CrossPoint 450 Plus Series

ULTRA-WIDEBAND MATRIX SWITCHERS WITH ADSP™ AND IP LINK® FOR RGB AND STEREO AUDIO

- 24 models with I/O sizes from 24x12 to 64x64
- Ultra-wideband 450 MHz (-3 dB) RGB video bandwidth, fully loaded
- Extremely flat frequency response - ±1.0 dB from 0 to 130 MHz
- Highly efficient, fan-free design – most models
- Low power consumption
- ADSP - Advanced Digital Sync Processing technology
- DSVP™ - Digital Sync Validation Processing
- Triple-Action Switching™ for RGB Delay
- I/O roaming and grouping
- Audio input gain and attenuation
- Audio output volume control
- Audio breakaway
- Switches balanced and unbalanced audio
- Global presets for storing commonly used switching configurations
- QuickSwitch™ Front Panel Controller with tri-color backlit buttons
- RS-232/RS-422 serial control
- IP Link Ethernet monitoring and control

The Extron CrossPoint 450 Plus Series of Ultra-Wideband RGBHV matrix switchers is designed to deliver exceptional performance in the most demanding, very high resolution computer-video and audio routing systems. Twenty-four models in 12 popular I/O sizes feature the highly efficient, highly reliable matrix switcher architecture that has been the hallmark of Extron engineering for more than a decade.
Now in its fourth generation of design, the Extron CrossPoint 450 Plus Series of Ultra-Wideband RGBHV matrix switches is the A/V system designer’s first choice for the most demanding high resolution computer-video and audio routing systems, where no-compromise switching between sources is mandatory.

Available in twelve fixed I/O sizes from 24x12 to 64x64, the CrossPoint 450 Plus Series is the ideal solution for command and control operations, corporate and university CAD/graphics development centers, biomedical imaging and training facilities, financial services, and other mission-critical system designs. The CrossPoint 450 Plus Series is also the logical choice for maximizing system performance in demanding A/V system designs with multiple levels of signal processing.

**Ultra-wideband Performance**

The CrossPoint 450 Plus Series is engineered with a minimum of 450 MHz (-3 dB) RGB video bandwidth, fully loaded, when one input drives all outputs. The performance of the switcher is further enhanced by remarkably flat frequency response in the critical portion of bandwidth curve, ±1.0 dB between 0 and 130 MHz. This underscores the switcher’s consistent performance, with minimal signal loss or gain across the frequency spectrum, as seen in Figure 1.

![Flat Frequency Response](image)

**Advanced Digital Sync Processing**

As shown in Figure 2, Extron’s ADSP corrects and restores the sync signal as it passes through the switcher. ADSP technology restores sync to TTL levels, 5.0 V p-p, uninterupted, ensuring that the projector or monitor accurately locks to sync and displays a stable image. Additionally, 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. Regardless of the cause of signal losses and distortion, ADSP significantly reduces sync-related problems, improving signal compatibility with many digital display devices.

For the best possible high resolution signal routing, Extron recommends the use of a computer-video interface with ADSP, such as the Extron RGB 109xi, with the CrossPoint 450 Plus 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. System designs that utilize ADSP throughout the sync path provide the optimum signal quality and reliability for all I/O combinations.

**DSVP - Digital Sync Validation Processing**

- Verifies active sources by polling inputs for horizontal and vertical sync rate information. This information is made available to the user through the RS-232 serial and IP Link Ethernet control ports.

**Control Flexibility**

All CrossPoint 450 Plus Series are equipped with RS-232/RS-422 serial control ports and Extron’s IP Link Ethernet monitoring and control for optimum flexibility when integrating the switcher with a third-party control system. The serial control port utilizes Extron’s popular and widely-used SIS™ - Simple Instruction Set, a set of basic ASCII code commands that allow for quick and easy programming.

IP Link is built around an integrated, high performance Web server that features global compatibility with industry standard Ethernet communication protocols, multi-user support, and Extron’s free IP Link GlobalViewer™ software. GlobalViewer, a Web-based application, enables a variety of asset management functions including proactive maintenance and remote technical support from any authorized LAN, WAN, or Internet portal.

