

ViBE CP6100

HALF-RACK CONTRIBUTION PLATFORM



The ViBE® CP6100 half-rack contribution platform from Harmonic is designed for space-constrained production environments. Its modular architecture enables users to transport up to four MPEG-4 AVC 4:2:2 10-bit streams, and its DVB-S2/S2X hot-swappable modulator makes the platform ideal for DSNG applications.

The ViBE CP6100 is dedicated to contribution applications where conserving space is paramount. The ViBE CP6100 features superior video compression and is designed for maximum operational performance. The platform is suitable for a variety of applications, including live sports and event coverage, and broadcast news. The ViBE CP6100 contribution platform is built on a modular, future-proof chassis with two hot-swappable slots for either encoding or decoding processing boards.

A video program is encoded/decoded several times and contribution is the first of many to come. This step is therefore critical to improve the end-user viewing experience.

Mobility

With its encoding and multiplexing capabilities and fully integrated DVB-S2/S2X modulator, the ViBE CP6100 offers a full array of constellation modes, an extended symbol rate range and low roll-off factor to optimize transmission efficiency.

Density

With two slots and dual channels per MPEG processing board, the ViBE CP6100 can encode or decode up to four SD or HD channels per unit, or up to two SD or HD channels when deployed with the DVB-S2/S2X modulator. This density offers a significant reduction in per-channel costs and power consumption.

Scalability & Agility

The MPEG enables easy and cost-effective migration from legacy MPEG-2 SD to the latest MPEG-4 AVC 4:2:2 10-bit video format. This unique feature coupled with a license pool allows re-utilization of a unit in multiple encoding and decoding schemas. It also minimizes investment and simplifies operation and management.

HIGHLIGHTS

- Modular half-rack chassis with two hot-swappable slots
- Up to four SD/HD or two 1080p channels per chassis
- MPEG board configurable as encoder or decoder
- From MPEG-2 SD 4:2:0 to MPEG-4 AVC 4:2:2 10-bit, enabled by license
- 1080p50/59.94 encoding and decoding
- Encoder auto-configuration
- Multiplexer up to 400 Mbps
- Ultra-low delay mode
- Hot-swappable DVB-S2/S2X modulator (0.1 to 68 MBaud, up to 64 APSK, Carrier ID, low roll-off of 5-35%)
- Dedicated FEC and ARQ for broadcast-quality video over the internet
- Encoder SDI redundancy and decoder service redundancy
- User-friendly front-panel and web-based management

Future-Proof Platform

The hot-swappable modular architecture of the ViBE CP6100 and its high-throughput connections between slots enables the platform to support next-generation technologies such as 1080p50/59.94, AVC-Intra and UHD. The ViBE CP6100 offers a unique combination of key features that allow efficient handling of any mobile contribution application. High-density and video quality, combined with low latency and low rate, permit mobile contribution without quality compromise. Superior video quality for premium contribution applications is fully supported in MPEG-4 AVC 4:2:2 10-bit mode, while its DVB-S2/S2X modulator perfectly addresses satellite contribution applications.

A Streamlined Contribution Solution

Harmonic ViBE CP6XXX series products offer a streamlined solution. While the ViBE CP6100 can easily be installed in a DSNG truck to cover live events, the full-size ViBE CP6000 is decoding the stream at the reception site. ViBE CP6000 and ViBE CP6100 are built on the same modular architecture, are able to share encoding, decoding and modular boards and a single software application can be shared on both platform which minimizes investment and simplifies operation.

World-Class Service and Support

Harmonic stands behind the ViBE CP6100 platform 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.



SINGLE CHANNEL ENCODER OR DECODER WITH ANALOG OR AES AUDIO

ViBE CP6100 Back Panel

SPECIFICATIONS

CHASSIS

Architecture	Two slots, hot-swappable, able to receive one MPEG board or modulator
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ENCODER/DECODER COMMON FEATURES

Video Formats	
MPEG-2	MPEG-2 SD 4:2:0 ¹ MPEG-2 SD 4:2:2 ¹ MPEG-2 HD 4:2:0 ¹ MPEG-2 HD 4:2:2 ¹
MPEG-4 AVC	MPEG-4 AVC SD 4:2:0 ¹ MPEG-4 AVC SD 4:2:2 ¹ MPEG-4 AVC HD 4:2:0 ¹ MPEG-4 AVC HD 4:2:2 8-bit ¹ MPEG-4 AVC HD 4:2:2 10-bit ¹ MPEG-4 AVC 1080p ¹

