

MediaPort 200

HDMI AND AUDIO TO USB
SCALING BRIDGE

Pro AV Integration for Software
Videoconferencing Applications

- ▶ Seamlessly integrates pro AV sources or systems into software codec applications
- ▶ USB 2.0 device connection uses generic USB drivers for universal compatibility
- ▶ Video scaling provides USB output from 320x180 to 1080p/15 to match common software codec requirements
- ▶ Integrated audio DSP with AEC reference output
- ▶ HDMI input with HDCP-compliant loop through



Extron Electronics
INTERFACING, SWITCHING AND CONTROL

Introduction



The Extron **MediaPort 200** is an HDMI to USB bridge for integrating pro AV sources or systems with software codec conferencing applications. It works seamlessly with a computer using generic USB video and audio drivers. The MediaPort 200 features an HDMI input with HDCP-compliant loop through, accepts signals up to 1920x1200, and scales video to a USB 2.0 output. Audio features include program and mic inputs, HDMI audio de-embedding, and USB bidirectional audio, plus AEC reference and line level outputs. The MediaPort 200 also includes DSP with EQ, filters, mixing, dynamics, and ducking. This allows the MediaPort 200 to serve as a complete soft codec interface, with the added flexibility of integrating into larger hardware codec or DSP systems. The MediaPort 200 enables versatile integration of conferencing computers into pro AV system designs.

The MediaPort 200 bridges the gap between simple Webcam-to-computer solutions and traditional hardware videoconferencing systems. For small meeting spaces with just a computer and display, the MediaPort 200 is ideal for enhancing audio and video quality by adding support for professional-grade equipment such as videoconferencing PTZ cameras, boundary microphones, and sound reinforcement systems.

In boardrooms and large conference rooms, the MediaPort 200 easily integrates a conferencing computer into a fully equipped AV system

with a hardware codec, video distribution and processing, control, DSP, microphones, and full sound reinforcement. In addition to conferencing, the connected computer can be used with a software application to record meeting sessions, presentations, or lectures.

Streamlined Installation

The MediaPort 200 connects to Windows® or Mac®-based computers with USB plug-and-play simplicity, using industry standard UVC - USB Video Class and UAC - USB Audio Class drivers. It can be used with popular software and cloud-based communications platforms including Microsoft® Skype®/Skype® for Business, Adobe® Connect™, BlueJeans, Cisco® WebEx®, Citrix® GoToMeeting™, Zoom, and more.

Optimal Video Processing for Soft Codecs

To ensure an HDMI source is presented with the highest possible image quality to a soft codec, the MediaPort 200 incorporates video processing technology specifically engineered for optimized image scaling and frame rate conversion that preserves detail and legibility of source content. Output resolutions range from 320x180 to 1080p/15, and are dynamically configured by the software codec as it responds to real-time CPU usage and bandwidth conditions between near-end and far-end locations.

Versatile Audio Integration with DSP

The MediaPort 200 accepts a microphone input and program sources as analog audio and de-embedded HDMI two-channel audio. The USB connection provides a 4x2 channel audio interface with a personal computer, similar to a standard USB sound card with send and return audio capability. This allows the MediaPort 200 to send a two-channel mix of the microphone, analog program, HDMI audio, and USB playback audio to the computer. The interface also allows the MediaPort 200 to receive four audio channels from the computer, including program audio plus two-channel communication audio from the soft codec's far-end.

The audio DSP can be used to optimize mic and program source signals, as well as outgoing signals bound for the computer, sound reinforcement systems, or outboard DSPs. The MediaPort 200 also delivers far-end audio as a dedicated AEC reference output to an AEC-equipped DSP, such as the DMP 128 C.

Works with these and other conferencing applications:



Features

OVERVIEW

Seamlessly integrates pro AV sources or systems into software codec applications

The MediaPort 200 sends AV signals from a presentation source or switcher to a computer, for integration with software and cloud-based communications platforms.

