

Cisco D9800 Network Transport Receiver

Product Overview

The Cisco® D9800 Network Transport Receiver (Figure 1) is the most versatile receiver designed offering hardware configurability and over the air (OTA) licensing that allows content providers to customize the product to support the gamut of their applications. Designed to support high-efficiency video coding (HEVC) and ultrahigh-definition (UHD) delivery over satellite and IP terrestrial content distribution networks requiring Digital Video Broadcasting - Satellite (DVB-S), Digital Video Broadcasting - Satellite - Second Generation (DVB-S2), and IP reception capabilities, it future proofs the next network expansion. The integrated video decoder can decode an MPEG-2, advanced video coding (AVC), or HEVC video-encoded service and output the serial digital interface (SDI) or composite uncompressed video. The D9800 is capable of outputting simultaneous high-definition (HD) and down-converted standard definition (SD).

Figure 1. Cisco D9800 Network Transport Receiver



Digital Baseband Outputs

The Cisco D9800 Network Transport Receiver is capable of decoding MPEG-2, AVC (if licensed), and HEVC (if licensed) compressed video content and outputting SDI baseband digital video. The decoder will decode any input resolution compliant with the codec standard that is licensed to decode. The SDI and composite outputs will automatically downscale based on the output resolution that the unit is licensed for up to 1080p60. Two SDI ports can be configured mirrored for redundancy or one native and one down-converted from the same input source.

Digital Program Distribution

The Cisco D9800 Network Transport Receiver offers asynchronous serial interface (ASI) transport output and MPEGoIP output (HW option). These outputs provide a decrypted program for digital distribution when a codec or bitrate change is not needed. This capability provides the original compressed video programs on the outputs.

Digital Program Mapping

Digital program mapping allows programmers to “transparently” substitute programs at the uplink. It maintains predictable and compliant transport output during service replacement, network information table (NIT) retuning, and channel changes, including forced tuning. This feature remaps the packet identifier (PID) information from the primary service to an alternate service, allowing downstream devices to continue to operate without headend operator intervention. This helps ensure availability of alternate programming in the digital tier.

Digital Advertisement Insertion

Digital program insertion (DPI) information is available along with the video and audio PIDs for external advertisement insertion in compressed digital format.

Main Features

- Four independent RF inputs with licensable independent tuner/demodulators
- 4:2:0 10-bit HEVC decoding up to UHD resolutions
- 4:2:0 AVC decoding up to 1080p60
- 4:2:0 MPEG-2 decoding up to 1080p60
- New H/W with up to 180 Mbps throughput/bandwidth
- MPEGoIP input with redundancy (1 MPTS or 1 SPTS)
- MPEGoIP output with redundancy (1 MPTS or 16 SPTS)
- Forward Error Correction (FEC) based on SMPTE 2022 for MPEGoIP input and output
- DVB-S quaternary phase shift keying (QPSK) demodulation
- Licensable DVB-S2 QPSK and eight-phase shift keying (8PSK)
- Cisco PowerVu[®] conditional access with Data Encryption Standard (DES) or DVB descrambling
- Optional DVB-CI support for CAM-based conditional access
- Aspect ratio conversion (4:3, 16:9, 14:9) with active format descriptor (AFD) control for SD programs
- AFD support for down-conversion of HD programs with aspect ratio conversion
- User-configurable redundant ASI, SDI, or HD-SDI outputs
- SDI, HD-SDI, or 3G-SDI video output with embedded audio
- Closed captioning support for EIA-608 and EIA-708
- MPEG and Dolby Digital audio decoding
- DVB or Imitext subtitling
- Four or eight audio outputs providing either two or four stereo pairs of balanced audio, each with the ability to use part of the output for applications such as second audio program (SAP), cue tones, and so on
- Uplink-addressable decoder output control, including vertical blanking interval (VBI) data, audio routing, DPI, and ASI output
- Fingerprint-triggered output to identify piracy sources
- Field-upgradeable software
- Simple Network Management Protocol (SNMP) for setup, control, and monitoring
- Front panel liquid crystal display (LCD) for control and monitoring
- Web browser interface for easy setup, control, and monitoring
- DVB-VBI and SCTE-127 support
- Dual-tone multifrequency (DTMF) cue tone and cue trigger outputs for advertisement insertion
- Digital program mapping providing uplink control for service replacements in blackout areas
- Cisco Live Event Controller support
- Onscreen display support on baseband output
- Satellite disaster recovery support with Cisco PowerVu Network Center uplink control (Release 12.5 or later)

Specifications

Table 1 provides product specifications for the Cisco D9800 Network Transport Receiver.

