



INTRODUCTION

The most powerful video headend packed in 4 RU! Perfect for hotels, schools, hospitals, and MDUs yet flexible and feature rich to meet the needs of professional and commercial CATV and IPTV systems.

POWERFUL & COMPACT

With up to 16 hot-swappable modules, the CMP100 makes it easy to support high-density delivery requirements including receiving, descrambling, encoding, multiplexing and modulating.

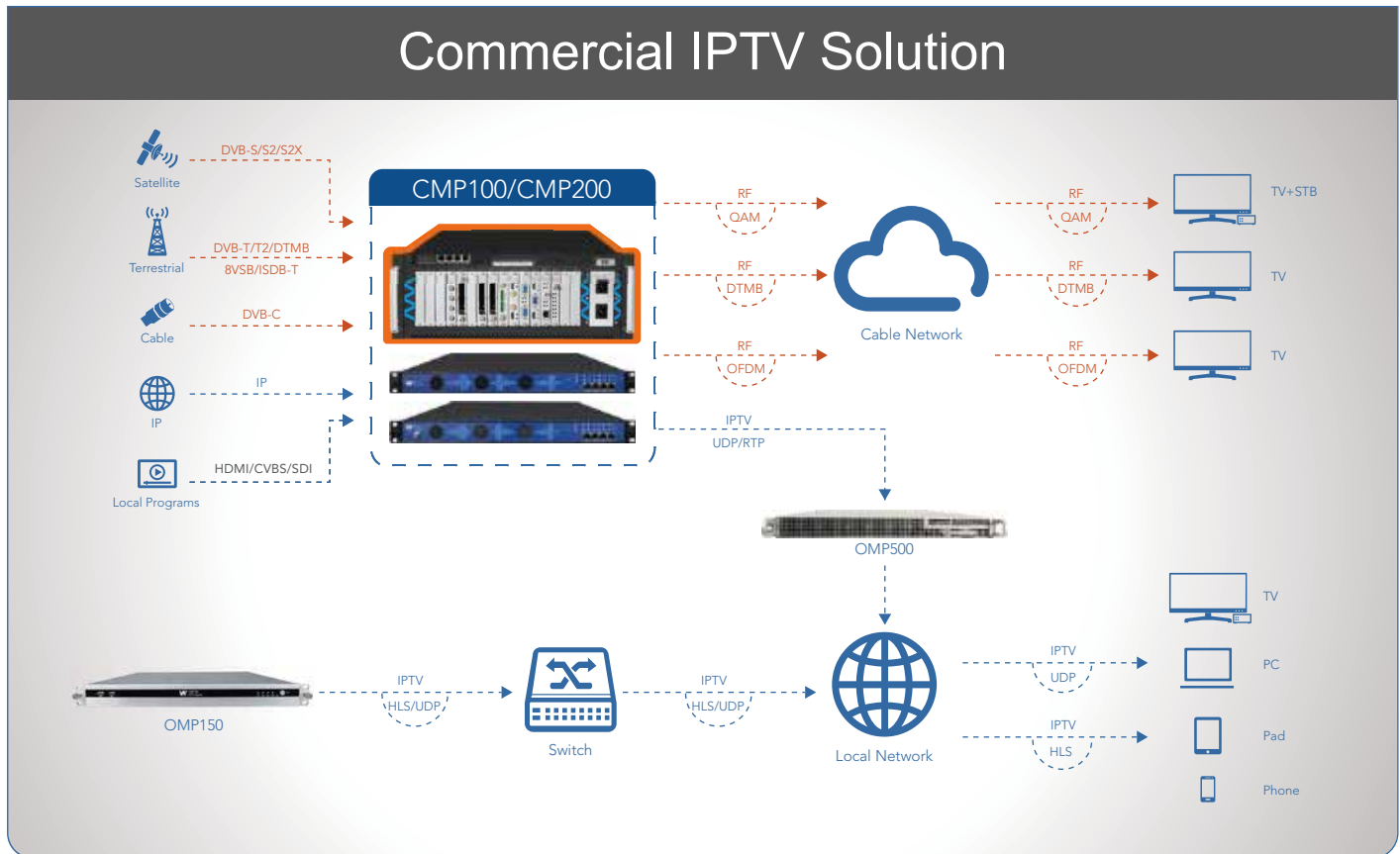
RELIABLE & ENVIRONMENT FRIENDLY

CMP100 provides service-level monitoring. Combine this with dual power supplies, and you are ready for 24/7 non-stop operation. With this condensed form factor and low power consumption, CMP100 saves more space while lowering operating costs for years to come.

FEATURES

- Dense design: 4 RU with up to 16 functional modules
- Supports 120 IP inputs and 120 IP outputs, SPTS/MPTS
- Service level multiplexing
- PSI/SI analysis and regeneration
- Low noise design
- Supports null packet filtering
- Supports reception of up to 64 coax channel frequencies (QAM, DVB-S/S2/S2X, 8VSB and more)
- Up to 64 channels HD encoding (via HDMI® inputs)
- Up to 96 channels SD encoding (via CVBS inputs)
- Up to 256 QAM modulated frequency outputs
- Hot-swappable modules
- Service-level monitoring
- Dual redundant power supplies
- Flexible and scalable
- User-friendly web-interface setup and module upgrades
- Low power consumption and high reliability with MTBF (Mean Time Between Failure) $\geq 100,000$ hours

APPLICATION

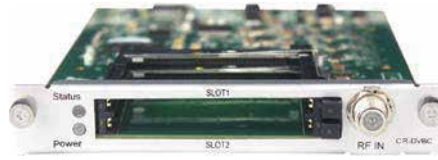


CMP100 is the next generation of modular video processing by Wellav. The chassis comes with dual power supply and accommodates up to sixteen modules. Using a built-in IP switch and diverse range of hot-swappable input/output options, CMP100 is a highly flexible solution perfect for a variety of applications including Hospitality, Education, Government, MDU, and more. Offering an excellent balance of performance VS value, the CMP100 is ideal for dense multi-channel encoding, signal reception, digital turn around, and simultaneous IPTV + QAM distribution without an excessive price tag. Backed by a worldwide based support team and a intuitive Web-Interface, the CMP100 is easy for any organization to deploy and operate.