IP Link provides technical support administrators with the ability to receive service and failure messages through an e-mail-enabled cell phone, PDA, pager, or e-mail account. Utilizing IP Link, the help desk can also view embedded Web pages to manage, monitor, control, and diagnose the switcher. In the CrossPoint 450 Plus Series, IP Link facilitates:

**Asset Management**

- Remotely select input and output ties for audio only, video only, or audio and video
- Name and select global I/O presets
- Set audio input and output volume levels
- Set RGB delay time for glitch-free transitions

**Operating Status and Diagnostics**

- Monitor primary and redundant power supply voltages
- Monitor operating temperature
- Recall firmware revision and other data for improved help desk support
- Provide immediate notification via e-mail for loss of input signal, power supply failure, and other critical service information
- Update firmware

To ensure confidence and peace of mind, CrossPoint 450 Plus Series matrix switchers are engineered and built to the highest standards in the A/V industry, with a minimum number of boards and cables for optimum reliability in critical, 24/7 switching applications. All models feature cool-running, highly efficient redundant power supplies, and most models are convection-cooled without the need for failure-prone fans. CrossPoint 450 Plus switchers also feature exclusive Extron technologies such as Advanced Digital Sync Processing and Digital Sync Validation Processing.
Ultra-wideband video bandwidth – Designed for the most demanding, high resolution computer-video rates without signal degradation. The CrossPoint 450 Plus provides a minimum 450 MHz (-3 dB) of RGB video bandwidth fully loaded, when one input drives all outputs.

Extremely flat frequency response – Switcher performance is further enhanced by the extremely flat response in the critical portion of the bandwidth curve, ±1.0 dB between 0 and 130 MHz.

ADSP - Advanced Digital Sync Processing technology – An exclusive, all-digital process that regenerates the sync signal waveform and restores sync level to 5.0 V p-p, TTL, specifications. This ensures a stable sync signal for improved signal compatibility with any LCD, DLP, plasma, or other digital display device.

DSVP - Digital Sync Validation Processing – Verifies active sources by polling all inputs for valid sync signals. DSVP then transmits the horizontal and vertical sync information to the user through the serial or IP Link ports.

RGBHV Switching – 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, RGB, HDTV, component video, S-video, and composite video signals.

Excellent channel to channel isolation – Provides isolation between channels and extremely low electromagnetic emissions, perfect for minimizing signal leakage in high security or government environments.

Buffered I/O – Each input and output is individually buffered to provide maximum performance and virtually no crosstalk or signal interference between channels.

Triple-Action Switching for RGB Delay – Blanks the screen when switching to a new source. The new sync signals precede the RGB signals, so there is no glitch shown during the transition. The time delay between the RGB and sync signals is adjustable up to five seconds through the front panel, IP Link, or serial control.

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, IP Link, or serial control, eliminating the need for an audio preamplifier in many system designs.

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.

View I/O mode – Users can easily view which inputs and outputs are actively connected.

I/O grouping – Allows the matrix switcher to be virtually divided into smaller sub-switchers, making installation and control easier. I/O grouping allows specific outputs, like those designated for a specific video format, to be grouped together.

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Global Presets – Frequently used I/O configurations may be saved and recalled either from the QS-FPC™ – QuickSwitch Front Panel Controller, IP Link, or serial control. This time-saving feature allows I/O configurations to be set up and stored in memory for future use.

QS-FPC - QuickSwitch Front Panel Controller – Provides a discrete button for each input and output, allowing for simple, intuitive operation.

Tri-color, backlit buttons – Can be custom-labeled for easy identification. The buttons illuminate red, green, or amber, depending on function, for ease of use in low-light environments.

Front panel security lockout – Prevents unauthorized use in non-secure environments. In lockout mode, a special button combination is required to operate the switcher from the front panel controller.

IP link Ethernet control and diagnostics – Engineered to meet the needs of professional A/V environments, IP Link enables the CrossPoint 450 Plus matrix switchers to be proactively monitored and managed over a LAN, WAN, or the Internet, using standard TCP/IP protocols. IP Link provides for remote selection of input and output ties, adjustment and control of audio input and output levels, and advanced system diagnostics, including monitoring of internal product operating temperature and power supply voltages, e-mail notification of input signal loss, and other critical service information.

