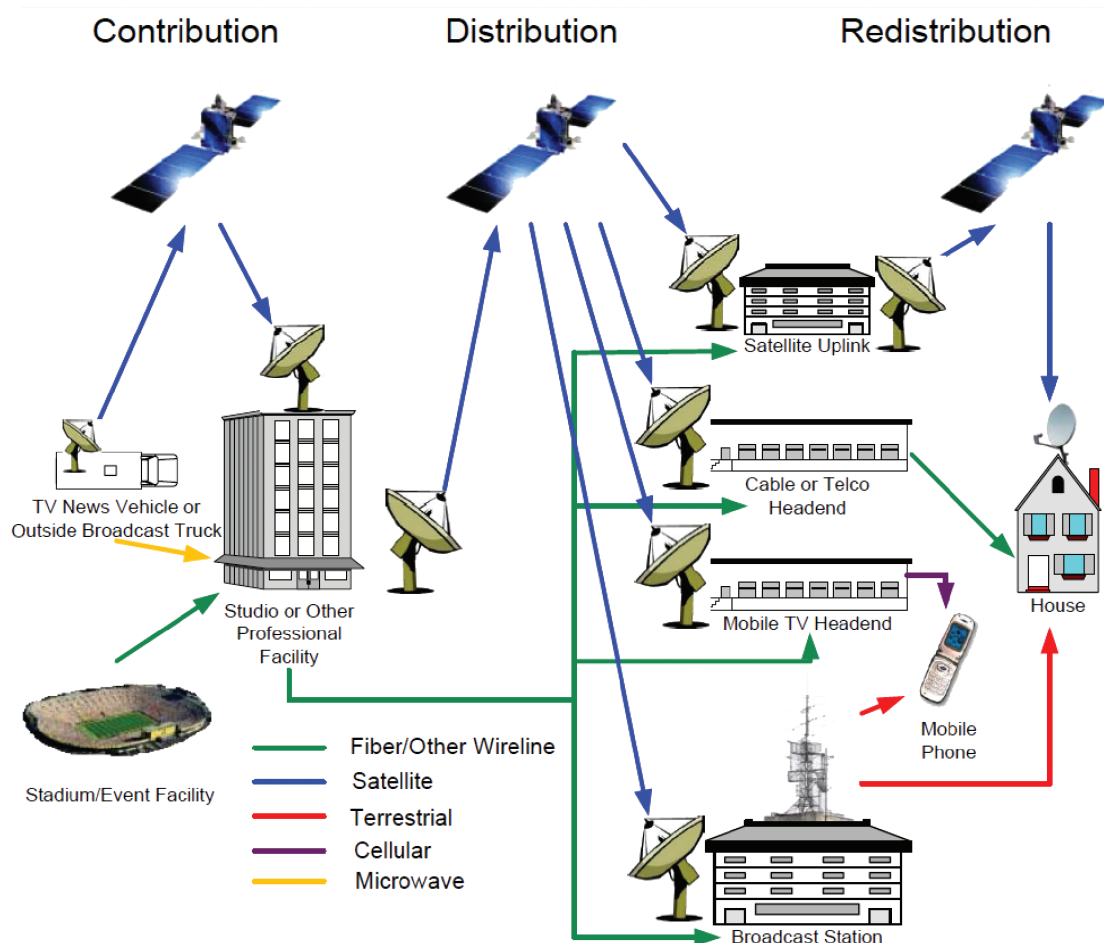


Harris Decoders

Harris provides broadcasters with the tools to streamline any multiplatform delivery workflow — whether the requirement is to move content within a facility or across the country and beyond. Leveraging the modular flexibility of the NetVX™ video networking device, the 6800+™ core processing platform and the all-new Selenio™ media convergence platform, as well as the broadcast-grade capabilities of the NetPlus™ M400 satellite integrated receiver/decoder (IRD), Harris offers you a range of versatile solutions that address IP traffic, satellite demodulation and advanced video/audio decoding applications.



Harris Decoders



Application Focus	6800+™	NetPlus™	Selenio™	NetVX™
	SRC+MFD	M400	DEC1	DEC-S11
Contribution		1		1 (SD only)
Distribution	X	X	1	X
Redistribution	X	X	1	X
Monitoring	1		X	X

Features/Capabilities	6800+™	NetPlus™	Selenio™	NetVX™
	SRC+MFD	M400	DEC1	DEC-S11
OC3/DS3			future	With ATM-X11
IP	15 Mb direct 200 Mb with IPA	100 Mb	500 Mb	100 Mb with GBE-C11
DVB-S/S2	x	x		
Lip Sync	+45 ms	+5 ms	+5 ms	+5 ms
SD	x	x	x	x
HD	x	x	x	
4:2:2 Profiles		x	MPEG-2 only	MPEG-2 only
GPI/GPO		x	x	x
SNMP Control		x	x	x
HTTP Control	x	x	x	x
1080i/720p Format Conversion	x		x	
HD/SD Up-/Down-conversion	x		x	
Simulcrypt CA Decryption	x	x		
Biss Decryption		x	x	x
# Audio Channels	4	4	8	2
Dolby®E Decode		1	2	
# 5.1 Audio Decode	1	1	2	
# SMPTE 302	2	4	8	
AAC Audio Decode	4	4	8	
AC3 Audio Decode	2	2	8	2
MPEG Audio Decode	4	4	8	2
DC Power Support	x		Future	x
Latency (x = short, xxx = long)	xxx	x	xx	xx

Harris Decoders

6800+™ Core Processing Platform



The widely deployed 6800+™ modular platform enables core processing and distribution functions, and features a range of networking capabilities.