Chassis	
4RU with 16 slots for hot-swappable modules	
Dual redundant power supplies	
Service level multiplexing	
4 x Gigabit RJ45 (embedded) :	
• MPEG TS over UDP/RTP multicast/unicast	
• SPTS/MPTS	
• Max. 120 inputs and 120 outputs	
• Max. 850Mbps throughput from receiving modules to IP outputs	
DVB/ATSC standard	
IGMP v1、IGMP v2	

Physical & Environment	
Input Voltage	100~240 VAC/50-60Hz
Power Consumption	Max. 350W
Chassis Dimension (W x H x D)	480mm x 177mm x 345mm (18.90" x 6.97" x 13.58"), 4RU
Operating Temperature	0°C~50°C (32°F ~ 122°F)
Storage Temperature	-10°C~70°C (14°F ~ 174.2°F)
Operating Humidity	<95%
MTBF	≥100,000 hours

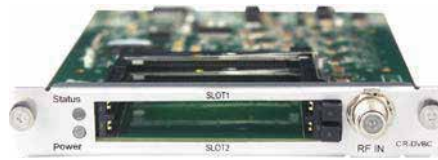
SPECIFICATIONS



CR2-DVBC-00:
DVB-C/DTMB Receiver Module

DVB-C	
Input	4 channels via 1 RF female connector
CI	2 x PCMCIA CI slots
CAM	Descrambled channel quantity depends on CAM capability, 2 CAMs could be different
QAM Mode	Annex A/C
Frequency Range	47~862MHz
Bandwidth	6/7/8MHz
Constellation	16QAM/32QAM/64QAM/128QAM/256QAM
Symbol Rate	3.6~6.952Msps
Signal Level	40~80dBuV
CA System	Supports mainstream CAS
Power Consumption	Max. 9W

DTMB	
Input	4 channels via 1 RF female connector
CI	2 x PCMCIA CI slots
CAM	Descrambled channel quantity depends on CAM capability, 2 CAMs could be different
Modulation Mode	TDS-OFDM
Bandwidth	8MHz
Frequency Range	47~862MHz
Constellation	4QAM-NR/4QAM/16QAM/32QAM/64QAM
Signal Level	-65~-25dBm
Power Consumption	Max. 9W



CR2-DVBC-01:
DVBC Annex B/ISDB-T Receiver Module

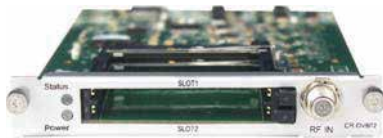
DVBC Annex B	
Input	4 channels via 1 RF female connector
CI	2 x PCMCIA CI slots
CAM	Descrambled channel quantity depends on CAM capability, 2 CAMs could be different
QAM Mode	Annex B
Frequency Range	47~862MHz
Bandwidth	6MHz
Constellation	64QAM, 256QAM
Symbol Rate	5.057Msps (64QAM) 5.360Msps (256QAM)
Signal Level	40~80dBuV
CA System	Supports mainstream CAS
Power Consumption	Max. 9W

ISDB-T	
Input	4 channels via 1 RF female connector
CI	2 x PCMCIA CI slots
CAM	Descrambled channel quantity depends on CAM capability, 2 CAMs could be different
Frequency Range	177.143-863.143 MHz
Bandwidth	6/8MHz
Constellation	DQPSK, QPSK, 16QAM, 64QAM
FEC	1/2, 2/3, 3/4, 5/6, 7/8, Automatic
Signal Level	-80~-20dBm
CA System	Supports mainstream CAS
Power Consumption	Max. 9W



CR2-DVBS2FTA-01:
DVB-S/S2/S2X FTA Receiver Module

DVB-S/S2/S2X	
Input	C/Ku Band, 4 channels via 4 RF female connectors
LNB Power	Independent power supplies for each LNB
LNB Voltage	13V/18V
LNB Current	Max. 400mA
Constellation	DVB-S: QPSK DVB-S2: QPSK, 8PSK, 16APSK DVB-S2X: QPSK, 8PSK, 16APSK, 32APSK, 64APSK
Frequency Range	950~2150MHz
Signal Level	-70~-20dBm
Roll-off Factor	0.15, 0.20, 0.25, 0.35
Symbol Rate	DVB-S: 1~45Msps DVB-S2: 1~45Msps DVB-S2X: 1~34 Msps
FEC	DVB-S: 1/2, 2/3, 3/4, 5/6, 7/8 DVB-S2: 1/2, 3/5, 2/3, 3/4, 4/5, 5/6, 8/9, 9/10 DVB-S2X: 11/15, 7/9, 4/5, 5/6 (Normal FEC FECFRAME)
DiSEqC	1.0, 1.1
Descrambling	BISS, service level
Power Consumption	Max. 38W



CR2-DVBT2CI-00:
DVB-T/T2 with CI Receiver Module

DVB-T/T2	
Input	4 channels via 1 RF female connector
CI	2 x PCMCIA CI slots
CAM	Descrambled channel quantity depends on CAM capability, 2 CAMs could be different
Frequency Range	47~862MHz
Bandwidth	6/7/8MHz
Constellation	DVB-T: QPSK/16QAM/64QAM DVB-T2: QPSK/16QAM/64QAM/256QAM
Guard Interval	DVB-T: 1/4, 1/8, 1/16, 1/32 DVB-T2: 1/8, 1/16, 1/32, 1/128, 19/128, 19/256
FFT Size	DVB-T: 2K, 8K DVB-T2: 8K, 16K, 32K
Signal Level	-80~-20dBm
CA System	Supports mainstream CAS
Power Consumption	Max. 8W



