Multipurpose Adaptable Platform for Recording and Streaming AV Presentations

- Process live, high resolution HDMI video and audio with metadata
- Stream and record simultaneously
- High quality scaling with aspect ratio control, size, and position
- Produces MP4 media files that are compatible with virtually any media player
- Automatic file uploading
- RTMP streaming protocol supports popular third party hosting services
The convergence of AV and IT continues to create new opportunities for AV integrators. The scale, flexibility, and reach of IP networks offer an incredible opportunity to extend live presentations to individuals unable to attend an event due to time, distance, or other physical barriers. Streaming and recording are effective ways that organizations can use to communicate and educate, by capturing the presentation experience and delivering that same information and insight to viewers anywhere.

Streaming Solutions Require Flexibility
Any organization with a network and an AV presentation system can enjoy the benefits of streaming. Today’s streaming systems must be compatible with high resolution source signals, including high definition cameras. They must reliably present video that enhances a user’s insight into the live experience. Streaming products must also conform to different network policies and operating requirements by supporting multiple transport protocols and session management methods. Additionally, the ability to record at a high resolution while streaming at a lower resolution or bit rate addresses network bandwidth requirements.

Recording Requirements for Presentations
To efficiently produce, manage, and distribute recorded presentations, a variety of requirements must be met. Effective systems record media that can be easily processed and transferred to a variety of storage formats. The recorded media must be efficiently processed with rights-managed user access, operating within an organization’s standard network services and conforming to their IT policies. Lastly, the media must be published in a format that can be easily delivered and consumed.

Extron Streaming and Recording
The SMP 111 is a high performance recording and streaming processor for capturing and distributing AV sources and presentations as live streaming and recorded media. The SMP 111 accepts an HDMI signal with embedded audio and an analog audio signal. Extron high performance scaling and flexible signal processing enable superior display of content of varying resolutions from computers and HDTV sources. The SMP 111 supports extensive streaming capabilities. It can record and stream simultaneously, with independent resolutions and bit rates using a range of transport protocols and session management options. Recording with the SMP 111 provides easy capture of live HDMI signals to internal flash storage and external USB drives. Requiring no licensing fees, the SMP 111 is a compact, flexible, and cost-effective solution for streaming and recording content.

A Cost-Effective Solution
Comprehensive control and configuration features make the SMP 111 integration-friendly and easy to control and operate. Requiring no recurring licensing fees, it has a low cost of ownership, making it a cost-effective solution for delivering presentations to a larger audience.

Many Applications Benefit from Streaming and Recording
The SMP 111 is ideal for applications that require simple recording of a single video signal with audio and metadata. It provides MP4 or M4V file format recordings integrated with metadata, chapter and event marking. It is also ideal for applications that require live streaming to remote participants, hosting services, or local confidence viewing. The SMP 111 can be adapted to many applications, documenting virtually any meeting, conference, or activity that uses an AV source as a reference. The SMP 111 is ideal for use in corporate, education, government, and rental and staging applications.
Signal Processing Simplifies Setup and Operation
Like many other Extron AV products, the SMP 111 offers comprehensive digital and analog signal processing features that make it easy to connect with various presentation sources. EDID Minder® automatically manages EDID communications to ensure sources power up properly and a reliable output signal is provided. Auto-Image™ automatically adjusts source sizing, centering, and filtering and Auto Input Memory saves the size, position, and picture settings of incoming signals, ensuring that sources present properly. Comprehensive picture, aspect ratio, size, and position controls provide quality images.

Highly Adaptable FlexOS Platform
FlexOS is Extron's flexible, embedded operating system that manages and controls additional functions within the SMP 111. FlexOS makes the SMP 111 easily-adaptable to new requirements over time for a multitude of streaming, recording, processing, control, and presentation applications.

Flexible System Control Options
Many different control capabilities are available from the SMP 111. The front panel buttons and LED indicators provide a simple interface to manage, monitor, and control the unit for a wide variety of applications. The SMP 111 also features an RS-232 port and an Ethernet port to interface with remote devices and control systems.

