

Sapphire™

MPEG STREAM SERVER



The Harmonic Sapphire™ MPEG stream server is a unique channel-in-a-box solution featuring advanced ingest, playout and downstream content insertion/regionalization capabilities.

Available in either a 1-RU or 2-RU chassis, the cost-effective Sapphire provides all of the functions necessary to acquire, process, brand and generate TV channels that are ready to go on-air or be sent to a Harmonic ViBE® compression system. With its sophisticated functionalities, the Sapphire can serve as a complete broadcast station, able to handle all operational needs. Possessing program routing, clip editing and playback functions, the system can also be used as a reliable TS recorder, ingest station or time-shifter. The Sapphire is compliant with many of the major automation and traffic systems on the market today, and integrates perfectly into a studio workflow.

High-Performance Recording

The Sapphire can capture multiple live streams or programs via ASI or IP inputs. Recording can occur locally or on remote storage devices through an FTP connection. In either case, the server produces clean and accurate MPEG-2 TS files, which become automatically available for editing or playback — even when recording is still in progress.

The server also supports crash recording — automated capture based on date/time triggers, in-band cue tones or external signaling — continuous recording, and frame-accurate ingest (when combined with a VTR and an encoder, such as those in our ViBE product family).

The Sapphire ideally meets time-delay application requirements by combining record and playout features in a single solution. Featuring a high-performance clock embedded into its ASI card, the server guarantees constant and frame-accurate delay; moreover, it natively manages input signal errors, such as loss of synchronization.

Frame-Accurate Playout

The Sapphire combines advanced MPEG processing and a wide range of playlist functions, making it an ideal solution for those who require a versatile, cost-effective and high-quality platform. The server supports multiple SD and HD channels simultaneously via ASI or IP outputs carrying MPEG-2 or MPEG-4 AVC (H.264) video, generating live, standards-compliant MPEG-2 TS (DVB or ATSC) that can be used directly, without any post-processing. Function integration capabilities include multiplexing, splicing and PSI/SI management. With support for the SCTE 30 standard protocol, the Sapphire can also interface with external splicer and/or transrater devices, such as the Harmonic NetProcessor™ 9030/40, for ad insertion applications in IPTV or broadcast workflows.

HIGHLIGHTS

- Support for SD/HD MPEG-2/MPEG-4 AVC transport streams
- High-performance ASI and Gigabit Ethernet MPEG interfaces
- Scalable and highly reliable storage
- Advanced TS and program capture capabilities
- Unique frame-accurate and seamless audio/video splicing
- Superior remultiplexing capabilities
- Integrated automation (playlist and record list management)
- Advanced asset management (clip import, export, editing, trimming and concatenation)
- Multiple control Interfaces (BVW-75, VDCP, BXF, ...)
- Graphic overlays capabilities

MPEG Asset Management

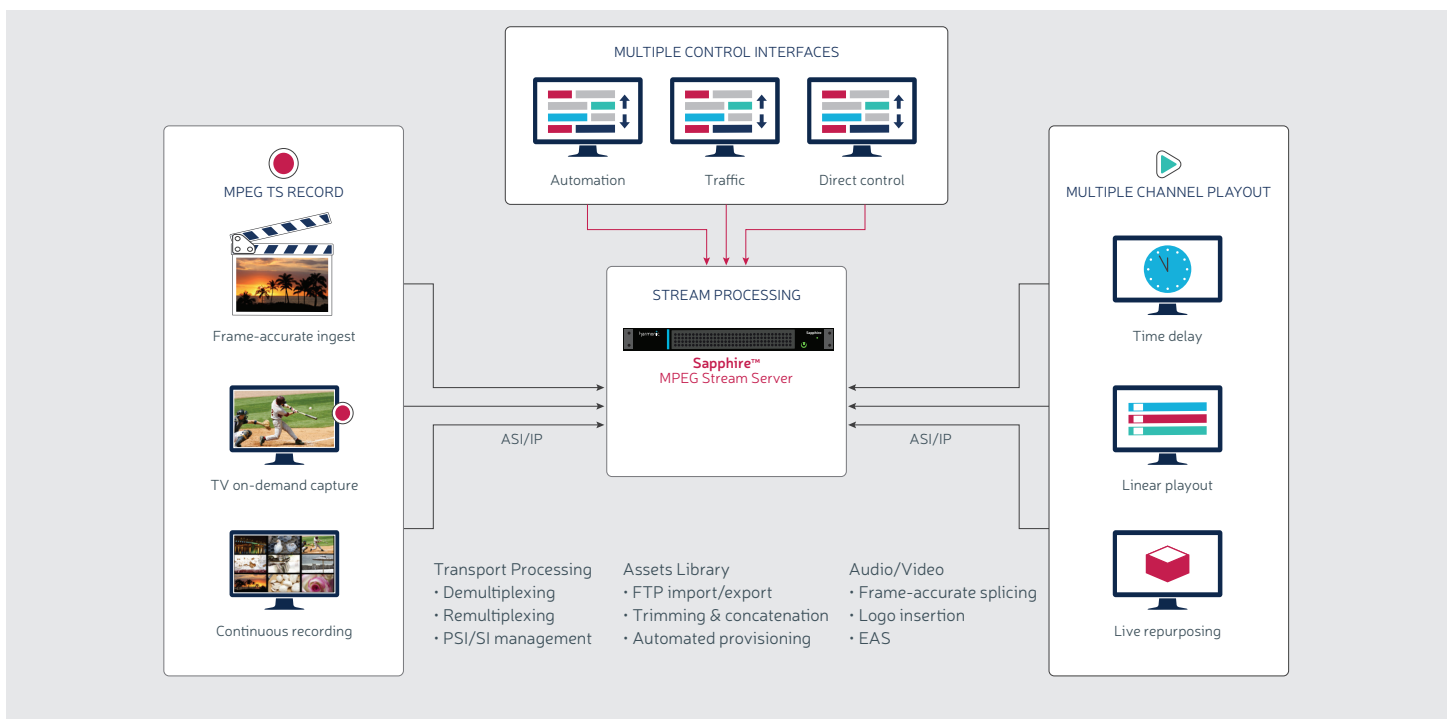
All clips stored locally on the Sapphire (either from recording operations or FTP import) are registered in a clip library to offer simplified asset management. The server also provides the ability to edit MPEG-2 and H.264 clips with in and out markers, and to perform trimming or clip merging.

