The CaptureLiveHD® system from Crestron® answers the call for a high-quality meeting and lecture capture solution that's simple enough for the entire faculty to use, and affordable enough for wide-scale deployment across any sized campus or corporate enterprise. CaptureLiveHD delivers a complete end-to-end solution for scheduling, recording, and online delivery of captured content at the lowest cost of ownership on the market. Flexible enough to fit any education, government, medical or corporate workflow model, CaptureLiveHD translates to greater usage of resources and a more effective education experience while minimizing support overhead.

As part of a complete CaptureLiveHD system, the Capture HD High-Definition Capture Recorder (CAPTURE-HD) provides a very simple, one-box component for capturing lectures, AV presentations, medical procedures, seminars, and training sessions. It is designed for easy integration in a classroom, lecture hall, training lab, or boardroom. It allows presenters and instructors to use their choice of multimedia sources, including high-definition videos, computers, whiteboards, and annotators. The CAPTURE-HD base model provides HDMI® and RGBHV inputs for such sources, plus a composite video input for a camera and line-level audio input for a wireless mic. The CAPTURE-HD-PRO model adds a 3G-SDI input to support HD digital cameras.

Without requiring any special training or extra effort from the presenter, the CAPTURE-HD records the complete presentation in full-motion HD 1080p or 720p and uploads it to a network server for publishing. It can also stream live video to a touch screen, computer, mobile device, DigitalMedia™ system, or third-party streaming media system. Schools and businesses may easily implement a facility-wide media capture solution by equipping every room with CAPTURE-HD recorders, all centrally managed by Crestron Fusion RV® Remote Asset Management Software.[1]

A Closer Look at the Box

The CAPTURE-HD recorder is a compact unit, designed to sit on a shelf or mount in an equipment rack or podium. It captures presentation content from a computer or other source along with a live camera image and records them together in full-motion HD. The two images may be composited on screen side-by-side or picture-in-picture (PIP). The camera PIP window can be sized and positioned in any corner of the screen over the presentation content. Either image may be captured full screen as well.

Audio content from the presentation source is captured in stereo along with the live “speech” signal from a wireless microphone. The two signals are mixed together and recorded as one high-quality stereo signal.

Additional Features:

- **Front Panel** — Intuitive controls are provided on the front panel for starting, pausing, and stopping a recording. Each button lights up in a different color to provide clear indication of recording status. An LED bargraph meter provides indication of the speech signal level so you’ll know that you’re being picked up loud and clear. A full-color LCD screen displays additional feedback and provides access to setup functions.

- **Content Inputs** — Connecting a computer, DVD player, or other presentation source is enabled via HDMI® and RGBHV inputs on the rear panel. The HDMI input handles high-definition digital AV devices and computers with stereo audio. The RGBHV input handles analog computer sources. Built-in scaling ensures compatibility with a full range of signals. A stereo analog audio input is also provided.

- **Camera Input** — A composite video input provides for the connection of a single camera. Crestron offers the CAM-IFB-100 camera, which is ideally suited for the application[2]. A 3G-SDI input (CAPTURE-HD-PRO model only) is also offered, allowing for the use of a high-definition camera with SDI, HD-SDI, or 3G-SDI output.

- **Speech Input** — A wireless microphone (with line level output) can be connected for pickup of the presenter. A mic mixer such as the Crestron MMX-6-USB[2] may also be added to enable the connection of both wired and wireless microphones.
• **Local Output** — HDMI and analog audio outputs are included for connection to a confidence monitor or AV system. These outputs may be used to view and hear exactly what is being recorded, or to pass the selected content source through for local presentation.

• **File Storage** — Captured AV files are stored locally on a memory card or USB hard drive prior to uploading to the network. A memory card slot and USB port are provided on the rear panel, and a 16 GB SDHC memory card is included. An additional USB port is provided on the front panel, allowing recordings to be saved directly to a portable USB hard drive.[3]

• **Live Streaming** — As an alternative to capturing video, the CAPTURE-HD can also be used to stream live HD video and audio to a computer, mobile device, touch screen, DigitalMedia system, or third-party streaming media system. The CAPTURE-HD supports both unicast and multicast, with or without RTSP (Real Time Streaming Protocol). Streaming connections can be configured to stream directly to one or more specific IP addresses, or to use RTSP to manage the configuration of multiple connections automatically.

