

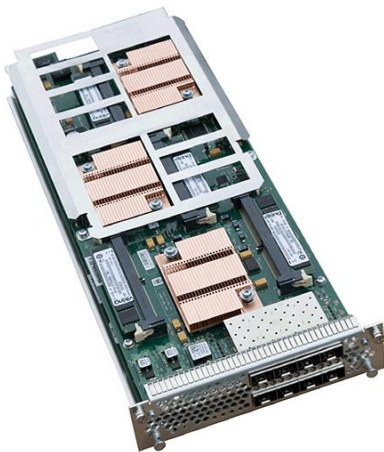
Cisco Digital Content Manager Media Interface Card

Product Overview

Your IP connectivity requirements are growing rapidly, driven by increased IP transport volumes along with a myriad of high-definition services. The Cisco® Digital Content Manager (DCM) Media Interface Card (Figure 1) is a new dense Input/Output card that is capable of providing a 10 Gigabit Ethernet Input/output connectivity for up to 2500 transport streams in and 2500 transport streams out in full duplex mode. Designed to fit in the Cisco DCM D9902 Chassis, the Cisco DCM Media Interface Card currently supplements the Cisco Gigabit Ethernet card capability. In future releases it will provide the same functionality as the card including MPEG transport processing and Forward Error Correction (FEC) capabilities.

To support an all-in-one platform through convergence of input connectivity and video processing in the same chassis, the Cisco DCM Media Interface Card can be configured to provide either baseband input through Serial Digital Interfaces (SDIs) or 10 Gigabit IP connectivity.

Figure 1. Cisco DCM Media Interface Card

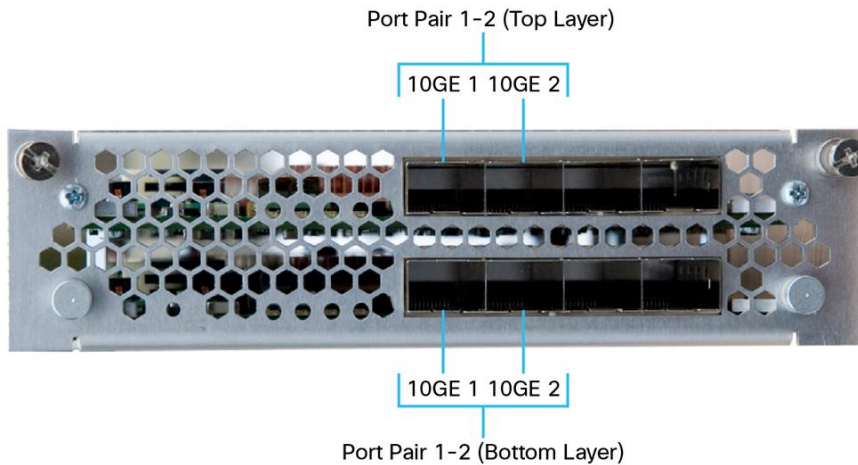


MAIN Features and Benefits

The Cisco DCM Media Interface Card design uses the Cisco DCM D9902 chassis switching capability. It uses the same virtual slot paradigm, with the same two-layer concept as the Cisco DCM Multi-Format Processing Card. Each layer can be defined in terms of its I/O connectivity function, thereby allowing multiple applications to operate with a single card through software.

In each layer, the Cisco DCM Media Interface Card provides four Small Form Factor Pluggable (SFP) slots, as shown in Figure 2. Two of the slots are configured as SFP and the other two are configured as SFP+. Depending on the type of connectivity in each virtual slot, the correct SFP type should be used. For a list of configurations that the Cisco DCM Media Interface Card supports, refer to the Configurations section. For details on the supported SFP types, refer to Table 3. As stated above, the Cisco DCM Media Interface Card can be used for either SDI input or 10 Gigabit Ethernet connectivity and not both.

Figure 2. Cisco DCM Media Interface Card - Back View



Flexible Modular Design

The Cisco DCM Media Interface Card fits into any application slot of a Cisco DCM 2RU chassis. Combined with existing application cards and I/O cards (such as Asynchronous Serial Interface (ASI), Gigabit Ethernet, satellite, and terrestrial), the Cisco DCM Media Interface Card supports truly converged applications. The functionalities in this card are software activated via a flexible electronic licensing program.

Baseband Video Interfaces

The Cisco DCM Media Interface Card provides SDI input to the DCM chassis. The SDI inputs are SDI, HD-SDI and 3G-SDI compatible. The card allows for up to 8 SD-SDI, 8 HD-SDI, or 4 3G-SDI inputs. This card enables processing of the vertical blanking interval (VBI) and the vertical ancillary (VANC) data, as well as extraction of audio signals from the horizontal ancillary (HANC) space.

Multiplexing

As is the case for the Cisco DCM Gigabit Ethernet Card, the Cisco DCM Media Interface Card supports MPEG-2 transport stream routing, merging and component tracking. In addition, it allows for acquisition of PSI/PSIP tables and the processing of these tables for output. The card also provides ETR error monitoring.

