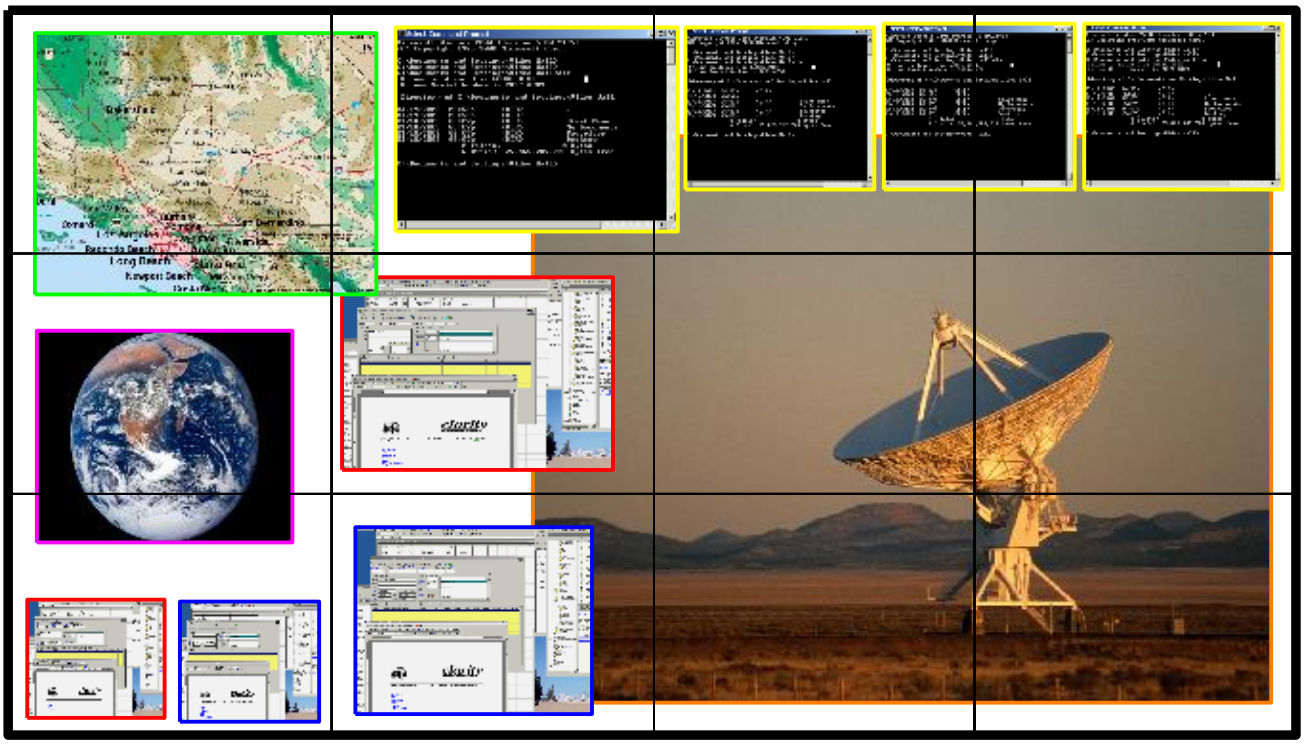
VP-400C/500C/1500C/2000C/2500C SERIES VIDEO PROCESSORS



The VP-400C/500C/1500C/2000C/2500C line of video processors from Pixell are Windows 10 64 bit based multi input and multi-output image control devices that allows inputting of Component HD, Composite/S-Video, and Computer RGB/DVI/HDMI signals to be sized and placed on large venue video walls and multi display screens.

These processors are intended for use in command and control environments, military applications, power plants, boardroom, network operations centers, security operations centers, video conferencing, and multimedia presentations. They are "Card Cage" type expandable systems that are built to order depending on the number and type of required inputs and outputs for a particular installation.. All systems built to order.

