

HD2020 Video PassPort™

1RU Multi-Path Video Converter and Frame Synchronizer



The Evertz® HD2020 Video PassPort™ is a high performance 1 RU video conversion and frame synchronization platform. The HD2020 integrates four fully independent and unique up/down/cross conversion paths with a wide range of video/audio input/outputs. Each conversion path includes a full frame synchronizer. The Video PassPort™ is an ideal multi-path video/audio processor for any analog, digital or HDTV facility and represents an indispensable tool as facilities upgrade from analog to digital and HDTV infrastructure. The HD2020's processing capabilities and simple to use front panel interface makes it an ideal choice for ENG and DSNB truck applications.

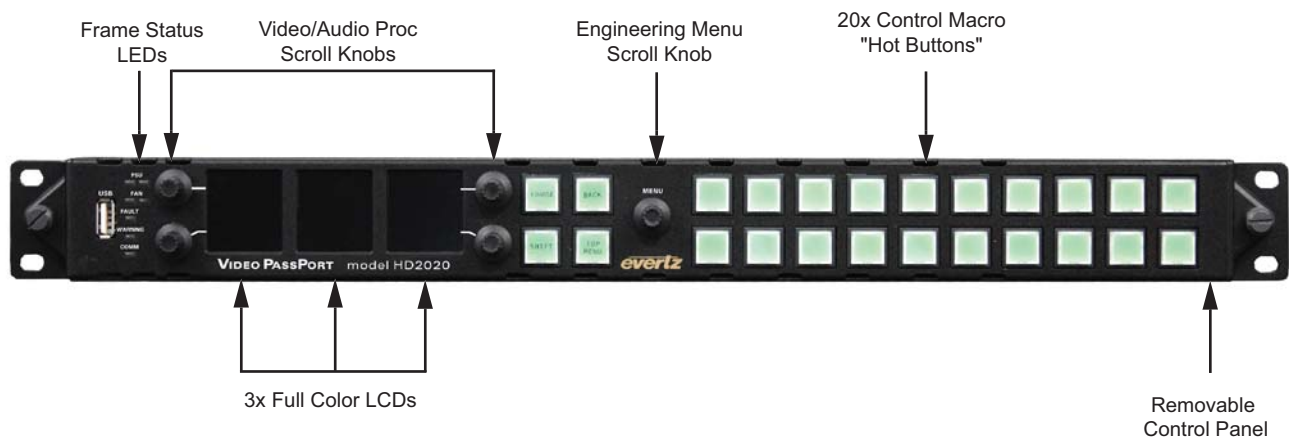
The HD2020 can support up to 4x 3G*/HD/SD coax serial in, 4x 3G*/HD/SD fiber optic serial in, composite analog video in, 4x mono analog audio in, 8x AES digital audio in as well as a DVI input. The HD2020 can support up to 4x 3G*/HD/SD coax serial out, 4x 3G*/HD/SDI fiber optic serial out, composite analog video out, 8x mono analog audio out, 8x AES digital audio out as well as a full screen DVI output. A second DVI output is also available on which the HD2020 can generate a multi-image display from eight select video clean switch inputs/outputs. Discrete analog and AES audio inputs levels are also monitored and presented on the multi-display output.

A reference input with a passive loop is available to allow the HD2020 to lock to external reference. Finally, 8x Flex BNCs (4x Flex Left and 4x Flex Right) are incorporated to allow future expansion of functionality using Flex Processing Modules.

This Evertz® converter is packaged in a space savings 1RU form factor and is designed for high availability 24/7 applications. The HD2020 has front serviceable and removable processing electronics in addition to dual power supplies and a removable front control panel.