CR2-DVBS2CI-01:
DVB-S/S2/S2X with CI Receiver Module

DVB-S/S2/S2X	
Input	C/Ku Band, 4 channels via 2 RF female connectors CH1 & CH2 via LNB-1, CH3 & CH4 via LNB-2
LNB Power	CH1 & CH2 share LNB-1, CH3 & CH4 share LNB-2
LNB Voltage	13V/18V
LNB Current	Max. 400mA
CI	2 x PCMCIA CI slots
CAM	Descrambled channel quantity depends on CAM capability, 2 CAMs could be different
CA System	Supports mainstream CAS
Constellation	DVB-S: QPSK DVB-S2: QPSK, 8PSK, 16APSK DVB-S2X: QPSK, 8PSK, 16APSK, 32APSK, 64APSK
Frequency Range	950~2150MHz
Signal Level	-70~-20dBm
Roll-off Factor	0.15, 0.20, 0.25, 0.35
Symbol Rate	DVB-S: 1~45Msps DVB-S2: 1~45Msps DVB-S2X: 1~34 Msps
FEC	DVB-S: 1/2, 2/3, 3/4, 5/6, 7/8 DVB-S2: 1/2, 3/5, 2/3, 3/4, 4/5, 5/6, 8/9, 9/10 DVB-S2X: 11/15, 7/9, 4/5, 5/6 (Normal FEC FECFRAME)
DiSEqC	1.0, 1.1
Descrambling	BISS, service level
Power Consumption	Max. 22W



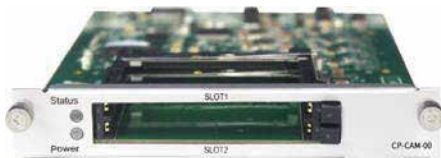
CR2-8VSB-00:
8VSB Receiver Module

8VSB	
Input	4 channels via 4 RF female connector
Frequency Range	Off-Air: 57MHz - 803MHz; STD: 57MHz - 861MHz; IRC: 57MHz - 861MHz; HRC: 55.75MHz - 859.75MHz
Bandwidth	6MHz
Modulation	8VSB
Signal Level	-80~-20dBm
Power Consumption	Max. 9.5W



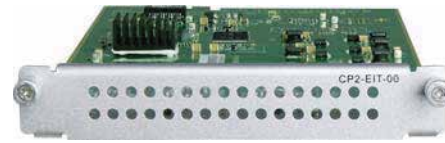
CR2-DVBS2FTA-01A
DVB-S/S2/S2X FTA Receiver Module

DVB-S/S2/S2X	
Input	C/Ku Band, 8 channels via 8 RF female connectors
LNB Power	Independent power supplies for each LNB
LNB Voltage	13V/18V
LNB Current	Max. 400mA
Constellation	DVB-S: QPSK DVB-S2: QPSK, 8PSK, 16APSK, DVB-S2X: QPSK, 8PSK, 16APSK, 32APSK, 64APSK
Frequency Range	950~2150MHz
Signal Level	-70~-20dBm
Roll-off Factor	0.15, 0.20, 0.25, 0.35
Symbol Rate	DVB-S: 1~45Mpsps DVB-S2: 1~45Mpsps DVB-S2X: 1~34 Mpsps
FEC	DVB-S: 1/2, 2/3, 3/4, 5/6, 7/8 DVB-S2: 1/2, 3/5, 2/3, 3/4, 4/5, 5/6, 8/9, 9/10 DVB-S2X: 11/15, 7/9, 4/5, 5/6 (Normal FEC FECFRAME)
DiSEqC	1.0, 1.1
Descrambling	BISS, service level
Power Consumption	Max. 70W



CP2-CAM-00:
CI Scrambler/Descrambler module

CI	
Standard	EN 50221
Interface	2 x PCMCIA CI slots
CAM Scrambling	Support Xcrypt CAMCAS
CAM Descrambling	Supports mainstream CAS Descrambled channel quantity depends on CAM capability, 2 CAMs could be different
Power Consumption	Max. 6W



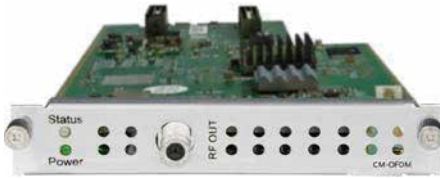
CP2-EIT-00
Processing Module

EIT Remux	
Input	DVB-S/S2/S2X/T/T2/C/ISDB-T/DTMB/IP
Output	QAM/OFDM/ISDB-T/DTMB/IP
Standard	DVB standard
Processing Capability	32 TS stream input, 16 TS stream output Up to 100 services depending on the EIT complexity of signal source
EIT Enable/Disable Control	Module Level, TS Level, Service Level
Supported EIT Module in Each Chassis	1
Power Consumption	Max. 5W



CM2-8VSB-R01:
8VSB Modulation Module

8VSB	
Output	4 frequencies via 1 RF female connector 75Ω
Standard	ATSC A/35
Frequency Range	50~860MHz(Off-Air/STD/IRC/HRC)
Bandwidth	6MHz
Constellation	8VSB
Output Level	Max. 105dBμV
MER	≥32dB (all RF channel enabled)
Power Consumption	4CH: Max. 12W; 8CH: Max. 14W