• **Gigabit Ethernet** — Connection to the LAN is via 1000Base-T Ethernet, affording the highest possible transfer rate for uploading HD media files to your network server or streaming live video.

**Touch Screen Remote**
Adding the optional touch screen controller (CAPTURE-TPMC-4SM[5]) enables simplified operation of the CAPTURE-HD from a lectern, desk, or wall mount location in the room. The presenter need only follow the prompts on the touch screen to easily start and stop a recording, pause or mute the recording and even add bookmarks[4] during the session. The touch screen can also display a live view of the room camera and a microphone level meter to lend an extra level of confidence during operation.

**Control System Integration**
The CAPTURE-HD integrates seamlessly with a Crestron control system to enable expanded control over AV and room devices using a variety of touch screens, wireless remotes, computers, and mobile devices.

**SPECIFICATIONS**

**Capture & Streaming**

- **Video Recording Formats**: H.264 high profile @ 720p24, 720p30, 720p60, 1080p24, and 1080p30
- **Video Recording Bitrates**: 500 to 6000 kbps
- **Video Streaming Formats**: H.264 high profile @ 720p10, 720p15, 720p30, 720p60, 1080p10, 1080p15, and 1080p30
- **Video Streaming Bitrates**: 500 to 6000 kbps
- **Audio Format**: AAC stereo
- **Container**: MPEG-2 transport stream (.ts), MPEG-4 Part 14 (.mp4)
- **File Transfer Protocols**: FTP, SFTP
- **Streaming Protocols**: RTP, RTSP, SDP
- **Session Initiation Modes**: By receiver (unicast), by transmitter (unicast), multicast via RTSP, multicast via UDP

**Storage**

- **Memory Card**: Supports SD and SDHC memory cards, 16 GB SDHC card included
- **USB**: Supports USB hard drives[3]
- **Network**: Supports file transfer to network media server

**Video**

- **Scaling**: VXP® video processing, 3D and 2D noise reduction, block artifact reduction, mosquito noise reduction, motion and edge adaptive deinterlacing, detail enhancement, adaptive contrast enhancement, adaptive de-bandng, film cadence detection, picture-in-picture and side-by-side windowing
- **Input Signal Types (Content)**: HDMI® (DVI and Dual-Mode DisplayPort compatible[6]), VGA/RGB (RGBHV, RGBS, RgSb)
- **Input Signal Types (Camera)**: Composite (NTSC, PAL), SDI (SD-SDI SMPTE 259M, HD-SDI SMPTE 292M, 3G-SDI SMPTE 424M)[8]
- **Output Signal Types**: HDMI (DVI compatible[8])
- **Input Resolutions, HDMI, Progressive**: Any resolution and frame rate from 640x400 to 1920x1200 up to 162 MHz pixel clock
- **Input Resolutions, HDMI, Interlaced**: 480i, 576i, 1080i25 (1125 lines), 1080i30
Input Resolutions, RGB, Progressive: Any resolution and frame rate from 640x400 to 1920x1200 up to 162 MHz pixel clock
Input Resolutions, Composite: 480i, 576i
Input Resolutions, 3G-SDI:[6]
- SMPTE 425M (3G-SDI) 4:2:2 Colorspace: 1920x1080@50Hz (1080p50), 1920x1080@60Hz (1080i60);
- SMPTE 425M (3G-SDI) 4:4:4 Colorspace: 1280x720@50Hz (720p50), 1280x720@60Hz (720p60), 1920x1080@24Hz (1080p24), 1920x1080@25Hz (1080p25), 1920x1080@30Hz (1080p30), 1920x1080@50Hz (1080i50 or 1080sF25), 1920x1080@60Hz (1080i60 or 1080sF30);
- SMPTE 260M (HD-SDI): 1920x1035@60Hz (1035i60);
- SMPTE 295M (HD-SDI): 1920x1080@50Hz (1080i50);
- SMPTE 274M (HD-SDI): 1920x1080@24Hz (1080p24), 1920x1080@30Hz (1080p30), 1920x1080@50Hz (1080i50 or 1080sF25), 1920x1080@60Hz (1080i60 or 1080sF30);
- SMPTE 296M (HD-SDI): 1280x720@50Hz (720p50), 1280x720@60Hz (720p60);
- SMPTE 259M-C (SD-SDI): 720x480@59.94 (NTSC), 720x576@50i (PAL)
Output Resolutions, HDMI: Same as CONTENT input (HDMI or RGBHV) when viewing the selected content source, or same as capture settings when viewing the capture image
A-D Conversion: 10-bit 162 MHz per each of 3 channels