A mini USB control port is available on the front panel of the SMP 111 to support direct configuration from a PC. Alternatively, a USB port on the rear of the unit is available for connection to a keyboard and mouse, to serve as the interface for the embedded web browser. The browser can be viewed from the HDMI output connection and serves as a convenient method to access network setup and control.

Powerful Tools for Monitoring and Management
Simple Network Management Protocol – SNMP traps, email, and Simple Mail Transfer Protocol – SMTP can deliver messages to support staff or monitoring systems when signal errors or encrypted sources are detected, or when storage nears capacity, allowing for proactive service. Operational system data is logged continually, detailing recording sessions, storage directory use, file names, metadata, and storage capacity. This information provides valuable data for evaluating usage patterns and operating concerns.

Recorded Media Enhanced with Data
The SMP 111 produces an MP4 or M4V container format compatible with virtually any media player. It records at resolutions from 512x288 through 1920x1080, including 480p, 720p, or 1080p, supporting a variety of storage, and playback requirements. Recordings can include metadata such as: Title, Creator, Subject, Description, Publisher, Contributor, and Date, making searching, indexing, and managing multiple recordings more efficient. Chapter marks can be set during recording sessions, providing highly efficient searching and scanning during file playback. JPEG thumbnail images are captured periodically and for specially marked events, and the thumbnail image size is selectable. Extron recording packages include thumbnail images, chapter marks, metadata, and the recorded video and audio. The combination of a high resolution AV signal, on-screen data, metadata, thumbnail images, and chapter marks make navigation of SMP 111 recordings highly efficient and effective. MP4 recordings can be saved to internal flash storage, a USB storage device, or a defined network storage directory. USB storage devices connect easily to the SMP 111 from the front or rear panel.

Content Management and Publishing Options
The SMP 111 produces MP4 or M4V media files with chapter marks, JPEG thumbnail images, and metadata supporting a data-rich playback experience from content management systems. It can be configured to integrate directly with the Opencast Video Solution. It also integrates with the Kaltura Hosted Video Platform. SMP 111 AV recordings can be automatically transferred to network shares or FTP servers for a simplified workflow. Recording packages may also be manually uploaded to third party content management systems such as iTunes-U, Blackboard LMS, SharePoint, CaptionSync, YouTube, Moodle, and more.

Extensive Streaming Capabilities
The SMP 111 offers flexible encoder settings to allow for high resolution, high bit-rate recordings while also offering the ability to stream at a lower resolution and bit-rate to reduce network impact. Bit rates can range from 200 Kbps to 10 Mbps for video and 80 Kbps to 320 Kbps for audio. Push and pull streaming sessions are supported, offering a range of streaming transport protocols and session management methods. These capabilities provide flexibility to stream from the SMP 111 to a variety of devices in different system configurations and network conditions.
Features

Process live, high resolution HDMI video and audio with metadata
Combines high quality video and audio with supporting data for cataloging and indexing to produce an enhanced presentation experience.

Stream and record simultaneously
Document presentations, view confidence streaming, or extend live media to overflow destinations without the need for a computer or additional equipment.

High quality scaling with aspect ratio control, size, and position
Configurable aspect ratio control allows selection of FULL, FOLLOW, or FIT modes as well as zoom and position settings.

Produces MP4 media files that are compatible with virtually any media player
Use recordings produced by the SMP 111 directly with any software media player, computer or mobile device.

Automatic file uploading
Manage the transfer of recordings automatically using defined workflows to Hosting Services, FTP, Secure FTP, and CIFS network shares.

RTMP streaming protocol supports popular third party hosting services
Supports RTMP push streaming with stream name or key, and user authentication for services like YouTube Live, Wowza Streaming Cloud, Twitch, and more.

Stream at resolutions from 512x288 to 1080p/30
High resolutions deliver superior quality images for overflow applications and lower resolutions are more efficient for streaming distribution and confidence viewing applications.

