

# ISS 608

## TRUE SEAMLESS 4K/60 HDMI AND DISPLAYPORT SWITCHER



18 Gbps  
4K/60 4:4:4

VECTOR 4K  
SCALING

EVERLAST  
POWER SUPPLIES

### High-Performance Switching and Scaling for Professional Presentations and Live Events

- ▶ True seamless switching between eight digital inputs
- ▶ Multiple transition effects include wipes, dissolve, and cut
- ▶ Preview and Program outputs
- ▶ Advanced Extron Vector™ 4K scaling engine
- ▶ Supports computer and video resolutions up to 4K/60 @ 4:4:4
- ▶ Supports HDMI 2.0, DisplayPort 1.2, and HDCP 2.3

# Extron

# ISS 608

The Extron ISS 608 is an eight-input seamless switcher for the dynamic presentation of HDMI and DisplayPort content at resolutions up to 4K/60. It combines true seamless switching with advanced Vector™ 4K scaling technology, ensuring polished, professional presentations. To enhance source switching and facilitate use in live environments, the ISS 608 provides multiple seamless transition effects, an independent preview output, and intuitive front panel operation. Logo insertion, video keying, and PIP capabilities complement primary content, and audio de-embedding simplifies integration. These features and capabilities enable the ISS 608 to deliver a true seamless digital signal switching solution perfect for high-end, live presentation environments.



**18 Gbps**  
4K/60 4:4:4

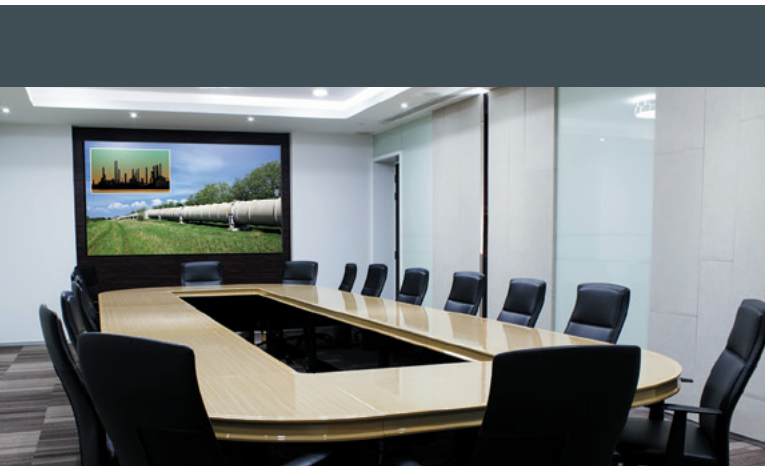
The ISS 608 features six HDMI 2.0 and two DisplayPort 1.2 inputs, providing full 18 Gbps support of signals up to 4K/60 with 4:4:4 chroma sampling on a single cable. HDCP 2.3 compliance ensures display of content-protected media and interoperability with other HDCP-compliant devices.



Embedded multi-channel HDMI and DisplayPort audio is switched, along with video, to the HDMI outputs. During a dissolve or wipe, the switcher performs an audio fade down/fade up transition for the duration of the video effect. The ISS 608 includes balanced/unbalanced analog audio outputs for sending de-embedded two-channel audio to a sound system or other destination.



Matrix Mode provides production-style switching effects for any HDMI matrix switcher. Connect two switcher outputs to inputs 1 and 2 on the ISS 608 to automatically apply a transition effect between the video sources when a switch is detected.



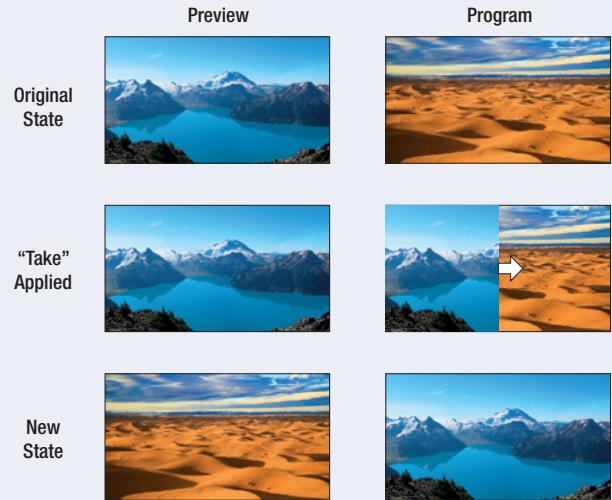
The ISS 608 is well suited for any environment that requires professional high-end video processing with transitioning switch effects. This can include corporate board rooms, auditoriums, houses of worship, or other live presentation environments. For worry-free control during events, the ISS 608 features an easy-to-use interface with discrete source selection for preview and program outputs, effect and preset selection buttons, and a Take button that sends preview content to the audience using the selected effect.

