DSC HD-HD 4K Plus A

HDMI TO HDMI 4K SCALER WITH AUDIO EMBEDDING AND DE-EMBEDDING

Industry-Leading 4K/60 Scalers with 4:4:4 Signal Processing

VECTOR 4K SCALING

4K UHD

- Advanced Vector 4K™ scaling engine
- 4:4:4 signal processing at all resolutions and frame rates
- Accepts HDMI video from 480i up to 4096x2160/60
- Selectable output rates from 640x480 up to 4096x2160/60
- Supports 4K signals using a single or dual connection – xi model only
- HDMI audio embedding and de-embedding
- Logo keying

Extron Electronics
INTERFACING, SWITCHING AND CONTROL

Introduction

The Extron **DSC HD-HD 4K Plus A** and **DSC HD-HD 4K Plus A xi** are high performance, HDCP 2.2-compliant scalers capable of converting between HDMI resolutions up to 4K/60 with full 4:4:4 signal processing. They feature HDMI 2.0 connections that support data rates up to 18 Gbps, and incorporate the Extron-exclusive Vector 4K scaling engine, specifically engineered for critical-quality 4K applications including full-motion video and highly detailed computer graphics. Both models support 4K/60 4:4:4 on a single connection, with the DSC HD-HD 4K Plus A xi also supporting 4K/60 signals using two connections. The scalers feature many integrator-friendly features, such as on-screen display, stereo audio embedding and de-embedding, internal test patterns, and the ability to display custom images and logos for on-screen corporate branding and messaging.

Versatile 4K Signal Integration

The DSC HD-HD 4K Plus A has a single HDMI input and output that allow resolutions up to 4096x2160 at 60 Hz with full 4:4:4 signal processing. The DSC HD-HD 4K Plus A xi features a pair of HDMI inputs and outputs, allowing one or two connections for input and output signals up to 4K/60 with 4:4:4 signal processing. The additional input and output allow integration with PC graphics cards and large-venue projectors that support 4K as two columns. Alternatively, the DSC HD-HD 4K Plus A xi can deliver two simultaneous scaled outputs up to 4096x2160 at 60 Hz, for feeding two downstream displays without the need for a distribution amplifier.

Vector 4K Scaling

The DSC HD-HD 4K Plus A and DSC HD-HD 4K Plus A xi incorporate the Extron-exclusive Vector 4K scaling engine, developed in-house and engineered to deliver best-in-class image upscaling and downscaling. Featuring several Extron-patented scaling technologies, the Vector 4K scaling engine delivers uncompromising scaling performance with 30-bit precision processing and full 4:4:4 color bandwidth. This enables sharp, accurate scaling of standard definition and high definition signals up to 4K, as well as downscaling of 4K source signals for lower resolution displays without losing critical image detail.

High Performance Video Processing

The DSC HD-HD 4K Plus A and DSC HD-HD 4K Plus A xi provide high performance deinterlacing of all interlaced signals up to 1080i, and Deep Color processing to deliver optimal image quality. Automatic 3:2 and 2:2 pulldown detection maximizes image quality for content sources originating from film.

Selectable FILL and FOLLOW modes are available to ensure the proper aspect ratio of the output. FILL mode provides full screen output, while FOLLOW mode preserves the original aspect ratio of the input signal.

Enhanced Audio Capabilities

The DSC HD-HD 4K Plus A and DSC HD-HD 4K Plus A xi include a convenient two-channel analog audio input for embedding audio onto the HDMI output, as well as a two-channel analog audio output for sending de-embedded audio to a sound system or other audio destination. They also deliver essential audio integration capabilities, including discrete, selectable analog and digital audio muting, input gain and attenuation, and output volume control.

Multiple Options for Control and Operation

The DSC HD-HD 4K Plus A and DSC HD-HD 4K Plus A xi feature front panel controls and on-screen menus for quick access to functions. Remote configuration is available via USB and Ethernet, while external control is available through RS-232 and Ethernet. Extron product configuration software – PCS simplifies setup and commissioning. LED indicators on the front panel provide visual confirmation of video, audio, and HDCP status.

Features

Accepts video from 480i up to 4096x2160/60 on a single HDMI connection

Accepts video up to 4096x2160/60 using single or dual HDMI connections – DSC HD-HD 4K Plus A xi

The DSC HD-HD 4K Plus A xi offers the convenience of accepting up to 4K/60 video as a single or dual input from a video source such as a workstation PC.

Selectable output rates from 640x480 up to 4096x2160/60 on a single HDMI connection

Selectable output rates up to 4096x2160/60 using dual HDMI connections – DSC HD-HD 4K Plus A xi

The DSC HD-HD 4K Plus A xi offers the convenience of delivering two identical, scaled outputs up to 4K/60, or alternatively, two columns of 4K video to a display.

Advanced Extron Vector 4K scaling engine

The Vector 4K scaling engine is specifically designed for critical-quality 4K imagery, with best in class image upscaling and downscaling.

Advanced signal processing with full 4:4:4 color bandwidth

Signal processing is performed with 30-bit precision and full 4:4:4 color bandwidth for enhanced picture detail.

Displays user-supplied images for screen saver, corporate branding, logo insertion, and HDCP notification

Logo image keying and display

A logo graphic can be positioned and keyed over live video. Full screen images up to 4K resolution can also be displayed to eliminate loss of video between presentations.

HDCP 2.2 compliant

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

Supports custom EDID and output resolutions

Three user-defined scaling output resolutions can be supported by uploading custom EDID files, or capturing EDID from a display or other destination device.

