ProView™ 7100

INTEGRATED RECEIVER-DECODER, TRANSCODER AND STREAM PROCESSOR



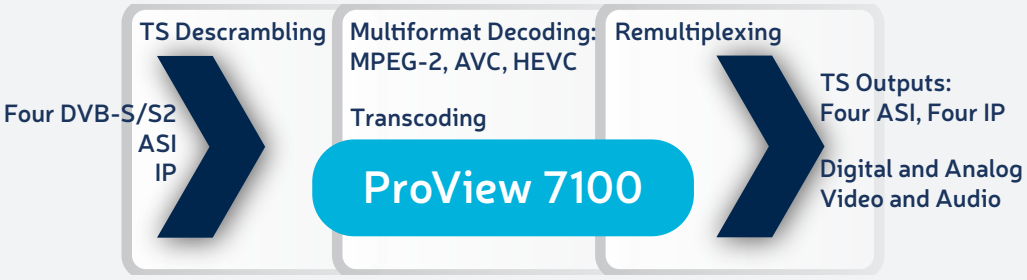
Harmonic's ProView™ 7100 is the industry's first single-rack-unit, scalable, multiformat integrated receiver-decoder (IRD), transcoder and MPEG stream processor.

Leveraging Harmonic expertise in Intelligent Function Integration™, the ProView 7100 adds broadcast-quality SD/HD MPEG-2 and MPEG-4 AVC 4:2:0/4:2:2 10-bit decoding and video transcoding to the feature-rich ProView IRD platform, allowing content providers, broadcasters, cable MSOs and telcos to easily and cost-effectively streamline their workflows and decrease operating costs. For applications in which preserving pristine video quality is paramount, the ProView 7100 supports HEVC 4:2:2* 10-bit decoding of resolutions up to 1080p60.

The ProView 7100 IRD harnesses a flexible and modular design to address the vast spectrum of content reception applications, from decoding, descrambling and multiplexing of multiple transport streams to MPEG-4 to MPEG-2 transcoding. With an advanced and dense multichannel descrambler, the ProView 7100 simplifies the deployment of (or migration to) an all-IP headend solution and powers the launch of added-value services. The flexible hardware design is easily reconfigured with firmware upgrades, enabling seamless adaptation to new inbound video formats and codecs, such as MPEG-4 AVC and HEVC.

The ProView 7100 utilizes powerful processing capabilities to multiplex transport streams that include local and regional data, and also to perform deterministic remultiplexing for SFN distribution. It supports transcoding of up to eight channels of AVC to MPEG-2, allowing programmers to efficiently distribute superior-quality video content while using minimal satellite transponder capacity. Content can be received and transcoded to any resolution required.

A rich set of options includes input of multiple DVB-S/S2, IP and DVB-ASI feeds. Support for advanced content delivery redundancy schemes includes the ability to provide simultaneous primary satellite and backup IP network feeds.



High-end IRD, transcoder and stream processor

HIGHLIGHTS

- Four TS descramblers with four integrated DVB-CI slots
- MPEG-2 4:2:0 8-bit and MPEG-4 AVC 4:2:2 10-bit decoding
- HEVC decoding of 1080p60 media
- Broad SD/HD format support
- Up to eight channels of MPEG-4 AVC to MPEG-2 transcoding with down-conversion option
- Single/dual-channel decoder in 1 RU
- Four stereo pairs of audio decoding
- Four independent ASI outputs
- Four IP outputs with 1+1 redundancy support
- HD-SDI, SD-SDI, HDMI and analog video outputs
- Any-to-any remultiplexing capabilities
- Deterministic remultiplexing for SFN distribution
- T2-MI deframing to MPEG TS
- Regeneration of PSI/SI and MPEG tables
- Graphical user interface provides easy drag-and-drop management

ProView™ 7100

INTEGRATED RECEIVER-DECODER, TRANSCODER AND STREAM PROCESSOR

Marketing Benefits

Lower CAPEX
Integrating and combining multiformat decoding, multi-program descrambling and remultiplexing capabilities, the ProView 7100 dramatically streamlines system architectures. Its unequalled density and flexibility makes it the clear choice for CAPEX investment.

