![Jupiter]

The next generation of display wall processors has arrived.

Fusion Catalyst
4000
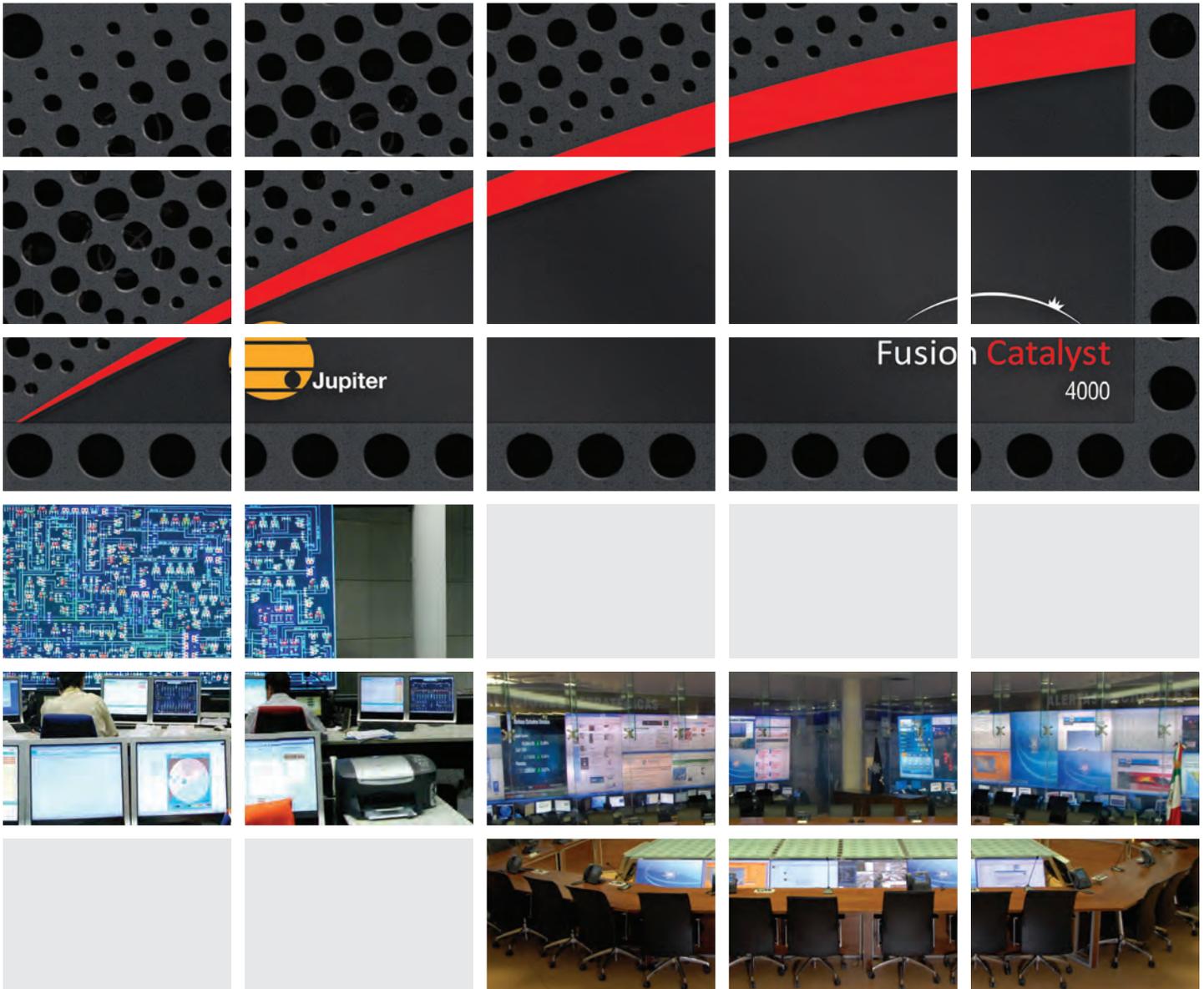
Fusion Catalyst™

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 320 Gbps of bandwidth. That's enough bandwidth to carry multiple 1080p video signals at a full 60 frames per second, drive HD displays 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 7. Run mission-critical applications, access data through the network, engage the information, and collaborate on a wall-sized desktop.