	Technical Specifications:				
	VP-400C	**VP-500C**	**VP-1500C**	**VP-2000C**	**VP-2500C**
OUTPUTS:	**4 DisplayPort Digital only (comes with DVI single link adaptors)**	**4 to 8 DisplayPort Digital only (comes with DVI single link adaptors)**	**4 to 12 DisplayPort Digital only (comes with DVI single link adaptors)**	**4 to 28 DisplayPort Digital only (comes with DVI single link adaptors)**	**4 to 64 DisplayPort Digital only (comes with DVI single link adaptors)**
Horizontal rate		15kHz to 90kHz			
Vertical refresh		37Hz to 85Hz (see below)			
Max Resolution Digital Per Output	640x480 to 3840x2160 (Resolutions above 1920x1200 require optional DisplayPort to DVI Dual Link Active adaptors)				
Max Resolution Analog Per Output	Requires digital to analog converters, check with factory				
Pixel Clock	Up to 330Mhz digital				
Video Memory	512MB total				
GPU chip	AMD Radeon				
Connectors	DisplayPort, (DVI Single link adaptors included, Dual link optional)				
Control monitor	DVI-I Digital or Analog output up to 1920x1200 for control monitor				
HD Inputs: HDMI/DVI/VGA/YPrPb (Single Link 165mhz)					
Maximum	**4**	**8**	**12**	**64**	**256**
Increments Per card	**1, 2 or 4 per card**				
Max res/Frame rate	**1920x1200 / 60hz**				
Window Sizing	**From postage stamp to full scale across output array, unlimited configuration including overlapping windows and PIP.**				
HD Inputs: 4K DVI Dual Link DVI (up to 330mhz)					
Maximum	**N/A**	**N/A**	**4**	**64**	**128**
Increments per card	**1**				
Max res/Frame Rate	**3840x2160 / 60hz**				
Window Sizing	**From postage stamp to full scale across output array, unlimited configuration including overlapping windows and PIP.**				

SDI SD/HD 3G Inputs:

	VP-400C	VP-500C	VP-1500C	VP-2000C	VP-2500C
Increments per card	**2 (plus 2 outputs as loop throughs) or 4**				
Max res/Frame Rate	**1920x1080P / 60hz**				
Window Sizing	**From postage stamp to full scale across output array, unlimited configuration including overlapping windows and PIP.**				

Composite SD/S-Video Inputs:

	VP-400C	VP-500C	VP-1500C	VP-2000C	VP-2500C
Max Number	Up to 4 (Unlimited windows per output)	Up to 8 (Unlimited windows per output)	Up to 16 (Unlimited windows per output)	Up to 128 (Unlimited windows per output)	Up to 256 (Unlimited windows per output)
Growth Increments	8	8 per input card			
Video Formats	NTSC/PAL/SECAM on Composite or S-Video (Y/C) signal				
Input Levels	1 volt P-P				
Scaling	Smooth scaling from icon size to full screen including				
Connectors	BNC Female or Male with Octopus cables or RCA female				

IP Camera Decoding:

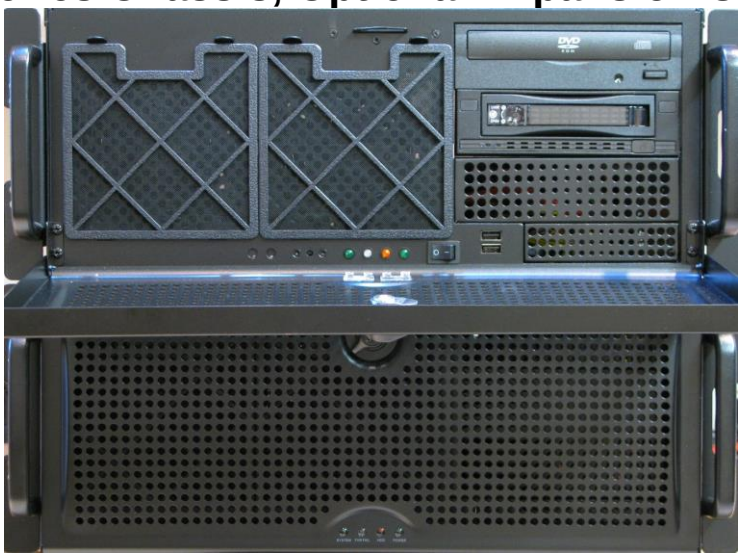
Max Number Cameras accessible	N/A Use VP-2000C or VP-2500C	N/A Use VP-2000C or VP-2500C	N/A Use VP-2000C or VP-2500C	Up to 128, each 16 cameras have a dedicated input card for decoding.	Up to 512, each 48 cameras have a dedicated input card for decoding.
Max Resolution				Up to 3840x2160	
Max Frame Rate				Adjustable up to 60 FPS	Adjustable up to 60 FPS
Supported Protocols				RTSP	
Internal CODEC				Hardware	
Supported Cameras				All major manufactures that use open codec RTSP standards (Contact Pixell for specific models)	
Compression				H.263, H.264, MJPEG	

