

# Spectrum™ MediaPort 7000

REAL-TIME VIDEO I/O MODULES



## MediaPort 7000 video I/O modules perform system-wide encoding and decoding for real-time ingest and playout of content on the Spectrum™ media platform.

The modules attach to Spectrum in manageable increments so that systems can be configured to meet exact requirements for channel count and video compression formats. When expansion is needed, additional MediaPort 7000 modules can be added while Spectrum remains up and running. MediaPorts for different media formats can be combined within a single Spectrum system, including support for both SD and HD at the same time. Every channel can be individually controlled by an automation system or a hardware controller.

Video, audio and timecode information is kept as data on the Spectrum. MediaPort 7000 accurately captures and replays all information contained in the video stream – including VBI and VANC. The modules support up to 16 channels of embedded audio, fully supporting even the most demanding multi-language broadcasting requirements.

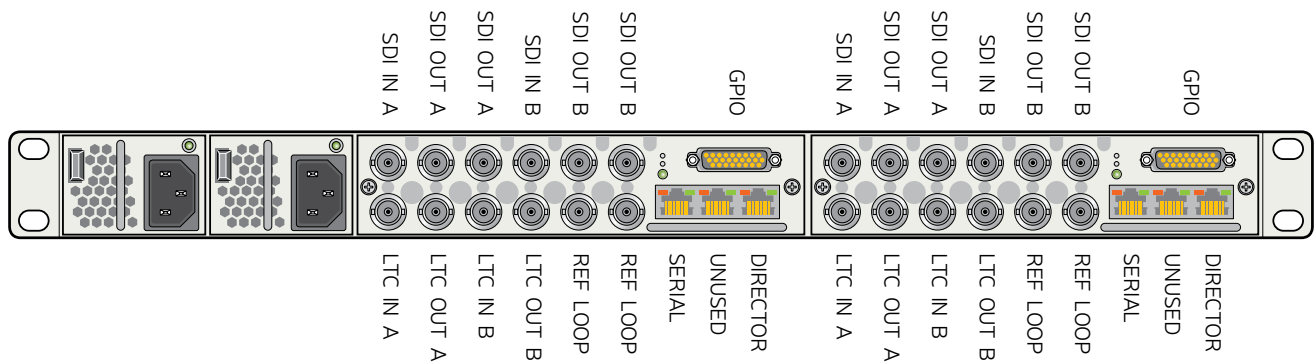
The flexible MediaPort 7000 series offers a wide range of formats, channel counts and record/play capabilities to create Spectrum systems that support both current and future requirements. MediaPort 7100 modules support DV and MPEG-2 SD and HD functionality, and MediaPort 7600 modules support DV, MPEG-2 and AVC-Intra. All modules support VC-3 and ProRes 422 decoding.

## HIGHLIGHTS

- I/O support for a wide range of codecs, all available for back-to-back playout on Spectrum media systems
- Built-in up/down/cross conversion with no channel count or performance penalties
- SD/HD simulcast outputs on every channel
- Hot-swappable modules and power supplies
- Available real-time creation of H.264 proxy during ingest
- At-a-glance system status
- Low power consumption
- Compatible with previous generations of Spectrum components
- Coexists with Spectrum ChannelPort branded channel playout module in same chassis

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MediaPort 7000 Series Rear View (two modules installed)

## Modularity

Each MediaPort 7000 chassis holds up to two modules, and each module provides two bidirectional channels. Different MediaPort modules can be mixed in a single enclosure; they are also compatible with Spectrum ChannelPort branded channel playout modules. Modules are independent and can be added to an empty slot at any time, and can also be replaced without disrupting operations on the other modules.

## Broad Codec and Wrapper Support

Codec support on MediaPort 7000 includes SD/HD MPEG-2, SD DV (DV 25, DVCPRO 25, DVCPRO 50), DVCPRO HD, XDCAM HD, AVC-Intra (Class 50 and Class 100), ProRes 422 (122 and 147 Mbps) and VC-3 (SMPTE 2019-1). Most codecs present in the module are available for seamless, frame-accurate back-to-back playout. Multiple combinations of QuickTime, MXF and GXF media wrapper formats and track types are supported.