## Preview / Program Outputs

Independent video buses for Preview and Program outputs enable the operator to confidently control the presentation by reviewing sources on a local monitor before switching them to the Program output for the viewing audience. This is beneficial when synchronizing video content such as computers and Blu-ray or media players, starting from a specific point in a slide presentation, and orchestrating camera angles.

The operator can select between cut, dissolve, and wipe transitions when switching sources to the Program output, providing a professional touch to live presentations.

Selectable “Stay” and “Swap” modes allow the operator to choose whether the selected Preview source is retained after a switch, or replaced by the outgoing Program source.



## Seamless Switch Effects

### Cut

A cut provides an immediate, seamless switch between sources, eliminating distracting jumps, glitches, and delays from your presentation.

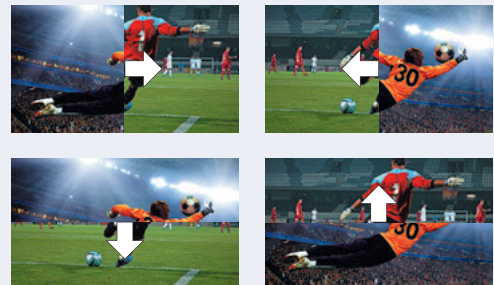
### Dissolve

The dissolve, or cross-fade effect between sources delivers elegant transitions with selectable duration. Both sources can be live video, frozen content, or a combination of the two. You can also dissolve between video content and a stored image file.



### Wipe

Wipes draw attention to the changing content. The ISS 608 provides hard-edge and soft-edge wipes, with selectable wipes in four different directions, as well as user-definable wipe durations.



## Logos, Transparency, and Keying

### Logo Storage

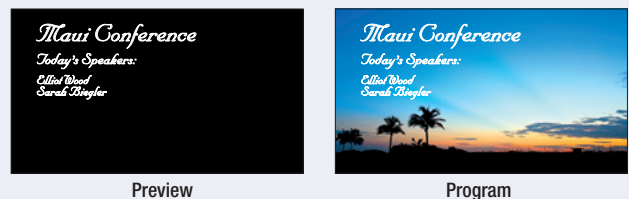
Logo graphics in BMP, JPG, PNG, or TIFF format may be uploaded to the unit. Up to 16 logo images can be stored. In addition, up to 16 logo presets are available to store the image file, position, and key settings for quick recall and switching between multiple logos.

### Image Keying and Transparency

A logo can be inserted over live video using level keying, RGB color keying, transparency, or an alpha channel as supported by the graphic file format. Flexible positioning controls allow placement of the logo anywhere over the active video.

### Video Keying

Title information or other content from an input source can be displayed over the program image. Input switches to the Program output can be made behind the video key, incorporating freeze/fade or freeze/cut transitions.



# FEATURES

## **True seamless switching between eight digital inputs**

Provides sophisticated transition effects for presentations and live events.

## **Supports computer and video resolutions up to 4K/60 @ 4:4:4**

Supports HDMI 2.0 and DisplayPort 1.2 signals up to 4096x2160 at 60 Hz with 4:4:4 color sampling.

## **Supported HDMI 2.0 specification features include data rates up to 18 Gbps, Deep Color, and HD lossless audio formats**

## **HDCP 2.3 compliant**

Ensures display of content-protected media and interoperability with other HDCP-compliant devices.

## **Matrix Mode**

HDMI inputs 1 and 2 support Matrix Mode, which adds seamless switching and transition effects to any matrix switcher with HDMI outputs.

## **PIP - picture-in-picture**

Allows any input to be displayed on-screen simultaneously with another. The PIP window can be dynamically sized and positioned anywhere within the output and is transitioned into or out of the output using the dissolve effect. Sixteen PIP presets are also available.

## **Aspect ratio control**

The aspect ratio of the video output can be controlled by selecting a FILL mode that provides a full screen output or a FOLLOW mode, which preserves the original aspect ratio of the input signal.

