CrossPoint 300 Series

WIDEBAND MATRIX SWITCHERS WITH ADSP™ FOR RGB AND STEREO AUDIO

- 17 models with I/O sizes from 4x2 to 16x16
- 300 MHz (-3 dB) RGB bandwidth, fully loaded
- Switches RGBHV, RGBS, RGsB, HDTV, component video, S-video, and composite video
- Advanced Digital Sync Processing (ADSP™) Technology
- Audio input gain and attenuation
- Audio output volume control
- Audio breakaway
- Balanced and unbalanced audio capability
- QuickSwitch Front Panel Controller (QS-FPC™)
- Customizable front panel I/O labels
- View I/O mode
- Global presets for storing commonly used switching configurations
- RS-232 and RS-422 control with Extron's SIS™ – Simple Instruction Set
- Windows®-based control program

CrossPoint 300 1212 HVA

Extron's CrossPoint 300 Series Wideband RGBHV Matrix Switchers provide a convenient single box solution for most common high resolution video and audio routing system designs. A total of 17 versions are available for use in a wide range of signal distribution applications, including corporate boardrooms and training facilities, college and university settings, health care, and other high-utilization facilities where reliable switching is required.

FEATURES

- **300 MHz (-3 dB) RGB video bandwidth, fully loaded** – Designed for routing most common high resolution computer-video rates without signal degradation. The CrossPoint 300 Series provides a minimum 300 MHz (-3 dB) of RGB video bandwidth at full performance capability when one input drives all outputs.
- **ADSP - Advanced Digital Sync Processing** – An exclusive, all-digital process that regenerates the sync signal waveform and restores incoming sync level to 5.0 V p-p specifications. This ensures a sharp, stable image for improved signal compatibility with any LCD, DLP, plasma, or other digital display device.
- **RGBHV** – All models switch separate horizontal and vertical sync to ensure proper sync polarity, providing a more stable image. All models are also fully compatible with RGBS, RGsB, HDTV, component video, S-video, and composite video signals.
- **Buffered I/O** – Each input and output is individually buffered to provide maximum performance and virtually no crosstalk or signal interference between channels.
- **Audio input gain and attenuation** – Allows users to set the level of gain or attenuation for each audio input channel, eliminating noticeable differences when switching between sources.
- **Audio output volume control** – Can be set dynamically for each channel through the front panel or serial control, eliminating the need for an audio preamplifier in many system designs. Not available on CrossPoint 300 42 HVA.
- **Audio breakaway** – Provides the capability to break an audio signal away from its corresponding video signal, allowing the audio channels to be operated as a separate matrix switcher.
- **QS-FPC - QuickSwitch Front Panel Controller** – Allows for simple, touch-of-a-button input and output selection.
- **Front panel security lockout** – Prevents unauthorized use when the matrix switcher is installed in an unsecured environment where easy access is not desirable. In lockout mode, a special button combination is required to operate the front panel.
- **Front panel I/O label windows** – I/O buttons may be easily labeled by any Brother® P-Touch™ labeler or with the Extron label software included with CrossPoint 300 Series switchers. Each button can be labeled by name, alphanumeric characters, or with a graphical icon for easy and intuitive selection of inputs and outputs.
- **View I/O mode** – Easily view which inputs and outputs are actively connected.
- **Global presets** – Frequently-used I/O configurations may be saved and recalled either from the QuickSwitch Front Panel Controller or serial control. This time-saving feature allows you to set up I/O configurations and store them in memory for future use. Not available on CrossPoint 300 42 HVA.
- **RS-232 and RS-422 control port** – Using RS-232 serial commands, the CrossPoint 300 Series can be controlled and configured via the Extron Windows-based control program, or integrated into third-party control systems. Extron products use the SIS - Simple Instruction Set command protocol, a set of basic ASCII code commands that allow for quick and easy programming. The serial port also makes it easy to install firmware updates.
- **Control software** – Provides a graphical, drag-and-drop interface for I/O configuration and other customization functions via RS-232 or RS-422 remote control. This software also offers an emulation mode for configuration of an offsite matrix switcher; the I/O configuration may be saved for future downloading to the matrix switcher.
- **Optional remote control** – Optional X/Y control panels, bus control panels, and keypads provide the flexibility to control a CrossPoint 300 Series matrix switcher from a remote location.