	VP-400C	VP-500C	VP-1500C	VP-2000C	VP-2500C

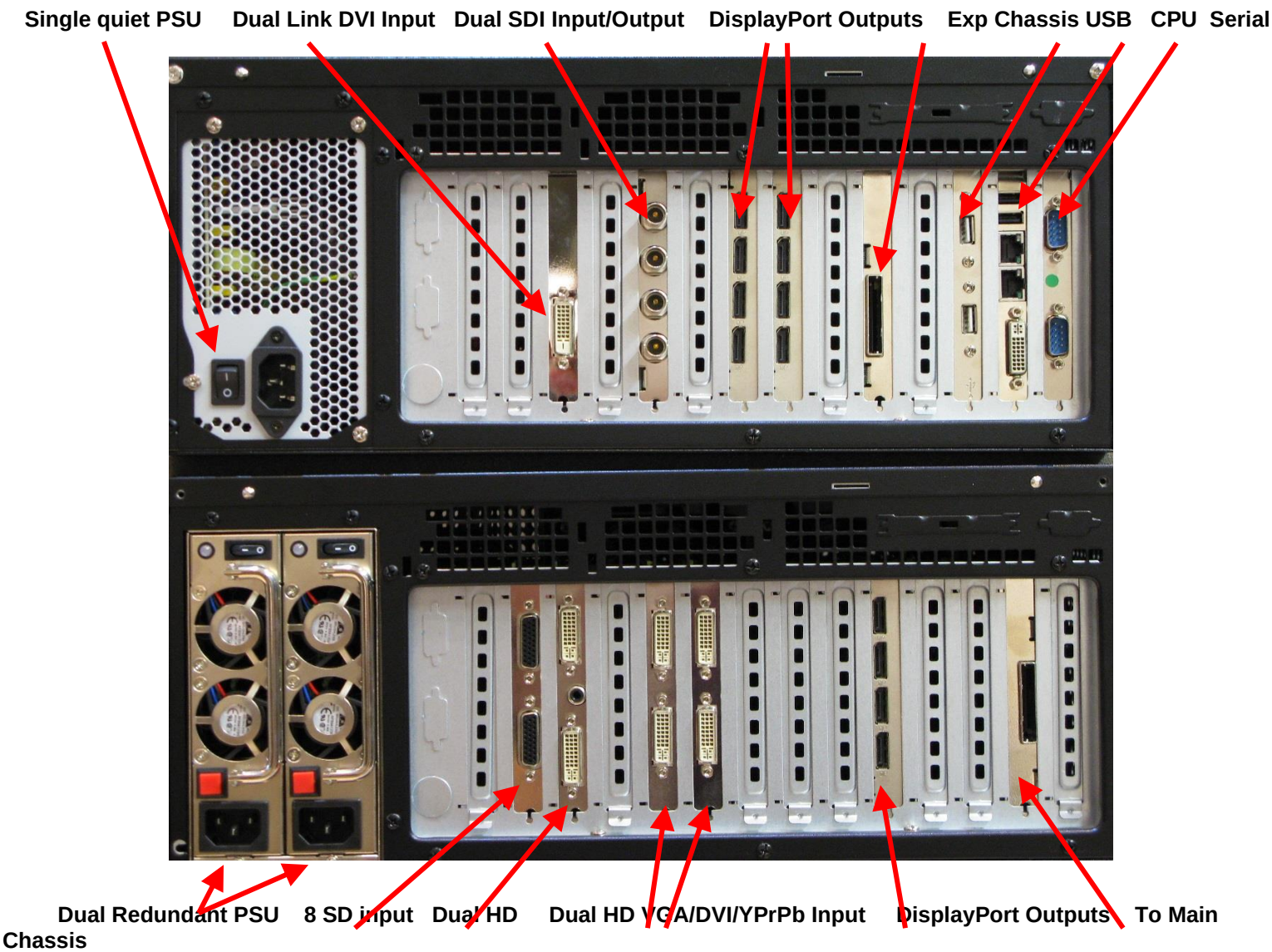
OTHER:					
Software	Windows 10 64 bit Wall Control: Allows creation and manipulation of windows for SDand HD hardware signals connected to be re-displayed. (Runs on the processor or remote machine) (Optional) Wall Monitor: Allows interrogation and display of system vital signs such as internal temperatures, power supply voltages, etc. Alarms can be set with audible and email notifications. Layout Touch server: Allows push button control for recalling layouts.				
CPU/Misc	Intel i7 2.xGhz/3+MB cache. 8GB main memory/1366Mhz , single removable 500GB SATA (raid 1/5 optional), 2ea 100 Base T Ethernet NIC's, 2 RS-232 serial, 4 USB, DVI-I digital or analog VGA output for control monitor. (Monitor supplied by others) Dual hot swap fans with failure alarm.				
Redundant Power Supplies (optional)	90-264 VAC, 47-63 Hz Auto switching Output 400 Watts Dual Redundant Hot Swap. Agency Approvals: UL 1950 QQGQ2, QQGQ8, TUV Rhineland (EN 60950, EC950 mod) CB Certification				
VP-2000C Quiet Version Power Supplies	90-264 VAC, 47-63 Hz Output 400+ Watts (non redundant) Agency Approvals: UL 1950 QQGQ2, QQGQ8, TUV Rhineland (EN 60950, EC950 mod) CB Certification Agency Approvals: UL 1950 QQGQ2, QQGQ8, TUV Rhineland (EN 60950, EC950				
Operating	0 degrees C to 50 degrees C				
Humidity	5 to 90 % non-condensing				
Cooling	Forced air, filtered inlet front of unit, exhaust rear. (Filter accessible from front of unit)				
Size	4 RU, 19" wide, 7"high, 19.75" deep + 1.25" removable handles in front (add for cable bends rear)				
Expansion	Only supported on VP-2000C/2500C				

Some features shown and listed in this document are optional. Not all inputs or outputs can be installed in a given chassis. Contact Pixell for legal configurations and quotations, all units built to order. Specifications subject to change without notice.