Automatic 3:2 and 2:2 pulldown detection

Advanced film mode processing techniques that instantaneously detect and maximize image quality for NTSC, PAL, and 1080i sources that originated from film.

Aspect ratio control

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

Image freeze control

A live image can be frozen using RS-232 serial control, USB, or Ethernet control.

AUDIO

HDMI audio embedding

Audio from the two-channel analog input can be embedded onto the HDMI output.

HDMI audio de-embedding

Embedded HDMI two channel PCM audio can be extracted to the analog output, or multi-channel and bitstream formats can be passed to the HDMI output.

Output volume control

Provides master volume control for the analog and HDMI embedded audio outputs.

Audio input gain and attenuation

Gain and attenuation can be adjusted for the analog audio input.

Integrated audio delay

The audio output is automatically delayed to compensate for latency introduced by the video processing.

Selectable audio muting

The HDMI embedded and analog audio outputs can be independently muted.

SETUP AND INTEGRATION

Auto Input Memory

When activated, the unit automatically stores size, position, and picture settings based on the incoming signal. When the same signal is detected again, these image settings are automatically recalled from memory.

HDMI to DVI Interface Format Correction

Automatically enables or disables embedded audio and InfoFrames, and sets the correct color space for proper connection to HDMI and DVI displays.

On-screen menus

Intuitive on screen menus allow for easy system setup using the front panel controls.

Output Standby Mode

The unit can be set to automatically mute video and sync output to the display device when no active input signal is detected. This allows the projector or flat-panel display to automatically enter into standby mode to save energy and enhance lamp or panel life.

Power Save Mode

The unit can be placed in a low power standby state to conserve energy when not in use.

Picture controls for brightness, contrast, and detail, as well as horizontal and vertical sizing, positioning, and overscan

User presets

Memory presets are available to store and recall optimized image settings.

Automatic input cable equalization

Actively conditions incoming HDMI signals to compensate for signal loss when using long cables, low quality cables, or source devices with poor signal output.

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

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

Ethernet monitoring and control

Enables control and proactive monitoring over a LAN or WAN. An intuitive Web interface is included for system monitoring and firmware updates.

RS 232 control port

Enables the use of serial commands for integration into a control system.

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

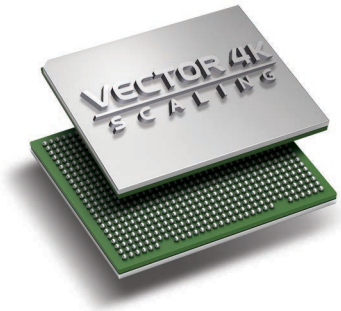
Conveniently configure multiple products using a single software application.

Vector 4K Scaling

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



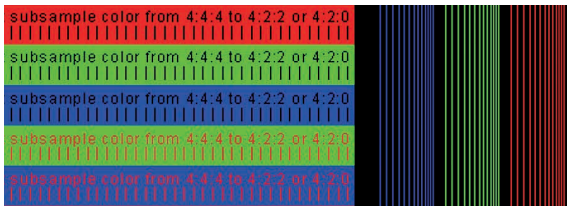
Vector 4K was developed internally by Extron's expert team of signal processing engineers. Extron engineers have crafted patented image processing technologies that set the industry benchmark for visual performance. Features such as 4:4:4 chroma sampling and bicubic scaling ensure very high image quality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

Patented Scaling Technology for the Most Demanding 4K Applications

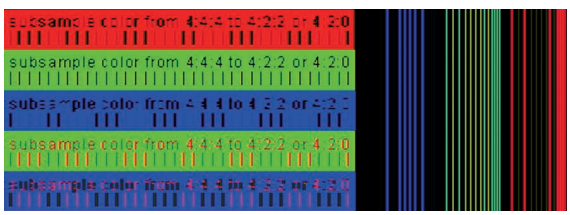
By developing our own scaling technology, we can design to our own exacting specifications and have absolute control over the end product. Our many years of signal processing achievements have resulted in 24 worldwide patents for our scaling engines and video processing algorithms. These patented technologies are part of what makes Extron Vector 4K scaling the new benchmark for 4K video processing.

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 scalers 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 PC-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.



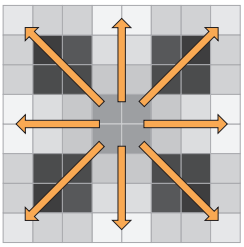
4:4:4 Chroma Sampling



4:2:2 Chroma Subsampling

Bicubic Interpolation

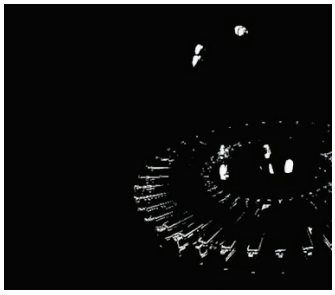
The Vector 4K scaling engine incorporates Extron-patented, multi-tap, bicubic interpolation, which creates a new pixel by averaging adjacent pixels above, below, to the sides, and diagonally of the new pixel. This produces sharp, accurate output, preserving single-pixel detail that other scaling methods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



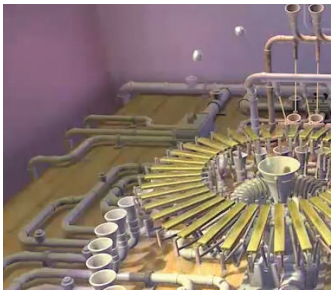
Bicubic Interpolation

Motion-Adaptive Deinterlacing

For the highest quality conversion from interlaced to progressive video, Extron Vector 4K scaling features patented motion-adaptive deinterlacing which integrates two different processing techniques per video frame. Blended odd and even fields are ideal for static content, while line doubling is optimal for areas of motion between fields. To best apply these two modes, Vector 4K utilizes motion estimation at the single-pixel level for the greatest accuracy in detecting dynamic content. Alternative deinterlacing approaches may apply only one method of deinterlacing, or apply simple motion-adaptive techniques, which only evaluate motion in regions rather than individual pixels.