RS-232 and RS-422 control port – Using serial commands, the CrossPoint 450 Plus Series can be controlled and configured via the included Windows-based control software, 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 RS-232 and RS-422 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 control panels and keypads – Provide the flexibility to control a CrossPoint 450 Plus Series matrix switcher from a remote location.

Rack-mountable – All CrossPoint 450 Plus Series matrix switchers are housed in 19-inch wide, rack-mountable metal enclosures.

Efficient, cool-running redundant power supplies – Internally mounted 100-240VAC, 50/60 Hz, universal primary and secondary power supplies provide worldwide power compatibility. The power supply system is configured to automatically switch over to a spare power supply if the primary supply fails. This means no loss of functionality in the event of a primary power supply malfunction. These highly-efficient power supplies allow even the largest, 64x64 size, to be convection-cooled, without the need for a fan, further enhancing switcher reliability in critical 24/7 applications.
### CROSSPOINT 450 PLUS MODELS

<table>
<thead>
<tr>
<th>24x12 Ultra-Wideband Matrix Switchers</th>
<th>Model</th>
<th>Description</th>
<th>Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>CrossPoint 450 Plus 2412 HV</td>
<td>RGBHV only</td>
<td>60-470-02</td>
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<tr>
<td>CrossPoint 450 Plus 2412 HVA</td>
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<tr>
<td>CrossPoint 450 Plus 2424 HV</td>
<td>RGBHV only</td>
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</tr>
<tr>
<td>CrossPoint 450 Plus 2424 HVA</td>
<td>RGBHV &amp; Stereo Audio</td>
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<td>CrossPoint 450 Plus 3216 HV</td>
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<td>CrossPoint 450 Plus 3216 HVA</td>
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<td>CrossPoint 450 Plus 3232 HVA</td>
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### 32x48 Ultra-Wideband Matrix Switchers

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<tr>
<td>CrossPoint 450 Plus 3248 HV</td>
<td>RGBHV only</td>
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<td>CrossPoint 450 Plus 3248 HVA</td>
<td>RGBHV &amp; Stereo Audio</td>
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### 32x64 Ultra-Wideband Matrix Switchers

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<td>CrossPoint 450 Plus 3264 HV</td>
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<tr>
<td>CrossPoint 450 Plus 3264 HVA</td>
<td>RGBHV &amp; Stereo Audio</td>
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### 48x32 Ultra-Wideband Matrix Switchers

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<td>CrossPoint 450 Plus 4832 HV</td>
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<td>RGBHV &amp; Stereo Audio</td>
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<td>CrossPoint 450 Plus 6448 HVA</td>
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**VIDEO**

<table>
<thead>
<tr>
<th>Routing</th>
<th>2412 Series</th>
<th>24 x 12 matrix</th>
</tr>
</thead>
<tbody>
<tr>
<td>2424 Series</td>
<td>24 x 24 matrix</td>
<td></td>
</tr>
<tr>
<td>3216 Series</td>
<td>32 x 16 matrix</td>
<td></td>
</tr>
<tr>
<td>3232 Series</td>
<td>32 x 32 matrix</td>
<td></td>
</tr>
</tbody>
</table>

**Gain**
- Unity

**Bandwidth**
- 450 MHz (-3dB), 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

**Crossstalk**
- 80 dB @ 1 MHz, -55 dB @ 10 MHz,
- 45 dB @ 30 MHz, -37 dB @ 100 MHz

**Switching speed**
- 200 ns (max.)

**VIDEO INPUT**

<table>
<thead>
<tr>
<th>Number/signal type</th>
<th>24 or 32 RGBHV, RGBS, RGsB, RsGsB, HDTV, component video, S-video, composite video</th>
</tr>
</thead>
</table>

