

DCH-6000P

Professional H.265/HEVC IRD and Processor



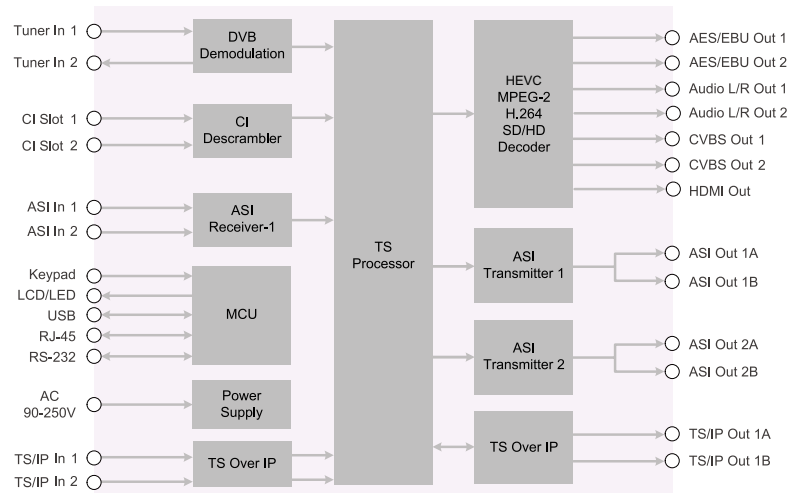
The DCH-6000P is the newest model and flagship of PBI's IRD product family. It provides operators an ideal solution for receiving, remultiplexing, descrambling and decoding operations, supporting all MPEG profile from Main to High including 4K*2K@60fps 10bit. Equipped with a variety of inputs, it ensures compatibility with all transmission media. The DCH-6000P's remultiplexing capabilities enable creation of new transport streams that are subsets of the original stream. Customized services may be output as multiple SPTS or MPTS over IP, as well as over ASI. By the dual DVB common interfaces, DCH-6000P could decrypt multiple services in one transport stream or two. DCH-6000P is also a professional IRD that features a broadcast quality decoder for 4:2:0 of MPEG-2, MPEG-4/AVC and HEVC/H.265 in both Standard Definition, High Definition and UHD formats, and provides a variety of industry standard digital and analog outputs, including CVBS video, AES/EBU Audio, analog Audio, SD-SDI and HD-SDI. Frame synchronization to the external black and burst signal is also available. The unit also performs UHD down-conversion and aspect ratio adaptation of HD programs to generate professional quality baseband analog video and audio outputs for easy integration with existing cable network infrastructure. This all-in-one architecture makes the DCH-6000P an ideal product for distribution and contribution networks.

Main Feature

- Variety of input options DVB-T2/S2/S/C/T/DTMB/ATSC/ISDB-T, DS3/E3, TS/IP and ASI
- Supports DVB-S2 Input Stream Identifier (ISI, optional) and DVB-T SFN MIP pass through
- Redundant backup among Tuner, ASI and TS/IP with configurable priority
- Maximum supporting 4:2:0 60p 10bit UHD/HD/SD HEVC/H.265, SD/HD MPEG-2 and MPEG-4 AVC/H.264 digital video decoding
- Multiple Analog and Digital Outputs, ASI, CVBS, HDMI, AES/EBU Audio, TS/IP
- Built-in TS re-multiplexer receives from ASI, Tuner and TS/IP Inputs
- 2x DVB-CI Slots, multi-program decryption, BISS-1 and BISS-E decryption
- Frame synchronizes the IRD to the external black and burst reference
- Dynamic PMT detection and automatic updating
- Supports VBI TELETEXT, EBU/DVB Subtitle, Closed Caption, and can be embedded in SDI
- UDP/RTP, Unicast/Multicast, and double full duplex SPTS/MPTS over IP
- Remote Control and Supervision by SNMP, HTTP WEB and Proprietary HDMS software
- One alarm Relay with D-sub 9 male connector
- On Site software update through IP and USB
- RSSI, received Eb/No & BER monitoring
- 1.5" TFT LCD on front panel for monitoring
- Hot-swappable redundant power supply