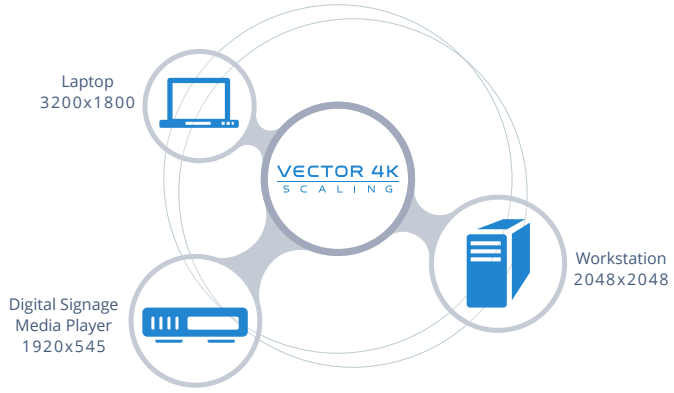
Detected Motion



Original Source

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.



Automatic Film Cadence Detection

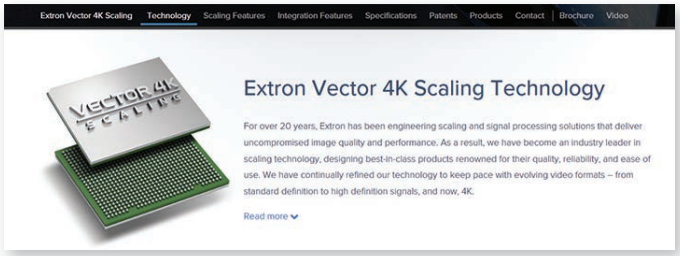
Vector 4K features 3:2, 2:2, and 24:1 cadence detection which examines interlaced signals and instantaneously identifies content that originated from 24 Hz source material. Repeated fields, generated during the 3:2, 2:2, or 24:1 pulldown process, are discarded to recreate the original, progressive 24 frame-per-second content, removing any degradation due to the interlaced transmission.

Integration Features

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

Learn More

To learn more about Vector 4K scaling, visit www.extron.com/vector4k. See interactive demonstrations of Vector 4K technology, view an informational video highlighting key features, and download the Vector 4K brochure.



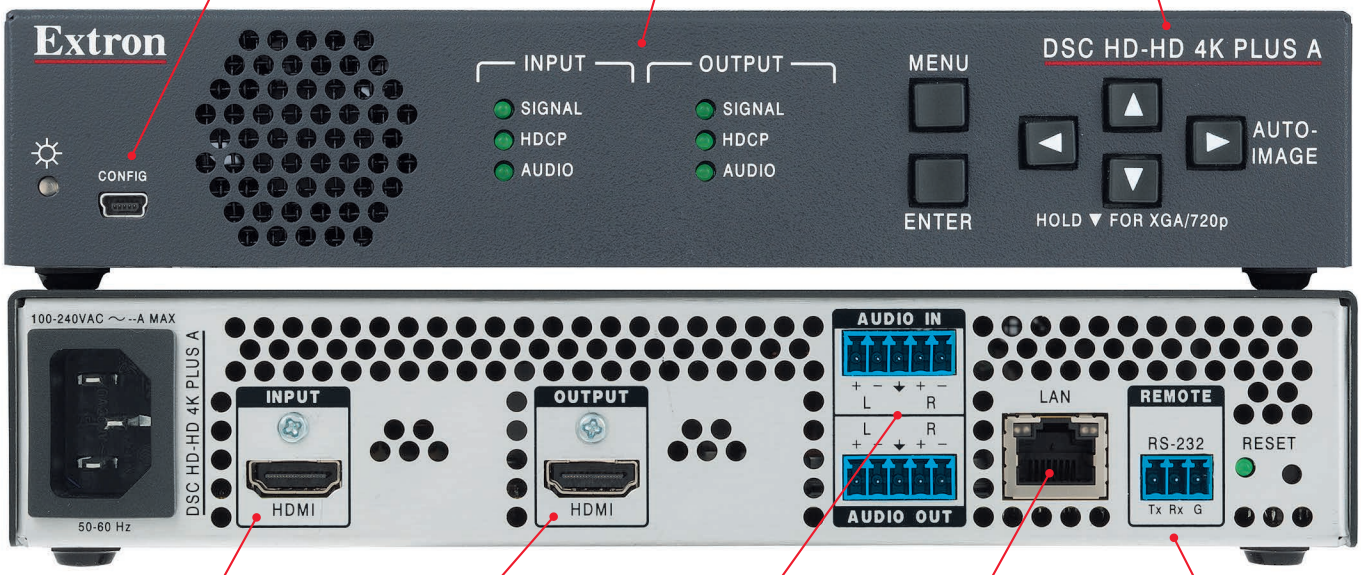
www.extron.com/vector4k

Overview

Front panel configuration port
Allows easy access for system configuration and firmware updates using Extron PCS software.

LED signal status indicators
Provide quick visual confirmation of signal, HDCP, and audio presence.