Front of VP Series Chassis, Optional Expansion Unit on Bottom



Rear of VP Series, Optional Expansion Unit on Bottom



Above is just an example, location and quantity of chassis, inputs, outputs and location of boards varies with particular configuration.

System Concepts:

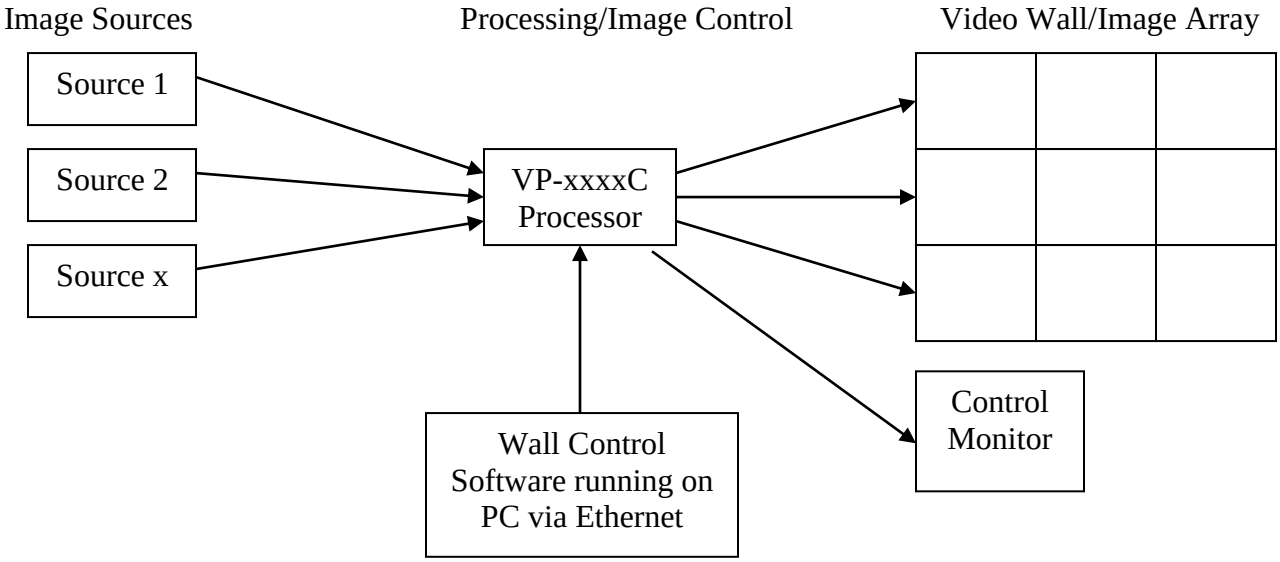
The VP-400C/500C/1500C/2000C/2500C series processors are designed to accept and aggregate multiple video signals, manipulate the size and placement of each image and re-display them on multiple large-scale displays such as a video wall or array of projectors or monitors.

Since the VP processor is running the Windows 10/64 operating system, application software (i.e. Internet Explorer etc) can run locally and concurrently with windows showing external video source information while allowing window overlapping and user determined Z-order layouts.

Image and window control is accomplished with Pixell's Wall Control client and server software running on the processor itself. Wall Control client user interface typically is shown on the supported control monitor output which is separate from the main array outputs. Wall Control client can be configured to show what images are on the main array or wire frame representation as below.

Wall Control client can also be installed on multiple customer owned network connected Windows 2000/XP/Vista/7/8/10 computers and interact with the processor remotely and concurrently.

Below is a conceptual overview of image flow and control modules:



Pixell Video Processor Control Software

The VP-series of video processors have 2 main pieces of control software, Layout Touch for simple recalling of layouts and Wall Control for creating and saving of those layouts.

