

### SHP 200



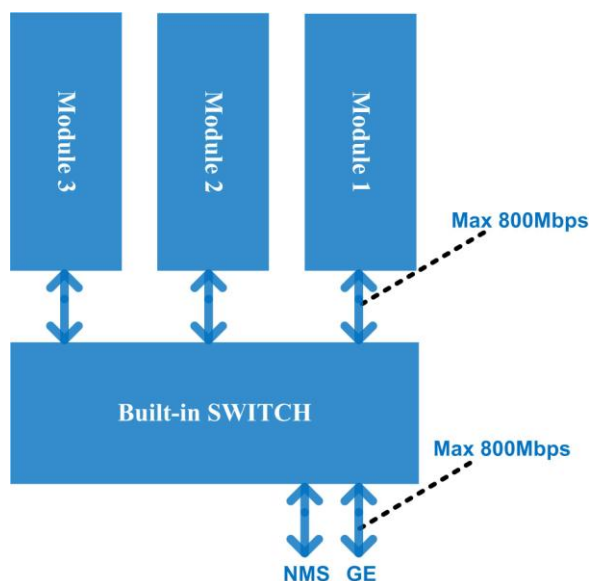
#### Product Outline

SHP200 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. SHP200 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, Update via web

#### Principle Chart



**Module Specifications:**

**4 CVBS/SDI Encoding Module**



**SFT214B**

**Module Specifications:**

Input: 4 CVBS (DB9 to RCA) or 4 SDI (BNC)

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 (Only for CVBS input)

Resolution:

Input: 720\*576 @50i

Output: 720\*576/352\*288/320\*240/320\*180/176\*144/160\*120/160\*90@50Hz

Input: 720\*480 @60i

Output: 720\*480/352\*288/320\*240/320\*180/176\*144/160\*120/160\*90@60Hz

Rate Control: CBR/VBR

GOP structure: IPPP, IBPBP, IBBPB, IBBBP

Video bitrate: 0.5~5Mbps

**Audio Encoding:**

Audio format: MPEG1 Audio Layer 2, LC-AAC, HE-AAC

Sampling rate: 48KHz

Bits per sample: 32-bit

Bit-rate: 48-384Kbps each channel

Support **Logo, Caption, QR Code insertion**

**4 HDMI Encoding Module**



**SFT224H/HV**

**Module Specifications:**

Input: 4×HDMI (1.4) input, HDCP 1.4

Output: 1 MPTS and 4 SPTS output over UDP/RTP/RTSP; IPv4, IPv6 output

**Video Encoding:**

Video format: **HEVC/H.265** & MPEG 4 AVC/H.264---SFT224H  
**HEVC/H.265**---SFT224HV

Resolution:

1920×1080\_60P, 1920×1080\_59.94P, 1920×1080\_50P;

1280×720\_60P, 1280×720\_59.94P, 1280×720\_50P

Input: 1920×1080\_60i, 1920×1080\_59.94i, 1920×1080\_50i

Output: 1920×1080\_60P, 1920×1080\_59.94P, 1920×1080\_50P

Chroma: 4:2:0

Bit rate (each channel): 0.5Mbps~20Mbps (H.265)  
4 Mbps~20Mbps (H.264)

Rate Control: CBR/VBR

GOP structure: IBBP, IPPP

**Audio Encoding:**

Audio format: MPEG-1 Layer 2, LC-AAC, HE-AAC, HE-AAC V2, AC3  
Passthrough

Sampling rate: 48KHz

Bit-rate (each channel):

48Kbps~384Kbps (MPEG-1 Layer 2 & LC-AAC)

24 Kbps~128 Kbps (HE-AAC)

18 Kbps~56 Kbps (HE-AAC V2)

Audio Gain: 0~255

Support **Logo, QR Code insertion--Optional as per order**

## 4 HDMI/SDI Encoding Module



**SFT224V**

### Module Specifications:

Input: 4×SDI/HDMI (1.4) input, HDCP 1.4

Output: 1 MPTS and maximum 4 SPTS output over UDP/RTP/RTSP; IPv4, IPv6

### Video Encoding:

Video format: **HEVC/H.265** & MPEG 4 AVC/H.264

Resolution:

