



PixelNet

A Dynamic, Networked Approach to AV Integration

PixelNet is a revolutionary new way to capture, distribute, control and display digital and analog visual information sources. Based on a switched, proprietary network of input nodes, PixelSwitches™, and output nodes, PixelNet makes creating, managing, and operating complex topologies of inputs, Fusion-based display walls, and ancillary outputs simple, inexpensive and future proof.



PixelNet is a switched network: PixelNet input and output nodes have dedicated bandwidth into PixelNet through a PixelSwitch. Data transmission from one PixelNet node to another is completely independent of other communicating nodes and as ports on a PixelSwitch are populated with more PixelNet nodes, bandwidth is effectively added to the system. Scalability and performance is assured through the use of stackable PixelSwitches, with the potential to create networks of hundreds of nodes or more.

Based on standard CAT5e Ethernet cabling, PixelNet is inexpensive and easily managed in the field and capable of transmitting data up to 330 feet (100 meters) between a node and switch. In combination with a PixelSwitch, two nodes connected via CAT5e copper cabling could be separated by as much as 660 feet (200 meters). Optional use of fiber transceivers can extend transmission distances to miles.

Critical to PixelNet is the use of Jupiter's proprietary protocols and lossless compression techniques, resulting in highly efficient usage of network resources and the means to transmit high resolution signals such as computer displays and high definition video in real time.

PixelNet nodes are small, low-power and silent. Designed to be installed close to a source device, PixelNet nodes can be left on a desktop or mounted under a desk or table surface. For high density, data-center installations, an optional rack mount kit with a common power supply can accommodate up to seven PixelNet input nodes in a 3U, 19" rack space.

PixelNet nodes used to capture computer sources have a convenient loopback connector, obviating the need for interfaces or distribution amplifiers. Optional KVM functionality provides the ability to not only view but also directly control the connected computer source through PixelNet.

Quality, Simplicity.

Jupiter uses state-of-the-art capture, de-interlacing where appropriate, noise-reduction, compression and scaling algorithms in the PixelNet system. Visual performance is appropriate for applications where audiences expect broadcast-quality performance. PixelNet is completely digital in nature, and given a digital input source such as DVI or SDI, the network is digital end-to-end, resulting in the best possible visual performance. Boardroom, presentation and public display venues benefit from simple installation, superb visual performance, and easy maintenance of a PixelNet-based visualization network.

PixelNet is a pure plug-and-play system, nodes recognize each other automatically, and exchange visual data in a common, digital format. No configuration is necessary to create a PixelNet of any size or complexity.

PixelNet networks center on PixelSwitches, a PixelSwitch can have as few as 16 ports, and are capable of growing to stacked systems of 768 or more ports. Ports in PixelNet can equally be populated with input or output nodes, depending on application requirements. Input and output nodes (Fusion 960, 964 or 980 processors) can be added at anytime without resetting or powering off the network. Automatic recognition and incorporation of new nodes provides the ultimate in flexibility... systems can grow or shrink dynamically and incrementally without service being interrupted. PixelNet's dynamic nature allows systems to be designed with exactly the number of nodes, input or

output, needed to fulfill customer's requirements. If those requirements change or grow over time, PixelNet nodes can be added as needed.

PixelNet provides the ability for a single input node to be displayed on one or several PixelNet output nodes simultaneously. Inherently switched in nature, PixelNet can replace complex matrix switches with an inexpensive and flexible network of nodes.

PixelNet is also inherently fault tolerant, hot-swappable, and hot-pluggable. Node failure does not effect the operation of other nodes in the network, and a failed node can easily be replaced while leaving the rest of the network running – truly hot-swappable. To add nodes to the system, all that is required is to plug the node into a PixelSwitch and it is automatically incorporated into the net

Fusion Display Walls

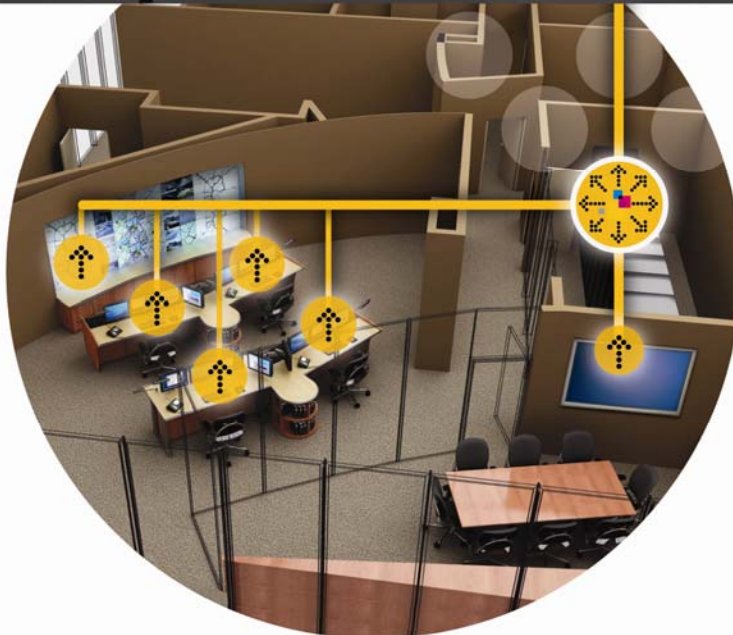
PixelNet networks can be shared amongst one or more Fusion 960, Fusion 964, or Fusion 980 Display Wall Processors, providing a large control room with the ability to have complete flexibility of the display of its visual data sources across a number of display walls. With the ability to run standard Cat5e cabling over 300 feet, and the option of fiber for long haul distances, PixelNet can cover the main control room, auxiliary meeting rooms as well as emergency “war rooms” simultaneously, all sharing the same visual sources .