MKP 2000

MKP 3000

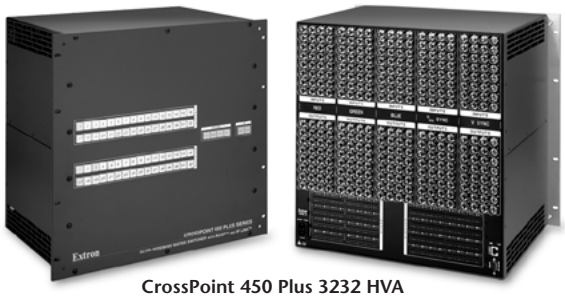
MCP 1000

- **Rack-mountable** – All CrossPoint 300 Series matrix switchers are housed in 19" wide, metal rack-mountable enclosures.
- **Internal international power supply** – For worldwide compatibility, every CrossPoint 300 Series model is equipped with an internal, autoswitching power supply complete with all appropriate safety certifications.

ALSO AVAILABLE

CrossPoint 450 Plus Series Matrix Switchers
For the most demanding, very high resolution signal routing applications, the Extron CrossPoint 450 Plus Series Ultra-Wideband Matrix Switchers provide 450 MHz (-3 dB) RGB video bandwidth, fully loaded. Ideal for use in command and control centers, computer training facilities, CAD/graphic workstation environments, and similar mission-critical applications, the CrossPoint 450 Plus Series includes 40 models in 20 I/O sizes up to 64x64.

The CrossPoint 450 Plus Series includes all of the features found in the CrossPoint 300 Series, plus Extron's exclusive IP Link® Ethernet monitoring and control technology, DSVP™ - Digital Sync Validation Processing, backlit I/O selection buttons, and more. Visit the Extron website (www.extron.com) for more information.



CrossPoint 450 Plus 3232 HVA

DESCRIPTION

Extron's **CrossPoint 300 Series** Wideband RGBHV Matrix Switchers provide a convenient single box solution for most common high resolution computer-video and audio routing system designs. Multiple input and output configurations make them ideal for a broad range of signal distribution applications, including corporate boardrooms and training facilities, college and university settings, health care, and other high-utilization facilities where reliability is required.

Designed for fast and efficient integration, the CrossPoint 300 Series includes ten I/O sizes, from 4x2 to 16x16. A total of 17 models are available in two versions: "HV" for switching RGBHV signals without audio, and "HVA" for switching RGBHV and balanced or unbalanced stereo audio. To accommodate the widest range of signal routing requirements, all CrossPoint 300 Series models are fully compatible with RGBS, RGsB, HDTV, component video, S-video, and composite video signals.

Video Features
All CrossPoint 300 Series models feature a minimum of 300 MHz (-3 dB) RGB video bandwidth, at full performance capability, when one input drives all outputs. In normal usage, video bandwidth generally exceeds the 300 MHz (-3 dB) rating.

Switcher performance is further enhanced by a remarkably flat response in the critical portion of bandwidth curve, between 0 and 300 MHz. This underscores the switcher's consistent performance, with minimal signal loss or gain, across the frequency spectrum; see figure 1.

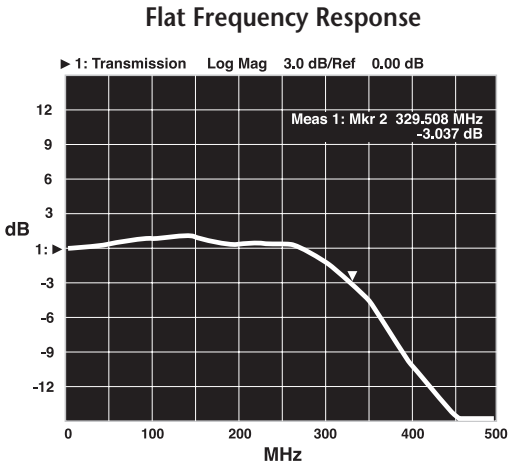


Figure 1 - Actual sweep from a CrossPoint 300 128 HVA. Input 12 green channel is tied to all outputs. Even in this worst case, fully loaded configuration, the frequency sweep is flat through the critical portion of the bandwidth curve.

ADSP™ – Advanced Digital Sync Processing
To ensure full confidence when switching between varying computer-video sources, all CrossPoint 300 Series matrix switchers include Extron's exclusive ADSP.