## Up/Down/Cross Conversion

Built-in up, down and cross conversion are standard with every HD-capable MediaPort 7000 module. Cross-conversion allows playout of 720p material on a 1080i channel, and vice-versa, without channel-count or performance penalties.

## SD/HD Simulcast

Simulcast is available on every channel, where SD-only channels include two identical outputs and HD-capable channels include two independently configurable outputs. An HD video channel can be presented in both 720p and 1080i.

## System Options

MediaPort 7000 modules offer a proxy option that enables simultaneous generation of both low- and high-resolution clips during recording. Chroma sampling options are available for 4:2:2, 4:2:0 and 4:1:1, as appropriate for the operating point. Closed captioning and subtitle insertion options are also available.

## Easy Serviceability

MediaPort 7000 I/O modules and power supplies are hot swappable and can be installed or replaced without disrupting on-air operation.

## At-a-Glance System Status

A front panel color display provides identification, status and alarms for each module, showing the state of each channel at a glance.

## Low Power Consumption

Industry-leading 45 W per channel reduces power consumption and cooling requirements.

## SPECIFICATIONS

### VIDEO

Channels	Two independent bidirectional channels per module
Input	SD (SMPTE-259M)/HD (SMPTE-292M) One video input per channel BNC female, 75 Ω
Output	SD (SMPTE-259M)/HD (SMPTE-292M) Two outputs per channel with independently configurable up/down/cross conversion BNC female, 75 Ω
<b>Formats</b>	
SD MPEG-2	3-24.9 Mbps long GOP; 25-50 Mbps I-frame
HD MPEG-2	18-85 Mbps long GOP; 50-100 Mbps I-frame
SD DV	DV 25, DVCPRO 25, DVCPRO 50
HD DV	DVCPRO HD
XDCAM HD	18, 25, 35, 50 Mbps
AVC-Intra	Class 50 and Class 100
VC-3 (SMPTE 2019-1)	120, 145 Mbps
ProRes 422	122, 147 Mbps; Standard Quality mode
Up-Conversion	Configurable pillarbox, crop, anamorphic EIA-608 captions translated to EIA-708 Line 21 OP-42 subtitles translated to OP-47
Down-Conversion	Configurable letterbox, crop, anamorphic EIA-608 compatibility bytes extracted from EIA-708 data to create EIA-608 captions OP-47 subtitles translated to Line 21 OP-42
Cross-Conversion	720p to 1080i 1080i to 720p

### AUDIO

Channels	SMPTE-299M/272M Up to 16 embedded per video channel
<b>Formats</b>	
Uncompressed	16, 24, 32-bit PCM @ 48 kHz
Compressed	Audio passthrough

### DATA

Closed Caption	EIA-608, EIA-708 Analog caption data recovered from VBI and kept as digital data; inserted into VBI on playback Digital caption data preserved on record and inserted on playback
Ancillary Data	VBI, VANC Up to 6 lines (configurable) preserved Line 21 caption data saved automatically Up to 6 kb (configurable) preserved per frame
Reference	Analog black with color burst Optional for playback; unused for recording loop-through connector

### CONTROL

Protocols	VDCP, limited BVW Spectrum API
Connectors	RS-422 per video channel (RJ45 connector; DB-9 adapter supplied) Ethernet from client to Spectrum MediaDirector
Interface	Private, point-to-point, non-switchable gigabit Ethernet to MediaDirector
GPI	8 GPIO lines, configurable

### POWER

Input Voltage Range	90-260 V
Line Frequency	45-63 Hz
Input Power	Dual redundant universal power supplies
Power Consumption	112 W (one module) 175 W (two modules)