**Connectors**
- 2412/2424 Series: 24 x 5 BNC female
- 3216/3232 Series: 32 x 5 BNC female

**Nominal level**
- 0.3 Vp-p for C of S-video
- 0.7 Vp-p for RGB and for R-Y and B-Y of component video
- 0.3 Vp-p for C of S-video

**Impedance**
- 75 ohms

**Return loss**
- < -30 dB @ 5 MHz

**DC offset**
- (max. allowable) 1.5 V

**VIDEO OUTPUT**

<table>
<thead>
<tr>
<th>Number/signal type</th>
<th>12, 16, 24, or 32 RGBHV, RGBS, RGsB, RsGsB, HDTV, component video, S-video, composite video</th>
</tr>
</thead>
</table>

**Connectors**
- 2412 Series: 12 x 5 BNC female
- 3216 Series: 16 x 5 BNC female
- 2424 Series: 24 x 5 BNC female
- 3232 Series: 32 x 5 BNC female

**Nominal level**
- 1 Vp-p for Y of component video and S-video, and for composite video
- 0.7 Vp-p for RGB and for R-Y and B-Y of component video
- 0.3 Vp-p for C of S-video

**Impedance**
- 75 ohms

**Return loss**
- < -30 dB @ 5 MHz

**DC offset**
- 15 mV with input at 0 offset

**Switching type**
- Triple-Action™

**SYNC**

<table>
<thead>
<tr>
<th>Input type</th>
<th>RGBHV, RGBS, RGsB, RsGsB</th>
</tr>
</thead>
<tbody>
<tr>
<td>Output type</td>
<td>RGBHV, RGBS, RGsB, RsGsB (follows input)</td>
</tr>
</tbody>
</table>

**Output level**
- 4.0 V to 5.0 V p-p, 4.0 V p-p normal

**Input level**
- 0.5 V to 5.0 V p-p

**Input impedance**
- 50 ohms unbalanced, 100 ohms balanced

**Gain error**
- ±0.1 dB channel to channel

**Gain**
- Unity

**Bandwidth**
- >80 dB @ 1 kHz, fully loaded

**CMRR**
- >75 dB @ 20 Hz to 20 kHz

**THD+N**
- >15 dBm, balanced or unbalanced at 1.0%

**Stereo channel separation**
- >80 dB, balanced or unbalanced at 1.0%

**MAX output voltage range**
- 0 to 64 (98 dB to 0 dB) in 1 dB increments from step 1 to 64, 35 dB increment from step 0 to 1

**CONTROL/REMOTE — SWITCHER**

<table>
<thead>
<tr>
<th>Global presets</th>
<th>32 (plus 100 room presets)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Serial control port</td>
<td>1 RS-232 or RS-422, 9-pin female connector</td>
</tr>
<tr>
<td>Baud rate and protocol</td>
<td>9600 (default), 19200, 38400, 115200 baud, selectable (adjustable); 8 data bits, 1 stop bit, no parity</td>
</tr>
</tbody>
</table>

**THD+N**
- >75 dB @ 20 Hz to 20 kHz

**Stereo channel separation**
- >80 dB, balanced or unbalanced at 1.0%

**MAX output voltage range**
- 0 to 64 (98 dB to 0 dB) in 1 dB increments from step 1 to 64, 35 dB increment from step 0 to 1

**GENERAL**

<table>
<thead>
<tr>
<th>Power</th>
<th>2 power supplies (1 primary, 1 redundant); 100 VAC to 240 VAC, 50/60 Hz, internal, universal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rack mount</td>
<td>Yes</td>
</tr>
</tbody>
</table>

**Enclosure type**
- Metal

**Enclosure dimensions**
- 2412/3216 Series: 180 watts
- 2424/3232 Series: 180 watts
- 3216/3232 Series: 170 watts
- 3232 Series: 170 watts

**Product weight**
- 39.0 lbs (17.7 kg)
- 42.0 lbs (19.1 kg)

**Shipping weight**
- 56 lbs (26 kg)
- 60 lbs (28 kg)

**DIM weight International**
- 89 lbs (41 kg)
- 17.5" H x 17.0" W x 12.0" D (10U high, full rack wide) (44.5 cm H x 43.2 cm W x 30.5 cm D)