USB 2.0 device connection uses generic USB drivers for universal compatibility

Industry standard UVC - USB Video Class and UAC - USB Audio Class drivers provide compatibility with Windows®, Mac OS®, Linux, and other operating systems.

Supports popular software communications platforms including Microsoft® Skype®/ Skype® for Business, Adobe® Connect™, Apple FaceTime, BlueJeans, Cisco® WebEx®, Citrix® GoToMeeting™, Google Hangouts, LifeSize® Clearsea, and Zoom

Video scaling provides USB output from 320x180 to 1080p/15 to match common software codec requirements

Ensures optimal quality of camera or computer video content for far-end participants. The video output is delivered as an MJPEG-encoded stream over USB 2.0.

Integrated audio DSP

The MediaPort 200 provides audio mixing and signal processing capabilities, including mixing and routing for 4x2 audio. The DSP is optimized for integration with mic and program audio sources as well as software codecs, hardware codecs, external DSP, and sound reinforcement.

AEC reference output

This output provides far-end audio to an external AEC-equipped DSP. This audio is used by the external DSP as a reference signal for AEC - acoustic echo cancellation processing, to ensure echo-free conferencing for far-end participants.

HDCP-compliant HDMI input and loop-through

Provides an output signal for a local display, an AV system, or a hardware codec, enabling the content to be monitored or shared without the need for a separate distribution amplifier. Both the HDMI input and loop-through are HDCP compliant.

VIDEO

Accepts HDMI computer and video resolutions up to 1080p/60 and 1920x1200

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.

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, the image settings are automatically recalled from memory.

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

The MediaPort 200 offers several video test patterns to facilitate proper system setup and calibration, and can provide an active output when an input video source is not available. The pink noise generator is selectable for all audio outputs, including USB audio to the computer, and aids in optimizing audio output signals.

Logo image display

The MediaPort 200 can be set to automatically display a user-supplied image file whenever no signal is present at the HDMI input.

High performance deinterlacing for signals up to 1080i

Features highly accurate deinterlacing for 480i/576i/1080i signals. This ensures absolute detail and fidelity in the reconstructed progressive video frames, including 3:2 and 2:2 pulldown for interlaced signals originating from film content.

HDCP Visual Confirmation

A full-screen green signal is sent when HDCP-encrypted content is routed to the USB output, or to a non-HDCP compliant display on the HDMI loop output, providing immediate visual confirmation that protected content cannot be viewed.

EDID Minder®

EDID Minder ensures that the source powers up properly and reliably outputs content for display.

AUDIO AND CONTROL

HDMI audio de-embedding

Embedded HDMI two-channel PCM audio can be extracted to the integrated DSP for processing and mixing.

USB 4x2 audio interface

The USB connection provides a 4x2 channel audio interface with a computer, similar to a USB sound card with send and return audio capability. This allows the MediaPort 200 to send a two-channel source mix to the computer, and the computer to deliver its program audio plus communication audio from the far-end to the MediaPort 200.

Gain, parametric EQ, filters, and dynamics on inputs and outputs

Essential DSP processing tools are included for room tuning, clip prevention, managing wide source signal variations, and setting proper gain structure.

Mic and USB audio ducking

Ducking automatically reduces program audio when a microphone or far-end USB audio signal is detected, eliminating the need for separate audio ducking.

Live DSP configuration

Using the Extron PCS software application, live parameter adjustments can be made while previewing or metering them in real-time. This avoids the need to compile and upload a configuration file to the device.

Two digital input and two digital output control ports

These ports allow external triggering such as mic activation and muting, as well as illuminating mic status LEDs. Digital inputs can also be used for recalling DSP presets and adjusting volume via contact closure.

Front panel LED indicators for HDMI and USB signal status

These LED indicators provide visual feedback for HDMI input and loop-through signal presence, HDCP status, plus USB signal presence for the host computer, video send, audio send, and audio return.

