

Environmental	
Operating Temperature	32 to 122°F – 0 to 50°C
Storage Temperature	-40 to 158°F (-40 to 70°C)
Relative Operating Humidity	5% to 85% (gradation < 10% per hour)
Relative Storage Humidity	5% to 95%
Operating Altitude	-61 to 3048m (up to 2000m conforms to IEC/EN/UL/CSA 60950 requirements)
Regulatory Compliance	
ETSI Standards	EN 300 386: 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 RF Immunity ● IEC/EN-61000-4-4: Electrical Fast Transient Immunity ● IEC/EN-61000-4-5: Surge Immunity ● IEC/EN-61000-4-6 : Conducted RF Immunity ● 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
Management and monitoring	
Number of ports on chassis	3 (1 on front, and 2 on the rear)
Connector type	RJ-45
Interface type	10/100/1000 BT
Protocols	HTTP, SNMP, IIOIP
User interface	Embedded HTML user interface
Local RS-232 communication interface	Mini USB type B, to initially configure management ports
General Purpose Inputs	25 pin connector (to be supported in the future)

Figure 5. Synamedia DCM Digital Content Manager Rear Panel



Table 2. DCM MIC Card Specifications

Category	Specification
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) ● 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
EMC Standards	<ul style="list-style-type: none"> ● IEC/EN 61000-3-2: Power Line Harmonics ● 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
Immunity	<ul style="list-style-type: none"> ● IEC/EN-61000-4-11: Voltage DIPS, Short Interruptions, and Voltage Variations ● UL/CSA/IEC/EN 60950-1 2nd edition ● IEC/EN 60825 Laser Safety ● ACA TS001 ● AS/NZS 60950
Safety	<ul style="list-style-type: none"> ● 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
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
	SD: ≥ 15 dB, 5MHz - 270MHz HD: ≥ 15 dB, 5MHz - 1.485 GHz,
Return Loss	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 per card
TS Tables	Input SI/PSI/PSIP acquisition, Output SI/PSI/PSIP processing

Table 3. DCM MFP Card Specifications

Category	Specification
Physical and Power	
Physical specifications	Dual layer MFP Card (DCM-MFP) that occupies 1 slot in the DCM MkII 2RU chassis: <ul style="list-style-type: none"> ● Height: 39.5 mm ● Width: 145 mm ● Depth: 365 mm ● Weight: 1,570 kg
Power Consumption	DCM-MFP : 150 W
Environmental Specifications	
Operating Temperature	32 – 122°F / 0 – 50°C
Storage Temperature	-40 – 158°F (-40 – 70°C)
Relative Operating Humidity	5 to 90% Note: Not to exceed 0.024 kg water or dry air Relative Storage Humidity

Relative Storage Humidity	5 to 95% Note: Not to exceed 0.024 kg water or dry air.
Operating Altitude	-61 to 3048 m (up to 2000 m 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
Video Decoding	
HD Bitrates	<ul style="list-style-type: none"> MPEG-2: MP@HL up to 30 Mbps H.264: HP@L4.0-L4.1 up to 25 Mbps
HD Resolutions	<ul style="list-style-type: none"> 1080i x 1920 / 1280 @ 25 fps 1080i x 1920 / 1280 @ 29.97 fps 720p x 1280 / 960 @ 50 fps 720p x 1280 / 960 @ 59.94 fps
SD Bitrates	<ul style="list-style-type: none"> MPEG-2: MP@ML up to 15 Mbps H.264: MP@L3-L4.1 up to 12 Mbps
SD Resolutions	<ul style="list-style-type: none"> PAL: 576i x 720/ 704/ 640/ 544/ 528/ 480/ 352 @ 25 fps NTSC: 480i x 720/ 704/ 640/ 544/ 528/ 480/ 352 @ 29.97 fps
Video Encoding	
HD Bitrates	<ul style="list-style-type: none"> MPEG-2: HP@HL 0.5 Mbps to 30 Mbps H.264: MP@L4.0 1 Mbps to 20 Mbps H.264: HP@L4.0 1 Mbps to 25 Mbps H.264: MP@L4.1 1 Mbps to 30 Mbps
HD Resolutions	<ul style="list-style-type: none"> 1080i x 1920 / 1280 @ 25 fps 1080i x 1920 / 1280 @ 29.97 fps 720p x 1280 / 960 @ 50 fps 720p x 1280 / 960 @ 59.94 fps ABR: resolution freely configurable
SD Bitrates	<ul style="list-style-type: none"> MPEG-2: MP@ML 0.5 Mbps to 10 Mbps H.264: MP@L3.0 0.5 Mbps to 10 Mbps H.264: HP@L3.0 0.5 Mbps to 12.5 Mbps