Extron's ADSP is an all-digital process that corrects and restores the sync signal as it passes through the switcher. As shown below, sync voltage drops and the leading edge of the sync waveform rolls off when a standard, XGA resolution computer-video signal is passed through 100 feet

(30 meters) of Mini-HR cable. ADSP technology in the CrossPoint 300 Series restores sync to TTL levels - 5.0 V p-p unterminated - ensuring that the projector or monitor accurately locks to sync and displays a stable image. Second, ADSP corrects the signal waveform to create sharp rising and falling edges, ensuring a more stable and reliable image in systems with different signal sources or cable lengths. Whether signal losses and distortion are caused

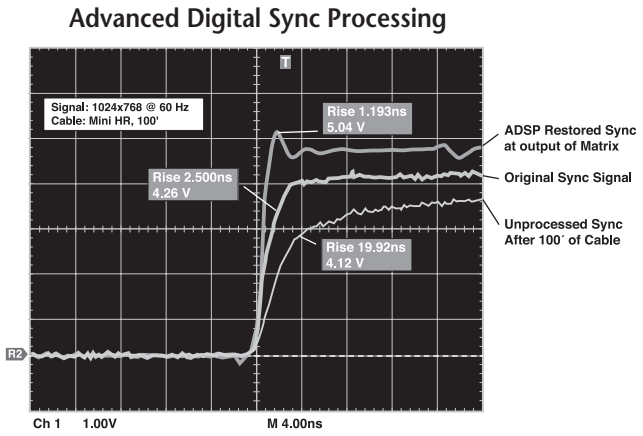


Figure 2 Leading Edge of Sync Pulse

by long cable runs, variations in display graphic card outputs, or low sync levels from many laptop computers, ADSP significantly reduces sync related problems, improving signal compatibility with many digital display devices; see figure 2.

For the best possible signal routing, Extron recommends the use of a computer-video interface with ADSP, such as the Extron RGB 109xi, with the CrossPoint 300 Series. Interfaces with ADSP include additional circuitry that restores the original sync timing relationship and re-clocks the sync signal. This combination eliminates almost all projector synchronization problems caused by unstable sync and sync timing. System designs that utilize ADSP throughout the sync path provide the optimum signal quality and I/O combinations.

Audio Features
All CrossPoint 300 Series HVA audio-capable models feature a full range of audio input and output adjustments. Audio input gain and attenuation may be adjusted for each channel individually, eliminating the noticeable and sometimes jarring volume differences when switching between sources.

Audio output volume control is also provided for each individual output. Signal levels may be adjusted from the front control panel or through serial control, providing a simple way to set audio volume levels and eliminating the need for a separate audio preamplifier.

In addition, audio breakaway provides the capability to separate the audio signal from its corresponding video signal, allowing the audio channels to be operated as a separate matrix switcher within the system.

Control Options
For ease-of-use in a variety of environments, all CrossPoint 300 Series matrix switchers are equipped with a full range of control options, including front panel control, RS-232/RS-422 serial control, and several wired remote control panel options.

The RS-232/RS-422 serial control port utilizes Extron's unique Simple Instruction Set (SIS™) protocol, a set of easy to read, ASCII command codes specifically designed to simplify the implementation of serial control.

The QuickSwitch Front Panel Controller QS-FPC™ allows simple, touch-of-a-button selection of inputs and outputs directly from the front panel of the CrossPoint 300 switcher.

The CrossPoint 300 Series switches can also be controlled using the optional MKP 2000 and MKP 3000 X/Y remote control panels, and the MCP 1000 master control panel.

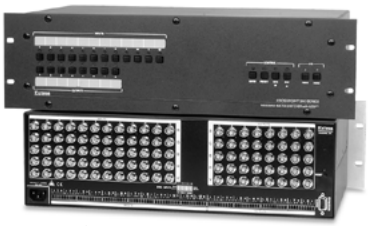
CROSSPOINT 300 MODELS

CrossPoint 300 42 HVA

CrossPoint 300 84 HVA

CrossPoint 300 88 HVA

CrossPoint 300 124 HVA



CrossPoint 300 128 HVA

CrossPoint 300 168 HVA

CrossPoint 300 1616 HVA

4x2 Wideband Matrix Switchers

Model	Description	Part Number
CrossPoint 300 42 HVA	RGBHV & Stereo Audio.....	60-504-01

8x4 Wideband Matrix Switchers

Model	Description	Part Number
CrossPoint 300 84 HV	RGBHV only.....	60-219-15
CrossPoint 300 84 HVA	RGBHV & Stereo Audio.....	60-219-16

8x8 Wideband Matrix Switchers

Model	Description	Part Number
CrossPoint 300 88 HV	RGBHV only.....	60-325-15
CrossPoint 300 88 HVA	RGBHV & Stereo Audio.....	60-325-16