CM2-OFDM-R01:
OFDM Modulation Module

OFDM	
Output	4 frequencies via 1 RF female connector 75Ω
Standard	ETSI EN 300744
Frequency Range	47~862MHz
Bandwidth	6/7/8MHz
Constellation	QPSK/16QAM/64QAM
Guard Intervals	1/4, 1/8, 1/16, 1/32
FFT Size	2K
Code Rates	1/2, 2/3, 3/4, 5/6, 7/8
Output Level	Max. 105dBμV
MER	≥32dB (all RF channel enabled)
Power Consumption	4CH: Max. 12W; 8CH: Max. 14W



CM2-ISDBT-R01:
ISDB-T Modulation Module

ISDB-T	
Output	4 frequencies via 1 RF female connector, 75Ω
Standard	ARIB STD-B31
Frequency Range	47~862MHz
Bandwidth	6MHz
Constellation	QPSK, 16QAM, 64QAM
Transmission Mode	2K
RS Code	RS(204.188)
FEC	1/2, 2/3, 3/4, 5/6, 7/8
Guard Interval	1/4, 1/8, 1/16, 1/32
Hierarchy Mode	Layer A
Segment Mode	Full Seg
Output Level	Max. 105dBμV
MER	≥32dB (all RF channel enabled)
Power Consumption	4CH: Max. 12W; 8CH: Max. 14W



CM2-QAMB-R01:
QAMB Modulation Module

QAMB	
Output	4 frequencies via 1 RF female connector 75Ω
Standard	ITU-T J.83 Annex B
Frequency Range	47~862MHz(STD/IRC/HRC)
Bandwidth	6MHz
Constellation	64QAM/256QAM
Symbol Rate	5.057Mbaud (64QAM), 5.361Mbaud (256QAM)
Output Level	Max. 105dBμV
MER	≥40dB (all RF channel enabled)
Power Consumption	4CH: Max. 12W



CM2-QAMA-02/02A
CM2-QAMB-02/02A
IPQAM Module

IPQAM	
IP input	2x100/1000Mbps ports
IP Encapsulation	MPEG TS over UDP/RTP
MPEG TS	MPTS and SPTS
I/O Processing	Up to 512 channels either via 2xGbE input
Max. TS rate	1.6Gbps
Addressing	Unicast and multicast
IGMP Version	IGMP v1, IGMP v2, IGMP v3
QAM Output	
Output	1xRF port, max 16/32 agile channels QAM modulation
Standard	ITU-T J.83 Annex A/B/C
QAM Constellation	Annex A:16QAM/32QAM/64QAM/128QAM/256QAM Annex B:64/256 QAM, configurable for each frequency
Symbol Rate	QAMA:4.035~6.956Mbaud QAMB:5.057 Mbaud(64QAM), 5.361 Mbaud (256QAM)
Output Level	Max. 105dBuV
Frequency Range	Annex A:47~999MHz Annex B:47~999MHz(STD/IRC/HRC)
Bandwidth	Annex A:6/7/8MHz Annex B:6MHz
MER	≥43dB (all RF channel enabled)
PCR Correction	Support
Multiplexing	
Table Supported	SI/PSI
PID Processing	Pass-through, remapping, filtering
EIT Processing	Pass-through
Scrambling	
Interface	1x100/1000 Mbps port
Scrambling Algorithms	CSA
SCS	Internal
CAS Connections	Up to 4 different CA systems
Supported CAS	Support major CA systems
EMM Bitrate	1Mbps
Power Consumption	Max. 40W



CM2-QAMA-8
QAMA Modulation Module (8CH)

QAMA-8	
Output	8 frequencies via 1 RF female connector 75Ω
Standard	ITU-T J.83 Annex A/C
Frequency Range	47~862MHz, non adjacent
Bandwidth	6/7/8MHz
Constellation	16QAM/32QAM/64QAM/128QAM/256QAM
Symbol Rate	6M:4.035~5.217Mbaud 7M:4.035~6.087Mbaud 8M:4.035~6.956Mbaud
Output Level	Max. 105dBμV
MER	≥38dB (channel fully open)
Power Consumption	Max. 23W



CM2-OFDM-8
OFDM Modulation Module (8CH)

OFDM-8	
Output	8 frequencies via 1 RF female connector 75Ω
Standard	ETSI EN 300744
Frequency Range	47~862MHz, non adjacent
Bandwidth	6/7/8MHz
Constellation	QPSK/16QAM/64QAM
Guard Intervals	1/4, 1/8, 1/16, 1/32
FFT Size	2K
Code Rates	1/2, 2/3, 3/4, 5/6, 7/8
Output Level	Max. 105dBμV
MER	≥32dB (channel fully open)
Power Consumption	Max. 23W



CM2-QAMA-16
QAMA Modulation Module (16CH)

QAMA-16	
Output	16 frequencies via 1 RF female connector 75Ω
Standard	ITU-T J.83 Annex A/C
Frequency Range	47~862MHz, non adjacent
Bandwidth	6/7/8MHz
Constellation	16QAM/32QAM/64QAM/128QAM/256QAM
Symbol Rate	6M:4.035~5.217Mbaud 7M:4.035~6.087Mbaud 8M:4.035~6.956Mbaud
Output Level	Max. 102dBμV
MER	≥38dB (channel fully open)
Power Consumption	Max. 23W



CM2-QAMB-8
QAMB Modulation Module (8CH)

QAMB-8	
Output	8 frequencies via 1 RF female connector 75Ω
Standard	ITU-T J.83 Annex B
Frequency Range	47~862MHz (STD/IRC/HRC), non adjacent
Bandwidth	6MHz
Constellation	64QAM/256QAM
Symbol Rate	5.057Mbaud: 64QAM 5.361Mbaud: 256QAM
Output Level	Max. 105dBμV
MER	≥40dB (channel fully open)
Power Consumption	Max. 23W