MFD6800+T: Multiformat Decoder Module

The MFD6800+T is a multiformat video decoder module that extends the flexibility of the 6800+ modular platform. The MFD6800+T is a single 6800+ module that decodes either H.264 or MPEG-2 HD and SD video signals and their commonly associated audio signals. The MFD6800+T provides the flexibility of decoding multiple standards without resorting to an assortment of different card types. The flexibility of the MFD6800+T makes it ideal for production and distribution applications, especially where bulk decoding is required for monitoring-type applications. Coupled with the SRC6800+ or IPA6800+ in the 6800+ series, the multiple-function MFD6800+T decoder works to address applications such as multiformat satellite decoding, confidence monitoring and much more.

Features

- Supported video decoding formats:
 - SD/HD H.264/MPEG-4 part 10 decoding
 - SD/HD MPEG-2 decoding
- Supported audio decoding/processing formats:
 - AAC-LC 2.0, HE-AAC V1.2.0
 - Dolby® AC-3 2.0
 - SMPTE 302
- Supported input formats:
 - DVB-ASI
 - IP inputs
- Supported output formats:
 - HD (SMPTE 292M)
 - SD (SMPTE 259M)
- Extensive VBI processing support

SRC6800+D: Satellite Receiver and Demodulator Module

The SRC6800+D satellite receiver and demodulator is a cost-effective alternative to more expensive single-function satellite demodulation units. This feature-rich module resides in the 6800+ frame and fully interoperates with other modules in the extensive line. The SRC6800+D is capable of receiving a variety of satellite signals and provides an industry-standard ASI output for distribution or decoding. When used along with the MFD6800+ module, the SRC6800+D forms the front end to a cost-effective multiformat satellite receiver/decoder.

Features

- L-Band satellite tuner supports
 - DVB-S (QPSK), DVB-S2 (QPSK and 8PSK)
- Four active software-selectable F-Type inputs
- 950-2150 MHz input frequency selection
- DC power and 22 Hz tone configurable on selected input
- Conditional Access (CA) support
 - DVB fixed-key decryption (BISS modes 0, 1, and E)
 - Integral conditional access module (consult factory for supported CA vendors)
- PID filtering
- ASI input for CA decrypting or PID filtering
- Control using CCS™ Protocol and over IP

IPA6800+D: IP Video Gateway Module — ASI-to-IP Encapsulator

The IPA6800+D IP video gateway module is an extension to the comprehensive set of line cards within the 6800+ modular platform family. It links traditional ASI-based video plants with modern Gigabit Ethernet networks, providing an alternative to satellite-based ASI links.

Features

- Bidirectional transmission of ASI to and from IP
- Two independent transmit and receive channels
- Simultaneously send or receive in either direction without interference
- Add forward error correction (FEC) for robust data transmission
- Transmit or receive IP unicast or multicast video streams
- De-encapsulate ASI streams from an IP transport
- Encapsulate up to two ASI streams and transmit them over IP
- Control using CCS™ Protocol and over IP

NetVX™ Video Networking Platform



The NetVX™ video networking platform provides a simple solution for bidirectional transport over packet-based connections, as well as integrated encoding and decoding capabilities, making it ideal for a wide variety of production and distribution applications.

HALRDEC-S11: MPEG-2 Decoder Module

The HALRDEC-S11 MPEG-2 decoder module handles both main level/main profile CIF 4:2:0 and main level/professional profile 4:2:2 video, and provides both analog composite and SMPTE 259M SDI component video. This module also decodes Dolby® AC-3 or MPEG-1 Layer 2 and supports SMPTE 302 and pre-compressed audio formats. Primary and secondary stereo audio outputs are provided as AES-3 balanced analog or embedded audio. Additionally, this module inserts VANC and VBI data that is present in the video output.

Features

- Decoding of MPEG-2 4:2:0 or 4:2:2 video in a single module
- SDI component and analog video output simultaneously
- Dual stereo audio decoding
- Insertion of VANC and VBI data into output
- Also available for low-resolution confidence monitoring applications

Harris Decoders

NetPlus™ M400 Integrated Receiver/Decoder



The NetPlus™ M400 is a broadcast-grade, satellite integrated receiver/decoder (IRD) that supports a wide range of global standards for video and audio compression. It sports a highly robust set of standard features, including DVB-S/S2 demodulation capabilities and inputs for DVB-ASI and IP. Every unit supports MPEG-2 and H.264 video compression — from the 4:2:2 format to SD and HD formats — as well as MPEG, Dolby® Digital AAC and SMPTE 302 audio systems.