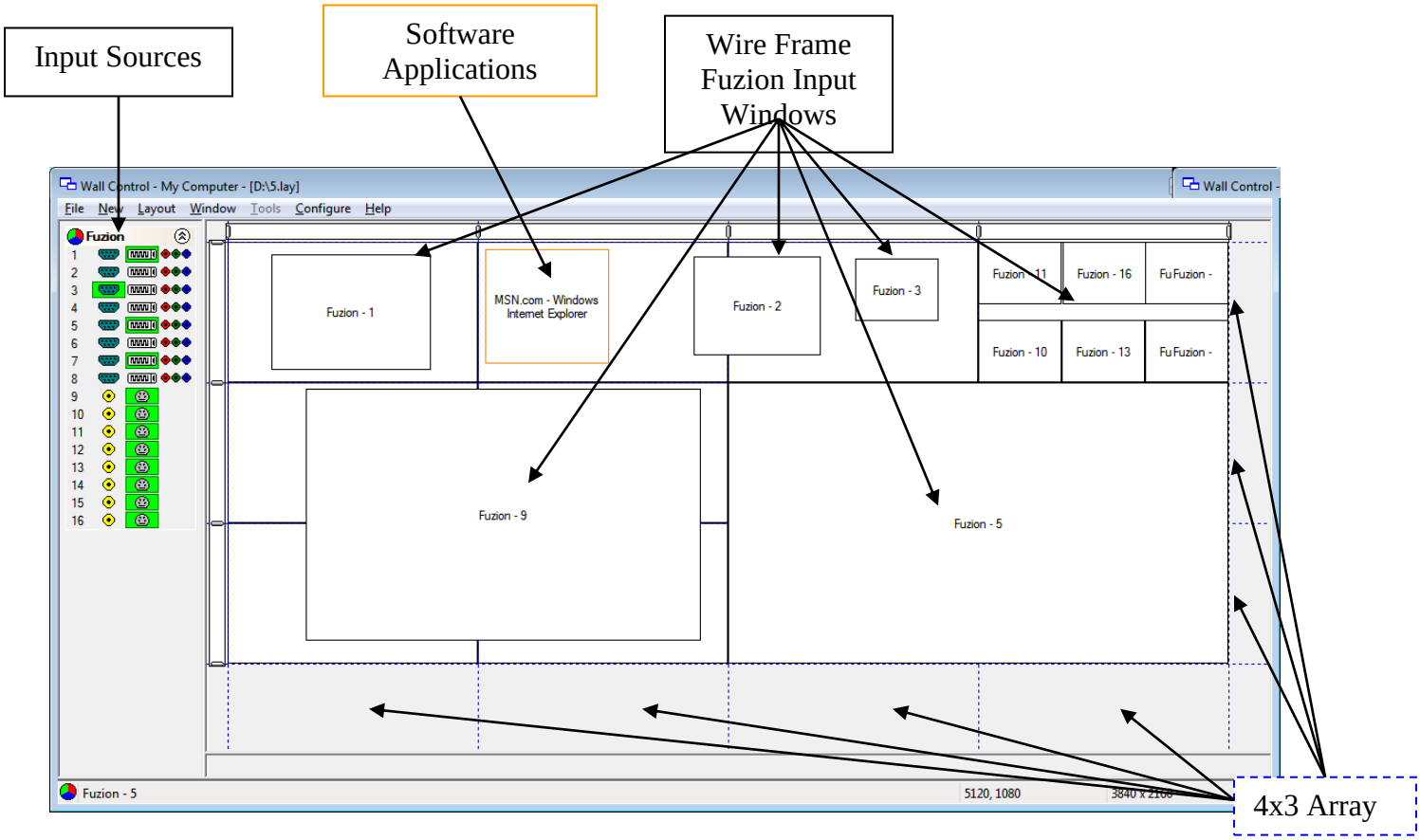
Wall Control must be run on the processor at a minimum, Layout Touch is optional.

Wall Control from Pixell is a client/server based software application made to run on the VP series of hardware based video processors. The server portion runs on the processor itself. The client version provides the user interface as shown below and can also run on the processor, or any other network connected MS Windows based computer. Multiple iterations of the server and client application can run concurrently on different machines.