Business Continuity
The trend towards HD and AVC content distribution creates business continuity issues with legacy receivers. The ProView 7100 can be repurposed via hardware options and firmware upgrades for different uses and new applications, such as migration from SD MPEG-2 to HD AVC. It can also support the emerging HEVC codec via a simple software update, paving the way for highly efficient HEVC workflows and 1080p HD and 2160p Ultra HD content distribution.

Expanding Channel Lineup
By integrating DVB-S/S2 demodulation with the streaming of descrambled content over IP, ProView 7100 enables operators to quickly and cost-effectively launch new services while leveraging their existing IP or legacy ASI infrastructure.

OPEX Friendly
Able to house a multiformat decoder and descramble up to four full Multi-Program Transport Streams (MPTS) in a 1-RU chassis, the dense ProView 7100 is perfectly suited for operators mindful of their energy cost and rack space.

Lower OPEX
Harmonic's unique DSR technology can save up to 90% of satellite or IP bandwidth and increase architecture flexibility in regional DVB-T SFN distribution networks. The common national programs do not need to be retransmitted in each region, and both the national and regional signals can be distributed over different networks.

Applications

- Contribution and distribution
- Decoding for re-encoding
- Digital turnaround
- DVB descrambling
- All-IP headends
- DTT distribution — MFN and SFN

Technical Benefits

Fully Integrated Platform
The ProView 7100 combines all headend reception functionality — such as multiple transport-stream descrambling, multiformat and codec decoding, and any-to-any transcoding — with full remultiplexing capabilities, including PID filtering, remapping and table regeneration.

High-Fidelity Decoding
The ProView 7100 offers integrated MPEG-2 4:2:0 8-bit and AVC and HEVC 4:2:2 10-bit precision decoding for DVB-S/S2, DVB-ASI and IP applications, enabling content providers to decode content up to 1080p60** with pristine picture fidelity.

Superior Transcoding
The ProView 7100 can be equipped with two decoding or transcoding cards for SD/HD MPEG-2 and AVC formats. Harmonic's industry-leading compression algorithms assure the distribution of superior-quality video for all added-value services, including HD and VOD.

Expanded Input Options
Able to simultaneously receive content over DVB-S/S2, ASI and IP, the ProView 7100 allows operators to maximize flexibility and optimize redundancy schemes.

Support for All-IP Infrastructures
The ProView 7100, in combination with the integrated Harmonic FLEX® decoder, enables an all-IP headend architecture, resulting in a more scalable and lower-cost transition to IP-based services.

T2-MI Deframing to MPEG TS
The ProView 7100 converts the PLPs (physical layer pipes) in a T2-MI stream into a regular transport stream. Up to four simultaneous T2-MI-to-TS conversions can be performed, eliminating the need to distribute separate TS for baseband decoding and for feeding the headend.

Broadcast-Quality Down-Conversion
The ProView 7100 performs HD down-conversion and aspect ratio adaptation to generate broadcast-quality baseband analog video and audio that can be easily integrated with existing cable network infrastructures.

Friendly Management
The ProView 7100 can be simply configured through a stand-alone interface or with Harmonic's NMX™ Digital Service Manager for mass configuring, monitoring and automated redundancy in centralized or distributed architectures.

Advanced DSR Processing
The ProView 7100 performs regional program insertion in a national common multiplex at each DVB-T SFN transmission site. DSR supports CBR and VBR content replacement or insertion of any number of programs or PIDs. A special EAS mode is provided for emergency alert program switching.

* *Check availability*

SPECIFICATIONS

RF INPUT INTERFACES — DVB-S/DVB-S2 2

Number of Inputs	One (standard) Four L-band (optional)
Connectors	One or four F-type, 75 Ω (working simultaneously)
Frequency Range	950-2,150 MHz
RF Input Level	(-25) to (65) dBm
LNB Power	13 VDC, 18 VDC / 350 mA

