



DMP900

Digital Media Platform

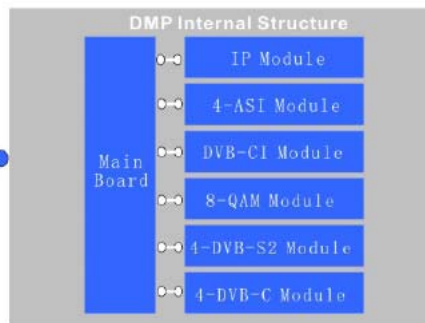
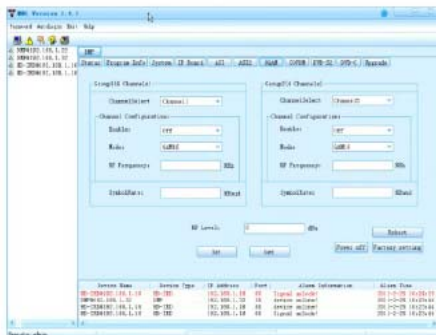
Introducing New Generation High-Density Headend

DMP900 Digital Media Platform is the new generation of intelligent headend processing equipment. With a central processing capacity of 384 TS streams (~1500 programs), this compact, high-density 1RU platform comes with 6 independent module slots. All six modules can be hot-swapped and hot-inserted to support the growing requirements of network operators. Each module can be configured individually based on the applications including receiving, decoding, transmodulating, encoding, transcoding, ASI to IP conversion, scrambling, descrambling, multiplexing, and QAM/COFDM modulation. It can support up to:

- 20 inputs of DVB-S/S2, DVB-C or DVB-T receiving
- 10 SD/HD programs encoding (MPEG-2 or H.264) or transcoding (between MPEG-2 and H.264)
- 6 gigabit IP input/output
- 20 ASI-IP stream dual conversion
- 3 gigabit DVB-simulcrypt scrambling
- 40 channel QAM modulation
- 20 channel COFDM modulation
- 16 frequency transmodulation (DVB-S2/S/C/T to QAM)



- All six modules can be hot-swapped and hot-inserted
- Redundant power supply



DMP Network Management
With one simple network management software, users can manage and configure all parameters of each individual module and each unit independently or as a full system. Supporting SNMP, DMP can also be integrated into different types of applications.

Base Unit Parameters:

| | |
|---------------------|---|
| Chassis Height: | 1RU |
| Dimension: | 1.75" x 19.6" x 17.3" (44mm x 499mm x 440mm) |
| Weight: | 10 kg |
| Power Supplies: | Up to two chassis, max 250W (fully loaded), AC 90 ~ 240V 50/60 Hz |
| Temperature: | Operating: 0 ~ 50°C (35 ~ 118 °F) Storage: -10 ~ 70°C (14~158°F) |
| Humidity: | 5% ~ 95% |
| Operating Altitude: | 200 ~ 10000 AMSL |

DMP900 Digital Media Platform

Module Specifications

www.tonercable.com

4-DVB-S/S2 Module



DVB-S/S2 Inputs: 4xRF inputs, 75Ω, F-Type connector
 Frequency Range: 950 ~ 2150 MHz
 Symbol Rate: QPSK: 2M ~ 45 MBauds, 8PSK: 2M ~ 37M Bauds
 FEC Mode: QPSK: 1/2, 2/3, 3/4, 5/6, 7/8
 8PSK: 2/3, 3/4, 4/5, 5/6, 8/9, 9/10
 Input Level: -65 dBm ~ .25 dBm
 LNB Power Supply: Vertical: 11.5V ~ 14.0V, Horizontal: 16.0V ~ 19.0V
 22 KHz: 18 ~ 26 KHz

Features:
 ▶ 4DVB-S/S2 inputs
 ▶ Multi-Service descrambling with DVB-CI module
 ▶ Program filtering
 ▶ Decoding and multiplexing