8x16 Wideband Matrix Switchers

Model	Description	Part Number
CrossPoint 300 816 HV	RGBHV only.....	60-396-15
CrossPoint 300 816 HVA	RGBHV & Stereo Audio.....	60-396-16

12x4 Wideband Matrix Switchers

Model	Description	Part Number
CrossPoint 300 124 HV	RGBHV only.....	60-326-15
CrossPoint 300 124 HVA	RGBHV & Stereo Audio.....	60-326-16

12x8 Wideband Matrix Switcher

Model	Description	Part Number
CrossPoint 300 128 HV	RGBHV only.....	60-220-15
CrossPoint 300 128 HVA	RGBHV & Stereo Audio.....	60-220-16

12x12 Wideband Matrix Switchers

Model	Description	Part Number
CrossPoint 300 1212 HV	RGBHV only.....	60-851-15
CrossPoint 300 1212 HVA	RGBHV & Stereo Audio.....	60-851-16

16x8 Wideband Matrix Switchers

Model	Description	Part Number
CrossPoint 300 168 HV	RGBHV only.....	60-330-15
CrossPoint 300 168 HVA	RGBHV & Stereo Audio.....	60-330-16

16x16 Wideband Matrix Switcher

Model	Description	Part Number
CrossPoint 300 1616 HV	RGBHV only.....	60-242-15
CrossPoint 300 1616 HVA	RGBHV & Stereo Audio.....	60-242-16

VIDEO

Routing	
CrossPoint 300 42 HVA	4 x 2 matrix
84 Series	8 x 4 matrix
88 Series	8 x 8 matrix
816 Series	8 x 16 matrix
124 Series	12 x 4 matrix
128 Series	12 x 8 matrix
1212 Series	12 x 12 matrix
168 Series	16 x 8 matrix
1616 Series	16 x 16 matrix
Gain	Unity
Bandwidth	300 MHz (-3 dB), fully loaded 0 - 10 MHz: no more than +0.1 dB to -0.1 dB 0 - 130 MHz no more than +0.8 dB to -0.8 dB
Crosstalk	-80 dB @ 1 MHz, -55 dB @ 10 MHz, -45 dB @ 30 MHz, -37 dB @ 100 MHz
Switching speed	200 ns (max.)

VIDEO INPUT

Number/signal type	4, 8, 12, or 16 RGBHV, RGBS, RGsB, RsGsBs, HDTV, component video, S-video, composite video
Connectors	
CrossPoint 300 42 HVA	4 x 5 BNC female
84/88/816 Series:	8 x 5 BNC female
124/128/1212 Series	12 x 5 BNC female
168/1616 Series	16 x 5 BNC female
Nominal level	1 V p-p for Y of component video and S-video, and for composite video 0.7 V p-p for RGB 0.3 V p-p for R-Y and B-Y of component video, and for C of S-video
Minimum/maximum levels	Analog: 0.5 V to 2.0 V p-p with no offset
Impedance	75 ohms
Return loss	<-30dB @ 5 MHz
DC offset (max. allowable)	1.5 V

VIDEO OUTPUT

Number/signal type	2, 4, 8, 12, or 16 RGBHV, RGBS, RGsB, RsGsBs, HDTV, component video, S-video, composite video
Connectors	
CrossPoint 300 42 HVA	2 x 5 BNC female
84/124 Series	4 x 5 BNC female
88/128/168 Series	8 x 5 BNC female
1212 Series	12 x 5 BNC female
816/1616 Series	16 x 5 BNC female
Nominal level	1 V p-p for Y of component video and S-video, and for composite video 0.7 V p-p for RGB 0.3 V p-p for R-Y and B-Y of component video, and for C of S-video
Minimum/maximum levels	0 V to 2.0 V p-p (follows input)
Impedance	75 ohms
Return loss	-30 dB @ 5 MHz
DC offset	±5 mV with input at 0 offset

SYNC

Input type	RGBHV, RGBS, RGsB, RsGsBs
Output type	RGBHV, RGBS, RGsB, RsGsBs (follows input)
Input level	0.5 V to 5.0 V p-p, 4.0 V p-p normal
Output level	AGC to TTL: 4.0 V to 5.0 V p-p, unterminated
Input impedance	Inputs 1 to 4: 75 or 510 ohms, switchable Inputs 5 to 8, 12, or 16: 510 ohms
Output impedance	75 ohms
Max input voltage	5.0 V p-p
Max. propagation delay	30 ns
Max. rise/fall time	4 ns
Polarity	Positive or negative (follows input)