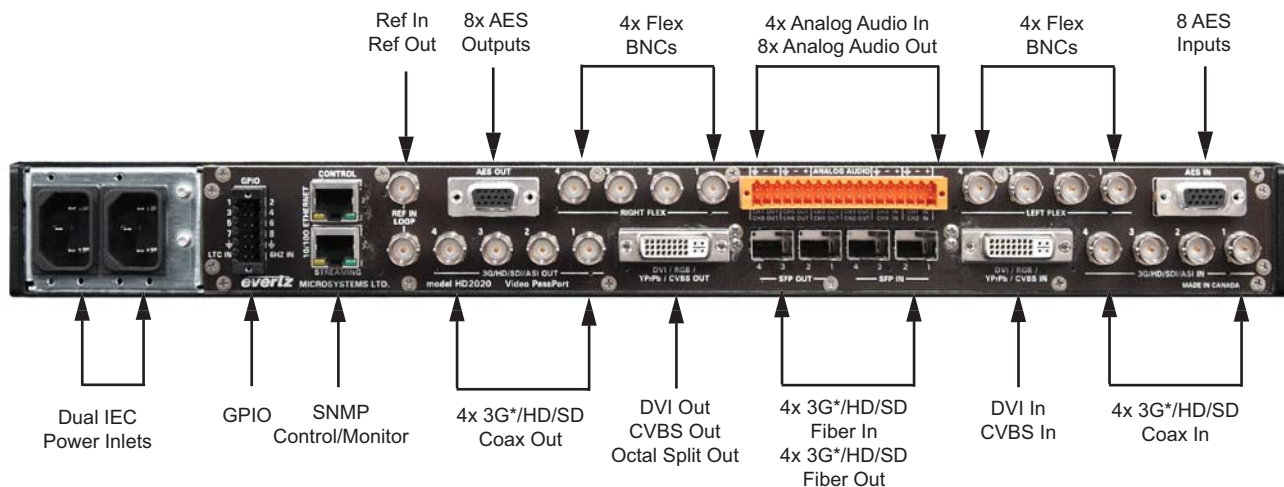
An embedded web server enables quick and easy uploading, downloading and design of system configurations using the STAMP™ configuration tool. Dual 10/100 Ethernet ports are provided for SNMP control/monitoring. The HD2020 is fully VistaLINK® PRO enabled for advanced remote control and monitoring. Additional multi-unit remote control options include a hardware based remote control panel and a PC based software remote control panel.

NOTE: 3G*/HD/SD refers to model HD2020-3G only



The HD2020 front panel has been designed to deliver an easy to use and intuitive operator interface. The HD2020 can be controlled using the front panel engineering menu or through the use of twenty (20) front panel hot buttons. Each front panel hot button can be programmed as a "Control Macro" where multiple user defined parameters can be changed with a single button push. Using the front panel SHIFT button, an additional 20 "Control Macros" are also available.

Real time audio and video procing is achieved using the 4x video/audio proc scroll knobs located on the HD2020 front panel. Quick access to user programmable processing profiles is accomplished through simple "double punching" of front panel hot buttons. Power supply, fan and frame status is also continuously monitored and reported via the front panel Frame Status LEDs.





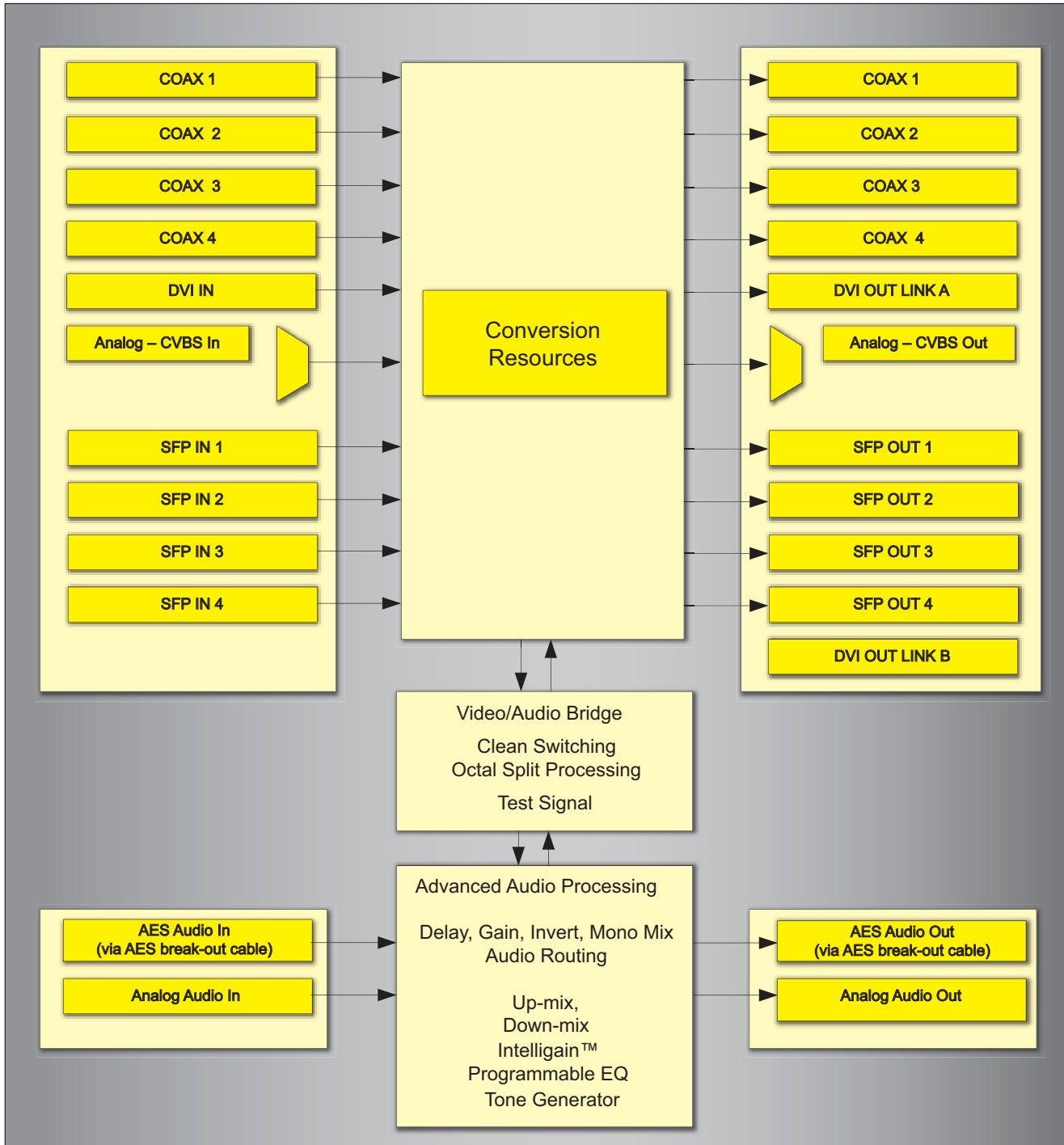
The HD2020 processing architecture allows its four up/down/cross conversion paths to independently connect to any system input and independently drive any system output. In addition, eight unique video sources can be routed to the Advanced Audio/Video Bridge (AAVB).