Front panel controls and on-screen display
Allow convenient access to device configuration and status.



DSC HD-HD 4K Plus A

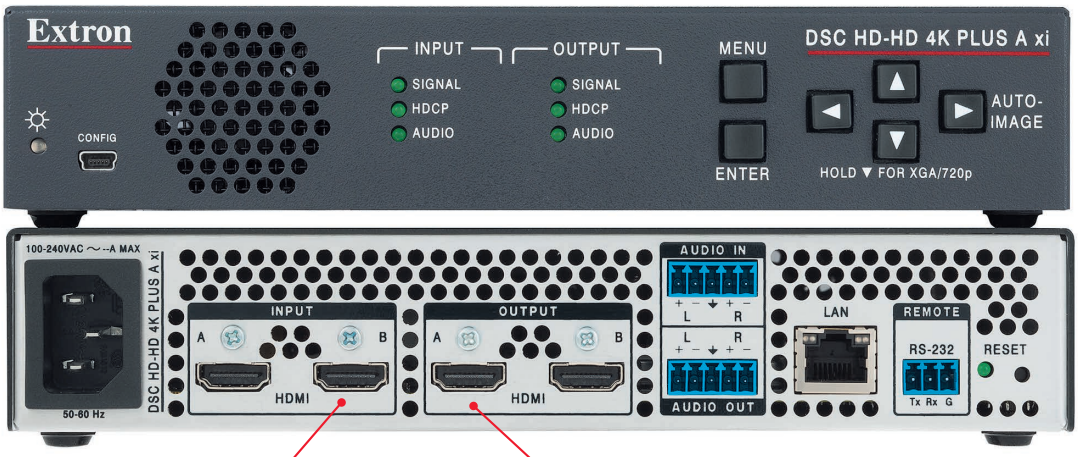
HDMI 2.0/HDCP 2.2 input
Accept input signals up to 4096x2160/60 on a single input.

HDMI 2.0/HDCP 2.2 output
Deliver signals up to4096x2160/60 on a single output.

Audio input and output
Embed analog audio onto the HDMI output, or de-embed HDMI two-channel PCM audio to the analog output.

Ethernet port
Enables device configuration and firmware updates, as well as remote control and monitoring from a control system.

RS-232 serial control
Allows remote control and monitoring from a control system.



DSC HD-HD 4K Plus A xi

HDMI 2.0/HDCP 2.2 inputs
Accept input signals up to 4096x2160 on a single input, or as columns using two connections

HDMI 2.0/HDCP 2.2 outputs
Deliver signals up to 4096x2160/60 on a single output, or as columns using two connections. Alternatively, output B can deliver a duplicate of output A.

LOGO KEYING AND FULL-SCREEN IMAGE DISPLAY

A graphic image can be uploaded to the DSC HD-HD 4K Plus A and displayed as a notification when a loss of input signal is detected, or when HDCP-encrypted content is transmitted to a non-HDCP compliant display. Additionally, an image can be displayed at any time to serve as corporate branding or other messaging. Up to 16 image files can be uploaded and stored on the unit. The DSC HD-HD 4K Plus A accepts BMP, JPG, PNG, or TIFF graphic file formats up to 4K resolution.

A company or school 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.

Up to 16 logo presets are available to store the image file, position, and key settings for quick recall and switching between multiple logos.

Logo Keying

Customized HDCP Warning

Corporate-branded Screen Saver

PRODUCT COMPARISON

FEATURES	DSC HD-HD 4K Plus A	DSC HD-HD 4K Plus A xi
4K/60 support on single connection	✓	✓
Vector 4K scaling	✓	✓
HDMI audio embedding and de-embedding	✓	✓
HDCP 2.2 compliant	✓	✓
Ethernet and RS-232 system control	✓	✓
Custom EDID / output resolutions	✓	✓
Columned input support		✓
Columned output support		✓
Duplicated main output		✓

Two models of the DSC HD-HD 4K Plus A are available to accommodate a variety of 4K/60 scaling applications.

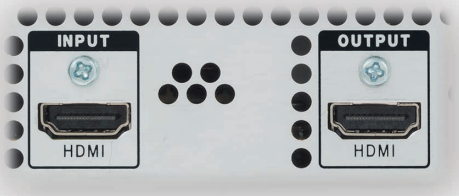
The DSC HD-HD 4K Plus A has a single HDMI input and HDMI output and is designed for applications that need to support signals up to 4K/60 on a single connection. In addition to high-quality Vector 4K scaling, features such as HDMI audio embedding and de-embedding, HDMI 2.0 and HDCP 2.2 compliance, EDID Minder, and support for custom output resolutions maintain high quality images with easy integration.

The DSC HD-HD 4K Plus A xi shares the same features as the DSC HD-HD 4K Plus A, but incorporates dual HDMI inputs and outputs for devices that manage 4K signals as two columns. Two matched inputs up to 2048x2160/60 can be combined into a single 4K output, or a single input can be output as columns up to 2048x2160/60. Alternatively, the DSC HD-HD 4K Plus A xi can deliver two simultaneous scaled outputs for feeding two downstream displays without the need for a distribution amplifier.

