The Harmonic Spectrum™ X advanced media server system brings new levels of efficiency, simplicity and reliability to broadcast playout workflows.

Designed for mission-critical production and playout applications, Spectrum X combines file, baseband and transport stream ingest with comprehensive integrated channel playout (ICP) capabilities, including graphics, branding, DVE, and live switching of baseband and compressed IP sources. By reducing the number of discrete devices required to produce and distribute branded programming, Spectrum X lowers capital expenditures, simplifies workflows and reduces operational costs. The system's high density, low power consumption and rock-solid reliability further reduce operating expenses while providing high availability.

The software-based Spectrum X supports a broad range of SD and HD formats up to 1080p (3G), and is upgradeable to Ultra HD. It can operate as a true channel-in-a-box (CIAB) or as part of a Spectrum shared storage infrastructure that includes everything from simple ingest and playout to feature-rich ICP capabilities. All functionality is available via software license keying, resulting in a highly flexible system that allows the easy addition of new codecs, CIAB functionality, IP I/O and other advanced features to baseband I/O when needed.

Fully compatible with Spectrum MediaDirector and MediaCenter servers, and Harmonic Polaris™ playout management systems, Spectrum X fits seamlessly into existing broadcast infrastructures. By integrating SDI and IP I/O on the same chassis, Spectrum X also eases the migration to IP playout workflows, allowing broadcasters to transition away from baseband at their own pace.

The highly scalable Spectrum X system is ideal for a wide range of applications, including:

- CIAB and ICP workflows
- Integrated master control room (iMCR) workflows
- Hybrid baseband and IP playout environments
- Disaster recovery

As a next-generation media server system, Spectrum X offers a new approach to production and channel playout. With its functionality integration, workflow flexibility and cost-efficiency, this next-generation server powers new revenue-generating services while delivering low total cost of ownership.

HIGHLIGHTS

- Easy-to-deploy ingest and playout system for baseband and IP workflows
- Supports a broad range of SD and HD formats; software upgradeable to Ultra HD
- Integrates SDI and IP I/O on the same chassis to ease migration to IP workflows
- Adaptable to all production and playout applications, including integrated channel playout, channel-in-a-box and integrated master control
- Integrated video graphics and branding, using industry-standard authoring tools
- Single and dual integrated DVEs for sophisticated content presentation
- Plug and play compatibility with Harmonic Spectrum media servers and Harmonic MediaGrid shared storage
- Open control architecture makes CIAB/ICP available to Harmonic Polaris and third-party automation systems
- Compact 1-RU chassis saves rack space and power

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SPECIFICATIONS

FEATURE SUMMARY

Branding & Graphics
Adobe® Creative Suite® compatibility
Integrated DVE; single and dual 2D DVE mode
Independent branding for each primary and simulcast channel
Up to eight layers of graphics per channel
Static and animated graphics, logo, full-screen slate, rolls, crawls, voice-over

Graphics Formats
PNG, JPEG, TIFF, GIF, Targa and FLV files

Master Control Switching (MCS)
1-6 live inputs (configurable)
Switch between live and recorded clips
Key + fill support

Typefaces
All standard font formats are supported

Automation Support
Polaris Advance, Polaris Elite, Polaris Play, Polaris Live
All Oxtel protocol automation systems (Ethernet or RS-422)
Clip playback control via Spectrum API or VDCP (RS-422)

RASTER

SD
525i @ 29.97 fps
625i @ 25 fps

HD 1.5 G
1080i @ 25, 29.97 fps
720p @ 50, 59.94 fps

HD 3 G
1080p @ 50, 59.94 fps

UDH 4 x 3 G (play only)*
2160p @ 50, 59.94 fps

CODECS

SD
MPEG-2
DV
3-24.9 Mbps LGOP, 25-50 Mbps I-frame
DV 25, DVCPro25, DVCPro50

HD 1.5 G (1080i 50/60, 720p 50/60)
MPEG-2
DV
XDCAM HD
18-85 Mbps LGOP, 50-100 Mbps I-frame
DVCPRO HD
18, 25, 35, 50 Mbps
Class 100, 1920x1080 (25/29.97 Hz); 1280x720p (50/59.94 Hz)

RP 2027 Class 50/100
[Generic]*
Class 50 and Class 100, 1920x1080 (25/29.97 Hz); 1280x720p (50/59.94 Hz)

AVC-Ultra (Panasonic)
Class 100, 1920x1080 (25/29.97 Hz); 1280x720p (50/59.94 Hz)

XAVC-I Class 100 (Sony)
High 422, Level 4, 25, 50 Mbps
Record: 25, 50 Mbps; Playback: 12, 25, 50 Mbps

XAVC-L

AVC-LongG

HD 3G (1080p50/60)
A VC-I Frame (Play & Record)
XAVC-L (Play Only)
XAVC-L (Play Only)
A VCU-LongG (Play Only) UHD*

XAVC
500, 600 Mbps I-frame

MEDI A STORAGE OPTIONS

Choice of four internal 3.5” 2-, 4- or 6-TB, 7,200-RPM SAS drives, 3+1 modified RAID 4 (single parity)
Connect to Spectrum MediaCenter (MCP-2200 series) via GbE
Connect to Spectrum SAN (MediaDirector, MCP-2250 series) via GbE
Ingest to MediaGrid as MXF OPs wrapped media

AUDIO PROCESSING

Channels
SMPTE 299M/272M, up to 16 embedded per video channel

Formats
Uncompressed: 16, 24, PCM @ 48 kHz
Compressed: audio pass-through, Dolby® decode

Features
Audio down-mix
Audio track swapping; track tagging, language rules
Audio mix effects, VO insertion

DATA

Closed Caption
EIA-608, EIA-708

Ancillary Data
VBI, VANC

Reference
Analog black with color burst

CONNECTIVITY

Input
Four SD/HD
DIN 1.0 connector, SMPTE 259M, 292M, 424M
One video input per channel

Output
Four SD/HD
DIN 1.0 connector, SMPTE 259M, 292M, 424M
Independently configurable up/down/cross-conversion

Simulcast
Four SD/HD
DIN 1.0 connector, SMPTE 259M, 292M, 424M

Connectors
RS-422 per video channel (multi-pin connector; available adapter cable)
Ethernet from client to Spectrum MediaDirector and MediaCenter

Server Interface
Private, point-to-point, non-switchable gigabit Ethernet to MediaDirector

GPI
Eight GPIO lines, configurable

POWER

Power Supplies
Dual, hot-swappable Platinum efficiency

Power Consumption
505 W (max)

PHYSICAL

Dimensions (W x H x D)
17.67 in x 17 in x 27.75 in (1 RU)
44.9 cm x 43.2 cm x 70.5 cm

* Check availability