



INDISYS™ IMAGE PROCESSING



DIGITAL IMAGE PROCESSING

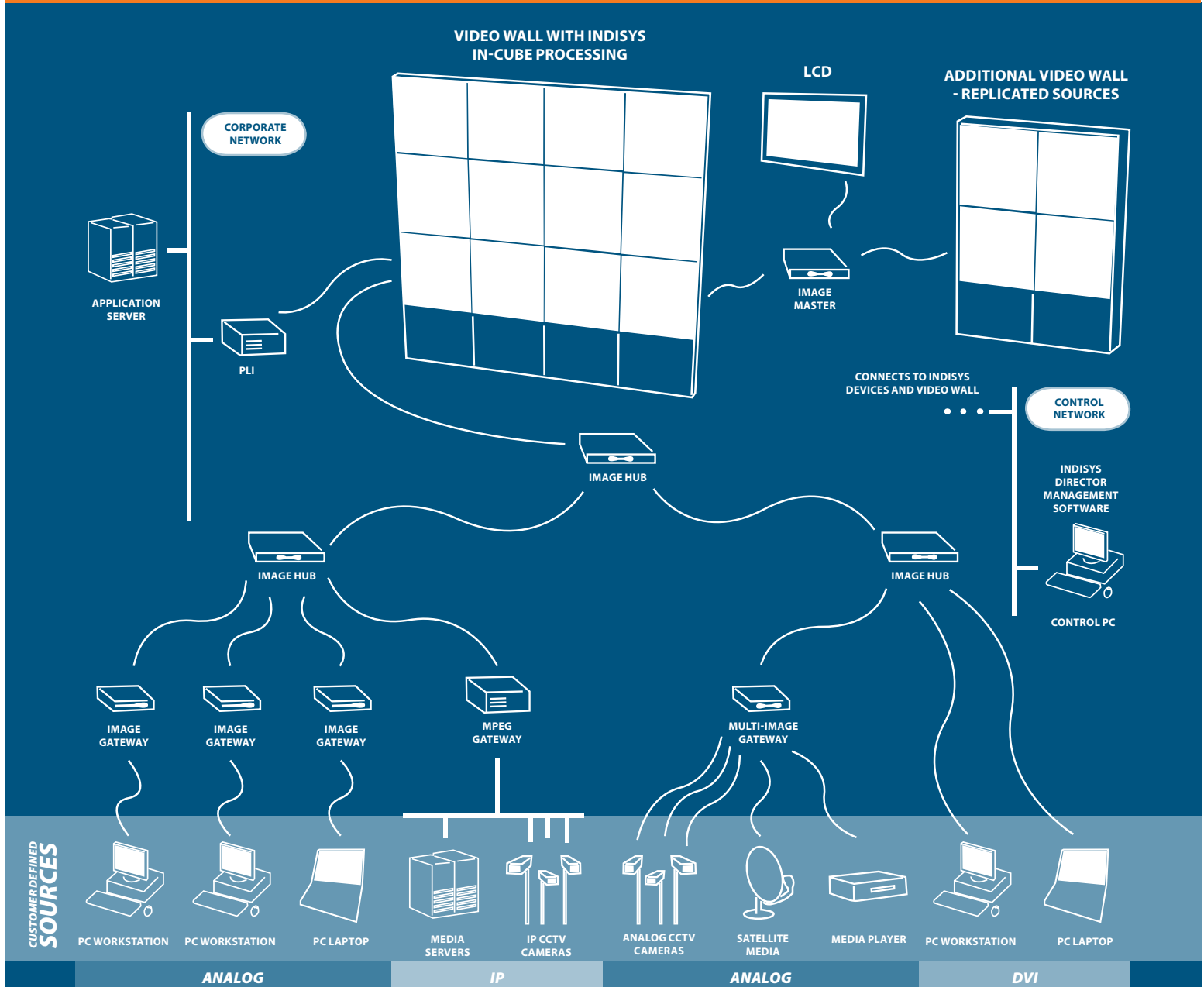
Complete control of critical visual information

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 wall replication, PIP 4, image scaling, freeze frame, video filtering and complete wall snapshots. The all-digital Indisys protocol operates over standard dual-link DVI cables at a data rate of 16Gb per second.

Indisys scales to accommodate from very small to very large control room networks and video walls. Planar image processing provides an end-to-end solution that has been successfully deployed and proven around the world and continuously developed and improved over the past 20 years.

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 two 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.

			
	IMAGE GATEWAY	MULTI-IMAGE GATEWAY	IMAGE HUB
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	4 - 8 - 12 - 16	4
Signal	RGB analog	NA	Digital
Video signal	Optional - PAL, SECAM, NTSC	PAL, SECAM, NTSC	DVI
Video signal connection	Optional - Composite, S-Video, YUV	Composite, S-Video, YUV	
Maximum pixel frequency	165 Megapixels	165 Megapixels	165 Megapixels
Connector	Sub D15 HD male	3" BNC / source	DVI-D
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
Up to and including SXGA	NA	NA	4
SXGA+	NA	NA	3
UXGA	NA	NA	2
HD	NA	NA	2
Image Hub - IP2 Cascading			4
OUTPUT CHARACTERISTICS			
Number	1	1	1
Output signal	Digital output — DVI	Digital output — DVI	Digital output — DVI 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	DVI-D
Genlock		On one of the 16 inputs or on the Genlock input (03V to 2V)	
Maximum pixel frequency	165 megapixels	165 megapixels	165 megapixels, cascading to Image Hubs; 330 megapixels, to Dual Link DVI displays
INPUT LOOP-THROUGH			
Number	up to 2 per input	up to 16 per input	4 per input
Signal	RGB / Video analog	On Composite Video Only	Indisys Packet Protocol (IP2) or DVI
Connector	Sub D15 HD female	BNC	DVI-D
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
ETHERNET REMOTE			
Protocol	TCP/IP	TCP/IP	TCP/IP
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	25 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"-2U)	Stand-alone / Rackable versions available
Dimension (rack-mount)	1/2 19" — 1U rack	2U — 19" racks	19" — 1U rack
Dimension (stand-alone)	245 x 180 x 50 (mm)	NA	NA
Weight	2.7 kg / 5.95 lbs	11 lbs. / 5 kg	5.95 lbs (2.7 kg)
MODELS			
	Image Gateway Image Gateway Video Image Gateway Rack Mount Image Gateway Video Rack Mount Dual Image Gateway -Rack Mount Dual Image Gateway Video -Rack Mount	Multi Image 4 (4 Inputs) Multi Image 8 (8 Inputs) Multi Image 12 (12 Inputs) Multi Image 16 (16 Inputs)	