4-DVB-C/T Module



DVB-C/T Inputs: 2 inputs (each handle two RFs), 2 loop outs
DVB-C Module: 48 ~ 862 MHz
DVB-T Module: 50 ~ 858 MHz
 Frequency Range: 1.0 ~ 6.9 MBauds
 Symbol Rate: 0.45 ~ 7.0 MBauds
 Input Level: 32 ~ 105 dBuV
 -96 dBm ~ -6 dBm
 FEC Mode: Annex A/C, Annex B
 2K & 8K (FTT)
 (optional)
 QAM Mode: 16 / 32 / 64 / 128 / 256 QAM

Features:
 ▶ 4DVB-C/T inputs
 ▶ Multi-Service descrambling with DVB-CI module
 ▶ Program filtering
 ▶ Decoding and multiplexing

2-DVB-CI Module



DVB-CI: 2x independent common interface slots
 Standard: DVB/NRSS-B/DAVIC V1.2
 CA Methods: Multicrypt / Simulcrypt
 CAS Support: Conax, Irdeto, Viaccess, CTI, Nagravision, DVCrypt, etc.

Features:
 ▶ Two independent CI slots
 ▶ Multi-Channels descrambling
 ▶ DVB Simulcrypt and Multicrypt descrambling
 ▶ Support various CAS

Gigabit Scrambler Module



Number of Streams: 4 / 8 / 12 streams optional
 Processing Capacity: Up to 1G data scrambling
 Number of CAS Supported: Up to 4 DVB-simulcrypt CAS scrambling

Features:
 ▶ Programs or elementary stream scrambling
 ▶ 4 CA systems simultaneously support
 ▶ Comply with most leading CAS systems
 ▶ PSI and SI table remap and processing

Gigabit IP Module



IP Inputs/Outputs: 2x1000Base-T, RJ-45
 Processing Capability: 1 Gigabit input and 1 Gigabit output
 Gigabit-8 IP max Input/Output: 8 input TS streams & 8 output TS streams
 Gigabit-16 IP max Input/Output: 16 input TS streams & 16 output TS streams
 Gigabit-32 IP max Input/Output: 32 input TS streams & 32 output TS streams
 Error Correction: Pro-MPEG FEC
 Encapsulation Protocol: MPEG-2 / MPEG-4 TS over UDP & RTP
 Broadcasting Type: Unicast & Multicast

Features:
 ▶ 8 or 32 different IP addresses input/output
 ▶ Unicast and Multicast support
 ▶ MPEG-2 and MPEG-4 TS over IP
 ▶ UDP and RTP support

4-ASI Module



ASI Inputs/Outputs: 4x ASI, BNC 75Ω
 Packet Length: 188 & 204 byte (auto detection)
 TS Max Bit Rate: 180 Mbps (each ASI)
 Maximum PID: 8192 (each port)

Features:
 ▶ 4 SPTS/MPTS inputs or output
 ▶ TS streams multiplexing
 ▶ Packet auto detection

4/8-QAM /4-COFDM Module



RF Outputs (DVB-C): **4/8-QAM Module:** 4/8x RF outputs (2 group of 4 adjacent), 75Ω F-type
4-COFDM Module: 4xRF output, 75Ω F-type
 Output Frequency Range: 48 ~ 862 MHz
 50 ~ 858 MHz
 Output Level: 90 dBuV ~ 115 dBuV
 90 dBuV ~ 115 dBuV
 Constellation: 16 / 32 / 64 / 128 / 256 QAM
 QPSK, 16QAM, 64QAM
 FEC: Annex A/C, Annex B
 1/2, 2/3, 3/4, 5/6, 7/8
 Symbol Rate: 1.0 ~ 6.9 MBauds
 Guard Interval Level: 1/4, 1/8, 1/16, 1/32
 COFDM Mode: 2K or 8K
 COFDM Bandwidth: 6, 7, 8 MHz