CM2-OFDM-16
OFDM Modulation Module (16CH)

OFDM-16	
Output	16 frequencies via 1 RF female connector 75Ω
Standard	ETSI EN 300744
Frequency Range	47~862MHz, non adjacent
Bandwidth	6/7/8MHz
Constellation	QPSK/16QAM/64QAM
Guard Intervals	1/4, 1/8, 1/16, 1/32
FFT Size	2K
Code Rates	1/2, 2/3, 3/4, 5/6, 7/8
Output Level	Max. 102dBμV
MER	≥32dB (channel fully open)
Power Consumption	Max. 23W



CM2-ISDBT-8
ISDBT Modulation Module (8CH)

ISDBT-8	
Output	8 frequencies via 1 RF female connector 75Ω
Standard	ARIB STD-B31
Frequency Range	47~862MHz, non adjacent
Bandwidth	6MHz
Constellation	QPSK/16QAM/64QAM
Guard Intervals	1/4, 1/8, 1/16, 1/32
Transmission Mode	2K
Code Rates	1/2, 2/3, 3/4, 5/6, 7/8
Output Level	Max. 105dBμV
MER	≥32dB (channel fully open)
Power Consumption	Max. 23W



CM2-QAMB-16
QAMB Modulation Module (16CH)

QAMB-16	
Output	16 frequencies via 1 RF female connector 75Ω
Standard	ITU-T J.83 Annex B
Frequency Range	47~862MHz (STD/IRC/HRC), non adjacent
Bandwidth	6MHz
Constellation	64QAM/256QAM
Symbol Rate	5.057MBaud: 64QAM 5.361MBaud: 256QAM
Output Level	Max. 102dBμV
MER	≥38dB (channel fully open)
Power Consumption	Max. 23W



CM2-8VSB-8
8VSB Modulation Module (8CH)

8VSB-8	
Output	8 frequencies via 1 RF female connector 75Ω
Standard	ATSC A/35
Frequency Range	50~860 MHz(Off-Air/STD/IRC/HRC)
Bandwidth	6MHz
Constellation	8VSB
Output Level	≥Max. 105dBμV
MER	≥32dB (channel fully open)
Power Consumption	Max. 19W



CM2-ISDBT-16
ISDBT Modulation Module (16CH)

ISDBT-16	
Output	16 frequencies via 1 RF female connector 75Ω
Standard	ARIB STD-B31
Frequency Range	47~862MHz, non adjacent
Bandwidth	6MHz
Constellation	QPSK/16QAM/64QAM
Guard Intervals	1/4, 1/8, 1/16, 1/32
Transmission Mode	2K
Code Rates	1/2, 2/3, 3/4, 5/6, 7/8
Output Level	Max. 102dBμV
MER	≥32dB (channel fully open)
Power Consumption	Max. 23W



CM2-DTMB-8
DTMB Modulation Module (8CH)

ISDBT-8	
Output	8 frequencies via 1 RF female connector 75Ω
Standard	DTMB GB20600-2006
Frequency Range	48~862MHz, non adjacent
Constellation	4QAM/16QAM/32QAM/64QAM
Output Level	≥Max. 105dBμV
MER	≥32dB
Power Consumption	Max. 19W



CM2-8VSB-16
8VSB Modulation Module (16CH)

8VSB-16	
Output	16 frequencies via 1 RF female connector 75Ω
Standard	ATSC A/35
Frequency Range	50~860 MHz(Off-Air/STD/IRC/HRC)
Bandwidth	6MHz
Constellation	8VSB
Output Level	≥Max. 102dBμV
MER	≥32dB (channel fully open)
Power Consumption	Max. 19W



CM2-DTMB-16
DTMB Modulation Module (16CH)

DTMB-16	
Output	16 frequencies via 1 RF female connector 75Ω
Standard	DTMB GB20600-2006
Frequency Range	48~862MHz, non adjacent
Constellation	4QAM/16QAM/32QAM/64QAM
Output Level	≥Max. 102dBμV
MER	≥32dB
Power Consumption	Max. 19W



CE2-HDMI-R01:
Commercial HDMI Encoder Module

HDMI	
Input	4 channels via 4 HDMI female connectors (HDMI 1.4)
Video/Profile	H.264/AVC HD: MP/HP@L4.2 (1080P) H.264/AVC HD: MP/HP@L3.1(720P) SD: MP/HP@L3.0 (480/576)
Resolution	Input: 1080p@25/29.97/30/50/59.94/60, 1080i@50/59.94/60, 720p@50/59.94/60, 720x576i, 720x480i Output: 1080p@29.97/30, 720p@50/59.94/60,
HDCP	HDCP 1.4
Bitrate Control	CBR
Video Bitrate	600~12,000Kbps
GOP Structure	IPPP
GOP Size	1~60
Aspect Ratio	Automatic or Manual
Audio	MPEG-1 Layer II, AC3 (optional), EAC3(optional), AAC (optional)
Audio Bitrate	MPEG-1 layer II:32-192Kbps AAC:32-192Kbps AC3:96-192Kbps EAC3:96-192Kbps
Audio Mode	Stereo (2.0, including downmix)
Audio Sampling Rate	48kHz
Audio Volume Leveling	-20dB~20dB
OSD Overlay	Text, Image, QR Code
Power Consumption	Max. 12W