Extron PCS - Product Configuration Software

Extron PCS features an intuitive, user-friendly GUI which allows for expedited setup and commissioning, real-time operation and monitoring, firmware updates, plus full configuration of the DSP and its audio processing tools.

Overview

HDMI status indicators

Provide video signal and HDCP presence status for input and loop-through connections.

Integrated audio DSP

Manage gain, mixing, EQ, filtering, dynamics, and ducking for HDMI, USB, and analog audio.

Front panel controls with LCD display

Allows convenient access to configuration and status of the MediaPort 200.



MediaPort 200 - Front

Front panel configuration port

Allows easy access for system configuration using Extron PCS software.

USB status indicators

Indicate host presence, video send, and audio send and return status.

Compact enclosure

The half rack width enclosure can be installed underneath a conference table, inside a credenza, or in a lectern. Under-table mounting hardware is available separately.

HDMI input

Accepts input signals up to 1080p/60 and 1920x1200, with 480i/576i/1080i deinterlacing and audio de-embedding.

HDCP compliant HDMI loop-through

Provides output signal for a local display, an AV system, or a hardware codec.

AEC reference output

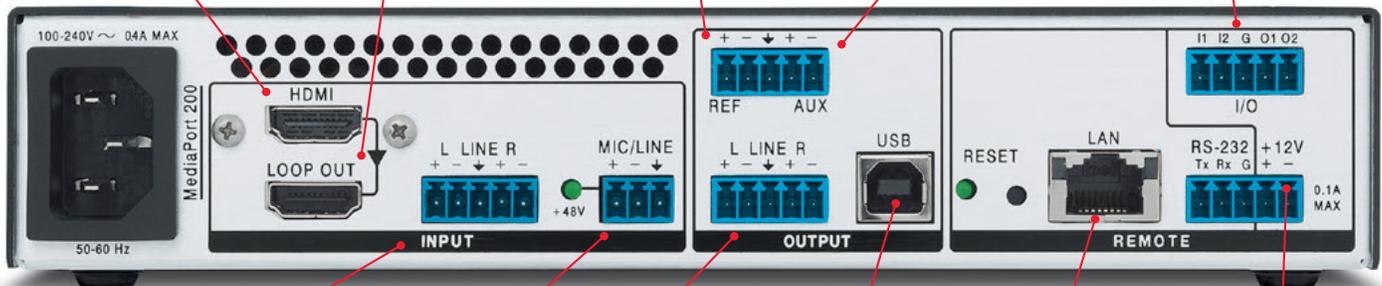
Provides a dedicated output of the far-end audio to serve as an AEC reference signal for an external DSP.

Auxiliary output

Provides a dedicated output of the mic/line input for connection to a hardware codec.

Two digital input and two digital output control ports

Allow mic activation and muting, as well as mic status LED illumination.



MediaPort 200 - Back

Stereo line input

Accepts program audio from a source device, or an external audio mixer, switcher, or processor.

Mic/line input

Includes selectable 48 volt phantom power, allowing use of professional-grade condenser microphones.

Analog audio output

Provides a two-channel output signal for a hardware codec, an external DSP, or sound reinforcement.

USB 2.0 output

Delivers video and bidirectional audio to a computer using generic USB video and audio drivers.

Ethernet and RS-232 control

The MediaPort 200 can be controlled over Ethernet or RS-232, and configured or updated through the Ethernet port using Extron PCS software.

+12 VDC, 100 mA remote power

Provides remote power for various applications, including mic status LED illumination.

Audio

The audio DSP in the MediaPort 200 includes essential processing features that facilitate sound quality optimization for participants in a conferencing session. The DSP allows an AV integrator, engineer, or technician to establish proper gain structure, normalize signal levels for microphones and other audio sources, and fine-tune frequency response in the room. Effective DSP implementation helps ensure clean, distortion-free audio presentations with intelligible speech – a very important foundation of a good conferencing experience.