Audio
Processing: Provides mixing of the stereo CONTENT audio signals with the mono SPEECH signal
A-D/A Conversion: 24-bit 48 kHz
Input Signal Types (Content): HDMI (Dual-Mode DisplayPort compatible), analog stereo
Input Signal Types (Speech): Analog mono
Output Signal Types: HDMI, analog stereo
digital Formats (HDMI): 2-channel PCM
Content Input Compensation: ±10.0 dB
Content Mix Level: -80.0 to 0.0 dB
Content Bass: ±15.0 dB
Content Treble: ±15.0 dB
Content Audio Delay: 0.0 to 40.0 ms
Speech Input Compensation: ±10.0 dB
Speech Mix Level: -80.0 to 0.0 dB
Speech Bass: ±15.0 dB
Speech Treble: ±15.0 dB
Analog Output Volume: -80 to +20 dB, adjustable from 0% to 100%, plus mute
Analog Output Bass: ±15.0 dB
Analog Output Treble: ±15.0 dB
Analog Performance:
- Frequency Response: 20 Hz to 20 kHz ±0.75 dB typical;
- S/N Ratio: >90 dB, 20 Hz to 20 kHz A-weighted;
- THD+N: <0.05% @ 1 kHz;
- Stereo Separation: >90 dB

Communications
Ethernet: 10/100/1000 Mbps, auto-switching, auto-negotiating, auto-discovery, full/half duplex, DHCP
USB: USB 2.0 host, supports USB hard drives

Connectors
SPEECH IN (Unbalanced): (1) RCA female;
Unbalanced line-level audio input;
Input Impedance: 10k Ohms nominal;
Input Level: 2 V rms maximum
SPEECH IN (Balanced): (1) 3-pin 3.5 mm detachable terminal block;
Balanced/unbalanced line-level audio input;
Input Impedance: 17.5k Ohms nominal balanced/unbalanced;
Balanced Input Level: 4 V rms maximum;
Unbalanced Input Level: 2 V rms maximum
CONTENT AUDIO IN (Unbalanced): (1) 3.5 mm TRS mini phone jack;
Unbalanced stereo line-level audio input;
Input Impedance: 18.5k Ohms nominal;
Input Level: 1 V rms maximum
CONTENT AUDIO IN (Balanced): (1) 5-pin 3.5 mm detachable terminal block;
Balanced/unbalanced stereo line-level audio input;
Input Impedance: 24k Ohms nominal balanced/unbalanced;
Balanced Input Level: 4 V rms maximum;
Unbalanced Input Level: 2 V rms maximum
AUDIO OUT L, R (Unbalanced): (2) RCA female;
Unbalanced stereo line-level audio output;
Output Impedance: 100 Ohms nominal;
Output Level: 2 V rms maximum
AUDIO OUT (Balanced): (1) 5-pin 3.5 mm detachable terminal block;
Balanced/unbalanced stereo line-level audio output;
Output Impedance: 200 Ohms balanced, 100 Ohms unbalanced;
Balanced Output Level: 4 V rms maximum;
Unbalanced Output Level: 2 V rms maximum
CAMERA IN, COMPOSITE: (1) BNC female analog composite video input;
RCA adapter included;
Input Impedance: 75 Ohms nominal;
Input Level: 1 Vp-p nominal
CAMERA IN, 3G-SDI:[6]: (1) BNC female, SDI video input;
Input Impedance: 75 Ohms nominal
CONTENT IN, RGBHV: (1) HD15 female, analog VGA/RGB input;
Formats: RGBHV, RGBS, RGsB;
Input Levels: 0.5 to 1.5 Vp-p with built-in DC restoration;
Input Impedance: 75 Ohms nominal;
Sync Detection: RGBHV, RGBS, RGsB;
Sync Input Level: 3 to 5 Vp-p;
Sync Input Impedance: 511 Ohms nominal
CONTENT IN, HDMI: (1) 19-pin Type A HDMI female; Signal Types: HDMI, DVI, Dual-Mode DisplayPort[5]