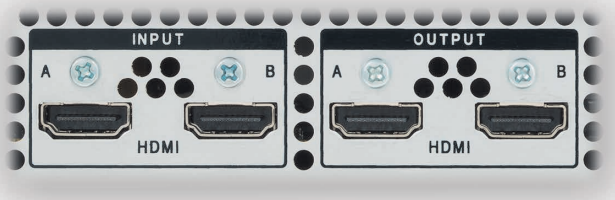
DSC HD-HD 4K Plus A xi

MULTI-PATH SIGNALS AND THE DSC HD-HD 4K Plus A xi

Two models of the DSC HD-HD 4K Plus A scaler are available. The DSC HD-HD 4K Plus A with a single HDMI input and output, and the DSC HD-HD 4K Plus A xi with dual HDMI inputs and outputs. Both models support 4K/60 signals and full 4:4:4 color sampling on a single cable, but the extra input and output on the DSC HD-HD 4K Plus A xi allows 4K signals to be accepted or delivered as two columns up to 2048x2160/60.



DSC HD-HD 4K Plus A – Single HDMI Input and Output



DSC HD-HD 4K Plus A xi – Dual HDMI Input and Output

4K Delivery Using Single and Dual Signal Paths

The DSC HD-HD 4K Plus A and DSC HD 4K Plus A xi both utilize HDMI 2.0 interfaces that support a data rate of 18.0 Gbps, allowing delivery of 4K or UHD resolutions with 24-bit color and 4:4:4 chroma sampling at a maximum frame rate of 60 Hz over a single HDMI cable.

However, most 4K products available today are designed with HDMI 1.4, 1.4a, or 1.4b interfaces, which only support a maximum 4K frame rate of 30 Hz over a single cable. In order for these products to support 4K/60, a 4K signal is sometimes distributed across a pair of connections, with each interface delivering or accepting half of the 4K/60 signal. This dual-path approach typically divides 4K/60 into two columns of either 1920x2160/60 for UHD, or 2048x2160/60 for 4K, and requires two cables to transport the signal.

Standard	Max Data Rate	Chroma Sampling	4K/UHD @ 30 Hz	4K/UHD @ 60 Hz
HDMI 1.4x	10.2 Gbps	4:4:4	1 cable	2 cables
HDMI 2.0	18.0 Gbps	4:4:4	1 cable	1 cable

Advantages of Multi-Path 4K

Even for devices with HDMI 2.0 interfaces that can support 4K/60 on a single cable, it is sometimes advantageous to separate the signal into two 1920x2160/60 or 2048x2160/60 halves. For example, computer workstations can often process high-resolution 4K/60 renderings more efficiently if the signal is distributed across two outputs. This spreads image rendering and processing across two separate GPUs, which increases system performance.

Signal distribution is also a consideration. Running 4K/60 4:4:4 signals very long distances can pose a significant challenge to an integrator, as current twisted pair distribution methods, such as Extron DTP or HDBaseT, support a maximum data rate of 10.2 Gbps. This limits 4K distribution across a single cable to a maximum frame rate of 30 Hz. Splitting a 4K/60 signal into two columns allows a pair of transmitters and receivers to distribute dual-path 4K/60 up to 330 feet. Fiber extenders support a maximum data rate similar to twisted pair technology and also benefit from dual-path 4K to allow extension of 60 frame-per-second signals.

DSC HD-HD 4K Plus A xi Connection Options

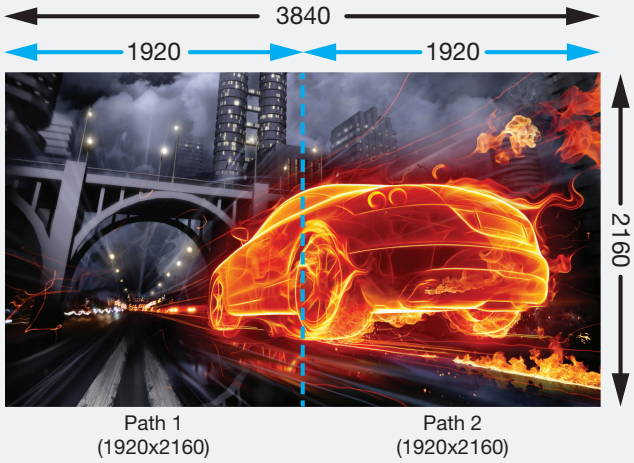
The DSC HD-HD 4K Plus A xi provides the flexibility of scaling and managing 4K/60 signals using either single or dual connections. Example configurations include:

- Accepting up to 4K/60 on a single input, and delivering up to 4K/60 on a single output (same operation as the DSC HD-HD 4K Plus A)

- Accepting a dual-path 4K/60 signal across two inputs, and outputting up to 4K/60 on a single output

- Accepting up to 4K/60 on a single input, and outputting a dual-path 4K/60 signal across two outputs

Alternatively, Output B of the DSC HD-HD 4K Plus A xi can provide a duplicate of Output A, allowing any input to be scaled and presented simultaneously on two separate displays without the need for a distribution amplifier.



Dual-Path 4K

Signage Applications

In addition to accepting dual-path 4K signals, the DSC HD-HD 4K Plus A xi can also accept two inputs of any matching resolution for presentation side by side on a scaled output.