TRANSPORT STREAM INPUT INTERFACES

DVB-S	
Constellation	QPSK
Symbol Rate	1-45 Msym/s
FEC	All ratios compliant with standard
DVB-S22	QPSK, 8PSK 1
Constellation	1-45 Msym/s
Symbol Rate	All ratios compliant with standard
FEC Blocks	Short and normal
Roll Off	0.05, 0.2, 0.25 and 0.35
Mode	CCM, VCM
Pilots	On & off
ASI	
Number of Inputs	Four
Connectors	BNC, 75 Ω
Packet Length	188 byte packets
TS Max Bitrate	160 Mbps Compliant with CENELEC EN 50083-9
MPEG over IP1	
Number of Inputs	Four simultaneous SPTS/MPTS
Sockets	Four
Encapsulation Protocols	MPEG-2 TS over UDP
Addressing	Multicast/unicast
Connectors	Two 100/1000 Base-T RJ45 for redundancy
G.7032	
Connectivity	DS3
Number of Ports	Two
Input Data Rate	44.736 Mbps
Levels (Compliance)	ITU-T G.823/G.824 ANSI T1.102-1993
Interface	B3ZS

TRANSPORT STREAM OUTPUT INTERFACES

ASI	
Number of Outputs	Four (duplicate or independent)[1]
Connectors	BNC, 75 Ω
Packet Length	188
TS Maximum Output Bitrate	108 Mbps Compliant with CENELEC EN 50083-9
MPEG Over IP	
Number of Inputs	Four simultaneous SPTS/MPTS[1]
Sockets	Four
Encapsulation Protocols	MPEG-TS over UDP
Redundancy	1+1 physical layer support
Addressing	Multicast
Connectors	100/1000Base-T, RJ45
FEC[1]	SMPTE-2022 FEC

TRANSPORT STREAM PROCESSING

Four TS multiplexing (any to any)[1]
Seamless switching between two incoming, identical TS on different networks[1]
Service-level remultiplexing from any input to any output
Service-level filtering
High-accuracy PCR restamping
PSI /SI processing and regeneration
T2-MI deframing to MPEG TS[1]
Auto generation or passthrough of PSI/SI tables
CA signaling removed when descrambling
Deterministic remultiplexing of local content into the national TS for DVB-T SFN content distribution[1]

CONDITIONAL ACCESS[1]

BISS	Embedded, up to full TS
DVB-CI Interface	Two independent CI slots EN-50221, allowing descrambling of up to four TS (number of PIDs dependent on the CAMs)
CA Methods	MultiCrypt, SimulCrypt
CAS	Viaccess®, Irdeto®, Conax®, Nagravision® (partial list)

VIDEO DECODING[2,3]

Configuration	Single or dual channel
Decoding Formats[1]	
MPEG-2 SD	4:2:0 MP @ ML 4:2:2 @ ML
MPEG-2 HD	4:2:0 MP @ HL 4:2:2 P @ HL
MPEG-4 AVC SD	4:2:0 MP @ L3 4:2:2 HP @ L3
MPEG-4 AVC HD	4:2:0 MP @ L4.0 / HP @ 4.1 4:2:2 @ HiP/Hi10P/Hi422P @ L4.1 (8 and 10 bit)
HEVC HD	Main/Main 10 1080i/720p 4:2:0 @L4.0 **1080P and 4:2:2@L4.1 (8 and 10 bit)
Maximum Video Rate	
MPEG-2 SD	4:2:0 – 15 Mbps 4:2:2 – 50 Mbps
MPEG-2 HD	4:2:0 – 50 Mbps 4:2:2 – 80 Mbps
MPEG-4 AVC SD	4:2:0 – 10 Mbps 4:2:2 – 50 Mbps
MPEG-4 AVC HD	4:2:0 – 20 Mbps (MP), 25 Mbps (HP) 4:2:2 – 100 Mbps (CAVLAC), 50 Mbps (CABAC)
HEVC HD	Up to 50 Mbps (CABAC)
Video Formats	1080p @ 60, 29.97, 30, 25 fps 1080i @ 29.97, 30, 25 fps 720p @ 59.94, 50, 60 fps 480i @ 29.97 fps 576i @ 25 fps 480p @ 59.94 fps
Analog Video Output	PAL-B/G/I/M/N/D, NTSC, Russian SECAM

VIDEO PROCESSING[2,4]