## **Motion-adaptive deinterlacing for signals up to 1080i**

Advanced deinterlacing for all interlaced signals up to 1080i delivers optimized image quality.

## **Automatic 3:2 and 2:2 pulldown detection**

Advanced film mode processing techniques that help maximize image quality for content sources originating from film.

## **Input presets**

Memory presets are available to store and recall image settings.

## **Layout presets**

Memory presets are available to store and recall user settings. This provides a quick method to set up content preview in anticipation of transitioning it to the Program output.

## **Output mute**

Allows independent muting of Preview and Program video and audio.

## **Output freeze**

Provides independent freeze control for the program and preview output signals. Frozen content can be switched to the Program output using any transition effect.

## **User-selectable HDCP authorization**

Allows each HDMI input to appear HDCP compliant or non-HDCP compliant to the connected source, which is beneficial if the source automatically encrypts all content when connected to an HDCP-compliant device. Protected material is not passed in non-HDCP mode.

## **Key Minder® continuously verifies HDCP compliance for quick, reliable switching**

Key Minder authenticates and maintains continuous HDCP encryption between input and output devices to ensure quick and reliable switching in professional AV environments, while enabling simultaneous distribution of a single source signal to one or more displays.

## **SpeedSwitch® Technology delivers virtually instantaneous switching speeds for HDCP-encrypted content**

## **EDID Minder® automatically manages EDID communication between connected devices**

EDID Minder ensures that all sources power up properly and reliably output content for display.

## **EDID capture mode**

EDID information can be captured and stored from connected Program and Preview display devices.

## **Comprehensive picture controls for Preview and Program output buses**

Fine tune displayed content with picture controls for brightness, contrast, sizing, positioning, and zoom.

## **Internal video test patterns and pink noise generator for calibration and setup**

Offers several video test patterns and audio pink noise to facilitate proper system setup and calibration of display devices.

## **Audio management**

Embedded two-channel digital audio can be extracted from any input and sent to the Preview and Program analog audio outputs. Multi-channel audio formats can be passed to the Preview and Program HDMI outputs.

## **Easy setup and commissioning with Extron's PCS - Product Configuration Software**

Convenient configuration and preset design from a single, easy-to-use software application.

## **Front panel controls with LCD display**

Back-lit front panel buttons and an LCD menu system with navigation controls ensure simplified operation in live presentation environments and provide quick access to configuration settings.

## **Ethernet monitoring and control**

Enables control and proactive monitoring over a LAN or WAN.

## **Built-in Web pages**

Enables the use of a standard browser for device monitoring and simple troubleshooting over an intuitive Web interface.

## **RS-232 control port**

Supports the use of serial commands for integration into a control system. Extron products use the SIS™ - Simple Instruction Set command protocol, a set of basic ASCII commands that allow for quick and easy programming.

## **Front panel USB configuration port**

Enables easy configuration without having to access the rear panel.

## **Executive mode lockout**

Provides restriction to access of controls.

## **Internal Extron Everlast™ power supply**

Provides worldwide power compatibility, with high demonstrated reliability and low power consumption for reduced operating cost.

## **Extron Everlast Power Supply is covered by a 7-year parts and labor warranty**

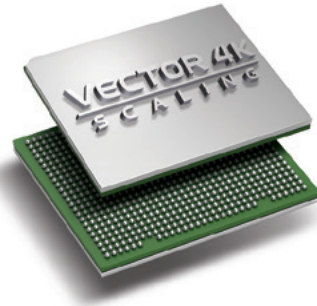
# VECTOR 4K

## Extron Vector 4K Scaling Technology

For over 20 years, Extron has been engineering scaling and signal processing solutions that deliver uncompromised image quality and performance. As a result, we have become an industry leader in scaling technology, designing best-in-class products renowned for their quality, reliability, and ease of use. We have continually refined our technology to keep pace with evolving video formats – from standard definition to high definition signals, and now, 4K.

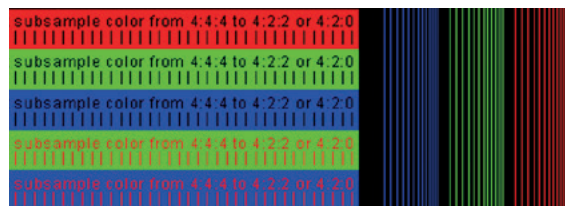
### Engineered by Extron from the Ground Up

Vector 4K was developed internally by Extron's expert team of signal processing engineers. Extron engineers have crafted patented image processing technologies that set the industry benchmark for visual performance. Features such as 4:4:4 chroma sampling and bicubic scaling ensure very high image quality and preserve detail present in the original source material.