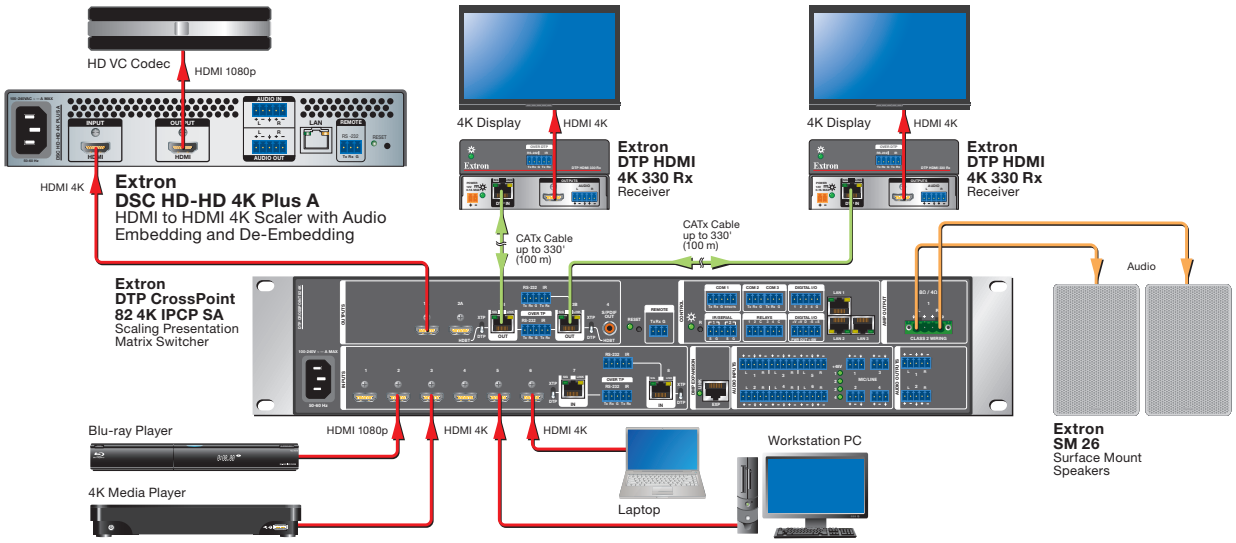
When combining this feature with the scaler's ability to display and key images, there are numerous possibilities for designing creative digital signage or messaging stations. For example, two 1080p inputs can be displayed side-by-side on a 4K display. A logo graphic can be placed at any position on the scaled video output as a foreground image.

Digital signage using two 1080p signals and an image file

Applications

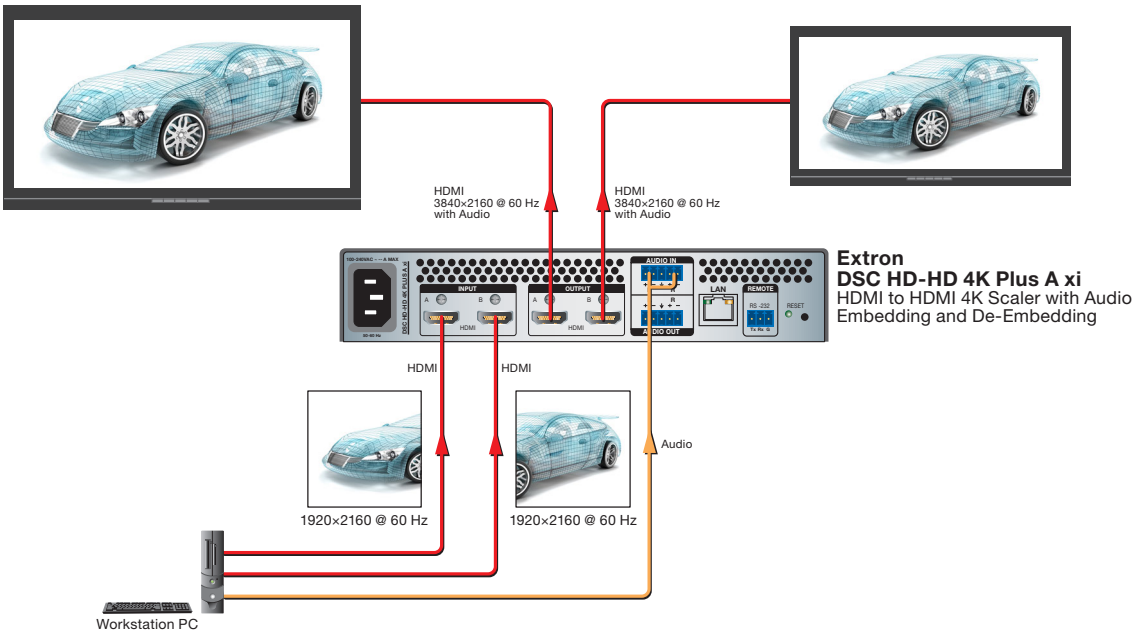
CONFERENCE ROOM

In a system with a mix of 4K and HD destinations, the DSC HD-HD 4K Plus A is ideal for integrating 4K source signals with 1080p destinations such as displays, streaming media and presentation capture systems, and videoconferencing codecs. In this conference room system, the DSC HD-HD 4K Plus A is being used to optimize 4K video for the videoconferencing codec. The Vector 4K scaling engine ensures that 4K content is downscaled to 1080p with superior image quality, by faithfully rendering detail and integrity of the original source.