SD Resolutions	<ul style="list-style-type: none"> ● PAL: 576i x 720/ 704/ 640/ 544/ 528/ 480/ 352 @ 25 fps ● NTSC: 480i x 720/ 704/ 640/ 544/ 528/ 480/ 352 @ 29.97 fps ● ABR: resolution freely configurable
Inverse Telecine	<ul style="list-style-type: none"> ● 3:2 pulldown inversion
Video Processing	
Number of services	DCM-MFP <ul style="list-style-type: none"> ● SD: up to 48 services per card ● HD: up to 16 services per card
Statistical Multiplexing	<ul style="list-style-type: none"> ● Mixed AVC, MPEG-2 HD and SD ● 64 services per statistical multiplexing group
GOP Control	<ul style="list-style-type: none"> ● Static, Hierarchical and Dynamic GOP
Audio Decoding	
MPEG-1 & MPEG-2 Layer II audio	<ul style="list-style-type: none"> ● Stereo, Mono ● Bitrate: 32 to 384 kbps
AAC	<ul style="list-style-type: none"> ● Stereo, Mono ● Bitrate: 32 to 640 kbps, depending on the encoding mode ● ADTS, LATM/LOAS
Dolby Digital (AC-3)	<ul style="list-style-type: none"> ● Stereo, Mono ● Bitrate: 56 to 640 kbps
Audio Encoding	
MPEG-1 & MPEG-2 Layer II audio	<ul style="list-style-type: none"> ● Stereo, Mono ● Bitrate: 32 to 384 kbps
AAC	<ul style="list-style-type: none"> ● Stereo, Mono ● Bitrate: 32 to 640 kbps, depending on the encoding mode ● ADTS, LATM/LOAS
Dolby Digital (AC-3)	<ul style="list-style-type: none"> ● Stereo, Mono ● Bitrate: 56 to 640 kbps
Number of audio services	<ul style="list-style-type: none"> ● DCM-MFP: Up to 48 audio services per card
VBI & Ancillary Data	
Closed captions	<ul style="list-style-type: none"> ● CEA-608 and CEA-708 conversion
VBI Formats	<ul style="list-style-type: none"> ● WST, DVB-WST, Inverted WST, WSS, VPS, Transparent lines, VII, OP-47

Table 4. DCM DRD Card Specifications

Category	Specification
Physical and Power	
Physical specifications	Dual layer DRD Card (DCM-DRD) that occupies 1 slot in the DCM MkII 2RU chassis: <ul style="list-style-type: none"> ● Height: 39.5 mm ● Width: 145 mm ● Depth: 365 mm ● Weight: 1.1 kg
Environmental Specifications	
Operating Temperature	32 – 122°F / 0 – 50°C
Storage Temperature	-40 – 158°F (-40 – 70°C)
Relative Operating Humidity	5 to 90% Note: Not to exceed 0.024 kg water or dry air Relative Storage Humidity
Relative Storage Humidity	5 to 95% Note: Not to exceed 0.024 kg water or dry air.