AUDIO — AUDIO MODELS ONLY

Gain	Unbal. output: -6 dB; bal. output 0 dB
Frequency response	20 Hz to 20 kHz, ±0.05 dB
THD + Noise	0.03% @ 1 kHz at nominal level
S/N	>90 dB, balanced, at maximum output (21 dBu), unweighted
Crosstalk	<-80 dB @ 1 kHz, fully loaded
Stereo channel separation	>80 dB @ 1 kHz
CMRR	>75 dB @ 20 Hz to 20 kHz

AUDIO INPUT — AUDIO MODELS ONLY

Number/signal type	4, 8, 12, or 16 stereo, bal./unbal.
Connectors	4, 8, 12, or 16 3.5 mm captive screw connectors, 5 pole
Impedance	>10k ohm, bal./unbal., DC coupled
Nominal level	0 dBu (775 mV)
Maximum level	+19.5 dBu, (bal. or unbal.) at 0.01% THD+N
Input gain adjustment	-18 dB to +24 dB, adjustable per input by RS-232/422, Ethernet, or front panel

NOTE: 0 dBu = 0.775 Vrms, 0 dBV = 1 Vrms, 0 dBV ≈ 2 dBu

AUDIO OUTPUT — AUDIO MODELS ONLY

Number/signal type	2, 4, 8, 12 or 16 stereo, bal./unbal.
Connectors	2, 4, 8, 12 or 16 3.5 mm captive screw connectors, 5 pole
Impedance	50 ohms unbalanced, 100 ohms balanced
Gain error	±0.1 dB channel to channel
Maximum level (Hi-Z)	>+21 dBu, bal. or unbal. at 0.10% THD+N
Maximum level (600 ohm)	>+15 dBm, balanced or unbalanced at 0.10% THD+N
Output volume range (all models except CrossPoint 300 42 HVA)	0 to 64 (-98 dB to 0 dB) in 1 dB increments from steps 1 to 64, 35 dB increment from step 0 to 1

CONTROL/REMOTE — SWITCHER

Global presets	
CrossPoint 300 42 HVA	0
All other models	32
Serial control port	
CrossPoint 300 42 HVA	1 RS-232, 9-pin female D connector
All other models	1 RS-232 or RS-422, 9-pin female D connector
Baud rate and protocol	9600 (default), 19200, 38400, 115200 baud (adjustable); 8 data bits, 1 stop bit, no parity
Serial control pin configurations	RS-232: 2 = TX, 3 = RX, 5 = GND RS-422: 2 = TX-, 3 = RX-, 5 = GND, 7 = RX+, 8 = Tx+
Program control	Extron's control/configuration program for Windows® Extron's Simple Instruction Set (SIS)™

GENERAL

Power	100 VAC to 240 VAC, 50/60 Hz, internal, autoswitchable 84/88/124/128 Series: 30 watts 816/168/1616 Series: 36 watts CrossPoint 300 42 HVA: 40 watts
Rack mount	Yes
Enclosure type	Metal
Enclosure dimensions (Depth excludes connectors. Width excludes rack ears.)	
CrossPoint 300 42 HVA	1.75" H x 17.5" W x 9.5" D (1U high, full rack wide) (4.4 cm H x 44.5 cm W x 2 4.1 cm D)
84/88/124/128 Series	5.25" H x 17.0" W x 9.4" D (3U high, full rack wide) 13.3 cm H x 43.2 cm W x 23.9 cm D
816/1212/168/1616 Series	10.5" H x 17.0" W x 9.7" D (6U high, full rack wide) 26.7 cm H x 43.2 cm W x 24.6 cm D
Product weight	
CrossPoint 300 42 HVA	4.9 lbs (2.2 kg)
84/88/124/128 Series	14.4 lbs (6.5 kg)
816/168/1212/1616 Series	19.4 lbs (8.8 kg)
Shipping weight	
CrossPoint 300 42 HVA	8 lbs (3.6 kg)
84/88/124/128 Series	21 lbs (10 kg)
816/168/1212/1616 Series	26 lbs (12 kg)
DIM weight	
CrossPoint 300 42 HVA	
USA, Canada	8 lbs (3.6 kg)
International	9 lbs. (4.1 kg)
84/88/124/128 Series	25 lbs (12 kg)
816/168/1212/1616 Series	34 lbs (15.5 kg)
Listings	UL, CUL
Compliances	CE, FCC Class A, VCCI, AS/NZS, ICES

NOTE: All nominal levels are at ±10%.

