DHP 200

DTV Head-end Processor

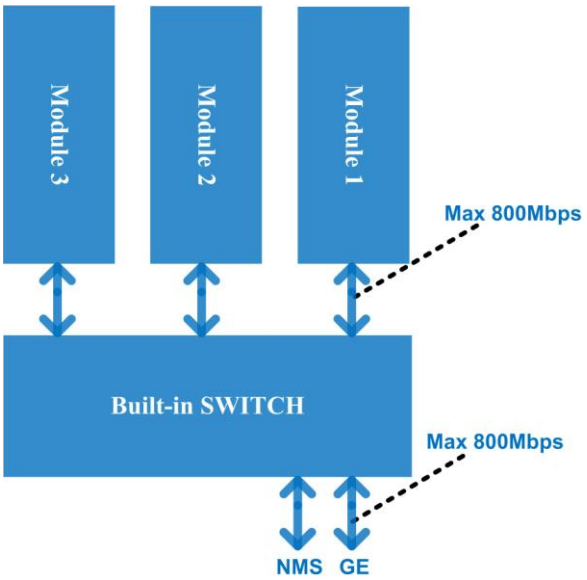
Product Outline

DHP200 DTV head-end processor is the newest generation of professional head-end processing equipment. This 1-U case comes with 3 independent module slots, and it can be combined with different modules as your head-end system according to your operation requirements. Each module can be configured individually based on the applications including encoding, decoding, trans-coding, multiplexing, descrambling and modulating processing. DHP200 head-end processor brings a whole new level of intelligence and high performance to the network at a cost effective price.

Key Features

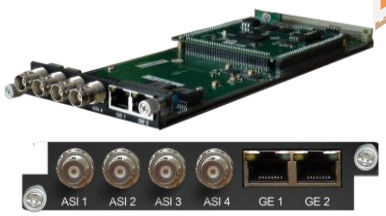
- **Modularized plug-in design, 1U chassis and 3 slots**
- **Support flexible combination of any different type of modules**
- **Maximum 800M data processing**
- **Support 1 GE bi-direction(Data port), RJ45 interface**
- **Support Web management, Updates via web**

Principle Chart



Module Specifications:

4 ASI/IP Multiplexing Module



DX504

Module Specifications:
ASI inputs/outputs: 4 ASI bi-direction, BNC 75Ω
IP inputs/outputs: 2 100/1000M Ethernet Port
Re-multiplexing: PID remapping, PCR correction, generate PSI/ SI table automatically
Stream In: maximum 4 ASI input, 256×2 IP input, 1IP input from data port
Stream Out: maximum 4 ASI output, 4 IP output, 1 MPTS output over UDP, RTP through data port

5 ASI Multiplexing Module

DX505

Module Specifications:
ASI inputs/outputs: 5 ASI bi-direction, BNC 75Ω
IP input: 1 IP input from data port
Stream in: maximum 5 ASI input
Re-multiplexing: PID remapping, PCR correction, generate PSI/ SI table automatically
Stream out: maximum 5 ASI output, and 1 MPTS output over UDP through data port

IP Multiplexing Module

DX506

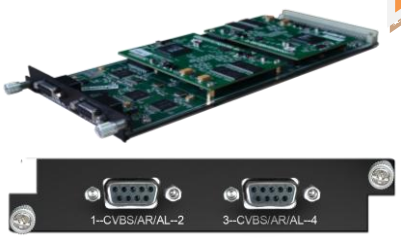
Module Specifications:
IP input: 512 SPTS or MPTS input over UDP, RTP, Unicast and Multicast thru GE1 Ethernet Port (100/1000M)
Re-multiplexing: PID remapping, PCR correction, generate PSI/ SI table automatically
Stream Out: 512 SPTS output over UDP, RTP, Unicast and Multicast through GE2 Ethernet Port (100/1000M)