Video Resolutions	
480i (NTSC/29.97)	720/704/640/544/528/480/352x480i
576i (PAL/25)	720/704/640/544/528/480/352x576i
720p (50/59.94)	1280/960/640x720p
1080i (25/29.97)	1920/1440/1280/960x1080i
1080p (50/59.94)	1920/1440/1280/960x1080p with MPG card

Audio Formats	
MPEG-1 Layer 21	1.0, 2.0 and passthrough
AAC-LC/HE-AAC V1 & V21	2.0, 5.1 and passthrough
Dolby Digital (AC-3)1	2.0, 5.1 and passthrough
PCM (SMPTE-302M)	Passthrough
Dolby-E	Passthrough
Default	Two MPEG-1 Layer II or AAC/HE-AAC stereo channels per video

ENCODER/DECODER COMMON FEATURES (CONT)

Ancillary & VBI Processing	
Ancillary	HD teletext OP-47, CC708, ATC, DPI, Transparent SMPTE 2038 and RDD-11
VBI	WSS, WSS-AFD, WST teletext, C608, VITC, Monochrome
IP Interfaces	Dual GbE per card Unicast, multicast UDP, UDP/RTP SMPTE 2022 FEC VLANs, route table Special FEC and ARQ for contribution over the Internet ²

CARDS²

MPG-AUD	Single-channel MPEG encoder and decoder with AES or analog audio
MPG	Dual-channel MPEG encoder and decoder
MOD-IF	DVB-S2/S2X modulator board, IF-band out
MOD-RF	DVB-S2/S2X modulator board, L-band out

SPECIFICATIONS

ENCODER APPLICATION

Input Interfaces	
SDI	Up to two SD/HD/3G-SDI per encoder with redundancy and monitoring
ASI	Up to one ASI input for external component injection
Audio	Two stereo analog audio or four AES audio with MPG-AUD card
Encoding	
Configuration	Automatic or manual
Latency	Ultra-low delay, low delay
GOP Structure	Automatic or manual I-only, P-only, IP, IBP, IBPP..
Multiplexer	
Services	SPTS or MPTS up to eight services ¹
Scrambling	BISS 1/E ¹
Mode	CBR/VBR (no null packets)
Output Rate	Up to 400 Mbps over IP
Output Interfaces	
ASI	Up to three ASI with MPG card, up to two ASI with MPG-AUD card
IP	See common features above

DECODER APPLICATION

Input Interfaces	
ASI	Up to three ASI with MPG card, up to two ASI with MPG-AUD card
IP	See common features above
Audio	Two stereo analog audio or four AES audio with MPG-AUD card
Decoding	
Redundancy	Automatic service redundancy
Conversion	Up/down-conversion
Output Interfaces	
SDI	Two SD/HD/3G-SDI per decoder
Audio	Two stereo analog audio or four AES audio with MPG-AUD card

DVB/S/S2/DSNG MODULATOR²

Input Interfaces	
TS	Two ASI inputs
Clock	10-MHz reference
Modulation	
DVB-S	QPSK 1/2, 2/3, 3/4, 5/6, 7/8
DVB-S2	QPSK, 8PSK, 16APSK ¹ , 32APSK ¹ 1/4, 1/3, 2/5, 1/2, 3/5, 2/3, 3/4, 4/5, 5/6, 8/9, 9/10
DVB-S2X	QPSK, 8PSK, 16APSK ¹ , 32APSK ¹ , 64APSK ¹ 1/4, 1/3, 2/5, 1/2, 3/5, 2/3, 3/4, 4/5, 5/6, 8/9, 9/10
S2X MOD-COD	13/45, 9/20, 11/20, 5/9-L...1
Carrier ID	DVB-CID
Symbol Rate	0.1 to 68 MBaud (1 Baud step)
Roll-Off	5% to 35% (1% step)
Mode	CCM
Pilots	ON or OFF
FEC block	16 Kb or 64 Kb FEC block
Selectable 10 Mhz	Internal or external
Output Interfaces	
Main RF	SMA 50 Ω 50-180 MHz (1 Hz step) with MOD-IF card 950-2150 MHz (1 Hz step) with MOD-RF card +5 to -30 dBm (0.1 dB step)
Monitoring RF	SMA 50 Ω Transmit frequency Main output -20 dB
TS	ASI output
Clock	10-MHz reference

