ViBE® CP6000

CONTRIBUTION PLATFORM

The ViBE® CP6000 contribution platform enables users to transport up to eight acquisition-quality SD or HD services. The latest MPEG-4 AVC 4:2:2 10-bit video compression technology provides optimal video quality.

The ViBE CP6000 is a third-generation contribution platform from Harmonic based on the widely deployed ViBE modular video processing solution. The ViBE CP6000 features superior video compression and is designed for maximum operational performance. Possessing encode and decode capabilities, the platform is suitable for a variety of applications, including:

- Contribution (backhaul) circuits from occasional venues, such as sports arenas
- Links between regional studios and a central playout facility
- Links from playout centers to regions and affiliates
- Primary distribution to broadcast or over-the-top headends

The ViBE CP6000 contribution platform is built on a modular, future-proof 1-RU chassis, and offers four hot-swappable slots for MPEG processing boards or a DTH modulator. Its compact design addresses contribution and primary distribution applications in which space and power consumption are critical factors. By delivering pristine video quality, the ViBE CP6000 also improves the end-user viewing experience.

Density
With four slots and dual channels per MPEG processing board, the ViBE CP6000 offers up to eight SD or HD channels per unit — a key advantage for contribution applications where space is paramount. The unit's high density offers significant reduction on per-channel costs and power consumption.

Scalability & Agility
The MPEG board used in the ViBE CP6000 supports a range of formats. Fully upgradable via software license, the ViBE CP6000 platform enables easy and cost-effective migration from legacy MPEG-2 SD to the latest MPEG-4 AVC HD 4:2:2 10-bit video formats. Each of the four slots on the MPEG board can host a hot-swappable card that can function as an encoder or decoder, depending on the selected software license. This unique feature allows re-utilization of a unit in multiple encoding and decoding schemas. It also minimizes investment and simplifies operation and management.

Future-Proof Platform
The modular architecture of the ViBE CP6000 and high-throughput connections between slots enables the platform to support next-generation technologies.

The ViBE CP6000 offers a unique combination of key features that allow the efficient handling of any contribution application. High density and video quality, combined with low latency, permit mobile contribution without compromise. Superior video quality for premium contribution applications is fully supported in MPEG-4 AVC 4:2:2 10-bit mode, while automatic redundancy and automatic configuration perfectly address headend feed applications.

HIGHLIGHTS

- Modular 1-RU chassis with four hot-swappable slots
- Up to eight SD/HD channels, four 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
- Dedicated FEC and ARQ for broadcast-quality video over the Internet
- Encoder SDI redundancy & decoder service redundancy
- User-friendly front-panel and web-based management

World-Class Service and Support

Harmonic stands behind the ViBE CP6000 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.

DVB-DSNG/S2/S2X modulator — Single-channel encoder or decoder with analog or AES audio

Dual-channel encoder or decoder

ViBE CP6000 Back Panel

SPECIFICATIONS

CHASSIS

Architecture	Four slots, hot-swappable, able to receive one MPEG board or modulator

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

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 and dual GbE per chassis Unicast, multicast UDP, UDP/RTP SMPTE 2022 FEC VLANs, route table Special FEC and ARQ for contribution over the Internet1

CARDS[2]

MPG	Dual-channel MPEG encoder and decoder

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

Encoding

Configuration	Automatic or manual
Latency	Ultra-low delay, low delay
GOP Structure	Automatic or manual I-only, P-only, IP, IBP, IBBP…

Multiplexer

Services	SPTS or MPTS up to eight services1
Scrambling	BISS 1/E1
Mode	CBR/VBR (no null packets)
Output Rate	Up to 400 Mbps over IP

Output Interfaces

ASI	Up to three ASI with MPG 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

Decoding

Redundancy	Automatic service redundancy
Conversion	Up/down-conversion

Output Interfaces

SDI	Two SD/HD/3G-SDI per decoder

SPECIFICATIONS

SYSTEM MANAGEMENT

Interfaces	GbE for C&C
	Dual GbE for data streams and in-band C&C
	Genlock input & output (black burst or tri-level sync)
	General purpose inputs/outputs (GPIO)
Remote	Web-based UI, SNMP
Local	Graphical front panel

POWER

Power Supply	Dual AC
Input Range	110-240 VAC
Consumption	50 W + 50 W per card

PHYSICAL CHARACTERISTICS

Dimensions (H x W x D)	1.74 in x 17.3 in x 19.7 in (1 RU)
	4.4 cm x 44 cm x 49.2 cm
Weight	22 lbs/10 kg

ENVIRONMENTAL

Operating Temperature	32° to 122° F
	0° to 50° C
Storage Temperature	-13° to 158° F
	-25° to 70° C
Maximum Humidity	85% non-condensing
Electromagnetic Compliance	CE marked in accordance with the 93/68/EEC (22/07/93) directive
	EN 55022
	EN 55024
	EN 61000-3-2
Safety	IEC 60950 and EN 60950
	UL 60950

ORDERING INFORMATION

BASE SYSTEM

Part Number	Description
CP6000-1U-2AC	CP6000 chassis with four hot-swappable slots, dual AC PSU, 1 RU

HARDWARE OPTIONS

Part Number	Description
CP6x00-OPT-MPG	Dual-channel MPEG encoder and decoder

ENCODING LICENSES

Part Number	Description
CP6x00-LIC-ENC-MP4HD-420	License for MPEG-2 / MPEG-4 AVC SD/HD 4:2:0 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-MP4HD-420	License for MPEG-2 / MPEG-4 AVC SD/HD 4:2:0 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