	IN-CUBE PROCESSOR	IMAGE MASTER
Function	Planar Displays (RP, RX & SP)	Deliver Indisys Processing to Flat Displays
INPUTS CHARACTERISTICS		
Number of inputs	2	2
Type	DVI – dual	DVI – dual
Input signal protocol	DVI / Indisys™ (IP2)	DVI / Indisys™ (IP2)
Connector	DVI-D	DVI-D
Pixel frequency	330 MHz max	330 MHz max
INPUTS LOOP THROUGH		
Number	2 (1 for each input)	2 (1 for each input)
Type	DVI – dual	DVI – dual
Connector	DVI-D	DVI-D
OUTPUT CHARACTERISTICS		
Number	1	1
Output signal	DVI	DVI
Connector	DVI-D	DVI-D
Pixel frequency	165 MHz max	165 MHz max
CONTROL		
Front panel control	4 push buttons / LCD Panel	4 push buttons / LCD Panel
Remote	Ethernet 10/100 – TCP/IP	Ethernet 10/100 – TCP/IP
Connector	RJ 45	RJ 45
MISCELLANEOUS		
Case	Planar Input Module.	2 RU
Dimensions (WxHxD)	Built into the display	(19" with mounting kit) 440mm x 88mm x 200mm
Weight	1.5 kg	2.5 kg
Power supply	12VDC from Planar Display	100-240 V 50/60 Hz auto-range external
Power consumption	See Display Specs	45 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. PLI models designed to drive 2 to 48 XGA or SXGA+ displays.		Acquires and decodes network based MPEG Video streams
Models	PLI 8-16-S / PLI 8-16-U / PLI 16-32-U / PLI 24-48 U	PLI 8-16-P / PLI 16-32-P	MPEG GW
PROCESSOR UNIT			
Operating System	Windows XP, 2000, Fedora Core 4	Windows XP, 2000, Fedora Core 4	Linux Fedora Core 4
Optional	Windows 2003 Server -PLI-U Only	Windows 2003 Server	
Processor	Intel® Core 2 Duo 2.3 GHz, or Pentium D930 3GHz Dual Core	AMD Dual Opteron 248 2.2GHz	Intel® Pentium D930 3GHz Dual Core
Ram type and size	PLI-S: 1G DDR, PLI-U: 2GB DDR	2 GB	DDR, 1 GB
FSB	FSB 1.3 GHz or 800MHz		FSB 800MHz
PERIPHERAL			
Hard disk drive and type	SATA Min 80 GB	SATA Min 80 GB Raid 0,1	SATA Min 80 GB
Number of disks	1	2	1
DVD drive	DVD/RW	DVD/RW	DVD/RW
OUTPUTS			
Number of cubes	PLI-S up to: 8 SXGA+ or 16 XGA PLI-U up to: 24 SXGA+ or 48 XGA	PLI-P up to: 16 SXGA+ or 32 XGA	1 Digital output to Image Hub
Output type	DVI	DVI	DVI
MISCELLANEOUS			
Power supply	100-240 V AC autoswitch 350 W	100-240 V AC autoswitch 645 W	100-240 V AC autoswitch 300 W
Dimensions	4U 19" rackable	4U 19" rackable	4U 19" rackable
Depth	19" (482.6mm)	25.5" (648mm)	19" (482.6mm)
TECHNOLOGY			
Ethernet	Single Port Ethernet 10/100/1000	Dual Port Ethernet 10/100/1000	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	3 (2 slot x16 or x8, 1 slot x4)	2 (x16)	REMOTE MANAGEMENT Through TCP/IP protocols, Director API, Multicast, supported with IGMPV3 Propagation protocol. Simultaneously Streams decoded 4 in Full D1 Resolution, 12 in CIF streams. Supported Codecs Mpeg-1, Mpeg-2 (ISO 13818-2), Mpeg-4 (ISO 14496-2). * Custom codec integration support available.
PCI 32-bit	2	3	
Cache	4MB Cache L2 / 2MB cache L2	1MB cache L2 per processor	
OPTIONS			
Redundant power supply	1+1 Autoswitch 400 W	Triple Redundant 760W	
Raid 0, 1, 5	PLI-S=No, PLI U=Yes	yes	
NIC 1 port 10/100/1000	yes	yes	
NIC 4 ports 10/100	yes-autoswitch on failover	yes-autoswitch on failover	
NIC 2 ports 10/100/1000	yes-autoswitch on failover	yes-autoswitch on failover	