Redundancy

As illustrated in Figure 2, the two 10 Gigabit Ethernet ports in each layer of the Cisco DCM Media Interface Card can be configured in port pairs where one of the port designated as the backup port would provide redundancy in the case where a loss occurs in the MAIN port. Transport stream and service redundancy features are also supported.

Fast, Easy Setup and Configuration

The Cisco DCM Media Interface Card is fully integrated in an easy-to-use HTML-only web user interface, allowing drag-and-drop service configuration.

Configurations

The following configurations are currently supported.

10 Gigabit transport capabilities:

- 10 Gigabit input using SFP+ plug-in in bottom layer and 10Gbps output using SFP+ plug-in in top layer
- 10 Gigabit input port pair using SFP+ plug-ins in bottom layer and 10Gbps output port pair using SFP+ plug-ins in top layer
- 10 Gigabit full duplex using SFP+ plug-in in bottom layer
- 10 Gigabit full duplex port pair using SFP+ plug-in in bottom layer

SDI input functionality:

- 4 SD/HD-SDI inputs using SFP plug-in in bottom layer
- 4 SD/HD-SDI inputs using SFP plug-in in bottom layer and 4 SD/HD-SDI inputs using SFP Plug-in in top layer

Additional configurations will be supported in future releases.

Product Specifications

Table 1 provides product specifications for the Cisco DCM Media Interface Card.

Table 1. Product Specifications

Feature	Description
Physical and Power	
Physical specifications	Height: 39.5 mm/1.54 in Width: 145 mm/5.70 in Depth: 365 mm/14.37 in Weight: 1.120 kg/3.46 lbm
Power Consumption	DCM Media Interface Card: 160W maximum
Environmental Specifications	
Operating Temperature	32 - 122°F (0 to 50°C)
Storage Temperature	-40 - 158°F (-40 to 70°C)
Relative Operating Humidity	5 to 90 percent Note: Not to exceed 0.024 kg water or dry air
Relative Storage Humidity	5 to 95 percent Note: Not to exceed 0.024 kg water or dry air
Operating Altitude	-61 to 3048m (up to 2000m conforms to IEC/EN/UL/CSA 60950 requirements)
Compliance	
Network Equipment Building Standards (NEBS)	Designed for SR-3580: NEBS Criteria Levels (Level 3) GR-1089-CORE: NEBS EMC and Safety GR-63-CORE: NEBS Physical Protection
ETSI Standards	<ul style="list-style-type: none"> EN300 386: Telecommunications Network Equipment (EMC)
EMC Standards	<ul style="list-style-type: none"> FCC 47 CFR Part 15 Class A ICES- 003 Class A AS/NZS 3548 Class A CISPR 22/EN55022 Class A CISPR 24/EN55024 VCCI Class A KN 22 IEC/EN 61000-3-2: Power Line Harmonics
Immunity	<ul style="list-style-type: none"> IEC/EN-61000-4-2: Electrostatic Discharge Immunity IEC/EN-61000-4-3: Radiated Immunity IEC/EN-61000-4-4: Electrical Fast Transient Immunity IEC/EN-61000-4-5: Surge IEC/EN-61000-4-11: Voltage DIPS, Short Interruptions, and Voltage Variations
Safety	<ul style="list-style-type: none"> UL/CSA/IEC/EN 60950-1 2nd edition IEC/EN 60825 Laser Safety ACA TS001 AS/NZS 60950 FDA: Code of Federal Regulations Laser Safety
Baseband Video Interfaces	
Number of Ports per Card	Up to 8 ports for SD/HD-SDI inputs Up to 4 ports for 3G-SDI inputs
Connector Type	SFP plug-in - Please refer to Table 3

Feature	Description
Video Formats	SD-SDI: <ul style="list-style-type: none"> • 576i @ 25Hz, 480i @ 29.97 Hz (SMPTE-259) HD-SDI: <ul style="list-style-type: none"> • 1080i @ 29.97 Hz, 1080i @ 25 Hz, 720p @ 59.94 Hz, 720p @ 50 Hz, 1080p @ 29.97 Hz, 1080p @ 25 Hz (SMPTE-292) 3G-SDI: <ul style="list-style-type: none"> • 1080p @ 59.97 Hz, 1080p @ 50 Hz (SMPTE-424M)
Chroma Format	4:2:2
Video Resolution	10 bit
Return Loss	SD: ≥ 15 dB, 5MHz - 270MHz HD: ≥ 15 dB, 5MHz - 1.485 GHz, 3G-HD ≥ 15 dB, 5MHz - 1.485 GHz, ≥ 10 dB, 1.485GHz - 2.97 GHz
Connector	SFP plug-in - Please refer to Table 3
Jitter Acceptance	According to SMPTE RP-184
Aspect Ratio	4:3, 16:9
AFD Signaling	SMPTE-2016, manual
Embedded Audio Specifications	
Format	SMPTE-299-1M, SMPTE-272M
Sample Frequency	48 kHz (locked to video)
Resolution	20 bits, 24 bits
VBI and Ancillary Data	
Closed Captions	CEA-608 from Line 21 (SDI) CEA-708 VANC extraction - SMPTE-334M (HD-SDI)
VBI Formats	WST, DVB-WST, OP-47, SMPTE-2031
Digital Program Insertion	SCTE-35 signaling via SCTE-104 VANC messages
IP Interfaces	
Number of Ports per Card	Four 10Gigabit Ethernet either unidirectional or full duplex, configured in two 1+1 redundant ports
Connector Type	10Gigabit Ethernet: Optical or electrical SFP+
Interface Type	10Gigabit Ethernet according to IEEE 802.3ae
Protocols	UDP/IP, RTP/UDP/IP, ARP, IGMPv2/v3, Diffserv/TOS 802.1p Support for IEEE 802.Q VLAN tagging
IP Address Format	Multicast, unicast
Redundancy	Port, TS and Service backup
TS Streaming	Multiple SPTS/MPTS streams
Number of TS Streams	Up to 2500 input streams and 2500 output streams
TS Tables	Input SI/PSI/PSIP acquisition, Output SI/PSI/PSIP processing