CE2-HDMI-02C:
HDMI Encoder Module with YPbPr/CC

HDMI	
Input	2 channels via 2 HDMI or 2 component Female connectors (HDMI1.4) CC/Component input via DB15 port
Video/Profile	H.264 (>1280x) : MP/HP@L4.0/4.1/4.2 H.264 (1280x) : MP/HP@L3.1/3.2/4.0/4.1/4.2 H.264 (<1280x) : MP/HP@L3.1/3.2 MPEG-2 SD: MP @ML; HD: MP@HL
Resolution	Input: 1080p@25/29.97/30/50/59.94/60, 1080i@50/59.94/60, 720p@50/59.94/60 720x576@50i, 720x480@60i Output: 1080p@29.97/30, 1080i@50/59.94/60, 720p@50/59.94/60, 720x576@50i/25p 720x480@60i/30p
HDCP	HDCP 1.4
Bitrate Control	CBR
Bitrate	800~18,000Kbps
GOP Structure	IBBP, IPPP, IBP, I
GOP Size	18~48
Audio	MPEG-1 Layer II, AC3, AAC
Audio Bitrate	MPEG-1 Layer II: 64~384Kbps MPEG2 AAC: 64~384Kbps MPEG4 AAC: 64~384Kbps AC3: 128~384Kbps
Audio Mode	Stereo (2.0, including downmix)
Sampling Rate	48kHz
Audio volume leveling	-20dB~20dB
Power Consumption	Max. 17W



CE2-HDMI-02:
HDMI Encoder Module with CC

HDMI	
Input	2 channels via 2 HDMI Female connectors (HDMI1.4) CC via RCA connector
Video/Profile	H.264 (>1280x) : MP/HP@L4.0/4.1/4.2 H.264 (1280x) : MP/HP@L3.1/3.2/4.0/4.1/4.2 H.264 (<1280x) : MP/HP@L2.2/3.0/3.1/3.2 MPEG-2 SD: MP @ML;HD: MP@HL
Resolution	Input: 1080p@25/29.97/30/50/59.94/60, 1080i@50/59.94/60, 720p@50/59.94/60, 720x576@50i, 720x480@60i Output: 1080p@29.97/30, 1080i@50/59.94/60, 720p@50/59.94/60, 720x576@50i/25p, 720x480@60i/30p
HDCP	HDCP 1.4
Bitrate Control	CBR
Bitrate	800~18,000Kbps
GOP Structure	IBBP, IPPP, IBP, I
GOP Size	18~48
Audio	MPEG-1 Layer II, AC3, AAC
Audio Bitrate	MPEG-1 Layer II: 64~384Kbps MPEG2 AAC: 64~384Kbps MPEG4 AAC: 64~384Kbps AC3: 128~384Kbps
Audio Mode	Stereo (2.0, including downmix)
Sampling Rate	48kHz
Audio volume leveling	-20dB~20dB
Power Consumption	Max. 17W



CE2-HDMI-07
HEVC HDMI Encoder Module (4-CH)

HDMI	
Input	4 channels via 4 HDMI female connectors (HDMI 1.4)
Video/Profile	H.264/AVC MP/HP@4.1 (1080P) H.264/AVC MP/HP3.1 (720P) H.265/HEVC MP@L4.1 (1080P) H.265/HEVC MP@L3.1 (720P)
Resolution	Input:1080p@29.97/30/50/59.94/60, 1080i@29.97/30/50/59.94/60, 720p@50/59.94/60, 576i50,576p50, 480i@59.94/60 Output:1080p@29.97/30/50/59.94/60, 720p@50/59.94/60, 576p50, 480p@59.94/60 *Output supports progressive only
HDCP	HDCP 1.4
Bitrate Control	CBR
Video Bitrate	600~10000 Kbps
GOP Structure	IPPP
GOP Size	1~60
Aspect Ratio	Automatic or Manual
Audio	MPEG-1 Layer II, AC3 (optional), AAC (optional)
Audio Bitrate	MPEG-1 Layer II: 32-192 Kbps AC3: 96-192 Kbps AAC: 32-192 Kbps
Audio Mode	Stereo 2.0
Audio Sampling Rate	48kHz、Auto
Audio Volume Leveling	-20dB~20dB
A/V offset	-2000ms~2000ms
OSD Overlay	Rolling Text,Image,QR Code
Power Consumption	Max. 19W



CE2-HDMI-07A:
HEVC HDMI Encoder Module (8-CH)

HEVC	
Input	8 channels via 8 HDMI female connectors (HDMI 1.4)
Video/Profile	H.264/AVC MP/HP@L3.1 (720P) H.265/HEVC MP@L3.1 (720P) H.264 MP/HP@L4.2 (1080P) H.265/HEVC MP@L4.1 (1080P)
Resolution	Input:1080p@29.97/30, 1080i@29.97/30/50/59.94/60, 720p@50/59.94/60,576i50, 576p50,480i@59.94/60, 480p@59.94/60 Output:1080p@29.97/30, 720p@50/59.94/60,576p50, 480p@59.94/60 *Output supports progressive only.
HDCP	HDCP 1.4
Bitrate Control	CBR
Video Bitrate	600~10000 Kbps
GOP Structure	IPPP
GOP Size	1~60
Aspect Ratio	Automatic or Manual
Audio	MPEG-1 Layer II, AC3 (optional), AAC (optional)
Audio Bitrate	MPEG-1 Layer II: 32~192kbps AC3: 96~192 kbps AAC: 32~192kbps
Audio Mode	Stereo 2.0
Audio Sampling Rate	48kHz、Auto
Audio Volume Leveling	-20dB~20dB
OSD Overlay	Rolling Text,Image,QR Code
Power Consumption	Max. 21W