EAS IP Multiplexing Module

DX504E/DX508E

Module Specifications:
ASI input: 1 ASI input (SPTS), BNC 75Ω
IP input: 256 IP input thru 1 GE1 (100/1000M)
EAS Source: ASI or IP (256th channel) (ASI&IP should be SPTS, both can't mux)
Re-multiplexing: PID remapping, PCR correction, generate PSI/ SI table automatically
Stream Out: 4 IP output thru GE1 , maximum 16 programs each channel--DX504E
Stream Out: 8 IP output thru GE1 , maximum 8 programs each channel--DX508E

4 CVBS Encoding Module



DX214/DX214A

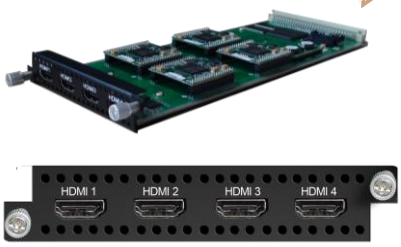
Module Specifications:
Input: 4 CVBS video, 4 Stereo Audio (DB9 to RCA)
Output: 1MPTS and 4 SPTS output over UDP/RTP, unicast and multicast
Video Encoding:
Video format: MPEG-2 (4:2:0)
Image format: PAL, NTSC SD signal
Input resolution: 720×480_60i, 544×480_60i, 352×480_60i, 352×240_60i, 320×240_60i, 176×240_60i, 176×120_60i, 720×576_50i, 704×576_50i, 640×576_50i, 352×288_50i, 320×288_50i, 176×288_50i, 176×144_50i
GOP structure: IP, IBP, IBBP, IBBBP
Video bit rate: 0.5Mbps~8Mbps per channel
Support CC (closed caption)
Audio Encoding:
Audio format: MPEG-1 Layer 2, DD AC3 (2.0)
Sampling rate: 48KHz
Resolution: 24-bit
Audio bitrate:128/192/256/320/384kbps each channel
Support Logo, Caption, QR Code insertion (for DX214A only)

4 CVBS Encoding Module

DX214B

Module Specifications:
Input: 4 CVBS video, 4 Stereo Audio (DB9 to RCA)
Output: 1MPTS and 4 SPTS output over UDP/RTP, unicast and multicast
Video Encoding:
Video format: MPEG-2, MPEG4 AVC/H.264
Image format: PAL, NTSC SD signal
Resolution:
PAL:720*576/352*288/320*240/320*180/176*144/160*120/160*90@50Hz
NTSC: 720*480/352*288/320*240/320*180/176*144/160*120/160*90@59.94Hz
Rate Control: CBR/VBR
GOP structure: IBBPB
Video bitrate: 0.5~5Mbps
Audio Encoding:
Audio format: MPEG1 Audio Layer 2, LC-AAC, HE-AAC V2
Sampling rate: 48KHz
Resolution: 24-bit
Bit-rate: 48-384Kbps each channel
Support Logo, Caption, QR Code insertion

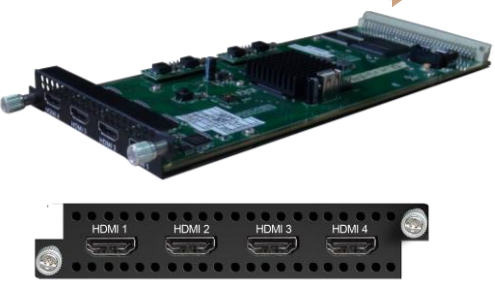
4 HDMI Encoding Module



DX224

Module Specifications:
Input: 4*HDMI
Output: 1*MPTS & 4*SPTS output over UDP/RTP, Unicast/Multicast
Video Encoding:
Video format: MPEG-4 AVC/H.264
Input resolution:
1920×1080_60P, 1920×1080_50P, 1920×1080_60i, 1920×1080_50i,
1280×720_60P, 1280×720_50P, 720×576_50i, 720×480_60i
GOP structure: IBBP
Video bitrate: 0.8Mbps~19Mbps each channel
Rate Control: CBR/VBR
Audio Encoding:
Audio format: MPEG1 Layer II, (MPEG-2 AAC, MPEG-4 AAC Optional), AC3 passthrough
Sampling rate: 48KHz
Resolution: 24-bit
Audio bitrate: 64~320Kbps each channel
Audio Gain Control: 0-400%

