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.
**BUSINESS 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 headsends
- 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
### RF INPUT INTERFACES — DVB-S/DVB-S2

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

### TRANSPORT STREAM INPUT INTERFACES

**DVB-S**
- Constellation: QPSK
- Symbol Rate: 1.45 Msym/s
- FEC: All ratios compliant with standard

**DVB-S2**
- Constellation: QPSK, 8PSK
- Symbol Rate: 1.45 Msym/s
- FEC: 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 IP**
- 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.703**
- 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: 832S

### TRANSPORT STREAM OUTPUT INTERFACES

**ASI**
- Number of Outputs: Four (duplicate or independent)
- Connectors: BNC, 75 Ω
- Packet Length: 188
- TS Maximum Output Bitrate: 108 Mbps
- Compliant with CENELEC EN 50083-9

**MPEG Over IP**
- Number of Outputs: Four simultaneous SPTS/MPTS
- Sockets: Four
- Encapsulation Protocols: MPEG-TS over UDP
- Redundancy: 1+1 physical layer support
- Addressing: Multicast
- Connectors: 100/1000Base-T, RJ45
- FEC: SMPTE-2022 FEC

### TRANSPORT STREAM PROCESSING

- Four TS multiplexing (any to any)
- Seamless switching between two incoming, identical TS on different networks
- 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
- 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

### CONDITIONAL ACCESS

- 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

- Configuration: Single or dual channel
- Decoding Formats
  - 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 @ HP/Hi10P/Hi22P @ 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: Up to 15 Mbps
  - 4:2:2 – 50 Mbps
  - MPEG-2 HD: Up to 50 Mbps
  - 4:2:2 – 80 Mbps
  - MPEG-4 AVC SD: Up to 10 Mbps
  - 4:2:2 – 50 Mbps
  - MPEG-4 AVC HD: Up to 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

### VIDEO PROCESSING

- 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
### AUDIO DECODING

<table>
<thead>
<tr>
<th>Stereo Pairs per Video Channel</th>
<th>Four1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Audio Formats</td>
<td>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</td>
</tr>
</tbody>
</table>

### VIDEO AND AUDIO INTERFACES

<table>
<thead>
<tr>
<th>Video Outputs</th>
<th>Composite Video Interfaces: Two (per video channel), SD/HD/3G-SDI with Embedded Audio: Two (per video channel), HDMI: One (single-channel decoder only)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Audio Outputs</td>
<td>Stereo Pairs: Four (per video channel), Analog Audio Stereo Pairs: Four (balanced), Digital Audio (AES/EBU-S/P-DIF): Four (balanced), Digital Audio Interfaces: Stereo, joint stereo, dual channel, single channel</td>
</tr>
</tbody>
</table>

### VIDEO TRANSCODING

<table>
<thead>
<tr>
<th>Number of channels</th>
<th>Up to eight (from the same input TS)1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Video Inputs</td>
<td>MPEG-4 AVC SD: MP @ L3, MPEG-4 AVC HD: MP @ L4/0/HP @ 4.0</td>
</tr>
<tr>
<td>SD Resolutions and Frame Rates</td>
<td>480i @ 29.97 fps, 480p @ 59.94 fps, 576i @ 25 fps, Vertical: 720/704/544/528</td>
</tr>
<tr>
<td>HD Resolutions and Frame Rates</td>
<td>720p: 1280 x 960 @ 59.94, 50, 60 fps, 1080i: 1920 x 1440 @ 29.97, 30, 25 fps</td>
</tr>
</tbody>
</table>

| 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) | 2-15 Mbps, 1-15 Mbps, 6-18 Mbps, 3-18 Mbps |

### 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

### PHYSICAL

- Dimensions (H x W x D): 1.75 in x 19 in x 15.5 in (1 RU)
- 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