Features:
 ▶ Fully ITU-T Annex A, C or Annex B support for 8-QAM module
 ▶ PMT PID filtering
 ▶ PCR jitter auto adjustment
 ▶ Tunable output RF frequency accuracy better than ± 12.5 KHz for 8-QAM module
 ▶ Best MER and CNR

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Module Specifications

2-SD/HD SDI/AV Encoder Module



Encoder Inputs: 2x SDI or 2x AV, BNC 75Ω, 2x Audio inputs (balanced and unbalanced)

Video Processing

Video Format: Standard: MPEG-4/H.264-AVC HP@L4
Image Format: PAL and NTSC
Input Resolution: 1920x1080x59.94i/50; 1440x1080x59.94i/50i/60i; 1280x720x59.94p/50p/60p; 720x480x59.94i; 720x576x50i
Aspect Ratio: 4:3, 16:9
GOP Configurable: I, IP, IPB, IPBB
Video Bit Rate: CBR & VBR, SD 1.5 ~ 20 Mbps; HD 4.0 ~ 20 Mbps

Audio Processing

Audio Format: MPEG-1 and MPEG-2 Layer-I, II, AAC, Dolby AC-3 (optional)
Sampling Frequency: 32 KHz, 44.1 KHz, 48 KHz
Audio Mode: Stereo, joint stereo, dual channel, mono
Audio Bit Rate: 32 ~ 384 Kbps

Features:

- ▶ MPEG-4/H.264-AVC standard compliant
- ▶ MPEG-1 Layer II audio encoding
- ▶ Continuous & adjustable TS output ranged from 1.5 to 20 Mbps
- ▶ PSI and SI table editing
- ▶ TS stream PCR synchronization

2-SD SDI/AV Encoder Module



Encoder Inputs: 2x SDI or 2x AV, 2x Audio inputs (balanced and unbalanced)

Video Processing

Video Format: MPEG-2 4:2:0 MP@ML
Image Format: PAL and NTSC
Input Resolution: 576_50i, 480_60i
Aspect Ratio: 4:3, 16:9
GOP Configurable: I, IP, IPB, IPBB
GOP Size: 6-96
Video Bit Rate: CBR & VBR, 1.5 ~ 15 Mbps

Audio Processing

Audio Format: MPEG-1 and MPEG-2 Layer-I, II, AAC, Dolby AC-3 (optional)
Sampling Frequency: 32 KHz, 44.1 KHz, 48 KHz
Audio Mode: Stereo, joint stereo, dual channel, mono

Features:

- ▶ Fully MPEG-2 4:2:0 MP@ML video compliant
- ▶ MPEG-1 Layer II audio encoding
- ▶ Continuous & adjustable TS output ranged from 1.5 to 15 Mbps
- ▶ Support MPEG-2 frame/field motion estimation and DCT
- ▶ TS stream PCR synchronization

2-SD/HD H.264 HDMI Encoder Module



Inputs: 2x HDMI

Video Processing

Video Format: Standard: MPEG-4/H.264-AVC HP@L4
Image Format: PAL and NTSC
Definition: 1920x1080x59.94i/50; 1440x1080x59.94i/50i/60i; 1280x720x59.94p/50p/60p; 720x480x59.94i; 720x576x50i
Aspect Ratio: 4:3, 16:9
GOP Configurable: I, IP, IPB, IPBB
Video Bit Rate: CBR & VBR, SD 1.5 ~ 20Mbps; HD 4.0 ~ 20 Mbps

Audio Processing

Audio Format: MPEG-1 and MPEG-2 Layer-I, II AAC, Dolby AC-3 (optional)
Sampling Frequency: 48 KHz
Audio Mode: Stereo, joint stereo, dual channel, mono

Features:

- ▶ MPEG-4/H.264-AVC standard compliant
- ▶ MPEG-1 Layer II audio encoding
- ▶ PSI and SI table editing
- ▶ TS stream PCR synchronization