4 HDMI Encoding Module



DX224S

Module Specifications:
Input: 4*HDMI
Output: 1*MPTS output over UDP/RTP, Unicast/Multicast
Video Encoding:
Video format: MPEG-4 AVC/H.264
Input resolution: 1920×1080_60P, 1920×1080_60i, 1920×1080_50P,
1920×1080_50i,1280×720_60P, 1280×720_50P, 720×576_50i, 720×480_60i,
Output resolution: 1920×1080_30P, 1920×1080_25P, 1280×720_30P,
1280×720_25P, 720×576_25P,720×480_30P,
GOP structure: IP…P (P Frame adjustment, without B Frame)
Video Bit-rate: 1Mbps~13Mbps each channel
Rate Control: CBR/VBR
Audio Encoding:
Audio format: MPEG1 Layer II, support audio gain adjustment
Sampling rate: 48 KHz
Resolution: 24-bit
Audio Bit-rate: 64kbps,128Kbps,192kbps,224kbps,256kbps,320kbps,384kbps
Support Logo, Caption, QR Code insertion

8 CVBS Encoding Module

DX218S

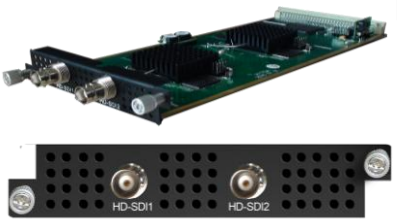
Module Specifications:
Input: 8 CVBS video, 8 Stereo Audio (DB15 to RCA)
Output: 1 MPTS and 8 SPTS output over UDP/RTP, unicast and multicast,
Video Encoding:
Video format: MPEG4 AVC/H.264
Image format: PAL, NTSC SD signal
Resolution: 720×576i, 720×480i
Rate Control: CBR/VBR
GOP structure: IPP
Video bitrate: 1~7Mbps each channel
Audio Encoding:
Audio format: MPEG-1 Layer 2
Sampling rate: 48KHz
Resolution: 24-bit
Bit-rate: 64/128/192/224/256/320/384Kbps each channel
Support Logo, Caption, QR Code insertion

2 HDMI Encoding/Transcoding Module

DX202A

Module Specifications:
Input: 2*HDMI, 2*BNC for CC (Closed Caption) input
Output: 1*MPTS output over UDP, Unicast/Multicast
Video Encoding:
Video format: MPEG2 & MPEG4 AVC/H.264
Input resolution:
1920*1080_60P, 1920*1080_50P, 1920*1080_60i, 1920*1080_50i,
1280*720_60p, 1280*720_50P, 720*480_60i, 720*576_50i
Rate control mode: CBR/VBR
Aspect ratio: 16:9, 4:3
Video bitrate: 0.8~19Mbps for H.264 encoding
1~19.5Mbps for MPEG-2 encoding
Support CC (closed caption)
Audio Encoding:
Audio format: MPEG1 Layer II, MPEG2-AAC, MPEG4-AAC,
Dolby Digital AC3 (2.0) encoding (Optional); AC3 (2.0/5.1) passthrough
Sampling rate: 48KHz
Audio bitrate: 64Kbps-320kbps each channel
Video Tanscoding:
2*MPEG2 HD → 2*MPEG2/H.264 HD; 2*MPEG2 HD → 2*MPEG2/H.264 SD;
2* H.264 HD → 2*MPEG2/H.264 HD; 2* H.264 HD → 2*MPEG2/H.264 SD;
4 *MPEG2 SD → 4 *MPEG2/H.264 SD; 4* H.264 SD → 4 *MPEG2/H.264 SD
Audio Tanscoding:
MPEG-1 Layer 2, AAC and AC3 any-to-any