Power and Flexibility

The Fusion Catalyst 8000, 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 160 graphics outputs
- Up to 158 DVI, HD, or RGB inputs
- Up to 504 video inputs
- Up to 192 HD or SD streaming video inputs
- Up to 10 Gigabit Ethernet ports

The Fusion Catalyst 8000 and 4000 models come standard with Dual Quad Core Xeon CPUs, 8GB of RAM and a DVD-RW/CD-RW drive. The Fusion Catalyst 8000 ships with two hot-swappable 256GB solid state drives (SSD) and the Fusion Catalyst 4000 ships with two hot-swap 500 GB hard disk drives.

The Fusion Catalyst 1000 features a Core 2 Duo CPU, 4GB RAM, one removable 500GB hard disk drive, and a DVD-RW/CD-RW drive.

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 Gbps 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.

Quad HD Decoder Input Card

The addition of optional Quad HD Decoder Cards provides support for the display of up to 192 HD or SD network video streams in MPEG-2, MPEG-4, H.264, and MJPEG formats. The card also supports streams from PCs, with real-time updates. Using Jupiter scaling and communication technology, dozens of streamed sources can be displayed at full frame rate, simultaneously, with digital precision throughout. Support for most popular IP cameras and encoders. Tightly integrated with Jupiter's industry-leading ControlPoint software.

Abundant, Powerful Inputs

Fusion Catalyst display wall processors can be configured to specific direct input connection requirements. The Dual DVI-I input card handles input signals such as single-link 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 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.

CatalystLink® Input Card

Optional CatalystLink cards provide additional input capability from most PixelNet® nodes, including SDI, 3G-SDI, HD-SDI, and HD component inputs. 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-driven display wall and on ancillary PixelNet-driven 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 8000 and Fusion Catalyst 4000 feature 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.

The Fusion Catalyst 8000 also features hot-swappable input and output cards. 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 Vista or Windows 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 the 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, SD, and streaming 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.

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.

Fusion Catalyst blends seamlessly into Security Operations, Network Operation Centers, Public Utility Operations, Traffic Management Centers, Process Control Operations, Military Surveillance Systems, Classrooms, Boardrooms, Video Conference Rooms, Digital Signage installations, and more.

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 projection system.

Data sources can include local applications, remote network applications, CP Share 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 video wall.

And remember, Fusion Catalyst processors are also PCs, with Intel CPUs and Microsoft Windows 7 onboard, enabling applications to be run directly on the processor.

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

ControlPoint Security: User Access Control for Fusion Catalyst

Fusion Catalyst processors ship with ControlPoint Security, airtight security tools indigenous to Jupiter's ControlPoint wall management software suite.

ControlPoint Security features Active Directory integration, providing secure login with the standard user name and password controlled by the customer's IT department.

With security defined at the object level, managers can create discrete management and access permissions for wall segments, layouts, inputs, applications, and remote cursor control.

User activity and event logging is performed at sub-second resolution, allowing thorough forensic analysis.

Designed From the Ground Up To Do One Thing: Be the Best Display Wall Processor on the Planet. (Just Say "No" to COTS.)

- PCI Express Switch Fabric with up to 320 Gbps bandwidth
- FC8000 & FC4000: Dual Intel Quad Core Xeon CPUs
- FC1000: Single Core 2 Duo CPU
- Up to 64GB of ECC-protected RAM
- Windows 7 64-bit standard
- FC8000: Up to 80 x4 PCIe 2.0 slots
- FC4000: 16 x4 PCIe 2.0 slots (up to 48 slots with two optional expansion chassis)
- FC1000: 10 x4 PCIe 2.0 slots
- 16 Gbps per slot, non-blocking bandwidth
- ControlPoint™ software
- First processor with Dual-Link DVI in and out
- Up to 504 video inputs with Octal video cards
- Up to 192 HD or SD streaming video channels
- Up to 158 DVI/RGB/HD input channels
- Up to 160 output display channels
- 256MB graphics memory on each output card
- 32 bits per pixel color depth
- Many hot-swappable components