DSP for Conferencing Applications

DSP is the core of traditional conferencing systems with hardware codecs, microphones, and sound reinforcement. The MediaPort 200 streamlines integration of videoconferencing computers into these AV systems with its own high performance DSP. It also simplifies designs for new, smaller meeting spaces without the need for dedicated audio processing. Additionally, the MediaPort 200 is ideal for upgrading a basic hardware codec installation to include soft codec capabilities and an audio system.

Versatile and Powerful Capabilities through User-Friendly Software

Audio processing tools, input and output gain, and mix levels are readily accessible through a user-friendly interface in the Extron PCS software application. Graphical sliders facilitate gain and level

adjustments, while peak level meters allow signal monitoring in real-time. Any adjustment in gain or processing is also immediately audible through the system. The user interface provides direct controls for master volume at the near-end, incoming audio from the far-end, as well as mic and program level adjustments for the far-end. Soft limits can be set on master controls to ensure that end users can safely adjust levels as necessary.

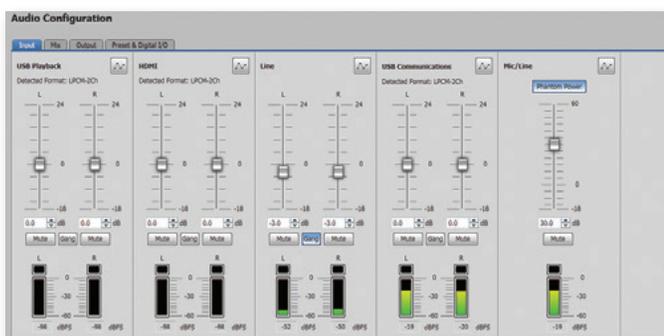
The software provides intuitive access to all of the audio processing tools in the MediaPort 200, including parametric EQ, tone controls, low-pass and high-pass filters, compression, limiter, and ducking.

Saving DSP Configurations

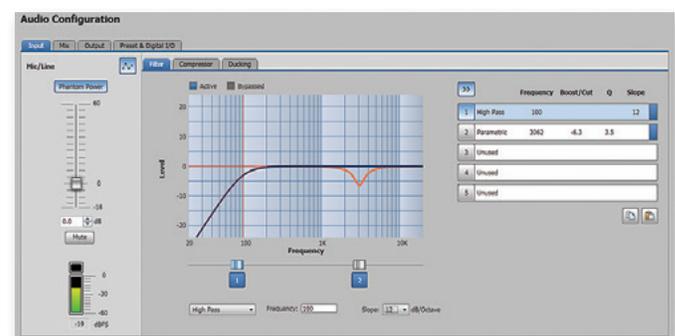
DSP parameter adjustments can be stored to any of 16 preset locations, allowing quick recall of common audio configurations. Additionally, DSP, video processing, and other system settings can be saved to a configuration file, which can then serve as a system backup, or used to quickly set up additional units in a facility.

Control System Integration

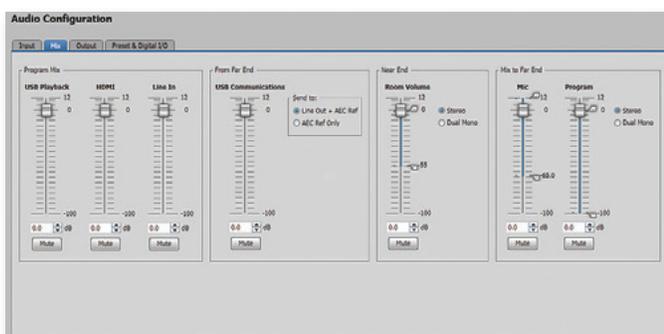
The MediaPort 200 can be integrated with a control system to enable user control of near-end and far-end audio levels, as well as recalling DSP presets. This allows easy access to essential audio conferencing controls as in a traditional hardware codec system.