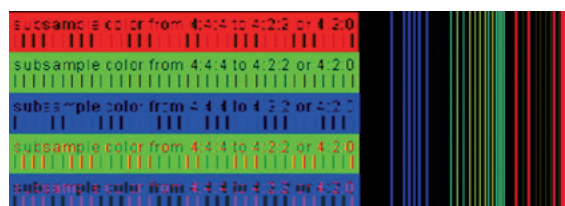


### 4:4:4 Chroma Sampling

Vector 4K processing is always performed in the RGB domain with full 4:4:4 color bandwidth, which is critical for processing fine image details. Competing 4K scalars commonly process in the component domain, employing 4:2:2 or 4:2:0 chroma subsampling. This decreases the bandwidth required to process the signal, at the expense of reduced color detail. Chroma subsampling may be acceptable when processing full-motion video content, but with computer-generated content, subsampled color negatively impacts the clarity of the image. Vector 4K 4:4:4 color processing retains the fine color details present in the original source.



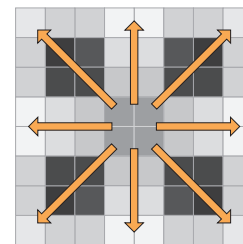
4:4:4 Chroma Sampling



4:2:2 Chroma Subsampling

## Bicubic Interpolation

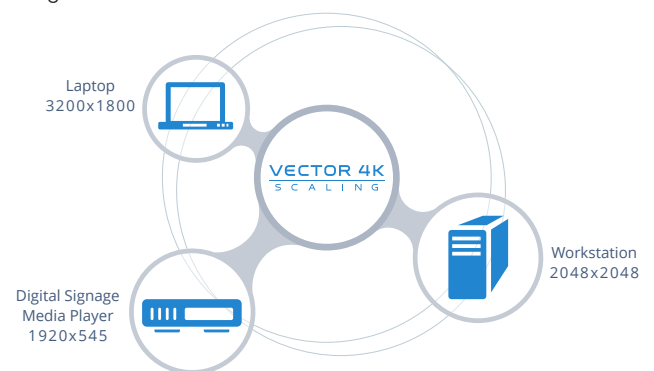
The Vector 4K scaling engine incorporates Extron-patented, multi-tap, bicubic interpolation, which creates a new pixel by averaging adjacent pixels above, below, to the sides, and diagonally of the new pixel. This produces sharp, accurate output, preserving single-pixel detail that other scaling methods lack. Vector 4K algorithms continually and dynamically adapt, ensuring optimal processing for upscaling, downscaling, or 1:1 pass-through applications.



Bicubic Interpolation

## Dynamic Digital Input Detection and Auto-Image

Today's computer video standards allow for signal customization to suit the needs of a particular application or display. Such sources can present a challenge for signal processors that rely solely on fixed lookup tables of common resolutions, which are typically incomplete and quickly become obsolete. Vector 4K goes beyond conventional lookup tables, incorporating dynamic input detection which analyzes incoming digital video signals and accurately identifies the signal parameters before processing them for precise conversion and scaling.



## Integration Features

Vector 4K technology also provides features that aid in system integration, such as aspect ratio control, auto-memory and user presets, advanced HDCP management, and more.

## Learn More

To learn more about Vector 4K scaling, visit [www.extron.com/vector4k](http://www.extron.com/vector4k), where you can see interactive demonstrations of Vector 4K technology, view an informational video highlighting key features, and download the Vector 4K brochure.

# OVERVIEW

## Image freeze control

Any selected input can be frozen, enabling extended viewing on the Program or Preview output