Fusion Catalyst Specifications

(rear panel of the Fusion Catalyst 4000)

Main Chassis

CPU Board

Processor
FC8000 & FC4000: 2 Intel Quad Core Xeons
FC1000: Single Core 2 Duo

System memory
FC8000 & FC4000: 8GB RAM; Optional 16, 32, 64GB
FC1000: 4GB RAM

Expansion slots
FC8000: All expansion slots are in Switch Fabric Chassis (80 max with four 20-slot Switch Fabric Chassis)
FC4000: 16 PCI Express 2.0 x4 slots (48 max with two 16-slot FC4000 Expansion Chassis)
FC1000: 10 PCI Express 2.0 x4 slots (no expansion)

Other slots
FC8000 CPU Chassis: Four PCI Express 8-lane slots for peripheral cards (Ethernet, Audio, RAID 5)

PCI Express 2.0 Switch

Non-blocking architecture, PCI Express 2.0

Disk Storage

Hard disk
FC8000: 2 hot-swap 256GB solid state drives (SSD), RAID 1 (3rd drive, RAID 5, 2TB HDD optional)
FC4000: 2 hot-swap 500GB HDD, RAID 1 (3rd drive, RAID 5, 256GB SSD optional)
FC1000: 1 removable 500GB HDD

Optical Storage
DVD-RW/CD-RW

Network Interface

Ethernet
Dual 10/100/1000 Mbps RJ45 ports; more optional

Input Devices (USB)

FC8000: Wireless 104-key keyboard & laser mouse
FC1000 & FC4000: Wired 104-key keyboard & mouse

Touch Panel Support

IP control protocols

Connection to External Chassis

FC8000: 4 x16 slots for links to Switch Fabric Chassis
FC4000: 2 x8 slots for links to Expansion Chassis

Expansion Chassis

FC8000 Switch Fabric Chassis

PCI Express Input
16-lane PCI Express 2.0 inter-chassis connection

Expansion slots
20 slots in each Switch Fabric Chassis
Add up to 4 Switch Fabric Chassis to a CPU Chassis

FC4000 Expansion Chassis

PCI Express Input
8-lane PCI Express 2.0 inter-chassis connection

Expansion slots
16 slots in each chassis, add up to 2 Expansion Chassis

Graphics I/O

Dual-Link DVI-I Output Card

Graphics memory
256 MB per card

Output channels supported
FC8000: Up to 160
FC4000: Up to 96
FC1000: Up to 20

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-link and dual-link DVI, and analog VGA with adapter)

Dual DVI/RGB/HD Input Card (Optional)

Input channels supported
FC8000: Up to 158
FC4000: Up to 94
FC1000: Up to 18

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

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

Pixel format
32 bits per pixel

Windows
4 destination windows per card

Octal SD Video Input Card (Optional)

Input channels supported
FC8000: Up to 504
FC4000: Up to 328
FC1000: Up to 72

Input format
NTSC, PAL

Windows
16 destination windows per card

Octal Video Connection Module
Dual BNC-F connectors support S-Video or Composite 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

Quad HD Decoder Input Card (Optional)

Integrated HD & SD video decoding
4 GigE connections, 1 per decoder
Supports most popular IP cameras and encoders
Supports hi res, real-time decoding of computer streams

Input channels supported
FC8000: Up to 192, HD or SD streams
FC4000: Up to 164, HD or SD streams
FC1000: Up to 36, HD or SD streams

CatalystLink Input Card (Optional)

For PixelNet integration
Each CatalystLink card features 4 PixelNet ports and supports up to 8 PixelNet Input Nodes
Support for most PixelNet input types
4 destination windows per card

Other

Rackmount Chassis

Dimensions
FC8000 CPU, Switch Fabric Chassis, 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
FC8000 CPU, Switch Fabric Chassis, FC4000:
51 lbs. (23.1 kg.)
FC1000: 48 lbs. (21.8 kg.)

Shipping weight
All chassis: 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
FC8000 & 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. 60950

International
CE Mark, CB Certificate and Mark, IEC 60950, CCC, VCCI