Interface Specifications	
Number of RF ports per card	2 or 4 ports, each port independently configurable
Input return loss	> 10dB
Connector	F-type, female (75 Ω)
Interface type	DVB-S (according to ETSI EN 300 421) DVB-S2 (according to ETSI EN 302 307)
Frequency range	950 to 2150 MHz
Input level range	-65 to -25 dBm
Constellation	QPSK, 8PSK, 16APSK
Symbol Rate	1 to 45 MSym/s
FEC code rate	DVB-S QPSK: 1/2, 2/3, 3/4, 5/6, 7/8 DVB-S2 QPSK: 1/4, 1/3, 2/5, 1/2, 3/5, 2/3, 3/4, 4/5, 5/6, 8/9, 9/10 DVB-S2 8PSK: 3/5, 2/3, 3/4, 5/6, 8/9, 9/10 DVB-S2 16APSK: 2/3, 3/4, 4/5, 5/6, 8/9, 9/10
FEC Frame	Normal and Short
Roll Off factor	0.20, 0.25 and 0.35
Modulation Mode	CCM and VCM
Transport stream mode	Single and Multi-stream
Number of Common Interface slots per card	2 or 4 independent PCMCIA slots
Interface type	DVB-CI (according to EN 50221)

Table 5. DCM ASI I/O Card Specifications

Category	Specification
Physical and Power	
Physical specifications	Single layer ASI I/O Card (DCM-ASI I/O) that occupies 1 slot in the DCM MkII 2RU chassis: <ul style="list-style-type: none"> ● Height: 39.5 mm ● Width: 145 mm ● Depth: 365 mm ● Weight: 0.8 kg
Environmental Specifications	
Operating Temperature	32 – 122°F / 0 – 50°C
Storage Temperature	-40 – 158°F (-40 – 70°C)
Relative Operating Humidity	5 to 90% Note: Not to exceed 0.024 kg water or dry air Relative Storage Humidity
Relative Storage Humidity	5 to 95% Note: Not to exceed 0.024 kg water or dry air.
Interface Specifications	
Number of ports per card	10 ports, each port configurable as input or output
Connector	BNC-type
Impedance	75 ohms
Interface type	Asynchronous Serial Interface (ASI) (according to EN 50083-9)
Packet format	Auto detection: 188 / 204 byte packets
Bit rate	0.1 – 213 Mbps
Syntax	SPTS or MPTS (according to ISO/IEC 13818)

Ordering Information

Feature	Part Number
Chassis	
D9902 DCM Chassis, 2RU	DCM-MK2-2RU
D9902 DCM Chassis, No PSU, SPARE	DCM-MK2-2RU=
Power Supplies	
D9902 DCM 2RU PSU, AC (AC power cord needs to be ordered separately)	PWR-850-AC-2RU
D9902 DCM 2RU PSU, AC (Spare)	PWR-850-AC-2RU=
D9902 DCM 2RU PSU, DC	PWR-850-DC-2RU
D9902 DCM 2RU PSU, DC (Spare)	PWR-850-DC-2RU=
AC Power cords	
Argentina	CAB-PWR-DMN-ARG
Australia	CAB-PWR-DMN-AUS
China	CAB-PWR-DMN-CHN
Europe	CAB-PWR-DMN-EU
Italy	CAB-PWR-DMN-IT
Japan	CAB-PWR-DMN-JPN
UK	CAB-PWR-DMN-UK
DC Power cords	
D9902 DCM DC Power Cable	DCM-D9902-CAB-DC
D9902 DCM DC Power Cable (Spare)	DCM-D9902-CAB-DC=
Mounting kit - Optional	
D9902 DCM MID-MOUNT BRACKETS	DCM-D9902-MID-BRK=
Accessories	
D9902 DCM MINI-USB-B - USB	DCM-D9902-MINIUSB=
Licenses	
Software licenses via e-delivery (Add licenses in Ordering Tool)	DCM-LIC-UPGR
MIC 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=
MIC Licenses	
D9902 10Gigabit License per Card Main	LCDM-10G-IO
D9902 10Gigabit License per Card Backup	BCDM-10G-IO
Video SFPs	
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=
Ethernet 10G SFPs	
SFP+,10GE, LR Optical, 1310nm, DCM	VN-SFP-10G-LR
SFP+,10GE, SR Optical, 850nm, DCM	VN-SFP-10G SR

Ethernet 1G SFPs

SFP Copper (RJ45)	SFP-RJ-45
SFP WDM 850nm (LC. up to 500m)	SFP-WDM-850-0500
SFP WDM 1310nm (LC. up to 5km)	SFP-WDM-1310-5

