



- Redundancy Power Supply (Optional)**
Two options for redundancy power supply:
- ◆ Non-Hot Plugging (option 1)
 - ◆ Support Hot Plugging (option 2)

Product Outline

DHP400 DTV head-end processor is the new generation of intelligent headend processing equipment. This 1-U case comes with 6 independent module slots. Each module can be configured individually based on the applications including encoding, decoding, trans-coding, multiplexing, descrambling and modulating processing and the combination of all these functions. It supports multiple input and output interfaces and signal formats. With its powerful performance and low cost, DHP400 is especially adequate for the new generation CATV system.

Key Features

- Support flexible combination of different type of modules
- Support up to 6 modules
- Support 1 ASI output (Copy as MPTS2 through front panel GE2)
- Support 2 GE output, 512 SPTS (UDP, RTSP/RTP) output from GE1, 8 MPTS (UDP,RTP) output from GE2, Unicast/Multicast, RJ45/SFP interface
- Support Web management, Updates via web

Module Specifications:

4 ASI/IP Multiplexing Module



DX504

Module Specifications:

ASI inputs/outputs: 4 ASI bi-direction, BNC 75Ω
 IP inputs/outputs: 2 Ethernet Port (100/1000M)
 Stream connector input
 Re-multiplexing: PID remapping, PCR correction, generate PSI/ SI table automatically
 Stream In: maximum 4 ASI input, 256×2 IP input
 Stream Out: maximum 4 ASI output, 4 IP output

5 ASI Multiplexing Module



DX505

Module Specifications:

ASI inputs/outputs: 5 ASI bi-direction, BNC 75Ω
 Stream connector input
 Stream in: maximum 5 ASI input
 Re-multiplexing: PID remapping, PCR correction, generate PSI/ SI table automatically
 Stream out: maximum 5 ASI output

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 (256 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)

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 bitrate: 0.5Mbps~8Mbps per channel

Support CC (closed caption)

Audio Encoding:

Audio format: MPEG-1 Layer 2, DD AC3 (2.0)

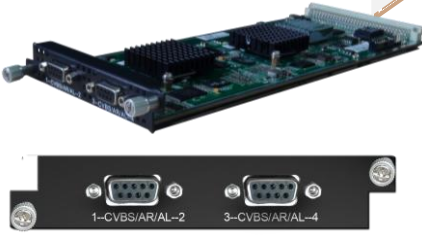
Sampling rate: 48KHz

Resolution: 24-bit

Audio bitrate:128/192/256/320/384kbps each channel

Support Logo, Caption, QR Code insertion (for DX214A only) (Language Supported: 中文, English, اردو, for more languages please consult us...)

4 CVBS Encoding Module



DX214B

Module Specifications:

Input: 4 CVBS video, 4 Stereo Audio (DB9 to RCA)

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 (Language Supported: 中文, English, اردو, for more languages please consult us...)

8 CVBS Encoding Module



DX218S

Module Specifications:

Input: 8 CVBS video, 8 Stereo Audio (DB15 to RCA)

Video Encoding:

Video format: MPEG4 AVC/H.264

Image format: PAL, NTSC SD signal

Resolution: 720x576i, 720x480i

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 (Language Supported: 中文, English, اردو, for more languages please consult us...)

2 HDMI Encoding/Transcoding Module



DX202A

Module Specifications:

Input: 2*HDMI, 2*BNC for CC (Closed Caption) input and stream connector

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 MPEG-2 /H.264 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 Transcoding:

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 Transcoding:

MPEG-1 Layer 2, AAC and AC3

2 SDI Encoding/Transcoding Module



DX202A-D

Module Specifications:

Input: 2*HD-SDI and stream connector

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 MPEG-2 /H.264 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 Transcoding:

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 Transcoding:

MPEG-1 Layer 2, AAC and AC3

4 HDMI Encoding Module

DX224
Module Specifications:

Input: 4*HDMI

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: 64Kbps~320Kbps each channel

Audio Gain Control: 0-400

4 HDMI Encoding Module

DX224S
Module Specifications:

Input: 4*HDMI

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:

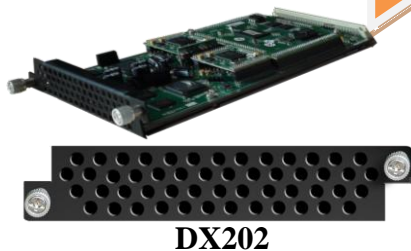
Audio format: MPEG1 Layer II, **support audio gain adjustment**

Sampling rate: 48 KHz

Resolution: 24-bit

Audio Bit-rate: 64kbps, 128Kbps, 192kbps, 224kbps, 256kbps, 320kbps, 384kbps

Support Logo, Caption, QR Code insertion (Language Supported: 中文, English, العربية, ไทย, हिन्दी, русская, اردو, for more languages please consult us...)

