement of the SOFTWARE that does not meet this Limited Warranty and which is returned to Jupiter Systems with a copy of your receipt or purchase order number. This Limited Warranty is void if failure of the SOFTWARE has resulted from accident, abuse, or misapplication. Any replacement SOFTWARE will be warranted for the remainder of the original warranty period or thirty (30) days, whichever is longer.

11.2.3 No Other Warranties

To the maximum extent permitted by applicable law, Jupiter disclaims all other warranties, either expressed or implied, including but not limited to implied warranties of merchantability and fitness for a particular purpose, with regard to the SOFTWARE and the accompanying written materials.

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Appendix D
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