Block Diagram

DCH-6000P Functional Block Diagram



Specification

Tuner Input	
DVB-S/S2 Tuner Input (ISI Factory Optional)	
Connector Type	2×F type female 75Ω for Input
Input Frequency Range	950~2150MHz
Input Level	-25~-65dBm
Symbol Rate	1~45Msps
Roll-off Factor	DVB-S: 0.35 DVB-S2: 0.35, 0.25, 0.2
FEC Code Rate	DVB-S QPSK: 1/2, 2/3, 3/4, 5/6, 7/8 DVB-S2 QPSK: 1/2, 3/5, 2/3, 3/4, 4/5, 5/6, 8/9,9/10 DVB-S2 8PSK: 3/5, 2/3, 3/4, 5/6, 8/9, 9/10
LNB Polarity Selection	0, 13V, 18V selectable
LNB Band Selection Tone	0/22KHz selectable
Satellite Selection Command	DiSEqC 1.0
ISI ID	1~255 user configurable
DVB-S/S2 Tuner Input (16APSK/32APSK Factory Optional)	
Connector Type	1×F type female 75Ω for Input, 1×F type female 75Ω for loop through output
Input Frequency Range	950 ~ 2150MHz
Input Level	-25 ~ -65dBm
Symbol Rate	QPSK/8PSK/16APSK: 2 ~ 45Msps 32APSK: 2 ~ 37Msps
Roll-off Factor	DVB-S: 0.35 DVB-S2: 0.35, 0.25, 0.2
FEC Code Rate	DVB-S: 1/2, 2/3, 3/4, 5/6, 7/8 DVB-S2: 1/2, 3/5, 2/3, 3/4, 5/6, 8/9, 9/10
LNB Polarity Selection	0, 13V, 18V selectable
LNB Band Selection Tone	0/22KHz selectable
Satellite Selection Command	DiSEqC 1.0
DVB-C Tuner Input	
Connector Type	2×F type female 75Ω for Input
Input Frequency Range	51~862MHz
Input Level	51~75dBμV
Symbol Rate	1~7MBaud (ITU J.83 Annex A)
Constellation	16QAM, 32QAM, 64QAM, 128QAM, 256QAM
Bandwidth	6MHz, 7MHz, 8MHz
Input Return Loss	7dB (typ.)
DVB-T/T2 Tuner Input	
Connector Type	2×F type female 75Ω for Input
Input Frequency	104~862MHz (VHF/UHF)
Input Level	-20~-70dBm
Constellation	DVB-T: QPSK, 16QAM, 64QAM DVB-T2: QPSK, 16QAM, 64QAM, 256QAM
Bandwidth	6MHz, 7MHz, 8MHz
FFT Mode	DVB-T: 2K, 8K DVB-T2: 1K, 2K, 4K, 8K, 16K, 32K
Guarding Interval	DVB-T: 1/4, 1/8, 1/16, 1/32 DVB-T2: 1/4, 5/32, 1/8, 5/64, 1/16, 1/32, 1/64, 1/128
FEC Code Rate	DVB-T: 1/2, 2/3, 3/4, 5/6, 7/8 DVB-T2: 1/2, 3/5, 2/3, 3/4, 4/5, 5/6
Input Return Loss	7dB (typ.)
DTMB Tuner Input	
Connector Type	2×F type female 75Ω for Input
Input Frequency	46.5~866MHz
Input Level	-87~-29dBm
Symbol Rate	7.56MBaud
Bandwidth	6MHz/7MHz/8MHz
Constellation	4QAM-NR, 4QAM, 16QAM, 32QAM, 64QAM
Guard Interval	PN420, PN595, PN945
Roll-off Factor	0.05
Interleaving Depth	240, 720
FEC Code Rate	0.4, 0.6, 0.8
ATSC Tuner Input	
Connector Type	1×F type female 75Ω for Input
Input Frequency Range	54~864MHz
Input Level	-75~-7dBm(ATSC 8VSB)
Symbol Rate	10.762MBaud

