



Digital Image Processing

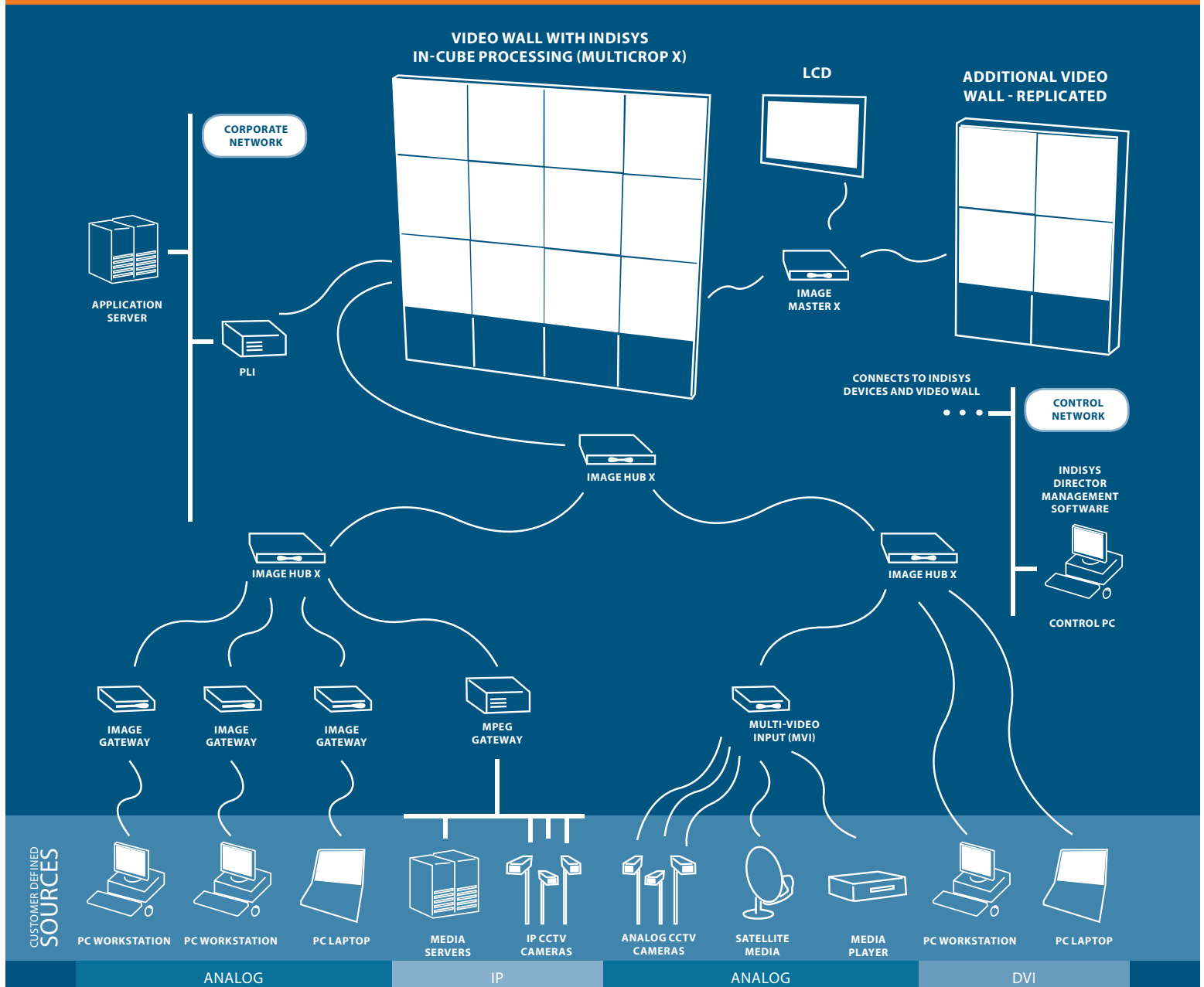
Complete control of critical visual information

Planar's Indisys™ image processing system is a complete all-digital solution for capturing, routing, displaying and managing visual information on a video wall. It incorporates a unique distributed architecture and dedicated, high bandwidth components that deliver the performance, flexibility, redundancy and source-to-pixel control — not possible with traditional image processing architectures. Indisys Director management software allows an operator to control and monitor every aspect of the control room visual experience, up to and including the video wall displays themselves.

The Indisys Hub and Gateway components can be physically distributed or centrally rack-mounted depending on the requirements of the installation. Indisys in-cube processing results in simplified cabling and enables fault-tolerant configurations, single-cable video wall replication, PIP 8, image scaling, freeze frame, video filtering and complete video wall snapshots. The all-digital Indisys protocol operates over DisplayPort cables at a data rate of 32Gb per second.