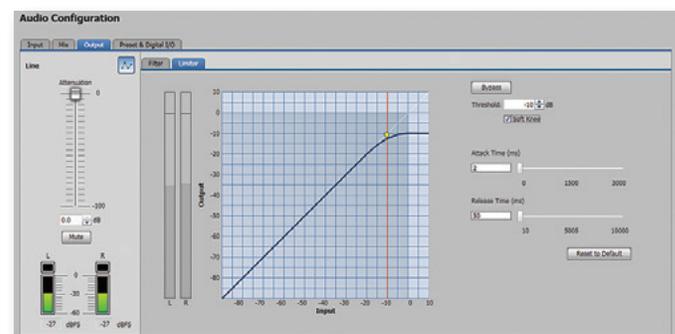
Input Gain



Input EQ



Mixer

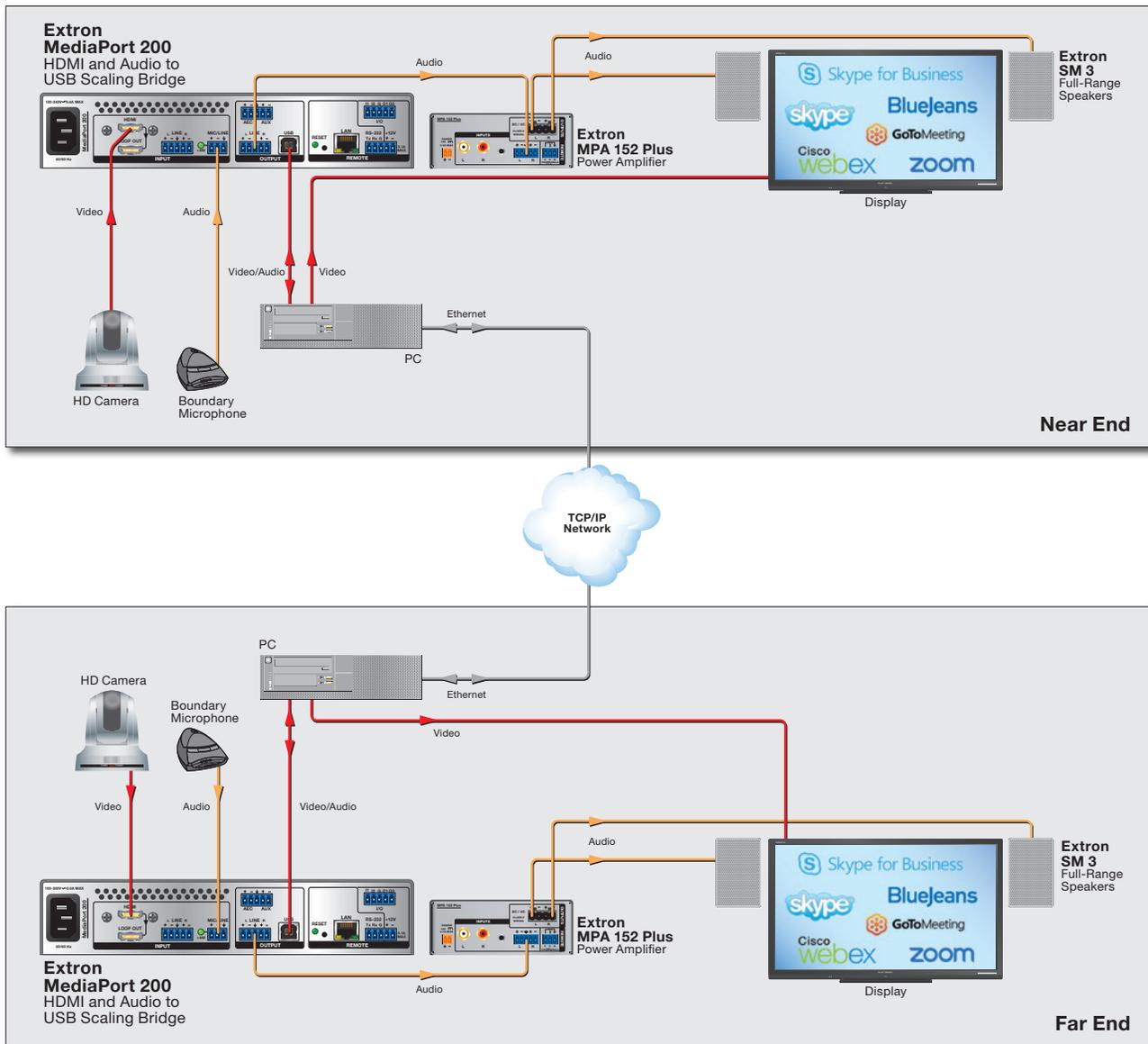


Output Limiter

Applications

SMALL MEETING ROOM

A MediaPort 200 in a small meeting room provides a quality AV experience for software conferencing sessions with the incorporation of professional-grade conferencing sources and sound reinforcement. An HD camera at the near-end location provides sharp, detailed video content to the MediaPort 200, which scales the image to a size appropriate for the available CPU resource as well as network bandwidth to the far-end. A high quality boundary microphone delivers optimal audio fidelity to the far-end participants, enhanced by the audio DSP integrated into the MediaPort 200. The DSP also processes the far-end return audio before passing the signal to an Extron MPA 152 and SM 3 speakers. A similar system configuration at the far-end ensures all participants experience high performance video and audio during the conferencing session.