Optional Accessories

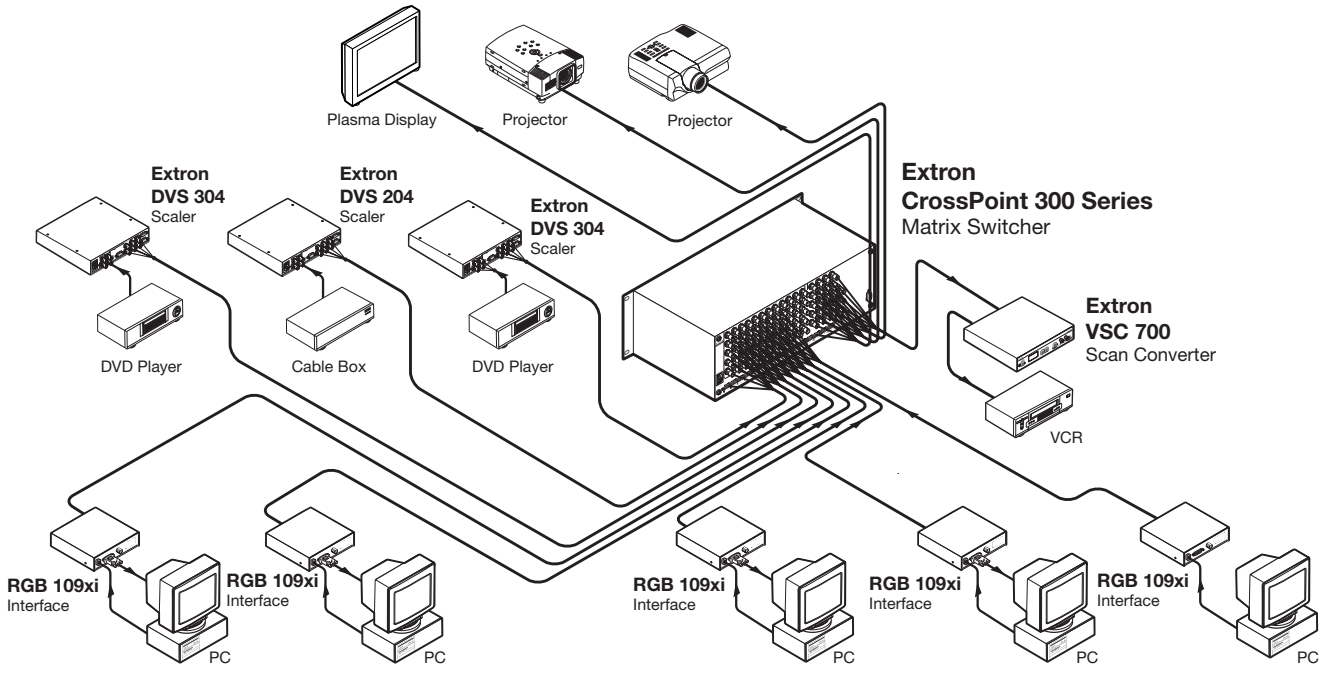
MKP 2000 (black)	60-682-02
MKP 2000 (white)	60-682-03
MKP 2000 (RAL9010 white)	60-682-05

Specifications are subject to change without notice.

CROSSPOINT FAMILY COMPARISON CHART

	Features	CrossPoint 300 Series	CrossPoint 450 Plus Series
Video Features	Bandwidth fully loaded	300 MHz (-3 dB)	450 MHz (-3dB)
	Input/output size range	4x2 to 16x16	8x4 to 64x64
	Switches RGBHV, RGBS, RGsB, HDTV, component video, S-video, and composite video	✓	✓
	Advanced Digital Sync Processing ADSP	✓	✓
	Digital Sync Validation Processing DSVP		✓
	Triple Action Switching RGB delay		✓
	I/O rooming		✓
	I/O grouping		✓
Audio Features	Balanced/unbalanced stereo audio	✓	✓
	Audio input gain & attenuation	✓	✓
	Audio output volume control	✓	✓
Control Features	QuickSwitch front panel controller	✓	
	Enhanced QS-FPC with tri-color backlit I/O buttons		✓
	Global memory presets	✓	✓
	RS-232/RS-422 serial control	✓	✓
	Downloadable firware updates	✓	✓
	IP Link Ethernet monitoring and control		✓

APPLICATION DIAGRAM



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