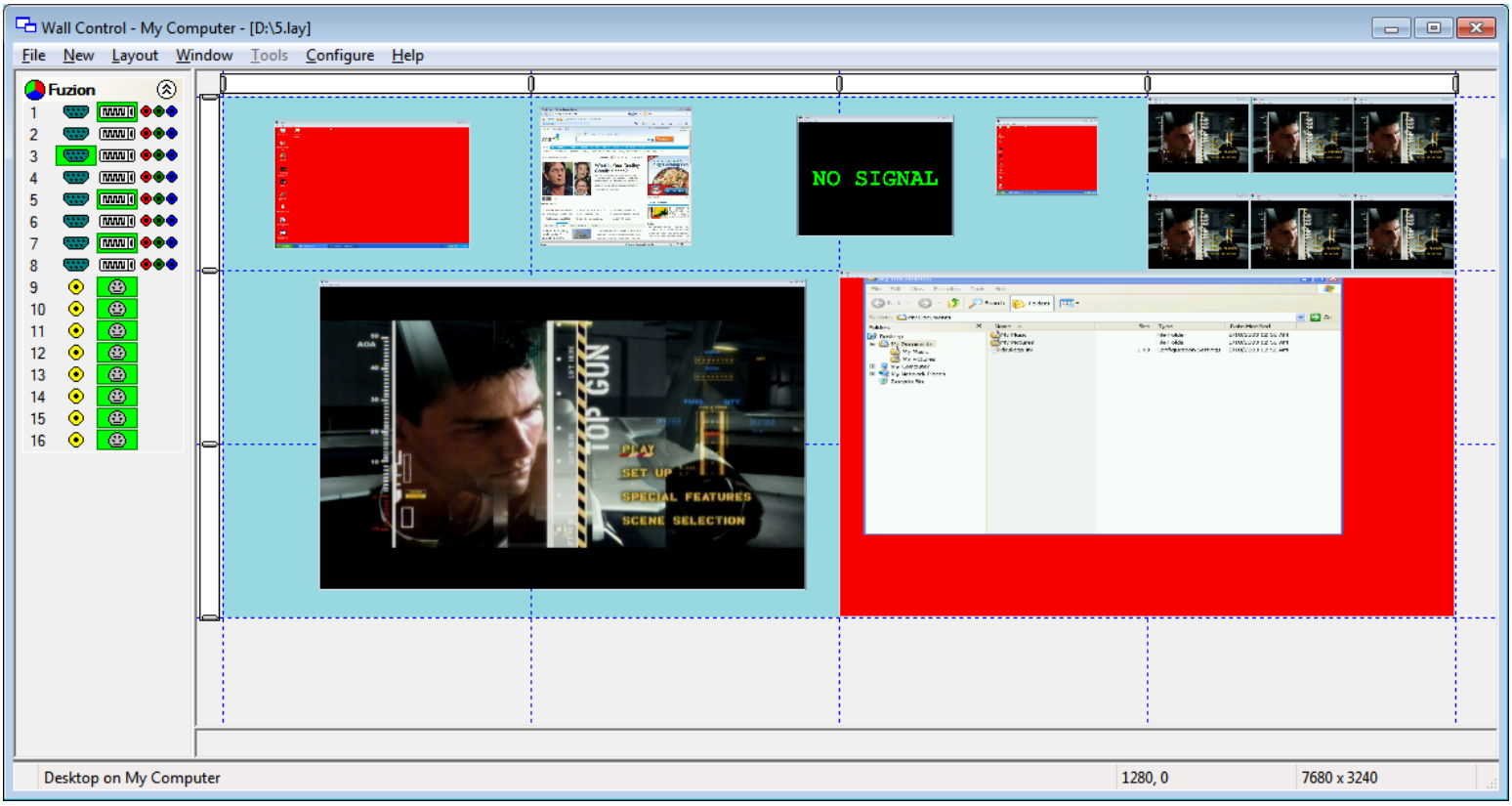
The overall function of the application is to allow selection of external video signals connected to appropriate inputs on the processor, to be shown in sizeable and moveable windows on a video wall displays connected to the processor outputs.

Multiple inputs can be shown in real time across any output array selected on the processor. When multiple windows are created, with various video signals being shown in those windows, this is referred to as a "Layout". Multiple different layouts can be saved as various names on the processor, and can be recalled with a single mouse click within Wall Control or from Layout Touch keypad as below. External control system such as AMX or Crestron type systems can be used as well.

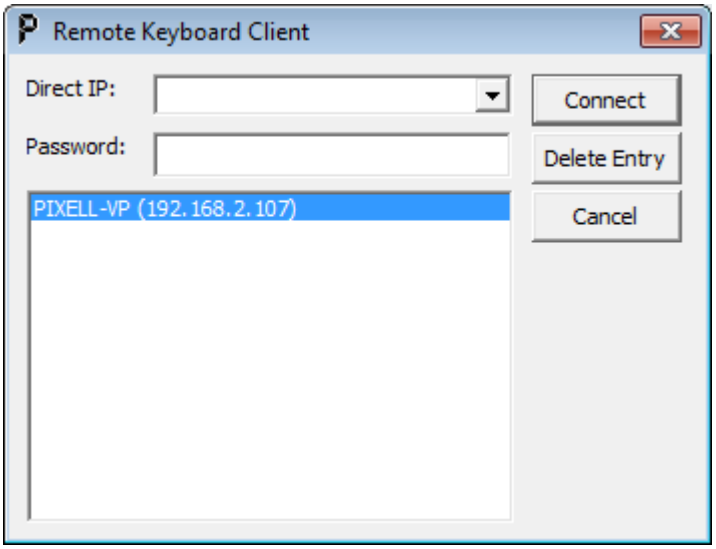
Below is a screen shot of the Wall Control client application driving a 4x3 array using 12 wireframe window representations.