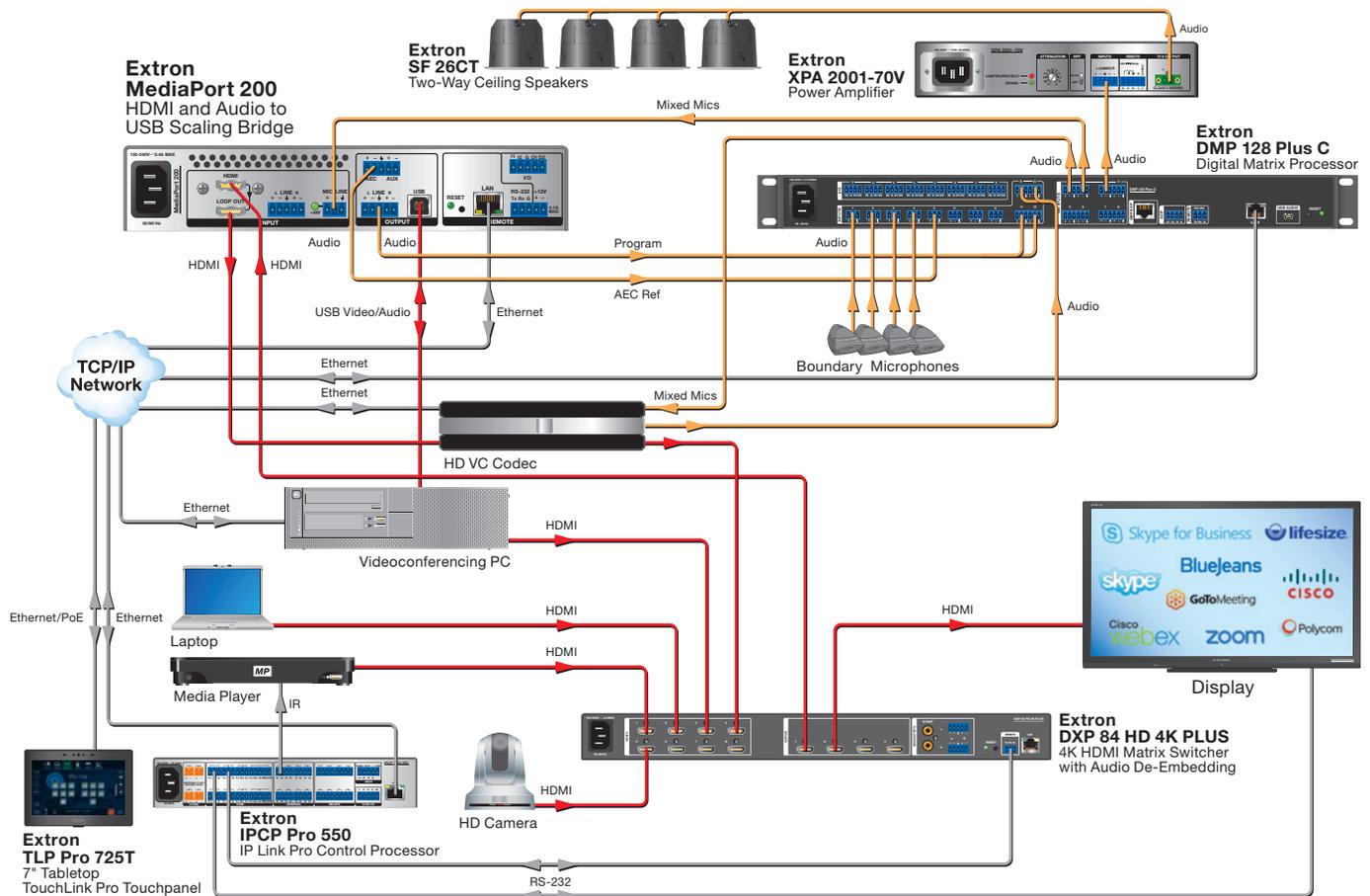
Applications

LARGE CONFERENCE ROOM

A large conference room system utilizes the MediaPort 200 and a matrix switcher to integrate hardware and software videoconferencing codecs into one system. Multiple room sources including a laptop, media player, and a high quality HD camera connect to an Extron DXP 84 HD 4K matrix switcher for routing signals to the MediaPort 200. The HDMI loop output of the MediaPort 200 makes the current source simultaneously available to the hardware codec.

The MediaPort 200 unit's USB 2.0 output provides video and audio to the videoconferencing computer, and receives return audio from the far-end conference session. The integrated audio DSP is augmented by an Extron DMP 128 C digital matrix processor, which provides an audio mix of the four room microphones to the MediaPort 200 and hardware videoconferencing codec, while receiving their program audio outputs. The unit's AEC reference output sends far-end audio to the DMP 128 C processor. This audio is used by the processor as a reference signal for AEC processing, to eliminate echo through the room's sound system.

Both the videoconferencing computer and the hardware videoconferencing codec can be routed to the local display. Source selection, audio management, and device control are simplified with an Extron TouchLink® touchpanel and IPCP Pro 550 control processor.