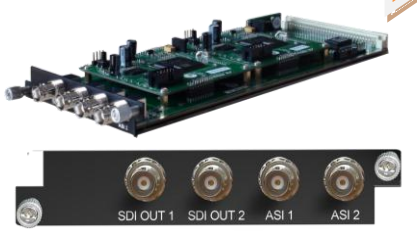
2 SDI Encoding/Transcoding Module



DX202A-D

Module Specifications:
Input: 2*HD-SDI
Output: 1*MPTS output over UDP, Unicast/Multicast
Video Encoding:
Video format: MPEG2 & MPEG4 AVC/H.264
Input resolution:
1920*1080_60P, 1920*1080_50P, 1920*1080_60i, 1920*1080_50i,
1280*720_60p, 1280*720_50P, 720*480_60i, 720*576_50i
Rate control mode: CBR/VBR
Aspect ratio: 16:9, 4:3
Video bitrate: 0.8~19Mbps for H.264 encoding;
1~19.5Mbps for MPEG-2 encoding
Support CC (closed caption)
Audio Encoding:
Audio format:
MPEG1 Layer II, MPEG2-AAC, MPEG4-AAC,
Dolby Digital AC3 (2.0) encoding (Optional), AC3 (2.0/5.1) passthrough
Sampling rate: 48KHz
Audio bitrate: 64Kbps-320kbps each channel
Video Tanscoding:
2*MPEG2 HD → 2*MPEG2/H.264 HD; 2*MPEG2 HD → 2*MPEG2/H.264 SD;
2* H.264 HD → 2*MPEG2/H.264 HD; 2* H.264 HD → 2*MPEG2/H.264 SD;
4 *MPEG2 SD → 4 *MPEG2/H.264 SD; 4* H.264 SD → 4 *MPEG2/H.264 SD
Audio Tanscoding:
MPEG-1 Layer 2, AAC and AC3 any-to-any

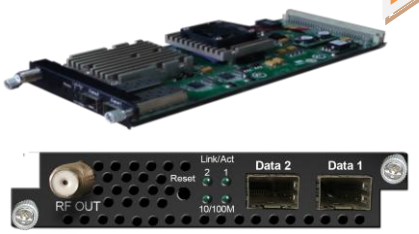
2 HD-SDI Decoding Module



DX702

Module Specifications:
ASI input/output: 2 ASI bi-direction, BNC 75Ω
IP input: 2 IP input from data port
IP output: 1 MPTS output over UDP, Unicast/Multicast
Decoding:
Video/Audio Out: 2 HD/SD SDI output
Video Format: MPEG-2, MPEG-4 AVC/H.264
Resolution: 480i,480p,576i,576p,720p@50/59.94/60,1080i@50/59.94/60
Chroma: 4:2:0
Audio Format: MPEG1 Layer2, LC-AAC, HE-AAC, AC3 (2.0/5.1), AC3 Passthrough,
Support Dual Audio Out
Support CC/Subtitle

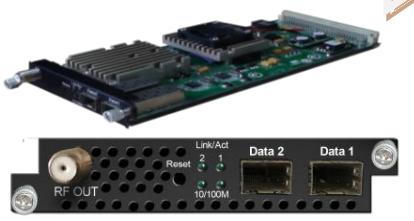
16 QAM Modulating Module



DX316

Module Specifications:
Data input: 512×2 IP input over UDP/RTP, 2 GE Ports (RJ45/SFP), 128 IP input from Data port
Data output: 16 IP output over UDP/RTP/RTSP, unicast/multicast, 2 GE Ports (RJ45/SFP)
Trans Rate: Max 840Mbps/GE Port
RF output (F type): 16 channels of multiplexing, scrambling and modualtion.
Multiplexing:
Maximum PID Remapping: 180 input per channel
Function: PID remapping (automatically or manually), Accurate PCR adjusting, generate PSI/SI table automatically
Scrambling:
Maximum simulcrypt CA: 4
Standard: ETR289, ETSI 101 197, ETSI 103 197
Connection: Local/remote connection
Modulation:
Standard: EN300 429/ITU-T J.83A/B (DVB-C)
MER: ≥40db
RF frequency: 50~960MHz, 1KHz step
RF output level: -20~+10dbm (87~117 dbμV), 0.1db step for all carriers
Symbol Rate: 5.0Msps~7.0Msps, 1ksps stepping
Constellation: 16/32/64/128/256QAM
DX316 Output: 16 non-adjacent carrier outputs within 192M bandwidth