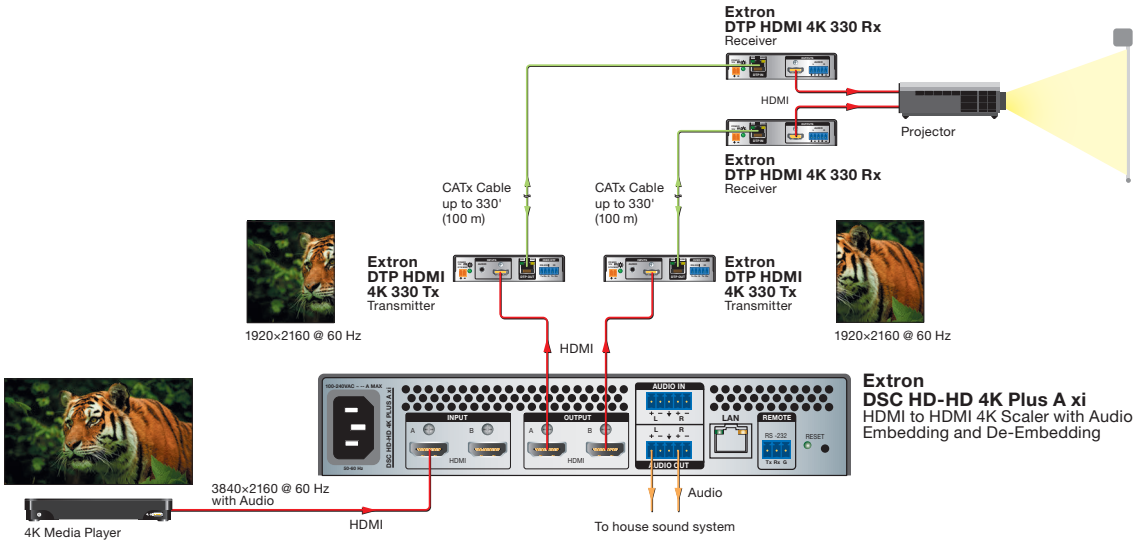
PRODUCT DEVELOPMENT LAB

A workstation PC in a product development lab is equipped with a graphics card capable of delivering 3840x2160 Ultra HD video as two 1920x2160 columned output signals. These signals, plus stereo analog audio are fed into a DSC HD-HD 4K Plus A xi. This scaler combines them into a single 3840x2160 HDMI output with embedded audio for the workstation PC's Ultra HD display. The second HDMI output of the DSC HD-HD 4K Plus A xi allows delivery of the same content to an adjoining meeting space.



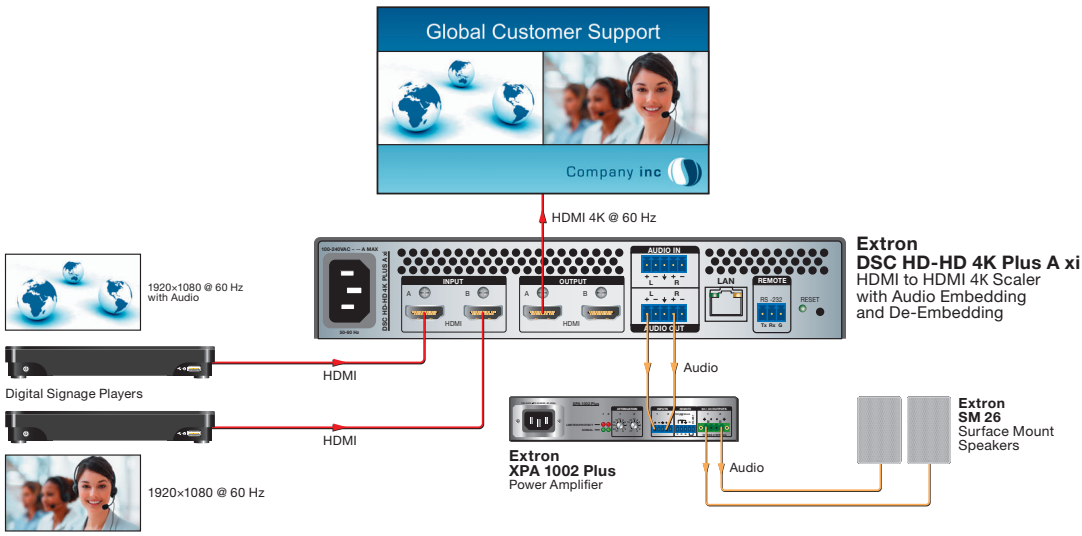
LARGE AUDITORIUM

A media player provides source content to a projector hundreds of feet away in a large auditorium. The player outputs 3840x2160 Ultra HD video at 60 Hz with embedded audio on a single HDMI connection. To facilitate long-distance delivery of a 4K signal at 60 Hz, a DSC HD-HD 4K Plus A xi splits it into two separate 1920x2160/60 Hz signals before sending it to a pair of DTP HDMI 4K 330 Tx transmitters which convert the HDMI signal to twisted pair. A pair of DTP HDMI 4K 330 Rx receivers convert the signal back to HDMI for connection to the projector. Audio is de-embedded from the HDMI signal and sent to the analog outputs, which feeds the house sound system.



CORPORATE LOBBY SIGNAGE

To promote branding in a corporate lobby, two digital signage players provide 1080p/60 Hz content to a DSC HD-HD 4K Plus A xi. The two 1080p feeds are composited side by side into a 4K/60 Hz signal for presentation onto a large 4K display. The screen space above and below the video windows is occupied by corporate-themed messaging sourced from one of several graphic files stored locally on the DSC HD-HD 4K Plus A xi. Audio is de-embedded from the first player's HDMI signal and sent to the analog outputs, which feeds an XPA 1002 Plus and a pair of Extron SM 26 surface-mount speakers.



Specifications

TRUE 4K SPECIFICATION

Max. 4K Capabilities		
Resolution and Refresh Rate	**Chroma Sampling**	**Max Bit Depth per Color**
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		

Frame rate[1]	24, 25, 30, 50, or 60 fps
Chroma sampling[1]	4:4:4, 4:2:2, or 4:2:0
Color bit depth[1]	8 or 10 bits per color
Signal type	DVI 1.0, HDMI 1.4a and 2.0, HDCP 1.4 and 2.2
Max. video data rate	17.82 Gbps (5.94 per color) per connection

NOTE: [1]Subject to the maximum data rate limit. Use our calculator at www.extron.com/4Kdatarate to determine video parameters supported by this data rate.