### ENVIRONMENTAL

Operational Temperature	+40° F to 104° F/+5° C to 40° C
Operational Relative Humidity	10-85% non-condensing
<b>Electromagnetic Compliance</b>	
Emissions From Information Technology Equipment Class A	EN 55022:2006+A1:2007 EN61000-3-2:2006+A1:2009+A2:2009 EN61000-3-3:2008
Current Harmonics	
Voltage Fluctuations	
<b>International Standards Compliance</b>	
USA	FCC Part 15 Subpart B Class A UL 60950-1:2007 R12.11
Canada	Industry Canada ICES-003:2004 Class A CAN/CSA C22.2 No. 60950-1-07+A1:2011
Australia & New Zealand	AS/NZS CISPR22:2009 Class A
China	GB/T 18268:2000
EU	EN 55022 Class A
Japan	VCCI:2010-04 Class A
Korea	KN22 Class A and KN 24
Taiwan	CNS 13438:2006 Class A
Safety	IEC 60950-1:2005 (2nd Edition); Am 1:2009 EN 60950-1:2006 + A1:2010 + A11:2009 + A12:2011 RoHS directive 2002/95/EC

### PHYSICAL

Dimensions (W x H x D)	17.5 in x 1.75 in x 26.5 in (1RU) 44.4 cm x 4.4 cm x 67.3 cm
Weight	23.6 lbs/10.7 kg (chassis + one module) 26.9 lbs/12.2 kg (chassis + two modules)

### H.264 PROXY OPTION

Video Encoding	H.264 (MPEG-4 Part 10/15) Baseline profile @ Level 3.1 Variable-length IP GOP (maximum length 16)
Video Bitrate	600 Kbps – 3.0 Mbps User-configurable
Chroma Sampling	4:2:0
Audio Encoding	AAC-LC 0-8 two-channel pairs (up to 16 channels)
Audio Bitrate	64, 96 or 128 Kbps (per pair)
SD Encoded Frame Size	352 x 288, 320 x 240 @ 25 fps 352 x 240, 320 x 240 @ 29.97 fps User configurable
HD Encoded Frame Size	640 x 360 or 432 x 240 User configurable
Wrapper	MXF Op1a low-latency QuickTime self-contained
Ancillary Data	AFD, timecode, closed captions Kept as unregistered SEI
Timecode Burn-In	Within frame or below it
Logo/Watermark	User-supplied PNG with alpha
Link to High-Res	SMPTE 330M Via parent UMID

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## MODULE OPTIONS

Model Number	H.264 Proxy	MPEG-2		DV/DVCPRO	AVC-Intra		VC-3		ProRes
		Record	Play	Rec/Play	Record	Play	Record	Play	Play
MIP-7100		X	X	X			X	X	X
MIP-7101	X	X	X	X			X	X	X
MIP-7600		X	X	X	X	X	X	X	X
MIP-7601	X	X	X	X	X	X	X	X	X

## LICENSE OPTIONS

Product ID	SD	HD	Up /Down/ Cross Conversion and HD/SD Simulcast	MPEG-2		DV/DVCPRO	AVC-Intra		VC-3		ProRes
				Record	Play	Rec/Play	Record	Play	Record	Play	Play
APR	X	X	X		X	X	X	X			
DMH	X	X	X	X	X	X					
DMS	X			X	X	X					
DVH	X	X	X			X					
DVS	X					X					
M2H	X	X	X	X	X						
M2R	X			X							
M2S	X			X	X						
UVP	X	X	X		X	X		X			
VC3	X	X	X						X	X	
VC3P	X	X	X							X	
VC3R	X	X	X						X		
SPL-PRORES											X

## FEATURE OPTIONS

Product ID	Description
SPL-OPC	Onboard layout control for one channel of Spectrum ChannelPort or MediaPort 7000
SPL-OMF	Onboard Media Fetch for one video system, enables Media Fetch for all OPC licenses installed
SPL-STL	Onboard subtitle insertion license for one channel of Spectrum ChannelPort or MediaPort 7000