2-MPEG-2/MPEG-4 Transcoder Module



Number of Channels: 2 channels per module

Standard: MPEG-4/H.264-AVC HP@HL
Video Format: I, IP, IPB, IPBB
Audio Format: MPEG-2 Layer-I, II, AAC, Dolby AC-3 (optional)
Audio Mode: Stereo, joint stereo, dual channel, mono

Features:

- ▶ MPEG-2 & MPEG-4 mutual transcoding
- ▶ 1 Mbps-20 Mbps bit rate adjustable
- ▶ Support 1080i/720p/576i video resolution
- ▶ Support PAL-B / G / D / K / M / N, NTSC, SECAM

2-AV&HDMI Decoder Module



Outputs: 1x CVBS, 1x Audio output (same as one of HDMI output)
2x HDMI

Decoding Format: MPEG-2/H.264 SD & HD
Image Format: PAL / NTSC / SECAM
Video Format: 480i, 480p, 576i, 720p, 1080i
Audio Format: MPEG-1 and MPEG-2 Layer-I, II, AAC, Dolby AC-3
Audio Mode: Balanced and unbalanced

Features:

- ▶ One AV output and one HDMI output or two HDMI outputs
- ▶ PAL / PAL-M/N, NTSC, SECAM support
- ▶ 4:3 / 16:9 auto detection
- ▶ CBR & VBR support

2-SD&HD SDI Decoder Module

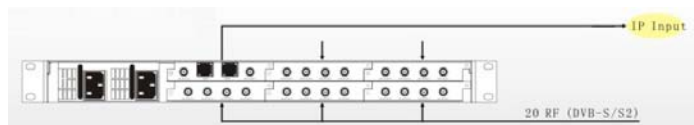


Outputs: 2x SDI, BNC 75Ω
Decoding Format: MPEG-2/H.264 SD & HD
Image Format: PAL / NTSC / SECAM
Video Format: 480i, 480p, 576i, 720p, 1080i
Video Bit Rate: CBR & VBR, SD 1.0 ~ 20 Mbps; HD 6.0 ~ 20 Mbps
Audio Format: MPEG-1 and MPEG-2 Layer-I, II, AAC, Dolby AC-3
Audio Mode: Balanced, unbalanced, SDI-embedded

Features:

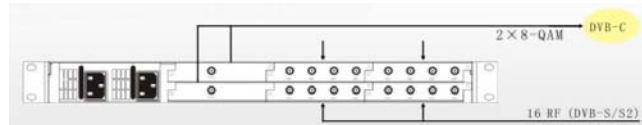
- ▶ Two HD / SD SDI outputs
- ▶ PAL / PAL-M/N, NTSC, SECAM support
- ▶ 4:3 / 16:9 auto detection
- ▶ CBR & VBR support

Typical Applications



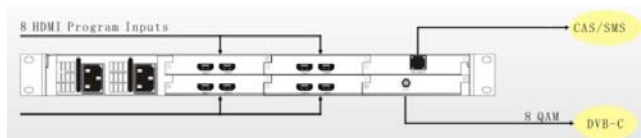
(1) Multi-Channel DVB-S/S2 Receiving

- ▶ Five DVB-S&S2 receiving modules (WVR4S2) and one Gigabit IP Module (WVIOGIP32)
- ▶ Support 20 DVB-S2&S transponders receiving with one Gigabit TS/IP output of SPTS or MPTS to up to 32 different IP addresses after filtering & multiplexing
- ▶ Applications: IP centric Cable TV and IPTV headend, video signal transmission



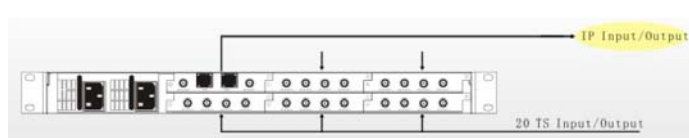
(2) Multi-Channel DVB-S/S2 to QAM Transmodulating

- ▶ Four DVB-S&S2 receiving modules (WVR4S2) and two 8-QAM module (WVM8QAM)
- ▶ Support 16 DVB-S&S2 transponders receiving, multiplexing and transmodulating
- ▶ Applications: Headend-in-the-sky (HITS), hotels/apartments and other SMATV systems