Below is a screen shot of the same Wall Control client application as above with 12 windows open and showing the data that is coming into the processor from each source and being shown on the video wall array. Multiple Clients can be connected concurrently and each updated at approximately once each second.

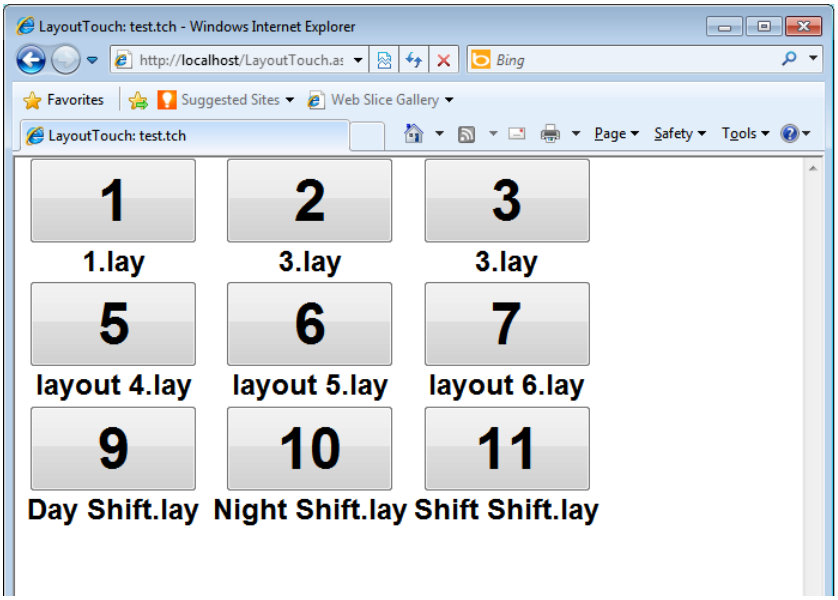


Remote Keyboard is a simple client/server utility that allows any Windows PC to take keyboard and mouse control of any PC that the processor is capturing and displaying the video signal of. So if operators in a control room are viewing various PC's desktops on a video wall, and the need arises to change something on one of those PC's being viewed, instead of going to that PC's keyboard, they can connect to via Remote Keyboard. Much like a KVM over the network but without the video piece since that is being handled by the processor/video wall. Remote Keyboard Server is a service that runs on all machines that need to be controlled (including the processor itself if desired) and it is waiting for a connection. Remote Keyboard Client is a utility that is envoked by an operator and they are presented with a list of available Servers to connect to as below:



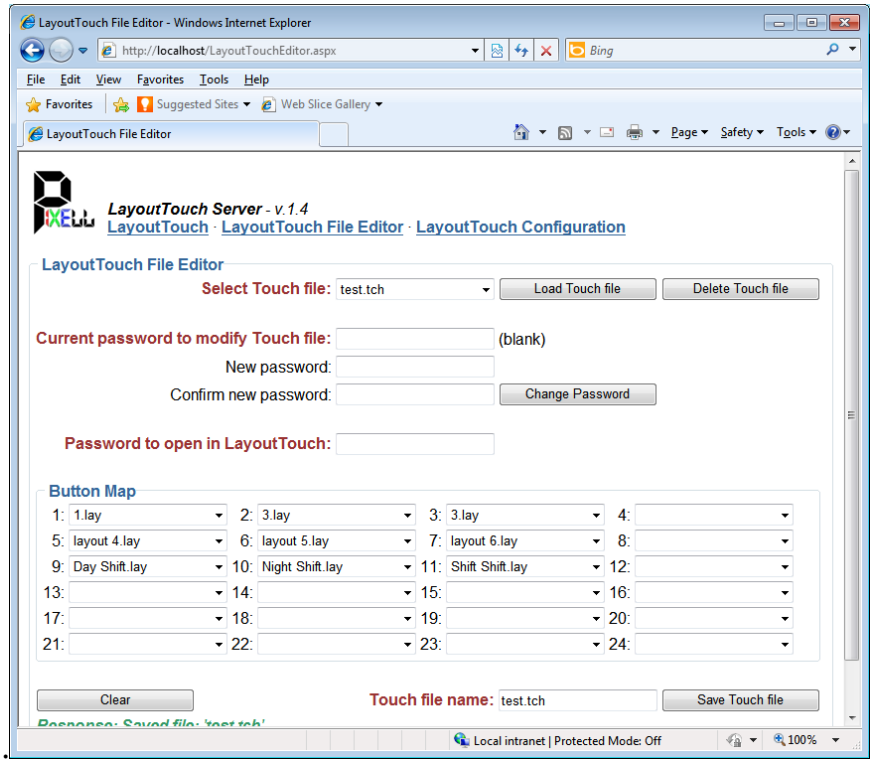
In the example above only 1 Server is available (Pixell-VP), more would be listed below it. Once the connection is made the operators PC screen goes white and their keyboard and mouse are connected to Server machine until they disconnect or are timed out after user defined period of time.