Supports HDMI with embedded and analog audio
Facilitates the mixing of embedded AV audio with analog stereo audio for compatibility with AV presentation systems.

Records audio, video and data to a media folder
Records contained within the folder include a standard MP4 or M4V audio and video recording, as well as metadata including data fields such as Title, Subject, Description, Presenter, Date etc. The folder provides a complete package of all captured elements.

Save recordings to internal storage, external USB storage, or network storage
Configure the SMP 111 to save recordings to internal storage and external USB drives simultaneously. Permits the creation of both an archive copy, and a portable USB copy.

Mark Chapters for quick selection
Events or chapters can be marked, both periodically, time based, or manually by front panel, or a control system. Chapter marks permit direct jumping to those indicated points of the recording during playback.

Capture thumbnails
Thumbnails are captured at native resolution or set to 848x480, defined by the archive encoder settings. Periodic capture of images during the recording facilitates rapid scanning to desired visual section during playback.

Record at 512x288 thru 1920x1080, including 480p, 720p, or 1080p
Use standard video resolutions or computer resolutions based on the desired content or viewing requirements.

Audio mixing and DSP functionality
Produces a quality audio experience without requiring the use of external mixing and DSP equipment.

Supports source resolutions up to 1920x1200, including HDTV 1080p
The SMP 111 supports a wide range of input resolutions, from standard definition up to the resolutions commonly used for computer video and HDTV.

Directly compatible with Panopto, Kaltura, and Opencast Hosted Video Platforms
Configure to automatically send recordings to content management systems for processing and posting of content.

Compatible with third-party content management systems
Manually upload recordings to systems such as iTunes-U, Blackboard LMS, SharePoint, CaptionSync, YouTube, Moodle, and RSS feed.

RS-232 and Ethernet control
The SMP 111 interfaces with AV control systems via serial or Ethernet using Extron’s SIS™ - Simple Instruction Set command protocol.

USB remote control port
Configure communication settings using a keyboard and mouse while viewing the embedded webpage, or connect the optional RCP 101 remote control panel for extended front panel operation and convenient thumb drive access.

Standards-based H.264 / MPEG 4 AVC video compression
The SMP 111 supports use of the Baseline, Main, or High Profiles at Levels 4.x, or 3.x providing the ability to optimize video coding for use with various types of applications and decoding devices.

Auto Input Memory
The SMP 111 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.

Encoding presets for quick recall of compression settings
The SMP 111 provides 16 customizable presets for specific encoding and streaming parameters. Users can quickly switch between these encoder presets to support different applications.

License-free operation for to a low cost of ownership
With no licensing or support fees, the SMP 111 is a cost effective solution for AV streaming and recording.
Overview

Configuration port
The front panel USB port provides convenient access to control the unit directly from a PC.

Front-mounted USB port
Front-panel USB port makes connecting portable storage devices easy for "capture and carry" recording sessions.

Rear USB storage port
USB port provides no-fuss connection to rack-mounted storage devices.

HDMI and HDCP LED indicators
HDMI LED indicates when an active input signal is present while the HDCP LED provides visual feedback of HDCP encrypted content.

Audio LED indicators
Discrete level indicators for HDMI audio, analog audio input, and audio output provide a visual reference for signal level and aid in troubleshooting.

Internal flash storage
Save recorded contents to internal flash storage and reliably transfer media files to USB or network storage.

HDMI output
Provides a local preview of the streamed output.

RS-232 serial port
Control and manage the unit from AV control systems and serial RS-232 devices in real-time.

Audio LED indicators
Discrete level indicators for HDMI audio, analog audio input, and audio output provide a visual reference for signal level and aid in troubleshooting.

HDMI and HDCP LED indicators
HDMI LED indicates when an active input signal is present while the HDCP LED provides visual feedback of HDCP encrypted content.