Table 1. Product Specifications

Feature	Description
System	
Standards	MPEG-2 and DVB compatible EN 300 421, EN 300 468
Demodulation	DVB-S QPSK, DVB-S2 QPSK, and 8PSK
Tuner RF Inputs	
Number of RF inputs	4 (default 1 active at a time, or can be licensed as individual tuners)
Input level	-25 to -65 dBm per carrier
Frequency range	950 to 2150 MHz
Symbol rate range	<ul style="list-style-type: none"> • DVB-S: <ul style="list-style-type: none"> ◦ 1.0 to 60 MS/s • DVB-S2: <ul style="list-style-type: none"> ◦ 1.0 to 45 MS/s
Input return loss	≥ 18 dB (950–2150 MHz)
Port-to-port isolation	≥ 65 dB (70 dB typical) (950–2150 MHz)
Input impedance	75 ohm
ASI Input	
MPEG-2 transport input	EN50083-9, DVB-ASI coaxial, 188/204-byte packets
MPEGoIP Input	
Physical	RJ-45
Ethernet	100BASE-T Ethernet, and 1000BASE-T Ethernet
FEC	FEC based on SMPTE 2022 for MPEGoIP input
Input modes	UDP raw, RTP, FEC
Rates	Up to 180 Mbps
Analog Outputs	
Analog SD Video Output	
Number of channels	1
Video decompression type	MPEG-2 4:2:0 and MPEG-4 AVC 4:2:0
Video standard	NTSC and PAL B/G/I/D/M/N
Maximum video resolution	720x480 and 576 video output
Analog Audio Output	
Number of channels	2 stereo pairs or 4 mono channels and 5.1 channel down-mix 4 stereo pairs or 8 mono channels (with license)
Audio decompression	MPEG, Dolby Digital (AC-3), HE-AAC, and Dolby Digital Plus
Output level	Balanced output is adjustable at the front panel by ±6.0 dB (ref. 100 kilo ohms) and is factory calibrated to +18 dBu (at full scale). Recommended 600 ohm operation adjustment range is -6 dB to +4dB. +17 dBu (ref. 600 ohms) at full scale
Frequency response	±0.5 dB, 20 Hz to 20 kHz (ref. 100 kilohms)
Total harmonic distortion	< 0.3% at 1 kHz (ref. 100 kilohms)
Dynamic range	85 dB (CCIR average response meter [ARM] weighting)
Crosstalk	-110 dB at 1 kHz (typical)

Feature	Description
Digital Outputs	
Digital SDI-HD Video Output (Optional)	
Number of channels	1
User-selectable output ports	2 (mirrored or optional simultaneous SD/HD output)
Output type	BNC
Output format	3G-SDI, SMPTE-424M (license option) HD-SDI, SMPTE-292M (license option) SDI, SMPTE-259M
Embedded audio	2 audio programs (license option for 4), PCM or pass-through 2 digital audio outputs (license option for 4) (1 stereo channel each) BNC, AES-3id (HW limited to 2), SMPTE 276M
Aspect Ratio	
Display aspect ratios	4:3, 16:9
Aspect ratio conversions for down-conversion	4:3: 16:9 letterbox, 14:9 letterbox, center cutout 16:9: center cutout
Aspect ratio conversions for SD programs	4:3: 16:9 letterbox, 14:9 letterbox, center cutout, none 16:9: Scale to 16:9
VBI	
NTSC	<ul style="list-style-type: none"> • Lines 10 to 22, fields 1 and 2 • Line 21 closed captions • NABTS • AMOL I and II (Nielsen) • VITC • WSS
PAL	<ul style="list-style-type: none"> • Lines 7 to 22, fields 1 and 2 • WST • WSS • VPS • VITC
Ethernet Output for MPE Data	
Connector	RJ-45, 100/1000BaseT
Rates	Up to 10 Mbps
Conditional Access	
Cisco PowerVu conditional access	DES or DVB
DVB descrambling	BISS mode1/E
DVB-CI	
Interface	2 CI slots: EN 50221
CA method	Multicrypt, simulcrypt
Other Outputs	
ASI Output	
MPEG-2 transport output	EN50083-9, DVB-ASI coaxial, 188-byte packets
MPEGoIP Output (Optional)	
Physical	RJ-45
Ethernet	100BASE-T Ethernet and 1000BASE-T Ethernet
Output modes	UDP raw, RTP, FEC
FEC	FEC based on SMPTE 2022