Specifications

VIDEO INPUT AND LOOP THROUGH	
Number/signal type	1 HDMI/DVI (HDCP compliant) 1 HDMI/DVI loop-through (HDCP compliant)
Connectors	1 female HDMI 1 female HDMI loop-through
Horizontal frequency	15 kHz to 100 kHz
Vertical frequency	24 Hz to 75 Hz
Resolution range	640x480 through 1600x1200, 1920x1200 (with reduced blanking), 480i, 576i, 480p, 720p, 1080i, and 1080p
Digital pixel data bit depth	8, 10, and 12 bits per channel; 165 MHz pixel clock
Standards	DVI 1.0, HDMI 1.4, HDCP 1.3
VIDEO PROCESSING	
Colors	11 million (8-bit 4:2:2 processing)
VIDEO OUTPUT	
Number/signal type	1 USB digital video
Connectors	1 female USB type B
USB scaled resolutions	320x180 ^{1,2} , 320x240 ^{1,2} , 424x240 ^{1,2} , 640x360 ^{1,2} , 640x480 ^{1,2} , 848x480 ^{1,2} , 960x540 ^{1,2} , 720p ^{1,2} , 1080p ¹ ¹ = at 15 Hz, ² = at 30 Hz
USB ENCODING	
Number/signal type	1 USB (scaled, non-HDCP compliant)
Vertical frequency	15 Hz, 30 Hz
Video encoding	MJPEG
Resolution	320x180 through 1080p
Audio	PCM, 24-bit, 48 kHz
Bit rate	Up to 60 Mbps
USB standards	USB 2.0 high speed, USB 1.1 full speed
AUDIO	
Gain	Unbalanced output, -6 dB; balanced output, 0 dB
Frequency response	20 Hz to 20 kHz, ±0.2 dB
THD + Noise	<0.03%, 20 Hz to 20 kHz at maximum level
S/N	>90 dB, 20 Hz to 20 kHz, at maximum balanced output (unweighted)
AUDIO INPUT	
Number/signal type	1 stereo, de-embedded from HDMI (PCM only) 1 stereo line level, balanced or unbalanced 1 mono mic/line level, balanced or unbalanced (with available phantom power) 2 stereo USB, embedded (communications and program audio)
Connectors	1 female HDMI (1) 3.5 mm, 5 pole captive screw, for line level (stereo) (1) 3.5 mm, 3 pole captive screw, for mic/line level 1 female USB B
Nominal level	Line inputs: +4 dBu, -10 dBV, adjustable Mic/line inputs: -60 dBV, +4 dBu, -10 dBV, adjustable
Maximum level	+21 dBu, balanced, when input gain is set to 0 dB, at rated THD+N
DC phantom power	+48 VDC ±10% (can be switched on or off for the mic/line input)

AUDIO OUTPUT		
Number/signal type	1 stereo, balanced or unbalanced, on a 3.5 mm, 5 pole captive screw connector. Can be configured as stereo or dual mono (variable). 2 mono, balanced or unbalanced (variable), on a shared 5 pole captive screw connector 1 stereo USB (embedded) 1 HDMI (loop output embedded)	
Connectors	(2) 3.5 mm, 5 pole captive screw 1 female USB type B 1 female HDMI	
THD	<0.03%, 20 Hz to 20 kHz at maximum level	
Maximum level (Hi-Z)	>+21 dBu, balanced; >+15 dBu, unbalanced	
Output volume range	-100 dB to 0 dB, in 0.1 dB increments	
COMMUNICATIONS		
Serial control port	1 bidirectional RS-232 on (1) 3.5 mm, 5 pole captive screw connector, shared with +12 V remote power on rear panel	
Digital I/O control	2 digital inputs on (1) 3.5 mm, 5-pole captive screw connector, shared with two digital outputs and a common ground 2 digital outputs on (1) 3.5 mm, 5-pole captive screw connector, shared with two digital inputs and a common ground	
Remote power	(1) +12 V DC power on (1) 3.5 mm, 5 pole captive screw connector, shared with RS-232 port; 100 mA	
USB control port	1 female USB mini-B (front panel Config port)	
Ethernet control port	1 female RJ-45	
Ethernet data rate	10/100/1000Base-T, half/full duplex with autodetect	
Ethernet protocol	ARP, ICMP (ping), IP, TCP, DHCP, HTTP, SFTP, SNMP, Telnet	
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 Operation: +32 to +122 °F (0 to +50 °C) / 10% to 90%, noncondensing	
Mounting	Rack mount: Yes, with optional rack shelf Furniture mount: Yes, with optional under-desk or through-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 21.6 cm D) (Depth excludes connectors.)	
Regulatory compliance	CE, c-UL, CE, C-tick, FCC Class A, ICES, UL, VCCI, RoHS, WEEE	
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
MediaPort 200	HDMI and Audio to USB Scaling Bridge	60-1488-01

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

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