HDMI:

3840×2160\_30P, 3840×2160\_29.97P;

(Encoding 2 CHs per module for H.265, and encoding 1 CH for H.264)

1920×1080\_60P, 1920×1080\_59.94P, 1920×1080\_50P;

(Encoding 4 CHs per module for H.265, and encoding 2 CHs for H.264)

1280×720\_60P, 1280×720\_59.94P, 1280×720\_50P

(Encoding 4 CHs per module for H.264 and H.265)

SDI:

1920×1080\_60P, 1920×1080\_59.94P, 1920×1080\_50P;

(Encoding 4 CHs per module for H.265, and encoding 2 CHs for H.264)

1280×720\_60P, 1280×720\_59.94P, 1280×720\_50P

(Encoding 4 CHs per module for H.264 and H.265)

Input: 1920×1080\_60i, 1920×1080\_59.94i, 1920×1080\_50i

Output: 1920×1080\_60P, 1920×1080\_59.94P, 1920×1080\_50P

(Encoding 4 CHs per module for H.265, and encoding 2 CHs for H.264)

Chroma: 4:2:0

Bit rate: 0.5Mbps~20Mbps (each channel)

Rate Control: CBR/VBR

GOP structure: IBBP, IPPP

### Audio Encoding:

Audio format: MPEG-1 Layer 2, LC-AAC, HE-AAC, HE-AAC V2, AC3

Passthrough

Sampling rate: 48KHz

Bit-rate (each channel):

48Kbps~384Kbps (MPEG-1 Layer 2 & LC-AAC)

24 Kbps~128 Kbps (HE-AAC)

18 Kbps~56 Kbps (HE-AAC V2)

Audio Gain: 0~255

**8 CVBS Encoding Module**



**SFT218S**

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

**4 CVBS Encoding Module**



**SFT214/SFT214A**

**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, IBBBBP

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 SFT214A only)

**2 HDMI Encoding/Transcoding Module**



**SFT202A**

**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 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, AC3 (Optional) and AAC any-to-any

**2 SDI Encoding/Transcoding Module**



**SFT202A-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 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, AC3 (Optional) and AAC any-to-any

## 4 HDMI Encoding Module



**SFT224S**

### 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**

## 2 Tuner Descrambling Module



**SFT902/SFT912**

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: SFT902: DVBS/S2; SFT912: DVBC

Tuner Section	Standard	Input Frequency	Symbol Rate	Signal Strength	FEC Demodulation
DVB-S	DVB-S	950-2150MHz	QPSK 1~45MSPS	-65~-25dBm	1/2, 2/3, 3/4, 5/6, 7/8
	DVB-S2	950-2150MHz	QPSK/8PSK 1~45MSPS 16APSK 1~45 MSPS 32APSK 1~32 MSPS		1/2, 2/3, 3/4, 5/6, 7/8, 4/5, 5/6, 8/9, 9/10
DVB-C	J.83A(DVB-C), J.83B, J.83C	30-960MHz			16/32/64/128/256 QAM

Support Diseq function (For SFT902)

### 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**



**SFT924**

**Module Specifications:**

Stream in: 4 Tuner input, F Type  
 Stream Out: 5 MPTS (4 MPTS out thru bypassing, 1 MPTS multiplexing) output over UDP/RTP, unicast/multicast  
 Standard: 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/ (T)  
 Frequency In: 60MHz~890MHz  
 Bandwidth: 5/6/7/8M bandwidth  
 PLP Index: 0~255 (for DVB- (T))

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

**Multiplexing:**

Max number of managing PID: 256 (for 1 MPTS out thru multiplexing)  
 Function: PID remapping (automatically/ manually), Accurate PCR adjust, PID pass-through

**4 ASI/IP Multiplexing Module**



**SFT504**

**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**



**SFT505**

**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



**SFT506**

### 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)

## 8 CH EAS Multiplexing Module



**SFT508E**

### 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 (the 256th IP) (ASI&IP should be SPTS, both can't mux, source Bitrate ≤ 10Mbps)

