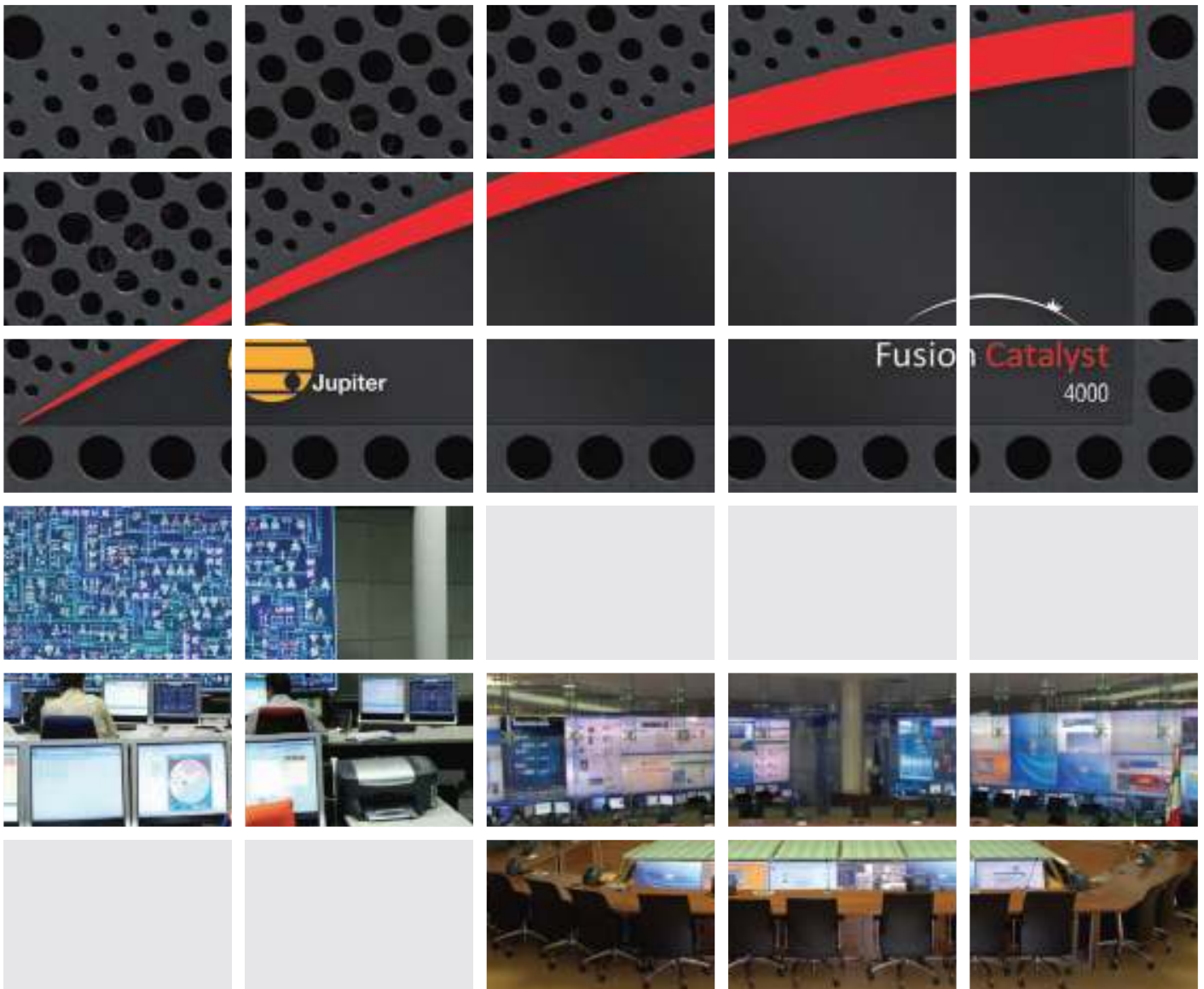




# The next generation of display wall processors has arrived.



# Introducing Fusion Catalyst™

## The New Standard in Display Wall Processors

The Fusion Catalyst family of display wall processors ushers in a new era of performance and flexibility for collaborative visualization applications. Employing cutting edge, second generation PCI Express technology, Fusion Catalyst processors offer up to an astonishing 192 Gbps of bandwidth. That's enough bandwidth to carry multiple ultra-high resolution video signals at a full 60 frames per second, drive ultra-high resolution monitors at a full 32 bits per pixel, and support virtually any configuration requirement.

Remember to bring your applications, because Fusion Catalyst is not just a display wall processor, it's also a PC with Intel CPUs and Windows OS. Run mission-critical apps, access data through the network, engage the information, and collaborate on a wall-sized desktop.