* SFP, SFP+ or video SFP module not included

Ordering Information

To place an order, visit the Cisco Ordering Homepage. Table 2 provides ordering information for the Cisco DCM Media Interface Card. All Class 1 SFP plug-ins are designed according to IEC 60825-1 (1997) Amendment 2 (2001) specifications.

Table 2. Ordering Information

Description	Part Number
Hardware	
D9902 DCM Media Interface card - (req. SW, DCM, V13.10 or later)	DCM-IO-PROC
D9902 DCM Media Interface card - SPARE (req. SW, DCM, V13.10 or later)	DCM-IO-PROC=
Licenses	
D9902 10Gigabit License per Card MAIN	LCDM-10G-IO
D9902 10Gigabit License per Card BACKUP	BCDM-10G-IO

Table 3. Supported SFP+ Plugins (See Notes 1 and 2 for Additional Information on SFP Plug-Ins)

Description	Part Number
SFP+ Modules	
10GBASE-SR 850 nm MMF	SFP-10G-SR
10GBASE-SR 850 nm MMF - SPARE	SFP-10G-SR=
10GBASE-SR 850 nm MMF, extended temperature	SFP-10G-SR-X
10GBASE-SR 850 nm MMF, extended temperature - SPARE	SFP-10G-SR-X=
10GBASE-LR 1310 nm SMF	SFP-10G-LR
10GBASE-LR 1310 nm SMF - SPARE	SFP-10G-LR=
10GBASE-LR 1310 nm SMF, extended temperature	SFP-10G-LR-X
10GBASE-LR 1310 nm SMF, extended temperature- SPARE	SFP-10G-LR-X=
10GBASE-ER 1550 nm SMF	SFP-10G-ER
10GBASE-ER 1550 nm SMF - SPARE	SFP-10G-ER=
SFP+ Copper Cables	
Twinax cable, active, 7 meter	SFP-H10GB-ACU7M
Twinax cable, active, 7 meter - SPARE	SFP-H10GB-ACU7M=
Twinax cable, active, 10 meter	SFP-H10GB-ACU10M
Twinax cable, active, 10 meter	SFP-H10GB-ACU10M=
SFP+ Optical Cables	
10GBASE Active Optical SFP+ Cable, 1M	SFP-10G-AOC1M
10GBASE Active Optical SFP+ Cable, 1M - SPARE	SFP-10G-AOC1M=
10GBASE Active Optical SFP+ Cable, 2M	SFP-10G-AOC2M
10GBASE Active Optical SFP+ Cable, 2M - SPARE	SFP-10G-AOC2M=
10GBASE Active Optical SFP+ Cable, 3M	SFP-10G-AOC3M
10GBASE Active Optical SFP+ Cable, 3M - SPARE	SFP-10G-AOC3M=
10GBASE Active Optical SFP+ Cable, 5M	SFP-10G-AOC5M
10GBASE Active Optical SFP+ Cable, 5M - SPARE	SFP-10G-AOC5M=
10GBASE Active Optical SFP+ Cable, 7M	SFP-10G-AOC7M
10GBASE Active Optical SFP+ Cable, 7M - SPARE	SFP-10G-AOC7M=
10GBASE Active Optical SFP+ Cable, 10M	SFP-10G-AOC10M
10GBASE Active Optical SFP+ Cable, 10M - SPARE	SFP-10G-AOC10M=
Video SFP Plug-ins	
Video SFP HD-BNC SD/HD/FHD Transceiver, MSA Compliant	VSFP-BNC-3G
Video SFP HD-BNC SD/HD/FHD Transceiver, MSA Compliant - SPARE	VSFP-BNC-3G=

For More Information

Further details on the Cisco data sheet for 10Gigabit BASE SFP+ modules are available at http://www.cisco.com/en/US/prod/collateral/modules/ps5455/data_sheet_c78-455693.html.




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