Building on the industry-leading Harris experience in multichannel audio transport, this IRD features the AVTrack™ frame-alignment system for Dolby® E audio alignment, and is available with a factory-fitted option for an integrated Dolby® E decoder. The M400 supports vertical ancillary data space (VANC) transport, wide-screen signaling (WSS), active format description (AFD) and other related data signals, as well as DVB fixed-key decryption (BISS) and DVB Common Interface (DVB-CI) descrambling methods.

Options for the M400 include an advanced demodulator that adds DVB-DSNG and 16/32 QAM DVB-S2 modes for the full range of satellite transmission standards currently in use worldwide.

The NetPlus M400 is the ideal solution for on-the-fly, multiformat, multi-standard contribution and distribution environments. With a full arsenal of supported standards and features, the M400 is up to the task for every feed, every day.

Features

- Bitstream input/output capabilities:
 - DVB-S, DVB-S2 satellite demodulator (standard)
 - Advanced RF demodulator (option) for 16/32 QAM and DSNG
 - DVB-ASI input and output (standard)
 - Dual IP SMPTE 2022-1 inputs and outputs (standard)
 - DVB fixed-key (BISS) decryption (standard)
 - DVB common interface module slot (option)
 - Smart PID filtering to output selected streams on ASI or IP
- Video compression formats:
 - MPEG-2 MP@ML, MP@HL (standard)
 - MPEG-2 422P@ML, 422P@HL (option)
 - H.264 MP@L3, MP@L4.1 (standard)
 - H.264 422P@L3, 422P@L4.1 8-bit (option)
- Audio compression formats:
 - AAC-LC, HE-AAC v2 2.0 and 5.1 decode (standard)
 - MPEG-1 Layer 2 decode (standard)
 - Dolby® Digital (AC-3) 2.0 and 5.1 decode (standard)
 - SMPTE 302 PCM and Dolby® E passthrough with AVTrack™ (standard)
 - One or two Dolby® E integrated decoders (option)
- Extensive VBI/VANC data/ancillary capabilities (standard)
- Video/audio output capabilities
 - Dual SDI/HD-SDI video outputs; 1080i/720p/625i/525i 50/59.94 Hz
 - Eight stereo pairs of assignable embedded audio
 - Four assignable, separate AES outputs

Selenio™ Media Convergence Platform



Selenio™, the industry's first media convergence platform, combines traditional base-band video/audio processing, compression and IP networking features — all in a single, modular 3RU frame.

SEL-1DEC1: MPEG-2/H.264 Universal Decoder Module

The Selenio SEL-1DEC1 module is a full-featured multiformat video decoder that handles both H.264 and MPEG-2 video streams and their commonly associated audio and metadata streams. The decoder is built with the latest silicon architectures and provides a high level of compatibility with the Selenio SEL-1ENC1 encoder module and other industry encoders. The Selenio decoder supports the decoding of a single video signal from a variety of sources — using either the MPEG-2 or H.264 standards — and supports up to eight audio streams, as well as the processing of any supporting data insertion via VBI or VANC. The flexibility of the Selenio decoder makes it ideal for production and distribution applications. Coupled with other modules in the Selenio series, this multifunction decoder works to address applications such as multiformat satellite decoding, confidence monitoring and much more.

Features

- Supports receiving a single transport stream from any of the following sources:
 - Over IP using UDP or RTP protocols and SMPTE 2022 error protection
 - DVB-ASI from the rear I/O interface
 - Internal connection from other application modules in the frame
- Supports decoding of constant bit rate and variable bit rate streams:
 - H.264 high profile @ up to L4.2 (62.5 Mb/s maximum)
 - H.264 main profile @ up to L4.2
 - H.264 baseline profile @ up to L1.3
 - MPEG-2 422 profile @ up to high level (65 Mb/s maximum)
 - MPEG-2 restricted to main profile @ up to high level
- Supports output video formats:
 - 1080p/59.94, 1080p/50 – SMPTE 424/235 Level A and B
 - 1080i/59.94, 1080i/50 – SMPTE 292
 - 720p/59.94, 720p/50 – SMPTE 292
 - 480i/59.94 – SMPTE 259
 - 576i/50 – SMPTE 259
- Supports cross-conversion in the following cases*:
 - SD (NTSC or PAL) to HD (1080i, 720p) at the same frame rate as the source maintaining aspect ratio by letter/pillar boxing, as necessary
 - HD to SD at the same frame rate as the source maintaining aspect ratio by letter/pillar boxing, as necessary
 - HD to HD (1080i to/from 720p) at the same frame rate as the source
 - HD to SD or SD to HD — if configured and AFD data is present, it can be used to further refine scaling
 - Mobile streams (vertical resolution below 480) displayed as either full screen with letter/pillar boxing, as necessary, or centered with no vertical scaling
 - 3 Gb/s to HD

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