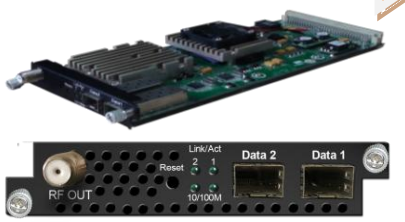
8 DVB-T/ATSC Modulating Module



DX308T/DX308AT

Module Specifications:
Data input:
128 IP input from Data port
512×2 IP input over UDP/RTP, 2GE Ports (RJ45/SFP) —— DX308T
256 IP input over UDP/RTP, 2GE Ports (RJ45/SFP) —— DX308AT
Data output: 8 IP output over UDP/RTP/RTSP, unicast/multicast, 2 GE Ports (RJ45/SFP)
Trans Rate: Max 840Mbps/GE Port
RF Output (F type): 8 non-adjacent carrier outputs within 192M bandwidth
Multiplexing:
Channel Number: 8 multiplexing channels
Maximum PID Remapping: 180 input per channel
Function: PID remapping (automatically or manually), Accurate PCR adjusting, generate PSI/ SI table automatically
Modulation: DX308T (8*DVB-T)
Standard: ETSI EN300 744 MER: ≥40db
RF Frequency: 50~960MHz, 1KHz step
Constellation: QPSK/16QAM/64QAM Bandwidth: 6/7/8 MHz
Trans mode: 2K/4K/8K FEC: 1/2, 2/3, 3/4, 5/6, 7/8
RF Output Level: -20~+10dbm (for all carriers), 0.5db stepping
Modulation: DX308AT (8*ATSC)
Standard: ATSC A/53 MER: ≥40db RF Frequency: 50~960MHz, 1KHz step
Constellation: 8VSB Bandwidth: 6MHz FEC: RS(208 188)+Trellis
RF Output Level: -20~+10dbm (for all carriers), 0.5db stepping

6 ISDB-Tb Modulating Module



DX306I

Module Specifications:

Data input: 32×6 IP input over UDP/RTP, 2 GE Ports (RJ45/SFP), 128 IP input from Data port

Data output: 6 IP output over UDP/RTP/RTSP, unicast/multicast, 2 GE Ports (RJ45/SFP)

Trans Rate: Max 840Mbps/GE Port

RF output (F type): 6 channels of multiplexing and modualtion.

Multiplexing:

Input Channel: 192

Maximum PID Remapping: 180 input per channel

Function: PID remapping (automatically or manually), Accurate PCR adjusting, generate PSI/ SI table automatically

Modulation:

Standard: ARIB STD-B31

Bandwidth: 6M

Constellation: QPSK, 16QAM, 64QAM

Guard Interval: 1/32, 1/16, 1/8, 1/4

Transmission Mode: 2K, 4K, 8K

Code rate: 1/2, 2/3, 3/4, 5/6, 7/8

MER: ≥40dB

RF frequency: 50~960MHz, 1KHz step

RF output level: -20dBm~+10dBm (87~117dbμV), 0.1dB stepping

2 Tuner Descrambling Module

DX902/DX912

Stream in: 2 Tuner input, F Type, 1 IP input from data port

Stream out: 1 MPTS output over UDP, Unicast/Multicast

DVB-CI: 2 independent common interface slots

Standard: DX902: DVB-S/S2; DX912: DVB-C

Tuner Section

DVB-S
- Input Frequency: 950-2150MHz
- Symbol Rate: QPSK 1~45Msps
- Signal Strength: -65~ -25dBm
- FEC Demodulation: 1/2, 2/3, 3/4, 5/6, 7/8