### Power and Flexibility

The Fusion Catalyst 4000 and Fusion Catalyst 1000 are built to order in Jupiter's ISO 9001:2008-registered US factory to meet the specific requirements of each customer, depending on model:

- Up to 96 graphics outputs
- Up to 94 DVI, HD, or RGB inputs
- Up to 376 video inputs
- Up to 376 streaming video inputs
- Up to 10 Gigabit Ethernet ports
- Up to 64 GB of ECC-protected RAM

The Fusion Catalyst 4000 comes standard with 8 GB of ECC-protected RAM, dual hot-swap 320 GB SATA-300 disk drives in a RAID 1 configuration, and a DVD-RW/CD-RW drive.

The Fusion Catalyst 1000 comes standard with 4 GB of RAM, a single removable 320 GB SATA-300 disk drive, and a DVD-RW/CD-RW drive.

The standard operating system of Fusion Catalyst is Microsoft Vista Business 64-bit.

## Fusion Catalyst In Action

The Fusion Catalyst Processor from Jupiter Systems is the perfect solution for control room projects requiring high performance and reliability in a cost effective, space efficient platform.

Both the Fusion Catalyst 1000 and 4000 can blend seamlessly into installations such as Network Operation Centers (NOC), Public Utility Control Centers, Intelligent Traffic Management Centers, Process Control, Civil and Military Surveillance Systems, Call Centers, Financial Management Control Rooms, Boardrooms, and Video Conference Rooms.

A Fusion Catalyst Display Wall Processor incorporates

all of the visual data sources found in a control room environment and displays them in movable, scalable windows on a virtual display comprised of multiple output devices: monitors, LCD flat panels, plasma panels, projection cubes, or a rear projection system.

Data sources can include local applications, remote network applications, remote network RGB streams, compressed network video streams, directly connected SD and HD video, VGA, and DVI inputs. All data sources are accessed from an intuitive and consistent software interface providing complete control of the virtual display surface.

## PCI Express Switch Fabric: Critical for Control Room Applications

Fusion Catalyst display wall processors feature Second Generation PCI Express technology, creating a true non-blocking communication infrastructure within each chassis. With at least double the bandwidth found in its competition, and up to eight times that of previous

generations of Fusion 900-series processors, the new Fusion Catalyst family of display wall processors provides more expandability, faster graphics, real time SD/DVI/RGB/HD frame rates, and better overall system performance, regardless of configuration size.

## Run Applications on the Controller

Fusion Catalyst processors are also PCs, with Intel CPUs and Microsoft Windows, enabling applications to be run directly on the processor. The Fusion Catalyst 4000 features two Quad Core Xeon CPUs and up to 64 GB RAM, while the Fusion Catalyst 1000 features

the Core 2 Duo with 4 GB RAM. Speedy, capacious hard drives extend the functionality. The result is unrivaled performance for even the most demanding command and control applications.

## With a Jupiter Display Wall Processor, the Whole Is Truly Greater than the Sum of its Parts

- **FC4000: Dual Intel Quad Core Xeon 2.0 Ghz Processors**
- **FC1000: Single Core 2 Duo 2.0 Ghz Processor**
- **Windows Vista Business 64-bit standard**
- **FC4000: 16 x4 PCIe slots (16 Gbps per slot, non blocking bandwidth)**
- **FC1000: 10 x4 PCIe slots (16 Gbps per slot, non blocking bandwidth)**
- **ControlPoint™ software**
- **PCI Express Switch Fabric with 192 Gbps bandwidth**
- **Up to 376 video inputs with octal video cards**
- **Up to 376 streaming video inputs**
- **Up to 64 GB of EEC-protected RAM**
- **Up to 96 output display channels**
- **Up to 94 DVI-I/VGA/HD input channels**
- **32 bits per pixel color depth**
- **Up to 3 removable disk drives, with RAID**
- **N+1 hot-swappable power supplies**
- **Up to 6 Gigabit Ethernet ports**

## High Performance Graphics

Fusion Catalyst utilizes the most advanced graphics GPU architecture found in a display wall processor today, capable of driving two displays at up to 2560x1600 (Dual-Link DVI) digital, or up to 2048x1536 analog. With 11 GB/s of internal bandwidth and 256 MB of GDDR3 memory per card, the Fusion Catalyst can render complex application data while displaying multiple video or computer inputs simultaneously. All outputs are synchronized to eliminate "frame tearing" between displays.

