DCH-5500P

HD 4:2:2 IRD and Processor

The DCH-5500P 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 422P including MPEG-2 8-bit and MPEG-4 4:2:2 10-bit (optional). Equipped with a variety of inputs, it ensures compatibility with all transmission media. The DCH-5500P'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-5500P could decrypt multiple services in one transport stream or two. DCH-5500P is also a professional IRD that features a broadcast quality decoder for 4:2:0 or 4:2:2 of MPEG-2 and MPEG-4 AVC/H.264 in both Standard Definition and High Definition 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 HD 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-5200P an ideal product for distribution and contribution networks.

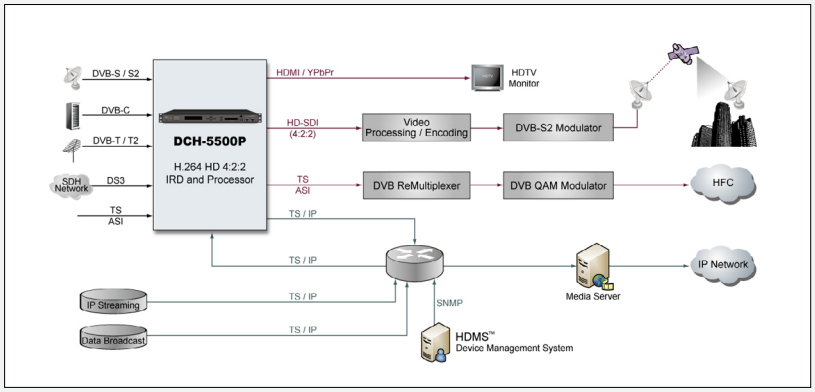
1.5" LCD Monitor on front panel

Optional 4:2:2 receiving and decoding

Hot-swappable redundant power supply

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
- 4:2:0 and 4:2:2 (optional) of SD/HD MPEG-2 and MPEG-4 AVC/H.264 digital video decoding
- Up to 8 Audio PIDs decode or pass through (compressed) in SDI output
- Up to 6 Audio PIDs decode or pass through (compressed) in AES output
- Multiple Analog and Digital Outputs, ASI, CVBS, HDMI, SD/HD-SDI, AES/EBU Audio, TS/IP
- Built-in TS re-multiplexer receives from ASI, Tuner and TS/IP Inputs
- 2×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



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Specification

Tuner Input	
DVB-S/S2 Tuner Input (ISI 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	2~45MBaud
Roll-off Factor	DVB-S QPSK: 0.35
	DVB-S2 8PSK: 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 Voltage	0, 13V, 18V selectable
LNB Band Selection Tone	0/22KHz selectable
Satellite Selection Command	DiSEqC 1.0
ISI ID	1~255 user configurable
DVB-C Tuner Input	
Connector Type	1×F type female 75Ω for Input, 1×F type female 75Ω for loop through output
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	1×F type female 75Ω for Input, 1×F type female 75Ω for loop through output
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	1×F type female 75Ω for Input, 1×F type female 75Ω for loop through output
Input Frequency Range	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, 1×F type female 75Ω for loop through output
Input Frequency Range	54~864MHz
Input Level	-75~-7dBm(ATSC 8VSB)
Symbol Rate	10.762MBaud
Constellation	8VSB
Roll-off Factor	0.115
Bandwidth	6MHZ