Layout Touch is a simple user screen that allows recalling of layouts created with Wall Control above. Layout Touch is intended for use during presentations or shift changes, any time a simple no frills layout change is required.
Below is a screen shot of the layout selector screen, with 9 layouts defined in the file selector screen below. Up to 24 layouts can be defined on this page.

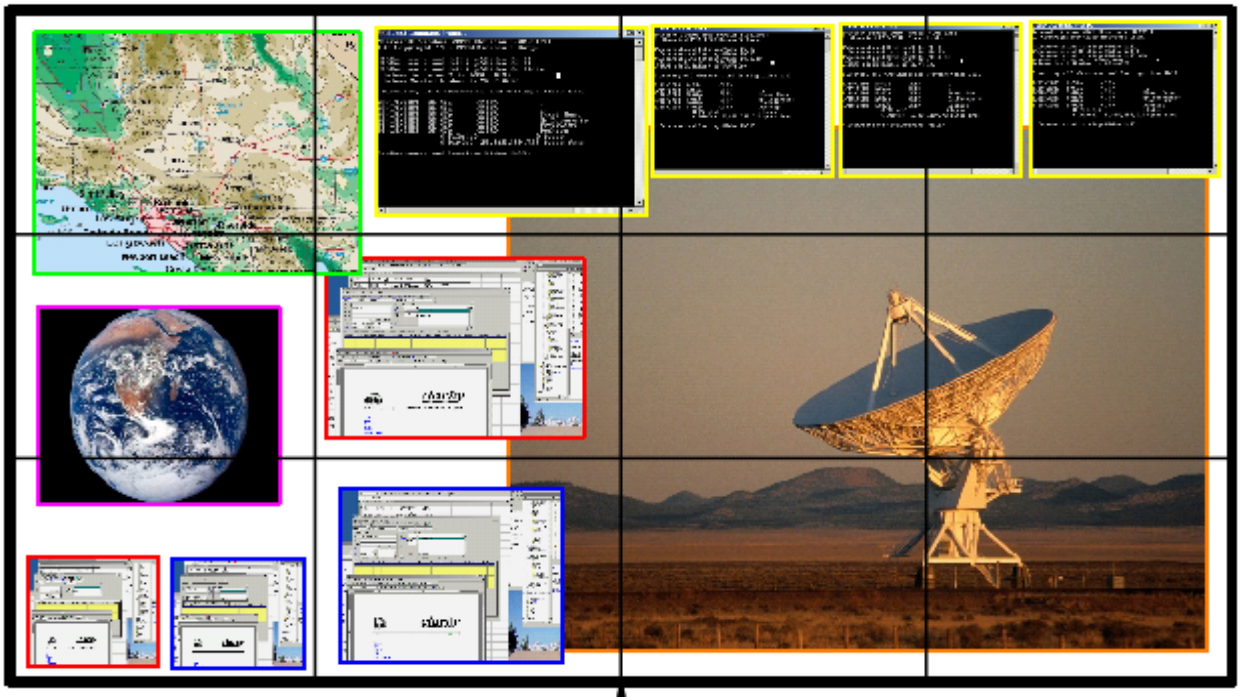


Layout Touch is a web page based system so any network connected device that can run a browser can use Layout Touch, this includes I-Phones, I-Pads, Linux, PC's, wireless devices, Etc.

Below is a screen shot of the file editor program that defines and populates the above screen. Multiple touch screens can be defined and saved, with or without password



VIDEO / DISPLAY WALL LOGIC DIAGRAM



RGBHV Analog or DVI Digital Output

VCR/DVD

S-Video SD
Composite

VP Series Processor

Wall Control Server
RGB Import Server
Windows XP

Processor Control
Monitor/Keybd/mouse

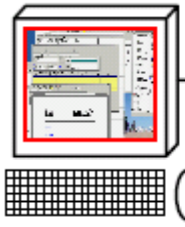
Camera/Satellite

Component HD YPrPb

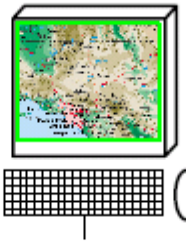
RGB/DVI Monitor Signal

RGB Import software input via Ethernet

Computer



Computer Running:
RGB Import Wall Control



Computer Running:
RGB Import Wall Control

Customer Servers Running
RGB Import Client

Server
Server
Server
Server

Ethernet