Constellation	8VSB
Roll-off Factor	0.115
Bandwidth	6MHZ
Bandwidth	6MHZ
ASI Input	
Connector Type	2×BNC female, 75Ω
Standard	DVB-ASI, EN50083-9
Input Bit Rate	≤ 200Mb/s
DS3/E3 Input	
Connector Type	2×BNC female, 75Ω, including loop through
Standard	Compliant with ITU-T G.703
Frame Structure	Compliant with ITU-T G.752 and ITU-T G.804
Bit Rate	DS3: 44.736Mb/s E3: 34.368Mb/s
TS over IP	
Connector Type	2×RJ-45 independent, 100/1000 Base-T for TS/IP 1, full duplex, Support Pro MPEG FEC, Backup 1+1, Max 80Mb/s
Operating mode & Effective Bit Rate	2, 4-CH DVB mode output, Max 200Mb/s, Slave mirror output 3, 32-CH IPTV mode output, Total 800Mb/s, Slave mirror output
Protocol	UDP / RTP, Multicast / Unicast, IGMPv3, ARP
FEC	SMPT E 2022M (Pro-MPEG) FEC (for GbE only)
TS Processing	
TS Input Management	Demux and Remux among Tuner / DS3(optional) / E3 (optional), ASI and TS/IP Inputs
TS Output Management	Demux and Remux for 2 independent ASI outputs
Service and PID Management	Remux, filtering and remapping
PSI/SI	PSI/SI table regeneration, NIT and SDT edition, LCN Edition and Re-generation, EIT P/F edition
Descrambler	DVB Common Scrambling Algorithm (CSA)
BISS Mode	BISS-1, BISS-E
Common Interface	Double PCMCIA slots, compatible with major CA CAMs in the market
ASI Output	
Connector Type	2 pairs, 4 x BNC females, 75Ω
Standard	DVB-ASI, EN50083-9
Output Bit Rate	≤ 200Mb/s
TS Processing	2 Independent TS pass through or Remultiplexed from tuner, TS/IP and 2 ASI inputs
HDMI Output	
Standard	1×HDMI 1.4interface, HDCP 2.2
Video Resolution and Frame Rate	4KP60, 4KP50, 1080P50, 1080P30, 1080P24, 1080i60, 1080i50, 720p, 480p, 576p, 576i, 480i
Video PID Bit Rate	≤ 50Mb/s
Video Decode	
Video Profile/Level	MPEG2 SP@ML, MP@HL MPEG4 SP@L0-3, ASP@L0-5, GMC, H.264 BP/MP/HP@ level 5.0, H.265 Main Profile@L5.0 High-tier
Audio Decode	
Audio Format	MPEG-1 Layer 2 a. 2 stereo pairs (Stereo, Dual Mono, Left, Right) MPEG-2 AAC a. 5.1 down-mix to 2.0 (Stereo, Dual Mono, Left, Right) b. 2.0 (Stereo, Dual Mono) MPEG-4 HE-AAC v1/v2 a. 5.1 down-mix to 2.0 (Stereo, Dual Mono, Left, Right) b. 2.0 (Stereo, Dual Mono, Left, Right)

Analog video Output	
CVBS Connector	1×BNC female 75Ω, 1×RCA female
CVBS Standard	NTSC, PAL, and SECAM
CVBS Resolution	576i×25, 480i×29.97
Analog Audio Output	
Connector Type	2×BNC female, 2×RCA female
Output Impedance	75Ω
Output Mode	Left, Right, Dual Mono, Stereo
Number of Output	2 pairs of stereo audio outputs (2 Audio PIDs or 4 channels are decoded)
Ancillary Data Processing	
Subtitle	DVB, EBU
VBI	Teletext, WSS
Closed Caption	EIA 608, EIA 708, EIA 608-to-708
Redundancy	
Redundancy Port	among Tuner, ASI input and TS/IP input
Switching Condition	TS Sync Loss
Switching Mode	Main, Spare
Ancillary Data Processing	
Subtitle	DVB, EBU
VBI	Teletext, WSS
Closed Caption	EIA 608, EIA 708, EIA 608-to-708
Redundancy	
Redundancy Port	among Tuner, ASI input and TS/IP input

Switching Condition	TS Sync Loss
Switching Mode	Main, Spare
Alarm	
Connector Type	2×D-sub 9 male
Switching Condition	User Defined
Control & Monitoring	
Connector Type	1×RJ-45, 10/100 Base-T, for equipment IP Control
Remote Control	SNMP 2.0, HTTP (Web GUI), Proprietary HDMS (Headend Device Management System)
Local Control	LCD display and Front control 6-key keypad
Serial Port	1×RS-232 D-sub female, for debug use only
Equipment Upgrade	Telnet/FTP, WEB/HTTP or USB
Physical	
Dimension	1U 19" Full-rack size
Weight	5.0Kg
Power Supply	AC 90V~250V, 50/60Hz
Power Consumption	30W (exclusive of LNB power)
Operating temperature	0~45°C
Storage temperature	-10~60°C
Operating Humidity	10~90%, non-condensed

Back panel Interface