## Abundant, Powerful Inputs

Fusion Catalyst display wall processors can be configured to specific direct input connection requirements. The all-new Dual DVI-I input card handles input signals such as single- and dual-link DVI up to 2560x1600, analog VGA inputs up to 2048x1200, and component video progressive-scan HD inputs up to 1080p60. The Octal SD Video input card handles standard definition composite and S-Video inputs through a rackmountable input panel. It uses Jupiter's motion-compensated de-interlacing and scaling engine to provide world class video quality, with scalable windows that are freely sized and placed on the display wall. Overlap, PIP, multiple PIP – virtually any arrangement is possible without performance penalty.

Both the DVI-I and Octal Video input cards employ Jupiter's proprietary communication technology, ensuring that each card can transmit and display input signals at full frame rate – no dropped frames regardless of output window size – while maintaining absolutely perfect visualization. In addition, each source can be placed into as many as four separately positioned and scaled windows, simultaneously.

## Uniquely Engineered for Display Walls

Jupiter Systems designs all its own software and hardware as an integrated whole, creating a tightly woven system architecture that provides the best functionality and achieves the highest possible performance. This provides Jupiter with a better foundation for supporting our products in the field – we have the sort of deep system knowledge that no integrator of 3rd party or COTS components can claim.

Jupiter's fourth generation VirtualScreen™ drivers are seamlessly integrated into the Windows environment, providing intuitive setup of display wall configurations and allowing Windows applications to freely move and scale across the entire display wall. Included PC X server software provides compatibility with X Window client applications from workstations such as those from HP, IBM, and Sun, as well as PCs running Linux.

## Streaming Video System

The optional addition of streaming video servers provides support for the display of up to 376 MPEG-2, MPEG-4, H.264, and MJPEG network video streams. Decode and display of video streams using elementary, transport and program formats, uni- or multicast addressing, and SAP, Transport, UDP and RTP protocols is possible. Using Jupiter scaling and communication technology, dozens of streamed sources can be displayed at full frame rate, simultaneously, with digital precision throughout.



## CatalystLink®

The optional addition of PixelNet CatalystLink cards provides additional input capability, including SDI, 3G-SDI, HD-SDI, DVI-I, and interlaced HD component. PixelNet DVI inputs have an optional KM capability that provides convenient remote keyboard/mouse control of the DVI input computer over the PixelNet network. PixelNet TeamMate output nodes can be managed directly from the ControlPoint interface, allowing PixelNet-based inputs to be simultaneously displayed on the Fusion Catalyst-based display wall and on ancillary PixelNet displays.

## System Availability

Fusion Catalyst systems are designed for continuous 24/7 operation, specifically for the most demanding visualization environments where availability of critical decision support systems can literally mean life or death. To this end, the Fusion Catalyst 4000 features many redundant components including hot-swappable N+1 redundant power supplies, hot-swappable system fans, and hot-swappable disk drives configured as a RAID 1 array. Hardware and software continuously monitor key system parameters such as ambient

chassis temperature, CPU temperatures, power supply voltages, fan tachometers, and ECC memory performance, automatically alerting users to conditions that require direct intervention. System events are logged both in ControlPoint software and in the standard Windows event log.



## ControlPoint™ GUI , Protocol and API

Fusion Catalyst is delivered with ControlPoint software standard. ControlPoint is a complete, integrated, and intuitive software solution for the control and management of the display wall processor.

ControlPoint is a client/server based system: the server resides on the Fusion Catalyst processor directly accessing hardware functionality, whereas the client is installed on a network accessible PC running Windows XP/Vista/7. ControlPoint client and server communicate over a TCP/IP connection using an open, clear-text communications protocol: the ControlPoint protocol. ControlPoint protocol and supporting APIs can be used for custom applications and control. Simple applications using JavaScript and HTML can be generated in minutes. Using well-documented API, the complete power of the Fusion Catalyst processor is available to those who truly want a customized interface and complete control. An RS-232 gateway is provided for devices requiring serial communication.

The ControlPoint client provides a consistent user interface to start, position, size, and scale application, DVI, RGB, HD, and SD video windows remotely via a network client.

ControlPoint offers an object-based, drag and drop interface – defined objects such as DVI, RGB, HD, and Video inputs, Streaming Video inputs, web browsers, image viewers, and local and remote application windows can be dragged and dropped onto the display mimic. Setting up complex combinations of graphical and real-time data is simple, quick and intuitive. Toolbar shortcuts to commonly used functionality are provided to make adjustments to windows even more convenient.

ControlPoint provides the ability to save the state of the display wall into a layout, stored on the display processor, and to quickly recall saved layouts directly from the user interface or from user-assignable hot-keys. The number of layouts that can be stored is enormous, limited only by the size of the hard drive on the Fusion Catalyst.



