

Professional Integrated Receiver Decoder

RECEIVER, PROCESSOR, DECODER, STREAMER



IRD-7000 Professional HEVC 4K IRD and Processor

The IRD-7000 is the newest model and flagship of BLANKOM's IRD product family. It provides operators an ideal solution for receiving, remultiplexing, descrambling and decoding operations, maximum supporting 4Kx 2K@60fps 10bit decoding. Equipped with a variety of inputs, it ensures compatibility with all transmission media.

The IRD-7000's re-multiplexing 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, this IRD can decrypt multiple services in one transport stream or two.

The IRD-7000 is a professional IRD that features a broadcast quality decoder for MPEG-2 and MPEG-4 AVC/H.264 HEVC/H.265 in SD, HD and UHD formats, and provides a variety of industry standard digital and analog outputs, including CVBS video, HDMI and 4x 3G SDI interface.

The unit also performs 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 IRD-7000 an ideal product for distribution and contribution networks.

Main Features

- Different input options available: DVB-S2/S or DVB-C/T(2) or ATSC, ISDB-T; TS/IP and ASI
- Supports DVB-S2 Input Stream Identifier and DVB-T SFN MIP pass through
- Redundant backup function between Tuner, ASI and TS/IP with selectable priority
- SD/HD/UHD MPEG-2, MPEG-4 AVC/H.264, HEVC/H.265 video decoding
- Analog and Digital Outputs, ASI, CVBS, HDMI, SDI, TSoIP
- Multiple 4K output interfaces, 4x 3G SDI, 12G SDI and HDMI 2.0
- Supports HDR10/HLG
- Built-in TS re-multiplexer receives from ASI, Tuner and TS/IP Inputs
- 2x DVB-CI Slots, support for all major CAS and CAM's, BISS-1 and BISS-E de-scrambling
- Dynamic PMT detection and automatic updating
- Supports VBI TELETEXT, EBU/DVB Subtitle, Closed Caption
- UDP/RTP, Unicast/Multicast, and double full duplex SPTS/MPTS over IP
- Remote Control and Supervision by SNMP, HTTP WEB
- One alarm Relay with D-sub 9 male connector
- On-Site software update through IP and USB
- RSSI, received Eb/No & BER monitoring
- Dual redundant hot swap PSU's

Available Frontends:

DVB-S/S2/S2X	
Input Frequency Range	950...2150MHz
Input Level	-65...-25dBm
Symbol Rate	1 ... 60MSps
Modulation Type	QPSK, 8PSK, 16APSK, 32APSK, 64APSK
LNB Polarity Selection	0, 13V, 18V selectable
LNB Band Selection Tone	0/22KHz selectable, DiSEqC 1.0
PLS	0 ... 262141 -users configurable
ISI ID	1...255 -user configurable

DVB-C	
Input Frequency Range	42...1002MHz
Input Level	-60...-20dBm
Symbol Rate	1.8...7.2MS/s
Bandwidth	6/7/8MHz
Modulation Type	16QAM, 32QAM, 64QAM, 128QAM, 256QAM

DVB-T	
Input Frequency Range	42...1002MHz
Input Level	-60...-20dBm
Modulation Type	QPSK, 16QAM, 64QAM
Bandwidth	6/7/8MHz
FFT Mode	2K, 8K
Guarding Interval	1/4, 1/8, 1/16, 1/32
Input Return Loss	7dB (typ.)

DTMB	
Input Frequency Range	44...1002MHz
Input Level	-60...-20dBm
Bandwidth	6/7/8MHz
Modulation Type	4QAM-NR, 4QAM, 16QAM, 32QAM, 64QAM

ISDB-T	
Input Frequency Range	42...1002MHz
Input Level	-60...-20dBm
Standard	ARIB STD-B31 v2.2
Bandwidth	6/7/8MHz
Modulation Type	QPSK, 16QAM, 64QAM

ATSC	
Input Frequency Range	54...864MHz
Input Level	-75...-7dBm (ATSC 8VSB)
Symbol Rate	10.762MBaud
Modulation Type	8VSB
Bandwidth	6MHz
Roll-off Factor	0.115

DS3	
Standard	Compliant with ITU-T G.703
Frame Structure	Compliant with ITU-T G.752 and ITU-T G.804
Bit Rate	44.736Mbit/s

Rear panel (Full equipped):



Specifications:

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 Voltage	0, 13V, 18V selectable
LNB Band Selection Tone	0/22KHz selectable
Satellite Selection Command	DiSEqC 1.0
ISI ID	1 ... 255 users configurable
DVB-S/S2 Tuner Input (16APSK/32APSK Factory Optional)	
Connector Type	2×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 Voltage	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	45 ... 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.)
ASI Input	
Connector Type	2×BNC female, 75Ω
Standard	DVB-ASI, EN50083-9
Input Bit Rate	≤ 200Mb/s
TS over IP	
Connector Type	2×RJ-45 independent, 100/1000 Base-T for TS/IP
Effective Bit Rate	500Mb/s for 2xSPTS/MPTS IP Out, 500Mb/s for 2xSPTS/MPTS full duplex (single channel IP In and single channel IP Out)

Protocol	UDP / RTP, Multicast / Unicast, IGMPv3, ARP
FEC	SMPTE 2022(former ProMPEG) 1 Dimensional and 2 Dimensional, auto-adaptive settings for the inputting TS (Note: under full duplex mode only, 150Mb/s effective bit rate for both input & output)
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	2 independent Remux(120M*2), 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 female, 75Ω
Standard	DVB-ASI, EN50083-9
Output Bit Rate	≤ 200Mb/s
TS Processing	2 Independent TS pass through or Re-multiplexed from tuner, TS/IP and 2 ASI inputs
HD/SD-SDI Output	
Connector Type	2 pairs BNC female, 75Ω
SD Standard	SMPTE 259M, 270 Mb/s (10bit)
HD Standard	SMPTE 292M, 1.485 Gbit/s (10bit)
Audio Embedded	2×audio PIDs are embedded with PCM or passed through
Level	800mV p-p
HDMI Output	
Standard	1× HDMI 1.4 interface,
Video Resolution and Frame Rate	1080I60, 1080I59.94, 1080I50, 720P60, 720P59.94, 720P50, 480P, 576P, 576I, 480I
Audio Embedded	1× Stereo
Genlock	

Connector Type	1 x BNC female, 75Ω
Input Signal	Analog SD (black & burst)
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	1xBNC 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 pattern)
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	2xBNC 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).

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 ±10dB
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
Control & Monitoring	
Connector Type	1×RJ-45, 10/100 Base-T, for equipment IP Control & Monitoring
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, 445mm (Length)x 320mm (Width) x 45mm (Height)
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
Certification	EMC: EN55024:1998+A1:2001+A2:2003, EN55022:2006+A1:2007, EN61000-3-2:2006, EN 61000-3-3:2008, FCC: Part 15 Class B, LVD: EN 60950-1:2006 + A11:2009