ASI Input-1	
Connector Type	1×BNC female, 75Ω
Standard	DVB-ASI, EN50083-9
Input Bit Rate	≤ 100Mb/s
DS3 Input-2 (Option)	
Connector Type	1×BNC female, 75Ω
Standard	DVB-ASI, EN50083-9
Input Bit Rate	≤ 100Mb/s
DS3/E3 Input (Option)	
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, seperated 100/1000 Base-T for TS/IP
Effective Bit Rate	800Mb/s for 100/1000 Base-T, duplex for SPTS and MPTS
Protocol	UDP / RTP, Multicast / Unicast, IGMPv3, ARP
FEC	SMPTE 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
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 of BNC female, 75Ω
Standard	DVB-ASI, EN50083-9
Output Bit Rate	≤ 200Mb/s
TS Processing	2 Independent TS Re-multiplexed from tuner, TS/IP and 2 ASI inputs
HDMI Output	
Standard	1×HDMI 1.3 interface (up to 1080i)
Video Resolution and Frame Rate	1080i×30, 1080i×29.97,1080×25,720p ×60,720p×59.94, 720p×50, 480p×60, 576p×50, 576i×25, 480i×29.97
Audio Embedded	1×stereo
Video Decode	
Video Profile/Level	MPEG-2(MP@ ML for SD, MP@HL for HD), Main Profile(MP) 4:2:0 8-bit, High Profile(HP) 4:2:2 8-bit
	MPEG-4/H.264 AVC Part 10 (MP@L3 for SD, HP@L4.1 for HD), High-422(Hi442P) 4:2:2 8/10-bit, High-10(Hi10P) 4:2:0 10-bit, High (HiP) 4:2:0 8-bit, Main (MP) 4:2:0 8-bit, Constrained Baseline (CBP) 4:2:0 8-bit, High 10 Intra Profile (AVC-I 50) 4:2:0 10-bit, High 4:2:2 Intra Profile (AVC-I 100) 4:2:2 8/10-bit
Audio Decode	
Audio Format	MPEG-1 Layer 2

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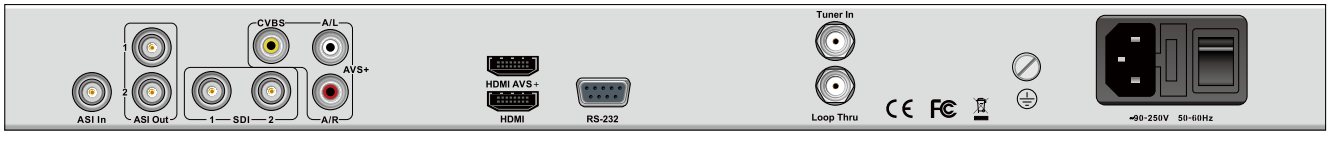
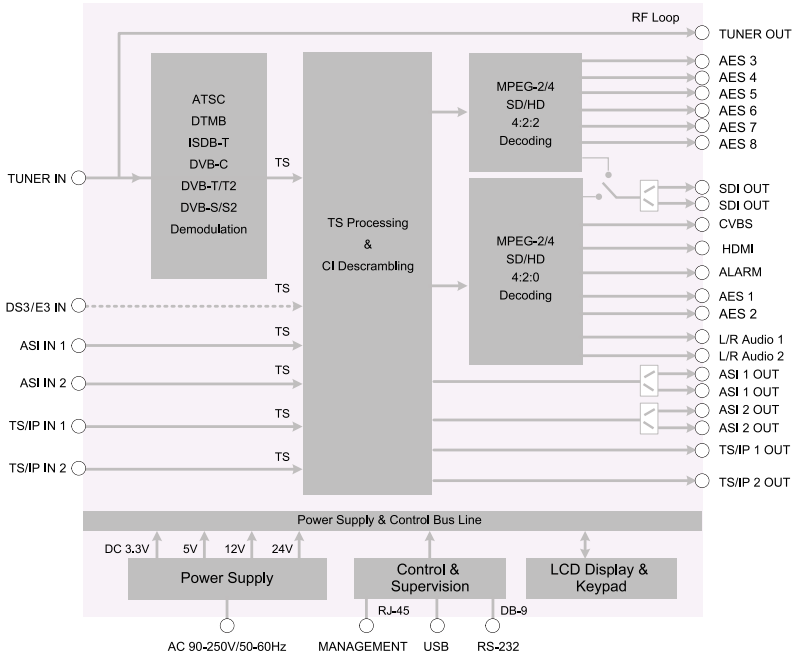
	a. 2 stereo pairs (Stereo, Dual Mono, Left, Right)
	b. Digital Audio Pass-through
	MPEG-2 AAC
	MPEG-4 HE-AAC v1/v2
Digital Video Processing	
Connector Type	2 x BNC female, 75Ω
SDI Video Resolution	1080p×59.94,1080p×50, 1080i×30,1080i×29.97, 1080i×25,720p×60,720p×59.94, 720p×50, 720p×29.97, 720p×25, 576i×25, 480i×29.97
Video PID Bit Rate	≤ 60Mb/s
HD/SD-SDI Output	
Connector Type	1 pair of BNCs (mirrored) , female, 75Ω
SD Standard	SMPTE 259M, 270 Mb/s (10bit)
HD Standard	SMPTE 292M, 1.485 Gbit/s (10bit)
Level	800mV p-p
Genlock	
Connector Type	1 x BNC female, 75Ω
Input Signal	Analog SD (black & burst)
Digital Audio Processing	
Connector Type	2×D-sub 9 male with XLR adaptor cables and 6 x BNC female 75Ω
Number of Output	8×audio PIDs are decoded or passed through
Nominal Output Level	1V p-p (with standard test stream)
Output Format	SDI (Embedded Audio), AES
Load Impedance	AES1~AES2: 2 x D-sub9, 110Ω (with XLR adaptor cables)
	AES3~AES8: 6 x BNC, 75Ω
Analog video Output	
CVBS Connector	1×BNC female 75Ω
CVBS Standard	NTSC, PAL, and SECAM
CVBS Resolution	576i×25, 480i×29.97
Nominal Output Level	1.0 Vp-p±5% (with standard test stream)
Frequency Response	<±1 dB, at 5.5 MHz for PAL/SECAM, 4.2MHz for NTSC
Chroma-Luma Delay	<±30 ns
Field Time Distortion	<2%
Line Time Distortion	<1%
Short Time Distortion	<2%
Differential Gain	<3%
Differential Phase	<2°
Signal to Noise Ratio	>55dB (luminance weighted)
Analog Audio Output	
Connector Type	2×D-sub 9 male, with XLR adaptor cable
Output Impedance	600Ω (balanced)
Output Mode	Left, Right, Dual Mono, Stereo
Number of Output	2 pairs of stereo audio outputs (2 Audio PIDs or 4 channels are decoded).
Cross Talk Among Channels	>70dB
THD	<0.3% @ 400Hz, 1KHz test tone
Frequency Response	±0.5dB over 20Hz ~ 18KHz
Output Level	0dBm in 600Ω (0dBu), adjustable range ±l0dB
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
Monitoring	1.5" TFT LCD monitor
Serial Port	1×RS-232 D-sub female, for debug use only
Equipment Upgrade	Embedded FTP loader ,Telnet and USB
Physical	
Dimension	1U 19" Full-rack size
Weight	
Power Supply	AC 90V~250V, 50/60Hz
Power Consumption	24W (exclusive of LNB power)
Operating temperature	0~45℃
Storage temperature	-10~60℃
Operating Humidity	10~90%, non-condensed
Certification	
EMC: EN 55024:1998+A1:2001+A2:2003, EN 55022:2006+A1:2007, EN 61000-3-2:2006, EN 61000-3-3:2008	
FCC: Part 15 Class B	
LVD: EN 60950-1:2006 + A11:2009	