HD Video Down Converted to SD with Aspect Ratio Conversion	Letterbox, center cut, AFD
Aspect Ratio Conversion	16:9 to 4:3
VBI Reinsertion	Composite video, embedded in SDI
Descrambling	Four TS with four DVB CAM slots

ProView™ 7100 INTEGRATED RECEIVER-DECODER, TRANSCODER AND STREAM PROCESSOR

SPECIFICATIONS

AUDIO DECODING[2,4]

Stereo Pairs per Video Channel	Four[1]
Audio Formats	MPEG-1 Layer-II Dolby® Digital (AC-3) stereo down-mix Dolby Digital 5.1 pass-through Dolby Digital Plus (E-AC-3) Dolby E pass-through AAC Audio leveling

VIDEO AND AUDIO INTERFACES[2,4]

Video Outputs	
Composite Video Interfaces	Two (per video channel)
SD/HD/3G-SDI with Embedded Audio	Two (per video channel)
HDMI	One (single-channel decoder only)
Audio Outputs	
Stereo Pairs	Four (per video channel)
Analog Audio Stereo Pairs	Four (balanced)
Digital audio (AES/EBU-S/P-DIF)	Four
Digital Audio Interfaces	Four (balanced)
Modes	Stereo, joint stereo, dual channel, single channel

VIDEO TRANSCODING[2,5]

Number of channels	Up to eight (from the same input TS)[1]
Video Inputs	
MPEG-4 AVC SD	MP @ L3
MPEG-4 AVC HD	MP @ L4.0/HP @ 4.0
SD Resolutions and Frame Rates	480i @ 29.97 fps 480p @ 59.94 fps 576i @ 25 fps Vertical: 720/704/544/528
HD Resolutions and Frame Rates	720p: 1280 x 960 @ 59.94, 50, 60 fps 1080i: 1920 x 1440 @ 29.97, 30, 25 fps
Video Outputs	
MPEG-2 SD	4:2:0 MP@ML
MPEG-2 HD	4:2:0 MP@HL
MPEG-4 AVC	MP@L3
MPEG-4 AVC HD	MP@4.0/HP@4.0
Output Resolution Conversion (HD->HD, HD->SD, SD->SD)	
MPEG-2 SD	2-15 Mbps
MPEG-4 AVC SD	1-15 Mbps
MPEG-2 HD	6-18 Mbps
MPEG-4 AVC HD	3-18 Mbps
Any to any	
VBI pass-through	
Audio pass-through	

CONTROL AND MONITORING

Web browser interface
Ethernet – RJ45 10/100BaseT control interface
Front panel keypad and LCD
SNMP traps and alarms
Telnet
Terminal via RS-232 or RS-485
Presets

PHYSICAL

Dimensions (H x W x D)	1.75 in x 19 in x 15.5 in (1 RU) 4.4 cm x 48.3 cm x 39.37 cm
Weight	11 lbs / 5 kg
Power Voltage	100 V-240 V AC, 50/60 Hz
Power Consumption	Up to 100 W max

ENVIRONMENTAL

Operating Temperature	0-50° C
Operating Humidity	5-90% (non-condensing)
Storage and Transportation Temperature	-40° C - 70° C
Storage and Transportation Humidity	0-95% (non-condensing)

COMPLIANCE

EMC	EN61000-3-2;-3 EN55022 (CISPR 22) EN55024 (CISPR 24) FCC part 15 (class A)
Safety	EN60950 CB (IEC60950) UL60950 ROHS Directive 2002/95/EC

Notes:

1. Licensed feature

2. Hardware option

3. Requires optional 4:2:0 and 4:2:2 decoding boards

4. Requires optional video decoding board

5. Requires optional video transcoding board

**Contact sales*

***Check availability*

© 2016 Harmonic Inc. All rights reserved. Harmonic, the Harmonic logo, and ProView are trademarks, registered trademarks or service marks of Harmonic Inc. in the United States and other countries. Dolby, Dolby Digital, Dolby Digital Plus and Dolby E are registered trademarks of Dolby Laboratories. Implementations of AAC/HE-AAC by Fraunhofer IIS. Other company, product and service names mentioned herein may be trademarks or service marks of their respective owners. All product and application features and specifications are subject to change at Harmonic's sole discretion at any time and without notice.
08.12.16