Feature	Description
Rates	Up to 200 Mbps
Relay Output	
Programmable relay output	Alarm or configurable to one of the 8 open collector outputs
Cue Tone Output	
Balanced audio output	-3.0 dBu ±3 dB, 600 ohms
Output impedance	< 50 ohms
Cue Trigger Outputs	
Number of outputs	8
Type	Open collector
Environmental Specifications	
Operating temperature	0–50°C (32–122°F)
Storage	-20–70°C (-4–158°F)
Chassis Mechanical Specifications	
Height	1.72 in. (4.37 cm) 1RU high, 19 in. EIA rack mountable
Width	17.35 in. (44.07 cm)
Depth	20.25 in. (51.44 cm)
Weight	15 lbs (6.8 kg) approx.
Power	
Voltage range	100V to 240 VAC
Line frequency	50/60 Hz
Power consumption	70W typical (without LNB)
LNB power on satellite input	+13V or +18V at 400 mA maximum

Figure 2 shows the rear view of the Cisco D9800 Network Transport Receiver.

Figure 2. Cisco D9800 Network Transport Receiver



Ordering Information

To place an order, visit the [Cisco Ordering page](#). To download software, visit the [Cisco Software Center](#). Table 2 provides ordering information.

Table 2. Ordering Information

Cisco D9800 Base HW Chassis	Part Number
1RU D9800 Base Chassis with ASI Input/Output	D9800-SS-BASIC
1RU D9800 Base Chassis with ASI and MPEGIOIP Input/Output	D9800-SS-MPEGOIP
Cisco D9800 Base Decoder Options	Part Number
D9800 Analog Video and Audio Output Decoder	D9800-ANALOG
D9800 Digital Video and Audio Output Decoder	D9800-3G-SDI
Cisco D9800 Hardware Options	Part Number
Four Port Satellite Input Card	D9800-SAT-GEN1
DVB Common Interface Module for 2 CAMs	D9800-DVB-CI

Cisco D9800 Software License Options	Part Number
AVC Video Decoding License	L-D9800-DEC-AVC
HEVC Video Decoding License (must have L-D9800-AVC)	L-D9800-DEC-HEVC
Standard HD (up to 720p, 1080i) Output License (must have D9800-3G-SDI HW)	L-D9800-VR-HD
Advanced HD (up to 1080p) Output License (must have D9800-3G-SDI HW and L-D9800-VR-HD)	L-D9800-VR-3G
Upgrade to DVB-S2 Demodulation License (must have D9800-SAT-GEN1 HW)	L-D9800-SAT-S2
Add an extra Tuner/Demodulator License (must have D9800-SAT-GEN1 HW)	L-D9800-SAT-DEMOM
Enable 3 rd and 4 th Audio License (must have D9800-3G-SDI HW)	L-D9800-AUD-ADV

Table 3 provides ordering information for country-specific power cords.

Table 3. Ordering Information: Country-Specific Power Cords

Power Cord Description	Part Number
North American Power Cord (US, IEC, 10AMP, 2.5m)	CAB-PWR-DMN-US
Japan Power Cord	CAB-PWR-DMN-JPN
China Power Cord (IEC)	CAB-PWR-DMN-CHN
Australia Power Cord	CAB-PWR-DMN-AUS
Italy Power Cord	CAB-PWR-DMN-IT
European Power Cord (EU)	CAB-PWR-DMN-EU
Brazil Power Cord	CAB-PWR-DMN-BRA
India Power Cord	CAB-PWR-DMN-IND
Argentina Power Cord	CAB-PWR-DMN-ARG
UK Power Cord (IEC, 10AMP, 2.5m)	CAB-PWR-DMN-UK

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For More Information

To learn more about the Cisco D9800 Network Transport Receiver, contact your local account representative or go to [Digital Receivers/Decoders](#).

Read more about the [Cisco End-of-Life Policy](#) and [subscribe](#) to receive end-of-life and end-of-sale information.

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