MFP Hardware

D9902 DCM Multi Format Processor Board, Double Layer (req. SW, DCM, V10.00.05 or later)	DCM-MFP-MKII
D9902 DCM Multi Format Processor Board, Double Layer, Spare (req. SW, DCM, V10.00.05 or later)	DCM-MFP-MKII=

MFP Licenses

Software license CD-ROM (Add licenses in Cisco's Dynamic Configuration Tool)	DCM-LIC-UPGR
Main DCM Device Licenses	
D9900/01/02 MPEG-2 SD Transcoding Lic (1/prg; req MFP)	LDCM-MP2SDTC
D9900/01/02 MPEG-2 HD Transcoding Lic (1/prg; req MFP)	LDCM-MP2HDTC
D9900/01/02 AVC SD Transcoding Lic (1/prg; req MFP)	LDCM-AVCSBTC
D9900/01/02 AVC HD Transcoding Lic (1/prg; req MFP)	LDCM-AVCHDTC
D9900/01/02 ABR Transcoding Lic (1/engine; req MFP)	LDCM-ABRTC
D9900/01/02 MFP Statmux (1/prg; req. MFP)	LDCM-SMX
D9900/01/02 MPEG-1 LII Transcode Lic (1/stereo; req MFP)	LDCM-MP1LII-TC
D9900/01/02 Dolby AC-3 Transcoding Lic (1/stereo; req MFP)	LDCM-DLBYAC3-TC
D9900/01/02 Dolby Digital Plus Transcode Lic (1/stereo; req MFP)	LDCM-DDP-TC
D9900/01/02 AAC Audio Transcode Lic (1/stereo; req MFP)	LDCM-AAC-TC
Backup DCM Device Licenses	
D9900/01/02 BU MPEG-2 SD Transcoding Lic (1/prg; req MFP)	BDCM-MP2SDTC
D9900/01/02 BU MPEG-2 HD Transcoding Lic (1/prg; req MFP)	BDCM-MP2HDTC
D9900/01/02 BU AVC SD Transcoding Lic (1/prg; req MFP)	BDCM-AVCSBTC
D9900/01/02 BU AVC HD Transcoding Lic (1/prg; req MFP)	BDCM-AVCHDTC
D9900/01/02 BU ABR Transcoding Lic (1/engine; req MFP)	BDCM-ABRTC
D9900/01/02 BU MFP Statmux (1/prg; req. MFP)	BDCM-SMX
D9900/01/02 BU MPEG-1 LII Transcode Lic (1/stereo; req MFP)	BDCM-MP1LII-TC
D9900/01/02 BU Dolby AC-3 Transcode Lic (1/stereo; req MFP)	BDCM-DLBYAC3-TC
D9900/01/02 BU Dolby Digital Plus Transcode Lic (1/stereo; req MFP)	BDCM-DDP-TC
D9900/01/02 BU AAC Audio Transcode Lic (1/stereo; req MFP)	BDCM-AAC-TC

DRD Hardware

DCM DRD Satellite Reception and Decryption board with 4 RF and 4 CI inputs	DCM-DRD-4SAT4CI
DCM DRD Satellite Reception and Decryption board with 4 RF and 4 CI inputs, Spare	DCM-DRD-4SAT4CI=

DRD Licenses

D9900/D9901 DCM DRD Descrambling Lic. 1 CI Slot (req DRD)	LDCM-CI-1
D9900/D9901 DCM DRD Satellite Reception Lic. 1 RF (req DRD)	LDCM-SAT-1
D9900/D9901 DCM DRD Multistream (MIS) Lic. 1 RF (req DRD)	LDCM-MIS-1

ASI I/O Hardware

D9900/D9901 DCM ASI I/O Board MKI	DCM-ASI-MK1
D9900/D9901 DCM ASI I/O Board MKI, Spare	DCM-ASI-MK1=

Service and Support

Using the Synamedia Lifecycle Services approach, Synamedia and its partners provide a broad portfolio of end-to-end services and support that can help increase your network's business value and return on investment. This approach defines the minimum set of activities needed by technology and by network complexity to help you successfully deploy and operate Synamedia technologies and optimize their performance throughout the lifecycle of your network.


Warranty Information

Detailed warranty information can be found on Synamedia.com

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