Analog audio input
Stereo line level input for recording analog stereo audio sources. Audio source is user selectable: analog only, embedded HDMI audio, or analog audio mixed with embedded HDMI audio.

Ethernet port
Multi-purpose Ethernet port for streaming transport and transfer of recordings to network storage directories. It also serves as the interface for AV control systems and the embedded web interface.

SMP 111 - Front

SMP 111 - Back
Intuitive Interface for Configuration

The SMP 111 has an embedded web interface, which makes it simple and easy to navigate and configure a wide array of signal processing, recording, streaming, and automated functions. The embedded web page provides all of the detailed settings in a tabular format organized by function. It is used to configure publishing and file transfer parameters and provides valuable tools for managing, monitoring, and troubleshooting. The embedded web page makes it easy for AV support staff and IT departments to control and manage the streaming processor.

Efficient Signal Management and Operation

The embedded web page interface presents the controls for managing input and output signals. It identifies signal presence, mute, audio level, and recording status. User controls are provided for transport functions and chapter marks during the recording process. Additional processing controls are provided for: aspect ratio management, audio mixing and level adjustment, as well as full encoder configuration and presets. A small preview window in the embedded web page decodes a live view of the encoder process. Changes in settings and parameters are applied immediately with no restarting or loading required.

RCP 101 Series - Remote Control Panels for SMP Series

Extron RCP 101 Series remote control panels feature backlit transport controls for remote operation of Extron SMP Series products. A USB port provides convenient access to a thumb drive or external portable storage. RCP 101 panels have status and alarm indicator lights with an audible buzzer. A 15 foot (4.5 meter) USB cable is included. RCP 101 panels may be used with Extron USB Extender Plus Series twisted pair extenders to support distances up to 330 feet (100 meters). Available in decorator-style, MK, and EU versions; the EU version is compatible with Flex55 enclosures or EU junction boxes. RCP 101 Series panels include black and a white faceplates to compliment a wide range of environments. MK model is available in white only.
Instructors, trainers, athletic departments, and media centers benefit from the SMP 111 Streaming Media Processor, and are able to record and stream their sessions with ease. Providing a flexible platform to record to both the internal flash storage and provide a duplicate copy on a USB drive, makes the process of documenting an event very efficient. Coupled with the ability to automatically upload the recordings to content management systems after the session, and provide a live stream to services such as YouTube, and Wowza Streaming Cloud all at the same time, makes this a complete system in a very small package. Supporting an HDMI source, such as a camera, computer, or an entire upstream AV system, the input scaling engine manages resolution changes and matches the desired recording and separate streaming resolutions. Adding a microphone or auxiliary audio source in addition to the HDMI source audio is easily configured, and the two audio sources can be mixed together. Flexible streaming presets allow for rapid adjustment of streaming configurations to serve multiple tasks, such as streaming to an overflow room before switching the stream to a hosting service.
### VIDEO INPUT
- **Number/signal type**: 1 HDMI digital video (HDCP content not supported)
- **Resolution range**: 480i, 480p, 576i, 576p, 720p, 1080i, 1080p, 640x480 to 1920x1200*
  - Reduced blanking
- **Format**: RGB and YC ICr digital video

### VIDEO PROCESSING
- **Digital sampling**: 8-, 10-, or 12-bits per channel, 165 MHz pixel clock (HDMI)
- **Compression**: H.264/AVC (ITU H.264, ISO/IEC 14496-10) 4:2:0, 8-bit color
  - Encoding profiles: High, Main, Baseline
  - Encoding levels: 4.1, 4.0, 3.2, 3.1, 3.0, configurable GOP
- **Bit rate**: 200 kbps to 10 Mbps
- **Bit rate control**: Selectable (variable, constrained, or constant)
- **Latency**: 130 msec* (encode), 600 msec* (encode/decode)
  - *Indicates minimum latency. Encoder, decoder, and network dependencies apply.