Re-multiplexing: PID remapping, PCR correction (only for IP), generate PSI/ SI table automatically

Stream Out: 8 IP output thru GE1, maximum 8 programs each channel

## 16/32 QAM Modulating Module



**SFT316/SFT332**

### Module Specifications:

Data input: 128 IP input from front panel Data port

Max 512 IP input over UDP/RTP, 2 GE Ports (RJ45/SFP) ---SFT316

Max 1024 IP input over UDP/RTP, 2 GE Ports (RJ45/SFP) ---SFT332

Data output: 16/32 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 modulating

### Multiplexing:

Maximum PID Remapping: 180 output pids per channel ---SFT316

256 output pids per channel ---SFT332

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

RF Output: 16 non-adjacent carrier outputs within 192M bandwidth---SFT316

32 non-adjacent carrier outputs within 384M bandwidth---SFT332

## 6 ISDB-Tb Modulating Module



**SFT3061**

### Module Specifications:

Data input: 128 IP input from front panel Data port

192 IP input over UDP/RTP, 2 GE Ports (RJ45/SFP)

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:

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:  $\geq 40$ dB

RF frequency: 50~960MHz, 1KHz step

RF output level: -20dBm~+10dBm (87~117dB $\mu$ V), 0.1dB stepping

RF Output: 6 non-adjacent carrier outputs within 192M bandwidth

## 8 DVB-T/ATSC Modulating Module



**SFT308T/SFT308AT**

### Module Specifications:

Data input:

128 IP input from front panel Data port

256 IP input over UDP/RTP, 2GE Ports (RJ45/SFP) — SFT308T

256 IP input over UDP/RTP, 2GE Ports (RJ45/SFP) — SFT308AT

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: SFT308T(8\*DVB-T)

Standard: ETSI EN300 744 MER:  $\geq 40$ 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 stepping

### Modulation:SFT308AT (8\*ATSC)

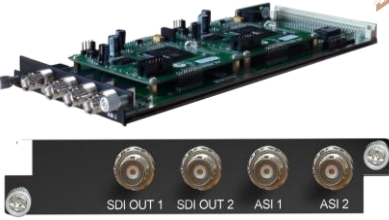
Standard: ATSC A/53 MER:  $\geq 40$ db RF Frequency: 50~960MHz, 1KHz step

Constellation: 8VSB Bandwidth: 6MHz FEC: RS(208 188)+Trellis

RF Output Level: -20~+10dbm (for all carriers), 0.5db stepping

RF Output: 8 non-adjacent carrier outputs within 192M bandwidth

## 2 HD-SDI Decoding Module



**SFT702**

### 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

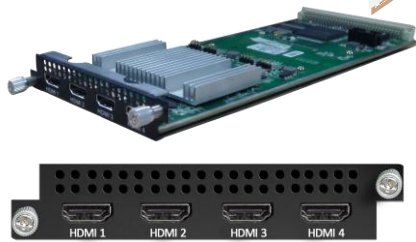
Audio Format: MPEG1 Layer2, LC-AAC, HE-AAC, AC3 (2.0/5.1), AC3

Passthrough,

Support **Dual Audio Out**

Support CC/Subtitle

## 4 HDMI Decoding Module



**SFT714**

### Module Specifications:

Input: 4 IP (MPTS/SPTS) input from data port over UDP&RTP, Unicast/Multicast

Output: 4 HDMI output

Decoding:

Video/Audio Out: 4 HDMI output with 1 channel stereo audio embedded in each port

Video Format: MPEG-2, MPEG-4 AVC/H.264, HEVC/H.265, AVS, AVS+

Audio Format: MPEG 1 Layer 2, LC-AAC, HE-AAC, AC3 (2.0)

Resolution: 480i, 480p, 576i, 576p, 1280×720\_50p, 1280×720\_60p,

1920×1080\_50i, 1920×1080\_50p 1920×1080\_60i, 1920×1080\_60p

Support **manually upscale/downscale resolution**

## 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