The latest generation Indisys incorporates Indisys™ Extensity™ technology for advanced image processing. Indisys Extensity components are designed with today's digital, high-resolution sources in mind. With two times the throughput and two times the number of windows supported, the most demanding control room environments are supported with less hardware. With its purpose-built design and powerful internal processor, Indisys Extensity hardware is designed for 24/7 operation and future software enhancements, keeping video wall downtime to a minimum.

Example: Indisys Architecture



The Indisys solution uses a network architecture to create a visual network delivering the customer's information on video walls and external displays with maximum flexibility, reliability and control. The system can be described in four parts defined below:

ACQUISITION

1. Customer supplied sources are acquired by Indisys Gateway components, converting the signals to a digital format. The Pixel Layer Integrator (PLI) acquires network data and customer applications in pixel-for-pixel solutions or result.

DISTRIBUTION

2. The Image Hubs packetize, aggregate and route the visual data to Indisys image processors on four ultra-high bandwidth channels.

DISPLAY

3. Stand alone or in-cube image processors receive and format the data stream for displaying on the video wall or external displays.

CONTROL

4. Command, control and maintenance of the entire system is managed by the software application, Indisys Director, over a private Ethernet network connected to each Indisys component.

			
	INDISYS IMAGE GATEWAY	MULTI-VIDEO INPUT	IMAGE HUB X
Function	Analog to Digital source converter	Digital Converter — transforms any Video signal into Digital — DVI format	Digital multiplexer, IP2 encoder, IP2 Router, Virtual Switch
INPUTS CHARACTERISTICS			
Number	up to 2	8, 16	4
Signal	RGB analog	NA	Digital
Video signal	PAL, SECAM, NTSC	PAL, SECAM, NTSC	DisplayPort 1.1
Video signal connection	Composite, S-Video, YUV	Composite, S-Video, YUV	
Maximum pixel frequency	165 MHZ	165 MHZ	330 MHZ
Connector	Sub D15 HD male	1 BNC + 1 DIN/input, optional composite video adapters	DisplayPort
Configuration	Auto / Manual	Auto / Manual	Auto / Manual
Color depth	24 bits true color (16 million colors)	24 bits true color (16 million colors)	24 bits true color (16 million colors)
Maximum resolution	1600 X 1200 @ 60 Hz / per input		4096 lines / 4096 columns
OUTPUT CHARACTERISTICS			
Number	1	1	2
Output signal	Digital output — DVI	Digital output — DVI	Digital output — DisplayPort or IP2
Video de-interlacing	High-quality, with motion compensation	High-end quality with motion compensation	
Color depth	24 bits true color (16 million colors)	24 bits true color (16 millions colors)	24 bits true color (16 millions colors)
Connector	DVI-D	DVI-D	DisplayPort
Genlock		On one of the 16 inputs or on the Genlock input (03V to 2V)	
Maximum pixel frequency	165 megapixels	165 megapixels	330 megapixels
INPUT LOOP-THOUGH			
Number	1 per input	1 per input	1 per input
Signal	RGB / Video analog	On Composite Video Only	Indisys Packet Protocol (IP2) or DisplayPort 1.1
Connector	Sub D15 HD female	BNC	DisplayPort
CONTROL			
Parameters	Signal characteristics / IP address of module	Signal characteristics / IP address of module	Signal characteristics / IP address of module
Front panel control	4 push buttons with LCD Display	4 push buttons with LCD Display	4 push buttons with LCD Display
NETWORK INTERFACES			
Network	10/100 Ethernet	10/100 Ethernet	3 – Gb Ethernet ports
Connector	RJ 45	RJ 45	RJ 45
MISCELLANEOUS			
Power supply	Automatic 100-240 V 50/60 Hz	Automatic Selection / 90-240 V 50/60 Hz	Autorange 100-240 V 50/60 Hz
Power consumption	8 W	70 watts	50 W
Operating temperature	50°F-104°F (10°C-40°C)	50°F-104°F (10°C-40°C=)	50°F-104°F (10°C-40°C)
Operating humidity	< 90% non condensing	< 90% non condensing	< 90% non-condensing
Design	Stand-alone / Rack versions available	Rack mountable (19"-1U)	Stand-alone / Rackable versions available
Dimension (rack-mount.)	19" — 1U rack	19" — 1U rack	19" — 1U rack
Dimension (stand-alone)	245 x 180 x 50 (mm)	NA	NA
Weight	2.7 kg / 5.95 lbs	2.9 kg / 6.4 lbs	2.5 kg/ 5.5 lbs.
MODELS	Image Gateway	MVI-8	
	Image Gateway Video	MVI-16	
	Image Gateway Rack Mount		
	Image Gateway Video Rack Mount		
	Dual Image Gateway -Rack Mount		
	Dual Image Gateway Video -Rack Mount		