LOOP OUT, RGBHV: (1) HD15 female, buffered pass-thru from RGBHV input

HDMI OUT: (1) 19-pin Type A HDMI female; Signal Types: HDMI, DVI

MEMORY: (1) SD memory card slot; for local storage; Supports SD and SDHC cards (16 GB SDHC card included)

USB: (2) USB Type A female (1 front, 1 rear); USB 2.0 host ports for connection of a USB hard drive[3]

LAN: (1) 8-wire RJ45, female; 10Base-T/100Base-TX/1000Base-T Ethernet port

12VDC 5.0A: (1) 2.5 x 5.5 mm DC power connector; 12 Volts DC power input; PW-1250DU power pack included

G: (1) 6-32 screw, chassis ground lug

COMPUTER (front): (1) USB Type B female, for future use

Display

Display Type: TFT active matrix color LCD
Size: 1.8 inch (45 mm) diagonal
Resolution: 220 x 176 pixels
Functions: Displays recording status, time counter, audio levels, setup parameters, and other details

Controls & Indicators

RESET: (1) Recessed pushbutton for hardware reset
Meter: (1) 10-segment LED bargraph, indicates Speech audio signal level ▲,▼,◄,►: (4) Pushbuttons, for 4-way LCD menu navigation and parameter adjustment
SELECT: (1) Pushbutton, used to select or execute the highlighted menu item or value
HOME: (1) Pushbutton, returns to the home menu
BACK: (1) Pushbutton, steps menu back one level
REC, PAUSE, STOP: (3) Transport style buttons with translucent button caps and LED backlighting for feedback, used to control the capture function
LAN (rear): (2) Green LEDs, indicate Ethernet link status, speed, and activity

Power Requirements

Power Pack: 5 Amps @ 12 Volts DC; 100-240 Volts AC, 50/60 Hz power pack, model PW-1250DU included

Environmental

Temperature: 32° to 104° F (0° to 40° C)
Humidity: 10% to 90% RH (non-condensing)
Heat Dissipation: 69 BTU/hr

MODELS & ACCESSORIES

Available Models
CAPTURE-HD: Capture HD® High-Definition Capture Recorder
CAPTURE-HD-PRO: Capture HD® High-Definition Capture Recorder w/3G-SDI

Included Accessories
PW-1250DU: Universal Power Pack for CAPTURE-HD (Quantity 1 included)

Available Accessories
SW-FUSION-RV: Fusion RV® Remote Asset Management Software
CEN-FUSION-RVS-R320: Pre-configured Fusion RV® Server System
CAPTURE-TPMC-4SM: Touch Screen Controller for CAPTURE-HD
CAM-IFB-100: Camera for CAPTURE-HD
MMX-6-USB: 6-Channel USB Microphone Mixer
CBL Series: Crestron® Certified Interface Cables
Notes:

1. Fusion RV software and hardware server(s) sold separately. Refer to the Crestron CaptureLiveHD Design Guide, Doc. #4552 for complete system requirements and design guidelines.
2. Item(s) sold separately.
3. Due to inconsistencies in the performance and quality of USB flash drives (a.k.a., “memory sticks” or “thumb drives”), their use with Capture HD is not recommended.
4. The bookmark feature requires integration with Fusion RV software (sold separately). Playback of bookmarked recordings is exclusively supported using Crestron Media Player. Crestron Media Player is a Web-based streaming media player that is included as part of the Media Services component of Fusion RV. Refer to the Crestron CaptureLiveHD spec sheet for additional information.
5. HDMI requires an appropriate adapter or interface cable to accommodate a DVI or Dual-Mode DisplayPort signal. CBL-HD-DVI interface cables available separately.
6. SDI input capability is available on the CAPTURE-HD-PRO model only.

This product may be purchased from an authorized Crestron dealer. To find a dealer, please contact the Crestron sales representative for your area. A list of sales representatives is available online at www.crestron.com/salesreps or by calling 800-237-2041.

The specific patents that cover Crestron products are listed online at: patents.crestron.com.

Certain Crestron products contain open source software. For specific information, please visit www.crestron.com/opensource.

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