2 IP Transcoding Module

DX202
Module Specifications:

Input: Stream connector

Resolution: 480i, 576i, 720P@50, 720P@60, 1080i@50, 1080i@60, 1080P@50, 1080P@60

Video Tanscoding:

2*MPEG-2/ H.264/ AVS/AVS+ HD/SD → 2* H.264 HD/SD

Video Bit-rate: 1~19.5Mbps each channel

Rate Mode: CBR/VBR

GOP Struct: IBBP, IPPP, IBP

AudioTanscoding:

MPEG-1 Layer II, LC/HE-AAC, AC3, DRA→ MPEG-1 Layer II, LC/HE-AAC

Audio bitrate: 64/96/128/192/256/320/384Kbps

Audio Gain Control: 0-100

16/32 QAM Modulating Module

DX316/DX332
Module Specifications:

Data input: 512×2 IP input over UDP/RTP, 2 GE Ports (RJ45/SFP), Stream connector

Data output: 16 or 32 IP output over UDP/RTP/RTSP, unicast/multicast, 2 GE Ports (RJ45/SFP)

Trans Rate: Max 840Mbps/GE Port

RF output (F type): 16/32 channels of multiplexing, scrambling and modulation.

Multiplexing:

Maximum PID Remapping: 180 output pids per channel for DX316, 256 output pids per channel for DX332

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

DX332 Output: 32 non-adjacent carrier outputs within 384M bandwidth

8 DVB-T/ATSC Modulating Module

DX308T/DX308AT
Module Specifications:

Data input: Stream connector

256 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 output pids 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: $\geq 40\text{dB}$

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 step

Modulation: DX308AT (8*ATSC)

Standard: ATSC A/53 MER: $\geq 40\text{dB}$ 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 step

6 ISDB-Tb Modulating Module

DX306I
Module Specifications:

Data input: 32x6 IP input over UDP/RTP, 2 GE Ports (RJ45/SFP) and stream connector

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 modulation.

Multiplexing:

Maximum PID Remapping: 180 output pids 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: $\geq 40\text{dB}$

RF frequency: 50~960MHz, 1KHz step

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

2 Tuner Descrambling Module



DX902/DX912

Module Specifications:

Stream in: 2 Tuner input, F Type
 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 1~45Mps 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 1~45Mps 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
 Standard: DX904: DVB-S/S2; DX914: DVB-C; DX944: DVB-T/T2

Input Frequency: 950-2150MHz Symbol Rate: QPSK 1~45 Msps FEC Demodulation: 1/2, 2/3,3/4,5/6,7/8 Signal Strength: -65 ~ -25dBm Support Diseqc function (For DX904)	DVB-S	DVB-S2
	QPSK 1~45 Msps	950-2150MHz QPSK/8PSK 1~45 Msps, 16APSK 1~45 Msps, 32APSK1~32 Msps <i>(16APSK&32APSK are optional as required)</i> 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: 30-1000MHz
 Constellation: 16/32/64/128/256 QAM

DVB-T/T2: Standard: DVB-T/T2
 Input Frequency: 30 MHz~1000 MHz
 Bandwidth: 6M, 7M, 8M
 PLP Index:0,1,2,3(for DVB-T2)

Multiplexing:

Maximum PID Remapping: 256 output pids
 Function: PID remapping (automatically/ manually), Accurate PCR adjust

4 FTA Tuner Module



DX924

Module Specifications:

Stream in: 4 Tuner input, F Type
 Standard: DX924: DVB-C(J.83 A/C)/J.83B/ DVB-T/T2/ISDB-T switchable

Standard: DVB-C(J.83 A/C); J.83B
 Input Frequency: 60MHz~890MHz
 Symbol rate: 1000~9000Ksps
 Constellation: 16/32/64/128/256 QAM; 64/256 QAM for J.83B

Standard: DVB-T/T2
 Frequency In: 60MHz~890MHz
 Bandwidth: 5/6/7/8M bandwidth
 PLP Index: 0~255(for DVB-T2)

Standard: ISDB-T
 Input Frequency: 60-890MHz

Multiplexing:

Maximum PID Remapping: 256 output pids
 Function: PID remapping (automatically/ manually), Accurate PCR adjust

2 HD-SDI Decoding Module



DX702

Module Specifications:

ASI input/output: 2 ASI bi-direction, BNC 75Ω
 Stream Connector input

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

Equipment Specifications:

Base Unit Parameters

Dimension(W×L×H): 482mm×410mm×44mm
Environment: 0~45℃(work); -20~80℃(Storage)
Power requirements AC 110V± 10%, 50/60Hz, AC 220 ± 10%, 50/60Hz

Parameters Comparison:

	DHP400	DHP400A
IP Data Transport	One-way Transport: GE1/GE2 support output maximum 8MPTS & 512SPTS	Bi-directional Transport: GE1/ GE2 support IP data input and output
TS Processing Number	Support 1 TS (MPTS/SPTS) input from each module, and maximum bitrate is 350Mbps	Support maximum 512 TS (MPTS/SPTS) input from each module, and maximum bitrate is 350Mbps
Multiplexing	Support multiplexing function: It can mux TSs from different modules to one TS and output through one module or GE1/GE2 port	Doesn't support multiplexing function: It can combine TSs from different modules and output these TSs through one module or GE1/GE2 port
Output Per Module	1 MPTS after multiplexing	1 or multiple MPTS/SPTS