CE2-HDMI-06
Professional HDMI Encoder Module

HEVC	
Input	4 channels via 4 HDMI female connector (HDMI 1.4)
Video/Profile	H.264/AVC HD: MP/HP@ L4.0/4.1/4.2/5.0/5.1/5.2 H.265/HEVC HD: MP (High Tier) @L4.0/4.1/4.2/5.0/5.1/5.2
Resolution	Input: 1080i@50/59.94/60, 1080P@25/29.97/30/50/59.94/60, 720P@50/59.94/60 Output:H.265 (4 channel) output: 1080p@25/29.97/30/50/59.94/60, 720p@50/59.94/60 H.264 (4 channel) output: 1080p@29.97/30, 720p@50/59.94/60
HDCP	HDCP 1.4
Bitrate Control	CBR
Video Bitrate	600Kbps-12Mbps
GOP Structure	IPPP, IBBP
Aspect Ratio	16:9
Audio	MPEG-1 Layer II, AC3 (optional), AAC (optional)
Audio Bitrate	MPEG-1 Layer II: 32~192 Kbps AAC: 32~192 Kbps AC3: 96~192 Kbps
Audio Mode	Stereo
Audio Sampling Rate	48KHz
Audio Volume Leveling	-20dB~20dB
OSD Overlay	2*Logo/QR code overlay (40*40 to 256*256) Or 1* rolling OSD overlay
Power Consumption	Max.20W

Notes: CE2-HDMI-06 will forcefully output 4 HD programs with same video resolution which follows the largest video resolution among the input source and SD encoding is not supported yet.



CE2-CVBS-00:
Professional CVBS Encoder Module

CVBS	
Input	6 channels via 2 DB15 connectors each DB15 for 3 channels 2 x RCA-DB15 adaptor cables come along with module
Video/Profile	H.264/AVC SD:MP/HP@L3.0/3.1/3.2 MPEG-2 SD: MP@ML
Resolution	SD: 576i50, 480i59.94
Bitrate Control	CBR, VBR
Bitrate	600~12000kbps
GOP Structure	IBBP, IPPP, IBP
GOP Size	15
Aspect Ratio	Automatic or Manual
Audio	MPEG-1 Layer II
Audio Bitrate	64~384Kbps
Audio Mode	Stereo (2.0, including downmix)
Audio Sampling Rate	48kHz
Audio Volume Leveling	0dB~8dB
Power Consumption	Max. 17W



CE2-CVBS-R01:
Commercial CVBS Encoder Module

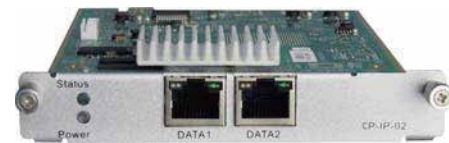
CVBS	
Input	8 channels via 2 DB15 connectors, each DB15 for 4 channels 4 x RCA-DB15 adaptor cables come along with module
Video/Profile	H.264/AVC SD: MP/HP@L3.0
Resolution	SD: 576i50, 480i59.94
Bitrate Control	CBR
Bitrate	600~6000Kbps
GOP Structure	IPPP
GOP Size	1~60
Aspect Ratio	16x9(SD), 4X3(SD)
Audio	MPEG-1 Layer II
Audio Bitrate	32~192Kbps
Audio Mode	Stereo (2.0, including downmix)
Sampling Rate	48kHz
Audio Volume Leveling	-20dB~20dB
OSD Overlay	Text, Image, QR Code
Power Consumption	Max. 18W

* Does NOT support PAL-N



CE2-SDI-01:
SDI Encoder Module

SDI	
Input	2 channels via 2 SDI SDI via BNC connector
Video/Profile	H.264 (1080p/i) : MP/HP@L4.0/4.1/4.2 H.264 (720p) : MP/HP@L3.1/3.2/4.0/4.1/4.2 H.264 (576i/p; 480i/p) : MP/HP@L2.2/3.0/3.1/3.2 MPEG-2 SD: MP@ML MPEG-2 HD: MP@HL
Resolution	Input: 1080p@25/29.97/30/50/59.94/60, 1080i@50/59.94 /60, 720p@50/59.94/60, 720x576@50i, 720x480@60i Output: 1080p@29.97/30, 1080i@50/59.94/60, 720p@50/59.94/60, 720x576@50i/25p, 720x480@60i/30p
Bitrate Control	CBR
Bitrate	800kbps~20000kbps
GOP Structure	IBBP, IPPP, IBP, I
GOP Size	12~48
Audio	MPEG-1 Layer II, AAC, AC3, AC3_Passthrough
Audio Bitrate	MPEG-1 layer II: 64~384Kbps AC3: 128~384Kbps MPEG4 AAC: 16~384Kbps MPEG2 AAC: 64~384Kbps
Audio Mode	Stereo (2.0, including downmix)
Audio Channel	2 x audio pairs for each channel
Sampling Rate	48kHz
Audio volume leveling	-20dB~20dB
Power Consumption	Max. 16W



CP2-IP-02
Multi-channel IP Module

IP	
Ethernet	2 x RJ45, 100/1000Base-T
Input	UDP/RTP via Unicast/Multicast
Output	UDP/RTP via Unicast/Multicast
Channels	DATA 1: 128 input & output DATA 2: 120 input & output
Effective Bitrate	Maximum 700Mbps (Single input or output) Maximum 420Mbps (Simultaneous input and output)
IGMP Version	IGMP v1, IGMP v2, IGMP v3
Power Consumption	Max. 9 W



CP2-EAS-00:
EAS Processing Module

EAS	
Input	Digital EAS input (SCTE-18) via 1 × RJ45 port Analogue EAS input via 3PIN contact closure CVBS input via 1 × RCA connector Audio L/R input via 2 × RCA connector TS input via 1 × BNC connector
Video	H.264 SD: MP/HP@L3.0 MPEG-2 SD: MP @ML (By default)
Resolution	SD: 480i/59.94
ASI	500Kbps to 100Mbps
Contact Closure	3PIN Connector with Dry Contact or 5~24V DC input for EAS trigger
RJ45	10/100M Ethernet for SCTE-18 digital EAS input
Bitrate Control	CBR
Bitrate	1500~20000Kbps
GOP Structure	IBBP, IPPP, IBP
GOP Size	6~63
Audio	MPEG-1 Layer II, AC3, AAC
Audio Mode	Stereo (2.0, including downmix)
Sampling Rate	48kHz
Power Consumption	Max. 5.5W