## Independent source selection

Input sources can be independently switched for the Program and Preview outputs

## User-definable wipe, dissolve, and cut transitions

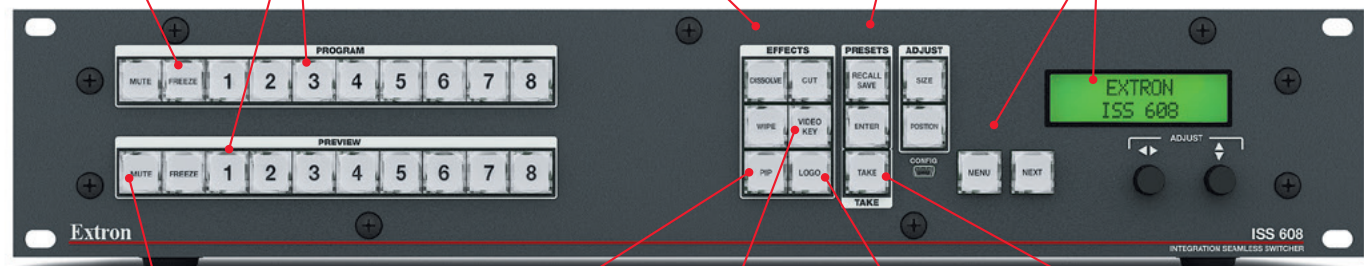
Allow customized switching effects for enhanced presentations

## Preset save and recall

Allows quick access to commonly used layouts and effect configurations

## User-friendly interface

An LCD display, direct access buttons, and rotary controls enable detailed adjustment of image settings and simplified configuration



## Back-lit buttons on front panel

Simplifying live operation and source status identification

## PIP - picture-in-picture

Allows the simultaneous display of two video sources

## Video keying

Title information or other content can be displayed over the program image

## Logo store and recall

Up to 16 graphics in BMP, JPG, PNG, or TIFF format may be uploaded to the unit for future recall

## Take

Sends content from the preview bus to the program bus

## HDCP 2.3 compliance

Ensures display of content-protected 4K video media and interoperability with other HDCP-compliant devices

## Audio switching

Embedded multi-channel HDMI and DisplayPort audio is switched alongside video to the Preview and Program HDMI outputs

## DisplayPort 1.2 inputs

Accepts signals up to 4096x2160 @ 60 Hz with full 4:4:4 color processing

## Preview/Program analog audio outputs

Provides de-embedded two-channel audio to a sound system or other audio destination



## Internal Extron Everlast™ power supply

Provides high-demonstrated reliability and low power consumption for reduced operating cost

## HDMI 2.0 inputs

Accept signals up to 4096x2160 @ 60 Hz with full 4:4:4 color processing

## Preview/Program HDMI outputs

Independent 4K/60 video buses allow the operator to confidently control the presentation by reviewing sources before switching them to the Program output for the viewing audience

## Ethernet monitoring and control

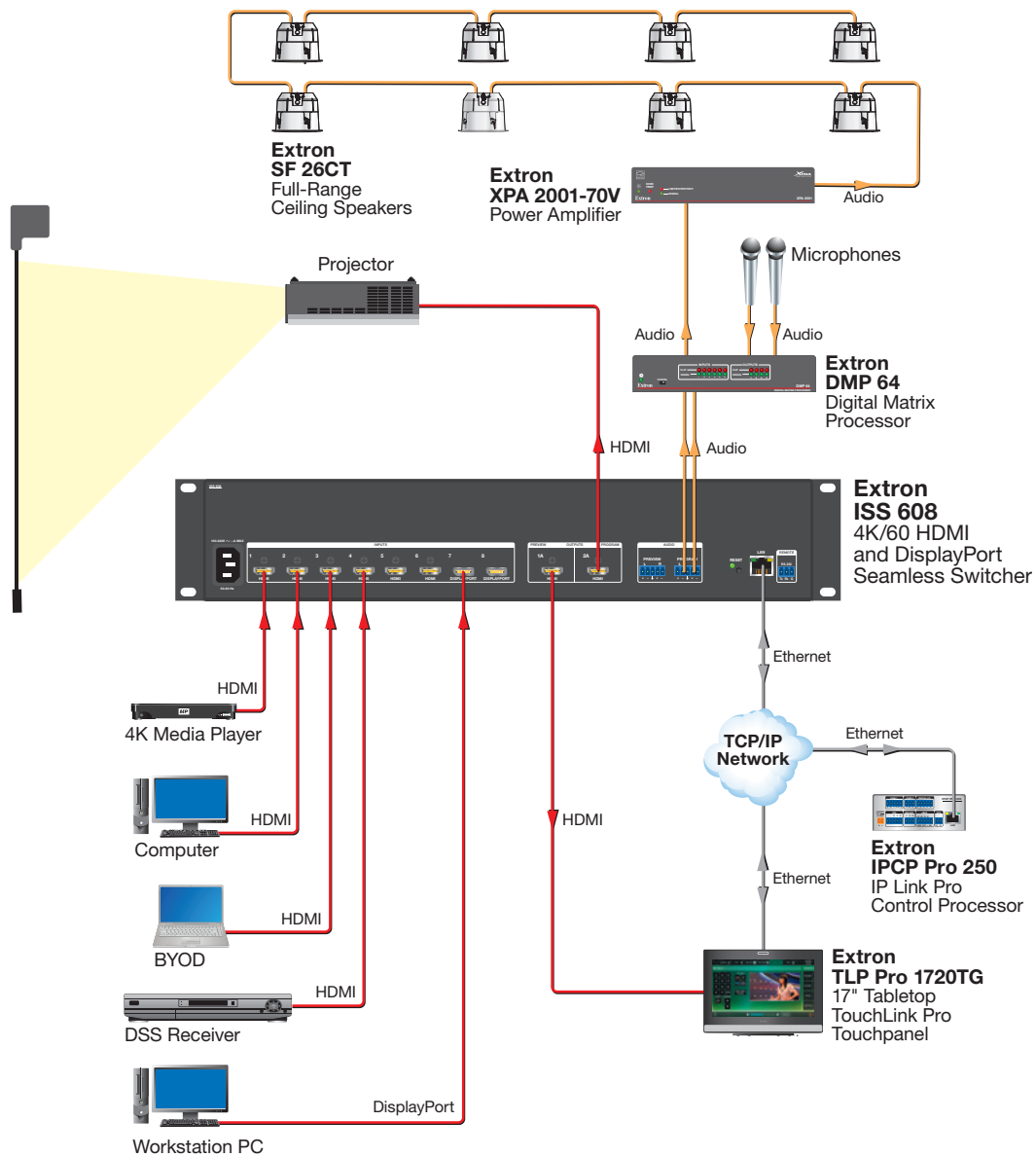
Enables operation using a network-based control system or Extron Product Configuration Software - PCS