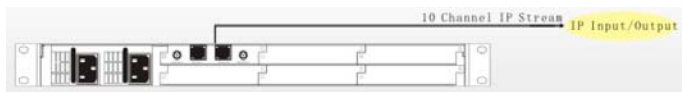
(3) HD Program Distribution

- ▶ Four HD encoding (WVEN2H2641), one scrambling module (WVSCRG16) & one 8-QAM module (WVM8QAM)
- ▶ Support 8 HD programs encoded, processed, scrambled and then to RF output to CATV network
- ▶ Applications: HD channel addition to CATV, hotels/apartments and other SMATV systems



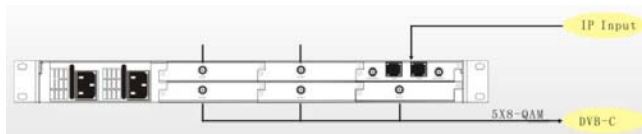
(4) ASI/IP Gateway

- ▶ Five ASI modules (WVIO4ASI) and 1 Gigabit IP module (WVIOGIP32)
- ▶ Support 20 ASI streams and 1 Gigabit IP dual conversion
- ▶ Applications: Point-to-point transmission via IP, IPTV applications, IP-based network



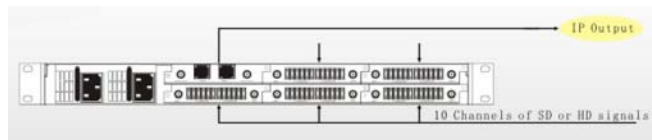
(5) MPEG-2 to MPEG-4 Transcoding

- ▶ Five MPEG-2 to MPEG-4 transcoding modules (WVTC2TO4) and one Gigabit IP module (WVIOGIP32) or one ASI input/output module (WVIO4ASI)
- ▶ Support 10 channels of transcoding from MPEG-2 to MPEG-4 or from MPEG-4 to MPEG-2
- ▶ Applications: Content providers, CATV and IPTV network



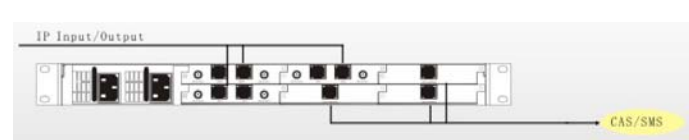
(6) EDGE QAM

- ▶ Five 8-QAM modules (WVM8QAM) and one Gigabit IP module (WVIOGIP32)
- ▶ Support 40 RF QAM outputs
- ▶ Applications: CATV, VOD, Headend-in-the-sky and SMATV systems



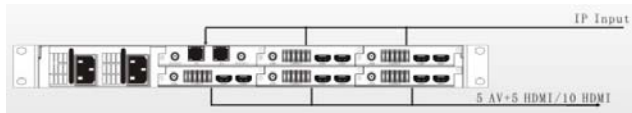
(7) Multi-Channel Encoding

- ▶ Five MPEG-2/H.264 SDI encoding modules and one Gigabit IP module (WVIOGIP32)
- ▶ Support 10 channels of MPEG-2 or H.264 encoding
- ▶ Applications: CATV, VOD, Content development & contribution, IPTV network



(8) Super Scrambling

- ▶ Three Gigabit IP modules (WVIOGIP32) and three scrambling modules (WVSCRG16)
- ▶ Support up to 3 gigabit data of scrambling (~700 programs)
- ▶ Applications: CATV, VOD, Headend-in-the-sky, IPTV network



(9) Multi-Channel Decoding

- ▶ Five MPEG-2/H.264 decoding modules and one Gigabit IP module (WVIOGIP32)
- ▶ Support 10 channels of MPEG-2 or H.264 decoding
- ▶ Applications: CATV, broadcast monitoring system, Headend-in-the-sky, IPTV network