	IN-CUBE PROCESSOR (MULTICROP X)	IMAGE MASTER X
Function	All Planar LED SeriesCubes	Deliver Indisys Processing to Flat Displays
INPUTS CHARACTERISTICS		
Number of inputs	4	4
Type	DisplayPort 1.1	DisplayPort 1.1
Input signal protocol	DisplayPort / Indisys™ (IP2)	DisplayPort / Indisys™ (IP2)
Connector	DisplayPort	DisplayPort
Pixel frequency	330 MHz max	330 MHz max
INPUTS LOOP THROUGH		
Number	4 (1 for each input)	4 (1 for each input)
Type	DisplayPort 1.1	DisplayPort 1.1
Connector	DisplayPort	DisplayPort
OUTPUT CHARACTERISTICS		
Number	1	2
Output signal	DVI - Internal	DisplayPort 1.1
Connector	DVI-D Internal	DisplayPort
Pixel frequency	165 MHz max	330 MHz max
CONTROL		
Front panel control	4 push buttons / OLED Panel	4 push buttons / OLED Panel
Remote	3 - Ethernet 10/100/1000 – TCP/IP	3 - Ethernet 10/100/1000 – TCP/IP
Connector	RJ 45	RJ 45
MISCELLANEOUS		
Case	Planar Input Module.	1 RU
Dimensions (WxHxD)	Built into the display	(19" with mounting kit) 440mm x 44mm x 200mm
Weight	1.8 kg	2.5 kg
Power supply	12VDC from Planar Display	100-240 V 50/60 Hz autorange external
Power consumption	See Display Specs	50 watts
Temperature range	See Display Specs	50°F-104°F (10°C-40°C)
Humidity range	See Display Specs	< 90% non condensing

	PLI - NETWORK PROCESSOR		MPEG GATEWAY
Function	Display any desktop or network application in pixel-for-pixel resolution on a video wall.		Acquires and decodes network based MPEG and Video streams
Models	PLI-S Series and PLI-U Series	PLI-X Series	H.264 MPEG Gw
PROCESSOR UNIT			
Operating System	Windows 7, XP, 2008 Server, Linux	Windows 7, XP, 2008 Server, Linux	Linux Fedora 10
Processor	Intel® Core™ Processor	Intel® Xeon® processor or Dual-Xeon® processor	Intel® Core™ Processor
Ram type and size	6GB DDR 3	6 GB DDR3 (or 12 GB if 2 processors)	DDR3, 6 GB
PERIPHERAL			
Hard disk drive & type	SATA Min 250 GB	SATA Min 250 GB	SATA Min 250 GB
Number of disks	Up to 3	Up to 3	1
RAID 0,1, 5	Yes	Yes	NA
DVD drive	DVD/RW	DVD/RW	DVD/RW
OUTPUTS			
Number of cubes	Up to 48 XGA or 24 SXGA+ or 12 HD	Up to 144 XGA, 96 SXGA+, 64 HD (Refresh rate dependent)	2 Digital output to Image Hub
Number of outputs	2 or 4 or 8	2 or 4 or 8 or 16	
Output type	DisplayPort	DisplayPort	DVI
MISCELLANEOUS			
Power supply	100-240 V AC autoswitch 350 W	100-240 V AC Redundant 1400 W	100-240 V AC autoswitch 350 W
Dimensions	4U 19" rackable	4U High 19" rackable with mounting rails	2U 19" rackable
Depth	19" (482.6mm)	26.5" (673mm)	19" (482.6mm)
TECHNOLOGY			
Ethernet	Up to 4 Dual Gb Ethernet ports or 2 Gb fiber	Up to 4 Dual Gb Ethernet ports or 2 Gb fiber	2x 10/100/1000 Base-T Ethernet Interface for data & control
Color depth	24 bits, no support for 8-bit mode	24 bits, no support for 8-bit mode	24 bit
PCI Express	2 (x16) and 2 (x8)	4 (x16) and 2 (x8)	
OPTIONS			
Redundant power supply	1+1 Autoswitch 400 W	Yes	Remote Management
NIC up to 6 ports 10/100/1000	yes-autoswitch on failover	yes-autoswitch on failover	Through TCP/IP protocols, IMS API
Fiber NIC 2 ports 10/100/1000	yes-autoswitch on failover	yes-autoswitch on failover	Multicast, supported with IGMPV3 Propagation protocol.
			Simultaneously Streams decoded
			16 in 4CIF; 12 in D1 Resolution
			Supported Codec and Protocols:
			RTP, RTSP. Mpeg-1, Mpeg-2 (ISO 13818-2), Mpeg-4 (ISO 14496-2), H264 (ISO 14496-10).