VIDEO INPUT

Number/signal type	
DSC HD-HD 4K PLUS A	1 HDMI/DVI (HDCP 1.4 and 2.2 compliant)
DSC HD-HD 4K PLUS A xi	2 HDMI/DVI (HDCP 1.4 and 2.2 compliant)
Connectors	
DSC HD-HD 4K PLUS A	1 female HDMI
DSC HD-HD 4K PLUS A xi	2 female HDMI
Maximum pixel clock	
DSC HD-HD 4K PLUS A	Port A – 600 MHz
DSC HD-HD 4K PLUS A xi	Port A and Port B – 600 MHz
Horizontal frequency	15 kHz to 135 kHz
Vertical frequency	24 Hz to 75 Hz
Resolution range	640x480 @ 60 Hz through 4096x2160 @ 60 Hz. Includes 480i, 576i, 480p, 576p, 720p, 1080i, 1080p, 2K, and 4K.
Formats	RGB and YCbCr digital video
Standards	DVI 1.0, HDMI 2.0, HDCP 1.4 and 2.2

VIDEO PROCESSING

Digital pixel data bit depth	8, 10, or 12 bits per channel
Colors	1.07 billion (10-bit processing with full 4:4:4 sampling)

VIDEO OUTPUT

Number/signal type	
DSC HD-HD 4K PLUS A	1 HDMI/DVI (HDCP 1.4 and 2.2 compliant)
DSC HD-HD 4K PLUS A xi	2 HDMI/DVI (HDCP 1.4 and 2.2 compliant)
Connectors	
DSC HD-HD 4K PLUS A	1 female HDMI
DSC HD-HD 4K PLUS A xi	2 female HDMI
Vertical frequency	23.98 Hz, 24 Hz, 25 Hz, 29.97 Hz, 30 Hz, 50 Hz, 59.94 Hz, 60 Hz
Scaled resolutions	640x480[8], 800x600[8], 1024x768[8], 1280x768[8], 1280x800[8], 1280x1024[8], 1360x768[8], 1366x768[8], 1440x900[8], 1400x1050[8], 1600x900[8], 1680x1050[8], 1600x1200[8], 1920x1200[8] HDTV: 480p[7,8], 576p[6], 720p[1,2,3,4,5,6,7,8], 1080i[6,7,8], 1080p[1,2,3,4,5,6,7,8], 2K (2048x1080)[1,2,3,4,5,6,7,8], 2048x1200[8], 2048x1536[8], 2560x1080[8], 2560x1440[8], 2560x1600[8], 3840x2160[1,2,3,4,5,6,7,8], 4K (4096x2160)[1,2,3,4,5,6,7,8] [1] = at 23.98 Hz, [2] = at 24 Hz, [3] = at 25 Hz, [4] = at 29.97 Hz, [5] = 30 Hz, [6] = at 50 Hz, [7] = at 59.94 Hz, [8] = at 60 Hz
Standards	DVI 1.0, HDMI 2.0, HDCP 1.4 and 2.2

AUDIO INPUT

Number/signal type	
DSC HD-HD 4K PLUS A	1 HDMI embedded 1 analog stereo, balanced/unbalanced
DSC HD-HD 4K PLUS A xi	2 HDMI embedded 1 analog stereo, balanced/unbalanced
Connectors	
DSC HD-HD 4K PLUS A	1 female HDMI (1) 5 pole captive screw
DSC HD-HD 4K PLUS A xi	2 female HDMI (1) 5 pole captive screw

AUDIO OUTPUT

Number/signal type	
DSC HD-HD 4K PLUS A	1 HDMI embedded 1 analog stereo, balanced/unbalanced
DSC HD-HD 4K PLUS A xi	2 HDMI embedded 1 analog stereo, balanced/unbalanced
Connectors	
DSC HD-HD 4K PLUS A	1 female HDMI (1) 5 pole captive screw
DSC HD-HD 4K PLUS A xi	2 female HDMI (1) 5 pole captive screw

COMMUNICATION

Serial control port	1 RS-232 on captive screw connector on back panel
USB control port	1 female USB mini B on front panel
Ethernet port	1 female RJ-45
Program control	On-screen display (OSD) via front panel control Extron Simple Instruction Set (SIS™) commands Extron configuration program for Windows®
Storage	512 MB user memory

GENERAL

Power supply	Internal Input: 100-240 VAC, ~50-60 Hz
Mounting	
Rack mount	Yes, with optional rack shelf
Furniture mount	Yes, with optional under-desk mounting kit
Enclosure dimensions	1.66" H x 8.68" W x 9.5" D (1U high, half-rack wide) (4.2 cm H x 22.1 cm W x 24.1 cm D) (Depth excludes connectors.)
Regulatory compliance	
Safety	CE, c-UL, UL
EMI/EMC	CE, C-tick, FCC Class A, ICES, VCCI
Warranty	3 years parts and labor

NOTE: All nominal levels are at ±10%.

Model	Version Description	Part number
DSC HD-HD 4K PLUS A	Single HDMI Input and Output	60-1573-01
DSC HD-HD 4K PLUS A xi	Dual HDMI Input and Output	60-1573-02

For complete specifications, please go to www.extron.com
Specifications are subject to change without notice.

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