**Prices**
- 39.0 lbs (17.7 kg)
- 42.0 lbs (19.1 kg)

**Compliances**
- CE, FCC Class A, VCCI, AS/NZS, ICES

**NOTE:** All nominal levels are at ±10%.
**VIDEO**

Routing
- 3248 Series: 32x48 matrix
- 3264 Series: 32x64 matrix
- 4832 Series: 48x32 matrix
- 4848 Series: 48x48 matrix
- 4864 Series: 48x64 matrix
- 6432 Series: 64x32 matrix
- 6448 Series: 64x48 matrix
- 6464 Series: 64x64 matrix

Gain
- Unity

Bandwidth
- 450 MHz (3dB), fully loaded
- 0 - 10 MHz: no more than +0.1 dB to -0.1 dB
- -0.3 Mhz: no more than +1.0 dB to -1.0 dB

Crosstalk
- -80 dB @1 MHz, -62 dB @10 MHz, -52 dB @30 MHz

Switching speed
- 200 ns (max)

**VIDEO INPUT**

- **Number/signal type**: 32, 48, or 64 stereo, RGBHV, RGBS, RGbS, HDTV, component video, composite video
- **Connectors**: 32, 48, or 64 BNC female
- **Nominal level**: 1 Vp-p for Y of component video and S-video, and for composite video
- **Impedance**: 75 ohms, switchable
- **Minimum/maximum levels**: Analog: 0.5V to 2.0V p-p, no offset
- **Impedance**: 75 ohms
- **Return loss**: -30dB @5 MHz
- **DC offset**: ±5mV with input at 0 offset
- **Switching type**: Triple-Action™

**SYNC**

- **Input type**: RGBHV, RGBS, RGbS, RGbS
- **Output type**: RGBHV, RGBS, RGbS, RGbS
- **Input level**: 0.5V to 5.0V p-p, 4.0V p-p normal
- **Output level**: AGC to TTL: 4V to 5V p-p, unipolar
- **Input impedance**: 75 or 510 ohms, switchable
- **Inputs 1 to 16**: 75 or 510 ohms, switchable
- **Inputs 17 to 32/48/64**: 510 ohms
- **Output impedance**: 75 ohms
- **Horizontal**: 13 kHz to 150 KHz
- **Vertical**: 30 Hz to 150 KHz

**AUDIO — AUDIO MODELS ONLY**

Routing
- 32, 48, 64 stereo

Gain
- Unbalanced output: -6 dB
- Balanced output: 0 dB
- THD + Noise: 0.03% @ 1 kHz at nominal level

S/N
- >90 dB, balanced, at max. 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**: 32, 48, or 64 stereo
- **Connectors**: 32, 48, 64 stereo

Impedance
- >10 kohm, balanced/unbalanced, DC coupled
- Nominal level: -10 dBV (316mV)
- Maximum level: +19.5 dBu, (balanced or unbalanced at 0.01%THD+N)
- Input gain adjustment: -18 dB to +24 dB, adjustable per input by RS-232/422, Ethernet or FPC

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

**AUDIO OUTPUT — AUDIO MODELS ONLY**

- **Number/signal type**: 32, 48, or 64 stereo
- **Connectors**: 32, 48, 64 stereo

Impedance
- 3.5 mm captive screw connectors, 5 pole

Gain error
- ±0.1 dB channel to channel

Maximum level
- Hi-Z: >15 dBm, balanced or unbalanced at 1.0% THD+N
- 0 dBu = 0.775 volts RMS

Gain
- Analog: 0.5V to 2.0V p-p, no offset

Return loss
- >30dB @5 MHz

Impedance
- 75 ohms, unbalanced, 100 ohms balanced

Switching speed
- 200 ns (max)