Within the AAVB, sources are routed to the HD2020 internal audio processor, two internal eight input video clean switches and the internal octal split display processor. The HD2020 also supports internal bars and tone generation with source ID character burn-in capabilities. Video clean switch outputs can drive any system output.

Within the audio processor per channel audio delay is available for each embedded and discrete audio input channel. Following this, stereo to 5.1 up-mixing (+UMX), 5.1 to stereo down-mixing (+DMX), IntelliGain™ audio loudness management (+IG) can be performed. In addition, a programmable audio equalizer is available (+EQ).

Two 16 channel audio embedders with per channel audio routing, inversion, gain and mono mixing capabilities feed the two AAVB clean switch outputs. Similar per channel audio routing, inversion, gain and mono-mixing capabilities are available for the 8x AES outputs (16 channels) and the 8x mono analog audio outputs.

▶HD2020 Block Diagram



HD2020 Video PassPort™

1RU Multi-Path Video Converter and Frame Synchronizer



Specifications

Coax Inputs:

Number of Inputs: 4
 Connector: BNC per IEC 61169-8 Annex A
 Input Equalization: 300m @ 270Mbps with Belden 1694A or equivalent
 100m @ 1.5Gbps with Belden 1694A or equivalent
 Return Loss: > 15dB to 1.5GHz
 Data Rate: Auto-sensing SD and HD (270Mbps & 1.5Gbps)
 Formats: 525i/59.94, 720p/59.94, 1080i/59.94, 625i/50, 720p/50, 1080i/50

Fiber Inputs

Number of Inputs: 4
 Connector: LC
 Form Factor: Dual Optical SFP Receiver
 Wavelength: 1260-1620 nm
 Data Rate: Auto-sensing SD and HD (270Mbps and 1.5Gbps)
 Formats: 525i/59.94, 720p/59.94, 1080i/59.94, 625i/50, 720p/50, 1080i/50

DVI and Analog Video Inputs

Number of Inputs: 1
 Connector: DVI-I (Female)
 Breakout Cable: DVI-I to DVI-D and 5x RGBHV BNCs
 Standards: DVI-D: 1080p/720p @59.94Hz (no HDCP)
 DVI-D: 1080p/720p @50 Hz (no HDCP)
 CVBS - NTSC on G channel
 CVBS - PAL on G channel

Analog Audio Inputs

Number of Inputs: 4
 Type: Mono signals, balanced analog audio
 Connector: Removable terminal strip
 Input Impedance: 10kΩ minimum (differential)
 Sampling Freq: Analog signal sampled at 48kHz
 Signal Level: 0dBFS = 19dBu/25dBu software selectable
 Freq Response: ±0.5dB (20Hz to 20kHz)
 THD+N: > 99dB (20Hz to 20kHz, -1dBFS)
 CMRR: > 85dB @ 100Hz