DVB-S2
- Input Frequency: 950-2150MHz
- Symbol rate: QPSK/8PSK 1~45Msps
- 16APSK 1~45 Msps 32APSK1~32 Msps
- FEC Demodulation: 1/2, 2/3, 3/4,5/6,7/8, 4/5,5/6,8/9, 9/10

DVB-C
- Standard: J.83A(DVB-C), J.83B, J.83C
- Input Frequency: 30-960MHz
- Constellation: 16/32/64/128/256 QAM

Support Diseqc function (For DX902)

Multiplexing:

Maximum PID Remapping: 256 output pids

Function: PID remapping (automatically or manually), Accurate PCR adjusting, generate PSI/ SI table automatically

Descrambling:

CAM/CI Quantity: 2

BISS Mode: Mode 1, Mode E; up to 120Mbps (Optional as required)

4 FTA Tuner Module

DX904/DX914/DX944

Module Specifications:

Stream in: 4 Tuner input, F Type

Stream Out: 1* MPTS output over UDP/RTP, unicast/multicast

Standard: DX904: DVB-S/S2; DX914: DVB-C; DX944: DVB-(T)

	DVB-S	DVB-S2
Input Frequency:	950-2150MHz	950-2150MHz
Symbol Rate:	QPSK 1~45 Msps	QPSK/8PSK 1~45 Msps, 16APSK 1~45 Msps, 32APSK1~32 Msps (16APSK&32APSK are optional as required)
FEC Demodulation:	1/2, 2/3,3/4,5/6,7/8	1/2, 2/3,3/4,5/6,7/8,4/5,5/6,8/9, 9/10

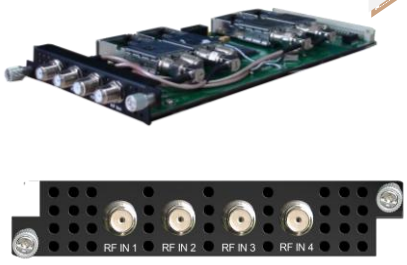
Signal Strength: -65 ~ -25dBm

Support Diseqc function (For DX904)

DVB-C Standard: J.83A (DVB-C), J.83B, J.83C
Input Frequency: 30-1000MHz
Constellation: 16/32/64/128/256 QAM

DVB-(T): Standard: DVB-(T)
Input Frequency: 30 MHz~1000 MHz
Bandwidth: 6M, 7M, 8M

4 FTA Tuner Module



DX904A/DX914A/DX944A

Module Specifications:

Stream in: 4 Tuner input, F Type

Stream Out: 4* MPTS output over UDP/RTP, unicast/multicast

Standard: DX904A: DVB-S/S2; DX914A: DVB-C; DX944A: DVB-(T)

	DVB-S	DVB-S2
Input Frequency:	950-2150MHz	950-2150MHz
Symbol Rate:	QPSK 1~45 Msps	QPSK/8PSK 1~45 Msps, 16APSK 1~45 Msps, 32APSK1~32 Msps (16APSK&32APSK are optional as required)
FEC Demodulation:	1/2, 2/3,3/4,5/6,7/8	1/2, 2/3,3/4,5/6,7/8,4/5,5/6,8/9, 9/10

Signal Strength: -65 ~ -25dBm

Support Diseqc function (For DX904)

DVB-C Standard: J.83A (DVB-C), J.83B, J.83C
Input Frequency: 30-1000MHz
Constellation: 16/32/64/128/256 QAM

DVB-(T): Standard: DVB-(T)
Input Frequency: 30 MHz~1000 MHz
Bandwidth: 6M, 7M, 8M

Equipment Specifications:

Base Unit Parameters

Dimension(W×L×H): 440mm×324mm×44mm
Approx weight: 6kg
Environment: 0~45℃(work); -20~80℃(Storage）
Power requirements AC 110V± 10%, 50/60Hz, AC 220 ± 10%, 50/60Hz