**CONTROL/REMOTE — SWITCHER**

- **Global presets**: 64 (plus 100 room presets)
- **Serial control port**: (1) RS-232 or RS-422, 9-pin female D
- **Baud rate and protocol**: 9600, 8-bit, 1 stop bit, no parity
- **Serial control pin config**: RS-232: 2 = TX, 3 = RX, 5 = GND
- RS-422: 2 = TX, 3 = RX, 5 = GND, 7 = RX+, 8 = TX+
- **Ethernet control port**: (1) RJ-45 female connector
- **Ethernet data rate**: 10/100Base-T
- **Ethernet protocol**: ARP, ICMP, ping, TCP/IP, Telnet, HTTP
- **Program control**: Extron’s control program for Windows®
- **Enclosure**: Extron’s Simple Instruction Set (SIS™) Microsoft Explorer, Netscape® Navigator, Telnet

**GENERAL**

Power
- 100VAC to 240VAC, 50/60 Hz, internal, universal
- 64x Series video: 110 watts at 115VAC, 60Hz
- 48x Series video: 110 watts at 115VAC, 60Hz
- 32x Series video: 50 watts at 115VAC, 60Hz
- 48x Series sync: 65 watts at 115VAC, 60Hz
- All audio models: 195 watts at 115VAC, 60Hz

Temperature/humidity
- Storage: -40° to +158°F (-40° to +70°C) 10% to 90%, non-condensing
- Operating: +32° to +122°F (0° to +50°C) 10% to 90%, non-condensing

Rack mount
- Yes, with included parts

Enclosure
- Metal

Enclosure dimensions
- Video/Sync: 10.50” H x 17.0” W x 14.1” D
- Audio: 12.25” H x 17.0” W x 14.1” D (7U high, full rack width)

Product weight
- Per signal: 64 and 48 Series: 41 lbs (18.5 kg)
- 32 Series: 31 lbs (14.0 kg)

DIM weight
- Per signal: All models: 44 lbs

Vibration
- ISTA/NSTA 1A in carton

Listings
- UL, CUL

Compliances
- CE, FCC Class A, VCCI, AS/NZS, ICES

MTBF
- 30,000 hours

Warranty
- 3 years parts and labor

Specifications are subject to change without notice.
CROSSPOINT FAMILY COMPARISON CHART

<table>
<thead>
<tr>
<th>Features</th>
<th>CrossPoint Ultra</th>
<th>CrossPoint 450 Plus</th>
</tr>
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<tbody>
<tr>
<td>Ultra-wideband performance</td>
<td>8x4 to 12x8: 600 MHz (-3 dB), fully loaded</td>
<td>450 MHz (-3 dB), fully loaded</td>
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<tr>
<td>Ultra-flat frequency response</td>
<td>±0.5 dB from 0 to 130 MHz</td>
<td>±1.0 dB from 0 to 130 MHz</td>
</tr>
<tr>
<td>Ultra-low crosstalk</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>ADSP Advanced Digital Sync Processing</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>DSVP Digital Sync Validation Processing</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Triple Action Switching for RGB Delay</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>I/O rooming</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>I/O grouping</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Audio features</td>
<td>Ultra-low audio noise – THD+N</td>
<td>0.01% @ 1 kHz at nominal level</td>
</tr>
<tr>
<td></td>
<td>Audio input gain and attenuation</td>
<td>0.03% @ 1 kHz at nominal level</td>
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<td>Audio output volume control</td>
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<td></td>
<td>Switches balanced and unbalanced audio</td>
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<tr>
<td>Input/Output size range</td>
<td>8x4 to 16x16</td>
<td>24x12 to 64x64</td>
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<tr>
<td>Ultra-low power consumption</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Fan-free enclosure</td>
<td>✓</td>
<td>Most models</td>
</tr>
<tr>
<td>Ultra-efficient power supply</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Ultra-reliable architecture</td>
<td>5th Generation design</td>
<td>4th Generation design</td>
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<tr>
<td>Ultra-flexible control</td>
<td>RS-232/422 serial</td>
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<td></td>
<td>IP Link Ethernet</td>
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<tr>
<td></td>
<td>QuickSwitch front panel controller</td>
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</tr>
<tr>
<td></td>
<td>Enhanced QS-FPC with tri-color backlit buttons</td>
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</table>

APPLICATION DIAGRAM

Extron Crosspoint 450 Plus 3232 HVA
Ultra-Wideband Matrix Switcher

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