ControlPoint Integration

PixelNet is tightly integrated into the ControlPoint suite of software. PixelNet nodes are automatically populated into the object browser interface and are immediately available to be “dragged and dropped” onto the display wall mimic for display. Control of input node parameters such as contrast, hue, saturation and brightness are possible from the ControlPoint interface. PixelNet source windows can be saved and recalled in ControlPoint layouts along with all other supported inputs found on Fusion display wall. PixelNet Solo output nodes are also controlled from the same intuitive interface. Since the ControlPoint client can be run from any Windows™ PC connected to the control room network – effortless control of an entire facility can be accomplished from a single place.

For additional flexibility, PixelNet is fully accessible using the ControlPoint protocol and APIs, integration with third party applications, custom software packages and touch panel control systems is possible.

The PixelNet Control Room



Control rooms that employ display walls can be found in many vertical industries: public utilities power, water and gas; network operating centers; surveillance and security centers, financial institution control rooms and trading floors; 911/Dispatch centers; military command and control; intelligent transport control rooms, among others.

In each industry-specific application, the same basic requirements can be found:

- a common display wall that provides a coherent overview of the system to the operators in the control room,
- the ability to conveniently and quickly display any and all information sources found in the control with maximum visual acuity,
- the ability to handle a wide variety of information sources provided in a wide variety of formats: video, high definition video, RGB computer, DVI computer, network streamed video, and application content,
- the ability to intuitively interact with all of the visual information sources found in a control room,
- the ability to share visual information in multiple places simultaneously, and finally,

- the ability to maintain all of this flexibility and performance 24/7/365, with minimum downtime.

PixelNet combined with a Fusion display wall processor suit these requirements perfectly, providing flexible capture and display all sources found in a control room on a display wall, on ancillary displays in and outside the control room, as well as on display walls in other parts of the building housing the control room.

PixelNet is inherently live-expandable and hot-swappable – continuous uptime is assured, additions and replacements of PixelNet nodes can be accomplished without shutting down the system, and newly added nodes are automatically incorporated into the display network.

PixelNet Nodes

DVI-I

The DVI-I PixelNet input node can capture either DVI-D or analog RGB computer signals at up to 1600x1200 pixel resolution. A convenient loopback connector is provided to allow a local monitor to be connected to the node without the need for an interface or distribution amplifier. Delivered with a single GigE PixelNet port standard, the DVI-I input node can be optionally equipped with a second GigE port for additional performance through port aggregation or for fault tolerance using separate cable runs. The DVI-I input node can also be configured with either a single or dual SFP port to accommodate fiber connections.



Optional KVM

The DVI-I input node can be ordered with KVM capability to allow, through ControlPoint client software, users to control the computer connected to the node. Full KVM capability is possible without the need for additional software, cabling, or the use of precious network bandwidth.

Analog HD

The Analog HD PixelNet input node can capture analog high definition video signals at up to 1080p60 resolution. The Analog HD input node is delivered with dual GigE PixelNet ports standard for superior performance through



port aggregation and fault tolerance using separate cable runs. The Analog HD input node can also be configured with dual fiber connections for long-haul distribution or for EMI sensitive installations.



SDI

The SDI input node can capture serial digital video inputs conforming to the ANSI/SMPTE 259M-C NTSC/PAL standard. The SDI input node has a standard loop-through connector for down-stream devices and has a single GigE PixelNet port standard. The SDI input node can also be configured with a fiber interface for long haul signal distribution.



FusionLink

PixelNet FusionLink cards are installed into a Fusion display wall processor and provide dynamic access to all PixelNet input nodes connected on the same PixelNet. FusionLink cards come standard with dual GigE PixelNet ports and can optionally configured with fiber interfaces for display walls installed a long distance from the visual sources to be displayed. Each FusionLink card can handle 8 PixelNet inputs (of any type) simultaneously, driving up to 8 separate windows which can be move and resized anywhere on the display wall, up to 4 FusionLink cards can be installed on a system, allowing the display of up to 32 PixelNet inputs on a display wall, simultaneously.