# Jupiter Catalyst Specifications



(rear panel of the Fusion Catalyst 4000)



## Main Chassis

### CPU Board

#### Processor

FC4000: Dual Intel Quad Core Xeon (2.0 GHz)  
FC1000: Single Core 2 Duo (2.0 GHz)

#### System memory

FC4000: Standard 8GB; Optional 16, 32, 64 GB  
FC1000: Standard 4GB

#### Expansion slots

FC4000: 16 PCI Express 2.0 x4 slots (up to 48 with 2 expansion chassis, available September 2010)  
FC1000: 10 PCI Express 2.0 x4 slots

### PCI Express Switch

Non-blocking architecture, Gen 2

### Disk Storage

#### Hard disk

FC4000: 2 hot swap 320 GB, 7200 RPM, SATA-300, in RAID 1 array; Optional 3rd drive, optional RAID 5  
FC1000: Single removable 320 GB, 7200 RPM, SATA-300; Optional 2nd and 3rd hard drives

#### Optical Storage

DVD-RW/CD-RW

### Network Interface

#### Ethernet

Standard dual 10/100/1000 Mbps RJ45 ports; add up to four additional dual-port cards

### Input Devices (USB)

104-key keyboard, scroll mouse with 2-buttons + wheel/button

### Touch Panel Support

AMX or Crestron support built-in

### Expansion

#### Connection to expansion chassis

Two slots for connection to Expansion Chassis (8-lane PCI Express)

## Expansion Chassis

(available September 2010)

### Graphics Display Capabilities

#### PCI Express input

8-lane PCI Express

#### Expansion slots

16 PCI Express 2.0 x4 slots

#### PCI Express Switch

Non-blocking architecture, Gen 2

## Graphics I/O

### Graphics Display Capabilities

#### Graphics memory

256 MB per dual output card

#### Number of outputs

FC4000: Up to 96  
FC1000: Up to 20

#### Wall configuration

Any rectangular array

#### Resolution

Digital: 640x480 to 2560x1600 pixels per output  
Analog: 640x480 to 2048x1536 pixels per output  
Custom output modes possible in both analog and digital

#### Color Depth

32 bits per pixel

#### Output signal

DVI-I connector (supports single- and dual-link DVI, and analog VGA with adapter)

### Octal SD Video Input (Optional)

#### Inputs

FC4000: Up to 376 inputs  
FC1000: Up to 72 inputs

#### Input format

NTSC, PAL

#### Windows

16 destination windows per card

### Dual DVI/RGB/HD Input (Optional)

#### Inputs

FC4000: Up to 94 inputs with optional DVI-I input cards  
FC1000: Up to 18 inputs with optional DVI-I input cards

#### Format

Single-link DVI to 2048x1200, dual-Link DVI to 2560x1600, progressive scan component HD (480p, 720p, 1080p), and analog RGB with any sync type (composite, separate, sync on green) up to 2048x1200 resolution

#### Pixel rate

Digital: Up to 270 MHz pixel rate  
Analog: Up to 210 MHz

#### Pixel format

Samples and displays at 16 or 32 bits per pixel

#### Windows

4 destination windows per card

### PixelNet®

#### CatalystLink

FC4000: Up to 47 CatalystLink cards with quad PixelNet ports each

FC1000: Up to 9 CatalystLink cards with quad PixelNet

ports each

#### Input format

Support for all PixelNet input types, including DVI/RGB +KM capable.

#### Windows

4 destination windows per card

### Octal Video Connection Module (Optional)

#### Panel I/O

8 Composite (BNC) or S-Video (dual BNC) on 1RU 19" rackmount panel with 2 BNC sub-panels  
Each sub-panel has 16 BNC connectors for 8 composite or 8 S-video signals

## Other

### Rackmount Chassis

#### H x W x D

FC4000: 7" H x 19" W x 22" D (17.8 cm x 48.3 cm x 55.9 cm)  
FC1000: 7" H x 19" W x 21" D (17.8 cm x 48.3 cm x 53.3 cm)

#### Weight

FC4000: 51 lbs... (23.1 kg.)  
FC1000: 48 lbs... (21.8 kg.)

#### Shipping weight

72 lbs... (32.7 kg.)

### Operating Range

#### Temperature

Operating: 32°F – 104°F (0°C – 40°C)  
Non-operating: 14°F – 150°F (-10°C – 66°C)

#### Humidity

10-90% non-condensing

#### Altitude

Up to 10,000 feet (3,048.0 m)

### Electrical Requirements

#### Input voltage

100-240 VAC, auto-ranging power supply

#### Line frequency

50-60 Hz

#### Power consumption

FC4000: 600 Watts, maximum per chassis  
FC1000: 300 Watts, maximum

### Regulatory

#### United States

UL 60950 listed, FCC Class A

#### Canada

cUL CSA C22.2, No. 80950

#### International

CE Mark, CB Certificate and Mark, IEC 60950, CCC, C-Tick, VCCI



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