Reliable and Scalable

Storage on the Sapphire server is highly reliable and extensible. The system features multiple SAS hot-pluggable drives, organized into a dual RAID system.

World-Class Service and Support

Harmonic stands behind the Sapphire server with comprehensive service and support programs, including system design, service deployment, technical support and network maintenance. World-class service plans and a global network of flexible and responsive support professionals help ensure your ability to deliver outstanding “anytime, anywhere, any-device” customer experiences.



Sapphire Application Example

SPECIFICATIONS

ASI INTERFACES

- Up to four I/O pairs
- Connector: BNC F, 75 Ω
- Up to 84 Mbps per connector
- Data format: burst, packet
- Packet length: 188, 204

GBE INTERFACES

- Dual-port NIC adapter
- Dual-port MPEG adapter
- Up to 300 Mbps in
- Up to 300 Mbps out
- Unicast and multicast
- Data format: UDP, RTP

SPECIFICATIONS

STREAM PROCESSING

- Multiple stream recording
- Multiple channel playout
- MPEG stream monitoring and visualization
- Multiplexing, demultiplexing
- Continuous or event-based capture
- Frame-accurate splicing
- Logo insertion
- PSI/SI/PSIP management
- PID remapping
- Playlist and clip management

SUPPORTED FORMATS

- ISO, DVB, ATSC signaling
- MPEG-2 and MPEG-4 AVC video (4:2:0, 4:2:2, frame, field)
- MPEG-1, AAC, Dolby® Digital (AC-3) audio

MANAGEMENT

- Client/server GUI
- FTP import, export
- Automatic clip provisioning
- Automatic schedule import
- SNMP v2 agent
- VDCP interfaces
- GPI inputs

1-RU SERVER

- Internal storage: SAS, RAID 5 from 300 GB to 1.5 TB
- Optional external storage
- Redundant power supply
- ASI (two I/O) or GbE adapter

2-RU SERVER

- Internal storage: SAS, RAID 5 from 700 GB to 6 TB
- Optional external storage
- Redundant power supply
- From 1 to 4 ASI I/O
- GbE MPEG adapter

ORDERING INFORMATION

1-RU SERVER

CHASSIS

Part Number	Description
SAPPH-1U-2AC	Sapphire Server

MPEG INTERFACES (OPTIONS)

Part Number	Description
SAPPH-HW-1U-ASI-X	ASI I/O boards (x I/O)

STORAGE SYSTEM

Part Number	Description
SAPPH-HW-1U-HDD-xxxGB	Customizable RAID storage system (from 600 GB to 1.3 TB)

2-RU SERVER

CHASSIS

Part Number	Description
SAPPH-2U-2AC	Sapphire Server

MPEG INTERFACES (OPTIONS)

Part Number	Description
SAPPH-HW-2U-ASI-X	ASI I/O boards (x I/O)

STORAGE SYSTEM

Part Number	Description
SAPPH-HW-2U-HDD-xxxGB	Customizable RAID storage system (from 1.5 TB to 5.8 TB)

CHANNEL LICENSES

Part Number	Description
SAPPH-LIC-RECORD	Record (per stream to record)
SAPPH-LIC-PLAYOUT	Playout channel
SAPPH-LIC-DELAY	Time delay (per stream to delay)
SAPPH-LIC-SCTE30	SCTE 30 ad insertion channel
SAPPH-LIC-GRAPHIC	Logo insertion
SAPPH-LIC-EAS	EAS support