CP2-ASI-00:
5-Port ASI Module

ASI	
Connector	5 × ASI port, BNC female
Bit rate	500Kbps to 150Mbps
Reception/ Transmission mode	Byte mode(Continuous mode)
Packet Length	188 Bytes or 204 Bytes
Working mode	3 ASI input ports, 2 ASI output ports by default, output port
Multiplexing	Support PSI/SI or PSIP table regeneration External PID insertion
Power Consumption	Max. 8 W



CP2-GATEWAY-00:
Multi-protocol IP Module

IP	
Network	2 × RJ45 ports, 100/1000M
Input Protocols	UDP/RTP/SRT/RIST/Zixi/HLS *RTMP/RTMPS(future option)
Output Protocols	UDP/RTP/SRT/RIST/Zixi *RTMP/RTMPS(future option)
Processing Capability For Typical Applications	HLS to UDP –Up to 40 input streams max 500Mbps(total bitrate) SRT to UDP –Up to 40 input streams max 600Mbps(total bitrate) UDP to SRT –Up to 40 input streams max 600Mbps(total bitrate) RIST to UDP –Up to 40 input streams max 600Mbps(total bitrate) UDP to RIST –Up to 40 input streams max 600Mbps(total bitrate) Zixi to UDP –Up to 40 input streams max 600Mbps(total bitrate) UDP to Zixi –Up to 40 input streams max 600Mbps(total bitrate)
Number of Gateways	Default: 10 gateways, UDP/RTP/HLS input, UDP/RTP output Notice: Additional licenses are required to support more gateways and network protocols
Power Consumption	Max. 56W

*HDMI/USB: Only for module debugging function use, not for input/output



CX2-TXS-00
MPEG-2/H.264/H.265 Transcoder Module

Physical Ports	
Network	2 x RJ45 ports, 100/1000M auto-negotiation
Network protocol	UDP, RTP, unicast, multicast
Audio	
Input Audio format	Mpeg-1 Layer I, AAC, AAC-LC, AC-3, E-AC3, HE-AACV1, HE-AACV2
Output Audio format	none, pass-through, AAC-LC, AAC-MAIN, MPEG1/L2, AC-3 (optional)
Output Audio bitrate	32~384Kbps
Audio Process	Up to 4 audio pairs
Video	
Input Video format	MPEG-2 SD MP@ML MPEG-2 HD MP@ML H.264 SD High@L2.2 /3.0/3.1/3.2/4.0/4.1/4.2/5.0/5.1/5.2 H.264 SD Main@L2.2 /3.0/3.1/3.2/4.0/4.1/4.2/5.0/5.1/5.2 H.264 HD High/Main@L2.2 /3.0/3.1/3.2/4.0/4.1/4.2/5.0/5.1/5.2 H.265 HD Main@L4.0/4.1/4.2/5.0/5.1/5.2 AVS+
Input Video resolution	720x576i25, 720x480i29.97, 1280x720P50/60, 1920x1080i25/29.97/30, 1920*1080P25/30/50/59.94/60
Input Video bitrate	1~40Mbps
Output Video format	MPEG-2 SD MP@ML MPEG-2 HD MP@ML H.264 HD High@L4.0, SD Main@L3.0 H.265 HD Main@L4.0, SD Main@L3.1 AVS+ (optional)
Output Video resolution	Automatic/Manual modes (with manual mode resolution): 1920x1080P25/29.97/30/50/59.94/60 1920x1080i25/29.97/30/50 1280x720P25/29.97/30/50/59.94/60 1280x720i25/29.97/30/50 720x576P25/29.97/30/50/59.94/60 720x576i25/29.97/30/50 720x480P25/29.97/30/50/59.94/60 720x480i25/29.97/30/50
Output Video bitrate	1~20Mbps
Downscale	HD to SD resolution
Closed captions	CEA/EIA-608/708
Power Consumption	Max. 56W

*HDMI/USB: Only for module debugging function use, not for input/output



CD2-SDI-00
4 Channel SDI Decoding Module

SDI	
SD/HD/3G-SDI Output	4xSDI, BNC female connector, 75Ω
Video/Profile	MPEG-2 SD MP@ML MPEG-2 HD MP@ML H.264 SD MP@L3/L3.1 H.264 HD MP@L4.1/HP@L4.1 H.265 Main/Main 10 profile@L5.1 High-tier AVS-P 16(AVS+) AVS2 P2 10-bit Profile @Level 8.2.60
Bit depth	4:2:0 8bit
Resolution	Automatic/Manual mode (with manual mode resolution): 720x576i@25 720x480i@29.97 1280x720p@50/59.94/60 1920x1080i@25/29.97/30 1920x1080p@25/30/50/59.94/60
Downscale	4K to HD/SD resolution, HD to SD resolution
Aspect ratio	16:9, 4:3
Audio process	*supports dual audio decoding of single channel (future option)
Audio format	Mpeg-I Layer II Dolby Digital/AC-3(optional) Dolby Digital Plus/E-AC3(optional) AAC-LC/HE-AACV1/HE-AACV2(optional)
Audio mode	Stereo
Audio volume control	0-100%
Audio Sampling Rate	48KHZ, 44.1KHZ
Closed Captions	*Closed Caption(CEA/EIA-608/708)(Future option)
Power Consumption	Max. 25W



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