Back panel Interface (Full option)



Block Diagram

DCH-5500P Functional Block Diagram



Order Information

Interface		Model	DCH-5500P-20X	DCH-5500P-30X
Standard Video/Audio	CVBS	1*BNC	•	•
	AUDIO	2*R/L, Balance	•	•
	HD-VIDEO	1*HDMI	•	•
Digital Video/Audio	HD-SDI	2*BNC	•	•
	AES1~AES2	2*D9, with extended cable adaptor	•	•
	AES3~AES8	6*BNC		•
TS Input	ASI IN 1	6*BNC	•	•
	ASI IN 2	1*BNC		•
TS Output	ASI OUT 1	1*BNC	•	•
	ASI OUT 2	1*BNC	•	•
Genlock	Genlock	1*BNC	•	•
4:2:0 decoding			•	•
4:2:2 decoding				•
TS/IP	GbE	2*RJ45	•	•
Control/Upgrade	Management	1*RJ45	•	•
	Upgrade	2*USB	•	•
	RS-232	1*D9	•	•
	ALARM/RELAY	1*D9	•	•
Power Supply		2*	•	•
X = Tuner	C	DVB-C	Factory default option: X=S2	
	T	DVB-T		
	S2	DVB-S2		
	T2	DVB-T2		
	D	DS3		
	M	STM-1		

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