AES Audio Input

Number of Inputs: 8x AES inputs
 Standard: SMPTE 276M, synchronous or asynchronous
 Connector: DB15
 Input Type: Unbalanced
 Impedance: 75 Ω
 Signal Level: 1 Vp-p
 Sampling Rate: 48kHz

Reference Input and Passive Loop

Type: NTSC bi-level sync
 PAL bi-level sync
 Connector: BNC per IEC 61169-8 Annex A

GPIO

Number: 8 (configurable as inputs or outputs)
 Type: Opto-isolated, active low with internal pull-ups to +5V
 Connector: Removable terminal block
 Signal Level: Closure to ground
 Function: Virtual front panel button push
 Tally of front panel button push

Coax Outputs:

Number of Outputs: 4
 Connector: BNC per IEC 61169-8 Annex A
 Signal Level: 800 mV nominal
 DC Offset: 0V ± 0.5V
 Rise/Fall Time: 200 ps nominal
 Overshoot: < 10% of amplitude
 Return Loss: > 15dB to 1.5GHz
 Wide Band Jitter: < 0.20 UI
 Format: 525i/59.94, 720p/59.94, 1080i/59.94, 625i/50, 720p/50, 1080i/50

Fiber Outputs

Number of Inputs: 4
 Connector: LC
 Form Factor: Dual Optical SFP Transmitter
 Wavelength: 1310 nm
 Data Rate: SD and HD (270Mbps and 1.5Gbps)
 Format: 525i/59.94, 720p/59.94, 1080i/59.94, 625i/50, 720p/50, 1080i/50

DVI and Analog Video Outputs

Number of Outputs: 1
 Connector: DVI-I (Female)
 Breakout Cables: DVI-I to DVI/RGBHV break out cable
 DVI "Y Cable" break out cable
 DVI-D Out A: 1080i/720p@59.94Hz (no HDCP)
 DVI-D Out B: 1080i/720p@50Hz (no HDCP)
 DVI-D Out C: 1680x1050 out when running 1080i
 DVI-D Out B: 1920x1080p out when running 720p
 DVI-D Out B: 1440x900 out when running 525i
 CVBS - NTSC on G channel
 CVBS - PAL on G channel

Analog Audio Outputs

Number of Outputs: 8
 Type: Mono signals, balanced analog audio
 Connector: Removable terminal strip
 Output Impedance: 60Ω max
 Output Loads: Hi Z
 Peak Conv Level: 0dBFS = 18dBu/24dBu software selectable
 Sampling Freq: 48kHz
 Freq Response: ±0.1dB (20Hz to 20kHz)
 THD+N: > 80dB (20Hz to 20kHz, -1dBFS)

AES Audio Outputs

Number of Outputs: 8x AES inputs
 Standard: SMPTE 276M
 Connector: DB15
 Input Type: Unbalanced
 Impedance: 75 Ω
 Signal Level: 1 Vp-p
 Sampling Rate: 48kHz

Ordering Information

HD2020 Multi-Path Video Converter and Frame Synchronizer (two conversion paths standard)

HD2020-3G Multi-Path Video Converter and Frame Synchronizer with 3G I/O support (Contact Factory)

Ordering Options

+2X Upgrade to Four Conversion Paths
+CF2G Embedded Compact Flash for Test Signal Storage
+AA Balanced Analog Audio I/O
+FP HD2020 Local Front Panel
+FL-HIO Triple bidirectional HD/SD I/O left flex module
+FR-HIO Triple bidirectional HD/SD I/O right flex module
+UMX Stereo to 5.1 PCM Surround Sound Up-Mix
+DMX 5.1 PCM Surround Sound Down-Mix
+IG IntelliGain™ Audio Loudness Management
+EQ Programmable Audio Frequency Equalizer
+2TX 1x Dual SFP Fiber Transmitter (two fiber outputs)
+4TX 2x Dual SFP Fiber Transmitter (four fiber outputs)
+2RX 1x Dual SFP Fiber Receiver (two fiber inputs)
+4RX 2x Dual SFP Fiber Receiver (four fiber inputs)
+PCRCP PC Remote Control Panel

Accessories:

HD2020-RCP HD2020 Remote Control Panel
WPDVI-DVIBNC5 DVI to DVI/RGBHV break out cable
WPDVI-DVI2 DVI "Y" break out cable
WPAES8-BNCM-6F AES audio break-out cable (8x unbalanced connectors, 1x DB15 connector)
7701RS 1x cable required for AES inputs. 1x cable required for AES outputs.
 Mechanical Rear Support