### VIDEO OUTPUT
- **Number/signal type**: 1 H.264/AVC digital video over Ethernet, 1 HDMI digital video
- **Scaled resolution**: HDMI output/record: 480p, 720p, 1080p, 512x288, 1024x768, 1280x1024
  - Stream: 480p, 720p, 1080p, 512x288, 1024x768, 1280x1024
- **Frame rate**: Up to 30 fps for all output rates
- **Formats**: H.264/AVC (Profile type: High, Main, Baseline. Profile level: 4.1, 4.0, 3.2, 3.1, 3.0)

### RECORDING AND STORAGE
- **File system for USB storage**: FAT32, NTFS, VFAT long file name extensions, EXT2, EXT3, EXT4
- **File types**: H.264 and AAC in an MP4 container, M4A, JPEG, JSON, XML
- **File transfer protocols**: FTP, SFTP, DFS
- **Network file share protocols**: CIFS/SMB, NFS
- **Internal storage capacity**: 32 GB SDHC
- **External USB ports**: 1 (front panel), 1 (rear panel), USB 2.0 (max. current 1.5 A)
- **Font file format**: (TrueType) TTF, (OpenType) OTF

### AUDIO INPUT
- **Analog**: 1 stereo (balanced or unbalanced)
- **Digital**: 1 stereo, digital de-embedded from HDMI

### AUDIO PROCESSING
- **Sampling rate**: 16 bit, 48 kHz or 44.1 kHz sampling
- **Compression**: AAC-LC MPEG-4 (ISO/IEC 14496-3:2005)
- **Bit rate**: 80 kbps to 320 kbps, stereo

### AUDIO OUTPUT — DIGITAL
- **Number/signal type**: 1 stereo, HDMI (re-embedded audio)
  - 1 AAC-LC digital audio over Ethernet

### COMMUNICATION
- **USB**: 1 front panel female mini USB B
  - Mouse and keyboard port: Connect via any USB ports on SMP 111.
  - USB control port: Connect to optional accessory RCP 101.
  - USB standards: USB 1.1, USB 2.0, high/full/low speed hosts
- **Serial control port**: 1 bidirectional RS-232, rear panel 3.5 mm captive screw connector, 3-pole
- **Remote power**: (1) +12 VDC power on 3.5 mm, 2-pole captive screw connector 1.0 A max
- **Ethernet control**: 1 female RJ-45
  - Ethernet data rate: 10/100/1000Base-T, half/full duplex with autodetect
  - Maximum Transmission Unit: 68-1500 MTU, adjustable
  - Protocols: Pull: RTP/RTCP (RFC 3550), RTSP (RFC 2326), Interleaved RTSP (RTSP/RTSP), RTP/RTSP tunnelled through HTTP unicast or multicast
    - Push: MPEG2-TS/UDP* (ISO/IEC 13818-1), MPEG2-TS/RTP* (RFC 2250, IETF-ID-0037, ETSI TS 102 034), Direct RTP (RFC 3984), SAP (RFC2074), SDP (RFC4566), unicast or multicast, RTMP
  - Transport: TCP, UDP, multicast IGMPv3 (RFC 3376) or unicast
  - All supported: IGMPv3 (RFC 3376), IP, UDP, SSL, DHCP, HTTP, HTTPS, RTP, RTSP, SMPTV 2 (RFC 1213), SAP (RFC2074), SDP (RFC4566), bsd (RFC 2474), NTPv4 (RFC 4330)

### GENERAL
- **Power supply**: Internal
  - Input: 100-240 VAC, 50-60 Hz
- **Power consumption**: 23 watts typical
- **Thermal dissipation**: 50 BTU/hr
- **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, UL
  - Safety: CE, C-Tick, FCC Class A, ICES, VCCI
  - Environmental: Complies with the appropriate requirements of RoHS and WEEE.

### Model
- **Model**: SMP 111
- **Version Description**: Single Channel Recorder – 32 GB
- **Part number**: 60-1594-01

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For complete specifications, please go to www.extron.com

Specifications are subject to change without notice.