SYSTEM MANAGEMENT

Interfaces	GbE for C&C
Remote	Web-based UI, SNMP
Local	Graphical front panel

POWER

Power Supply	Single AC ³
Input Range	110-240 VAC
Consumption	50W + 50W per MPEG card or 25W per modulator

PHYSICAL CHARACTERISTICS

Dimensions (H x W x D)	1.73 in x 8.77 in x 16.38 in (half-width 1RU rack) 44 mm x 223 mm x 416 mm
Weight	7.5 lbs / 3.4 kg

ENVIRONMENTAL

Operating Temperature	32° to 122° F 0° to 50° C
Storage Temperature	-13° to 158° F -25° to 70° C
Maximum Humidity	<95% non-condensing
Electromagnetic Compliance	CE marked in accordance with low voltage directive: 2005/95/EC - EMC Directive 2004/108/EC - ROHS Directive 2011/65/UE EN55032 EN55024 EB61000-3-2 FCC VCCI ICES
Safety	IEC 60950 and EN 60950 UL 60950 CSA C22.2 N°60950

ORDERING INFORMATION

BASE SYSTEM

Part Number	Description
CP6100-HU-AC	CP6100 half with 1-RU chassis with two hot-swappable slots, single AC PSU
CP6100-OPT-RACK-KIT	Mechanical kit to mount one or two CP6100 in 19" rack

HARDWARE OPTIONS

Part Number	Description
CP6x00-OPT-MPG	Dual-channel MPEG encoder and decoder
CP6x00-OPT-MPG-AUD	Single-channel MPEG encoder and decoder with AES and analog audio
CP6x00-OPT-MOD-IF	DVB-S2/S2X modulator board, IF-band out
CP6x00-OPT-MOD-RF	DVB-S2/S2X modulator board, L-band out

ENCODING LICENSES

Part Number	Description
CP6x00-LIC-ENC-MP2SD-422	License for MPEG-2 SD 4:2:2 encoding
CP6x00-LIC-ENC-MP2HD-422	License for MPEG-2 SD/HD 4:2:2 encoding
CP6x00-LIC-ENC-MP4SD-420	License for MPEG-4 AVC SD 4:2:0 encoding
CP6x00-LIC-ENC-MP4SD-422	License for MPEG-4 AVC SD 4:2:2 encoding
CP6x00-LIC-ENC-MP4HD-420	License for MPEG-4 AVC SD/HD 4:2:0 encoding
CP6x00-LIC-ENC-MP4HD-8b	License for MPEG-4 AVC SD/HD 4:2:2 8-bit encoding
CP6x00-LIC-ENC-MP4HD-10b	License for MPEG-4 AVC SD/HD 4:2:2 10-bit encoding
CP6x00-LIC-ENC-MP43G-10	License for MPEG-4 AVC SD/HD/1080p 4:2:2 10-bit encoding

DECODING LICENSES

Part Number	Description
CP6x00-LIC-DEC-MP2SD-422	License for MPEG-2 SD 4:2:2 decoding
CP6x00-LIC-DEC-MP2HD-422	License for MPEG-2 SD/HD 4:2:2 decoding
CP6x00-LIC-DEC-MP4SD-420	License for MPEG-4 AVC SD 4:2:0 decoding
CP6x00-LIC-DEC-MP4SD-422	License for MPEG-4 AVC SD 4:2:2 decoding
CP6x00-LIC-DEC-MP4HD-420	License for MPEG-4 AVC SD/HD 4:2:0 decoding
CP6x00-LIC-DEC-MP4HD-8b	License for MPEG-4 AVC SD/HD 4:2:2 8-bit decoding
CP6x00-LIC-DEC-MP4HD-10b	License for MPEG-4 AVC SD/HD 4:2:2 10-bit decoding
CP6x00-LIC-DEC-MP43G-10	License for MPEG-4 AVC SD/HD/1080p 4:2:2 10-bit decoding
CP6x00-LIC-ZIXI-RX-PP	License for Zixi reception (zFEC& zARQ)

Notes:

1. Licensed feature
2. Field-upgradable hardware option
3. Selective hardware