## RS-232 monitoring and control

Facilitates integration with a control system

## Corporate Board Room

An ISS 608 in a large corporate board room provides true seamless video and audio switching for live presentations. Computer, satellite, and 4K media player inputs support pre-recorded and live content. Source preview is available directly on the system's TLP Pro 1720 TG TouchLink® Pro Touchpanel, which also provides easy source and transition effect selection for the presenter. A DMP 64 audio DSP processor manages program audio from the ISS 608, as well as microphone inputs, before distributing it to an XPA 2001-70V amplifier and SF 26CT speakers.



# SPECIFICATIONS

## TRUE 4K SPECIFICATION

### Max 4K Capabilities

Resolution and Refresh Rate	Chroma Sampling	Max Bit Depth per Color
4096 x 2160 at 60 Hz 3840 x 2160 at 60 Hz 4096 x 2160 at 30 Hz 3840 x 2160 at 30 Hz	4:4:4	8 bit
4096 x 2160 at 60 Hz 3840 x 2160 at 60 Hz	4:2:0	10 bit

Frame rate <sup>1</sup>	24, 25, 30, 50, or 60 fps
Chroma sampling <sup>1</sup>	4:4:4, 4:2:2, or 4:2:0
Color bit depth <sup>1</sup>	8 or 10 bits per color
Signal type	DVI v1.0, HDMI v1.4 and v2.0, DisplayPort v1.2, HDCP v1.4 and v2.3
Max. video data rate <sup>1</sup>	
HDMI	18 Gbps (6 Gbps per color)
DisplayPort	21.6 Gbps (5.4 Gbps per lane)
<b>NOTE:</b> <sup>1</sup> Subject to the maximum data rate limit. Use our calculator at <a href="http://www.extron.com/4Kdata">www.extron.com/4Kdata</a> to determine video parameters supported by this data rate.	

### VIDEO INPUT

Number/signal type	6 HDMI 2 DisplayPort
Horizontal frequency	15 Hz to 150 Hz
Vertical frequency	24 Hz to 120 Hz
Resolution range	640x480 to 4096x2160, 480i, 576i, 480p, 576p, 720p, 1080i, 1080p, 2K, 4K
Standards	DVI 1.0, HDMI 1.4 and 2.0, HDCP 1.4 and 2.3, DisplayPort 1.2

### VIDEO PROCESSING

Digital sampling	8, 10, or 12 bits per color; 600 MHz pixel clock
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### VIDEO OUTPUT

Number/signal type	2 HDMI (HDCP compliant)
Scaled resolution	640x480 <sup>8</sup> , 800x600 <sup>8</sup> , 1024x768 <sup>8</sup> , 1280x768 <sup>8</sup> , 1280x800 <sup>8</sup> , 1280x1024 <sup>8</sup> , 1360x768 <sup>8</sup> , 1366x768 <sup>8</sup> , 1440x900 <sup>8</sup> , 1400x1050 <sup>8</sup> , 1600x900 <sup>8</sup> , 1600x1200 <sup>8</sup> , 1920x1200 <sup>8</sup> , 2048x1200 <sup>8</sup> , 2048x1536 <sup>8</sup> , 2560x1080 <sup>8</sup> , 2560x1440 <sup>8</sup> , 2560x1600 <sup>8</sup> , 3840x2160 <sup>1,2,3,4,5,6,7,8</sup> , 4096x2160 <sup>1,2,3,4,5,6,7,8</sup> , 480p <sup>7,8</sup> , 576p <sup>6</sup> , 720p <sup>3,4,5,6,7,8</sup> , 1080i <sup>6,7,8</sup> , 1080p <sup>1,2,3,4,5,6,7,8</sup> , 2K <sup>1,2,3,4,5,6,7,8</sup> Custom 1 through 10 <sup>1</sup> = 23.98 Hz, <sup>2</sup> = 24 Hz, <sup>3</sup> = 25 Hz, <sup>4</sup> = 29.97 Hz, <sup>5</sup> = 30 Hz, <sup>6</sup> = 50 Hz, <sup>7</sup> = 59.94 Hz, <sup>8</sup> = 60 Hz
Standards	DVI 1.0, HDMI 1.4 and 2.0, HDCP 1.4 and 2.3

### AUDIO

Frequency response	20 Hz to 20 kHz, ±0.05 dB
THD + Noise	<0.1% @ 1 kHz, 20 kHz bandwidth at nominal level
S/N	>90 dB at maximum output (unweighted)

### AUDIO INPUT

Number/signal type	6 HDMI embedded audio 2 DisplayPort embedded audio
Connectors	6 female HDMI 2 female DisplayPort

### AUDIO OUTPUT

Number/signal type	Stereo/mono, balanced/unbalanced 2 analog (1 program, 1 preview) 2 HDMI embedded
Connectors	(2) 3.5 mm captive screw connector, 5 pole 2 HDMI female Type A

### COMMUNICATIONS — SWITCHER

Serial control port	1 RS-232: 3-pin captive screw connector, rear panel
Baud rate and protocol	9600, 8 data bits, 1 stop bit, no parity
Serial control pin configuration	1 = Tx, 2 = Rx, 3 = GND
Ethernet control port	1 RJ-45 female connector
Ethernet data rate	10/100Base-T, half/full duplex with autotdetect
Ethernet protocol	ARP, ICMP (ping), IP, TCP, UDP, DHCP, HTTP, SMTP, Telnet
Ethernet default settings	Link speed and duplex level = autotdetected IP address = 192.168.254.254 Subnet mask = 255.255.0.0 Gateway = 0.0.0.0 DHCP = off
Program control	Extron control/configuration program for Windows® Extron Simple Instruction Set (SIS™) Microsoft® Internet Explorer®

### GENERAL

Power supply	Internal Input: 100-240 VAC, 50-60 Hz
Temperature/humidity	Storage: -40 to +158 °F (-40 to +70 °C) / 10% to 90%, noncondensing Operating: +32 to +122 °F (0 to +50 °C) / 10% to 90%, noncondensing
Cooling	2 fans, air flows right to left, as viewed from front panel
Rack mount	Yes
Enclosure type	Metal
Enclosure dimensions	3.5" H x 17.5" W x 12.0" D (2U high, full rack wide) (8.9 cm H x 44.4 cm W x 30.5 cm D) (Depth excludes connectors and knobs. Width excludes rack ears.)
Regulatory compliance	CE, c-UL, UL, C-Tick, FCC Class A, ICES, VCCI
Product warranty	3 years parts and labor
Everlast power supply warranty	7 years parts and labor

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

Model	Version Description	Part number
ISS 608	Six HDMI & Two DisplayPort Inputs	60-1684-01

For complete specifications, please go to [www.extron.com](http://www.extron.com)  
Specifications are subject to change without notice.

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