Cisco Model DPC3208 DOCSIS 3.0 8x4 Cable Modem with Embedded Digital Voice Adapter

The Cisco® Model DPC3208 DOCSIS 3.0 8x4 Cable Modem (DPC3208) is a high-speed cable modem with an embedded digital voice adapter. The DPC3208 provides a faster connection to the Internet by incorporating eight bonded downstream channels along with four bonded upstream channels. These bonded channels deliver downstream data rates in excess of 340 Mbps. That's up to eight times faster than conventional single-channel DOCSIS® 2.0 cable modems.

The DPC3208 uses advanced line-interface technology to provide multi-country, toll-quality telephone service using existing in-home wiring. The DPC3208 features single-line or two RJ-11 telephone ports for voice, and supports a total of 10 REN loading, 5 REN per phone line.

Figure 1. DPC3208 DOCSIS 3.0 8x4 Cable Modem with Embedded Digital Voice Adapter (image may vary from actual product and specification)

The DPC3208 is designed to meet PacketCable™ 1.5 and DOCSIS 3.0 specifications as well as being backward compatible with DOCSIS 2.0, 1.1, and 1.0 networks. The DPC3208 fully supports the CODECs specified in PacketCable 1.5. Additional CODECs are available through a software upgrade that includes a high-fidelity CODEC option for toll-quality plus service. Standard VoIP call signaling is compliant with PacketCable (MGCP/NCS) specifications. Software upgrades are available to support Session Initiation Protocol (SIP) call signaling.

Features

DOCSIS

- Eight (8) bonded downstream channels with data rates in excess of 340 Mbps
- Four (4) bonded upstream channels with data rates in excess of 120 Mbps
- Designed to meet DOCSIS 3.0 specifications as well as backward compatibility with existing DOCSIS 2.0, 1.1 and 1.0 networks
- DOCSIS compliant support for IPv6/IPv4
- Expanded tuning range, 88-1002 MHz
- Some hardware configurations provide battery powered backup on loss of AC power

Embedded Digital Voice Adapter

- Two-line embedded digital voice adapter for wired telephony service
- Toll-quality, high-compression, and high-fidelity (exceeding toll quality) CODEC options

Connections

- 10/100/1000 Mbps Ethernet port with Auto-negotiate and Auto-MDIX
- Support for up to 64 users

Design and Function

- Attractive compact design and versatile orientation to stand vertically, lie flat on the desktop or shelf, or mount easily on a wall
- Dual-color LED status indicators on the front panel indicate cable modem operational status
- Easy-to-understand generic icons communicate the purpose of each LED
- TR-068 compliant color-coded connectors and cables simplify installation and setup
- Rugged electronic components for long-term reliability

Management

- Software upgradeable by network download
- Remote manageability using SNMP V1/V2 and V3

Software and Documentation

- CD-ROM containing user guide

Figure 2. DPC3208 Front Panel (image may vary from actual product and specification)

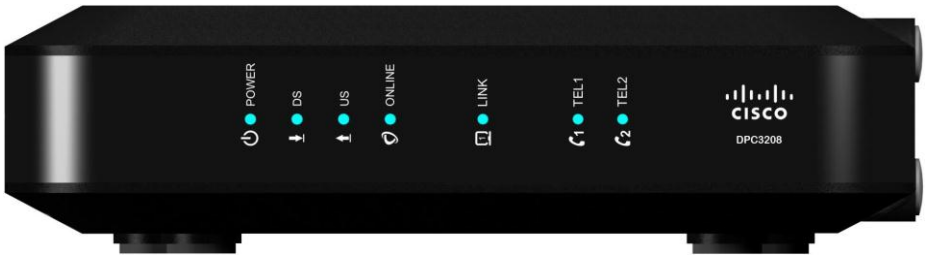

Table 1. Front Panel Features

Feature	Description
Indicators	POWER, DS, US, ONLINE, LINK, TEL1, TEL2, and corresponding icons
Color	Black case, black face plate, silver text, green/amber LEDs
Branding	Cisco logo and model number

Figure 3. DPC3208 Back Panel (image may vary from actual product and specification)

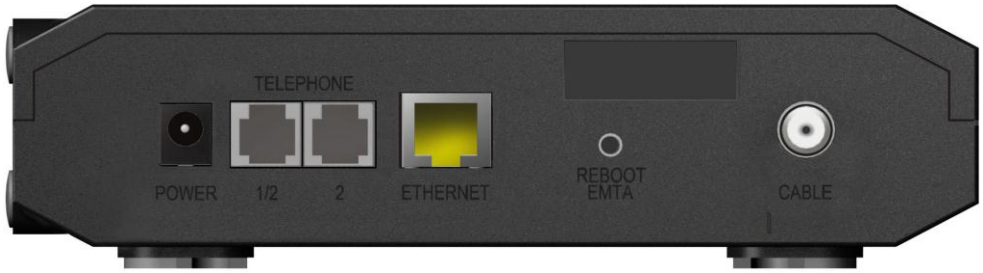

Table 2. Back Panel Switch and Connections

Feature	Description
Power Switch (not shown)	Turns power on and off to the device (power switch provided only on products carrying the CE mark)
POWER Connector Color: Black	Connects modem to the DC output of the AC power adapter
TELEPHONE 1 and 2 Color: Gray	RJ-11 telephone ports connect to home telephone wiring and to conventional telephones or fax machines
ETHERNET Connector Color: Yellow	RJ-45 Ethernet port connects to the Ethernet port on your PC or your home network
REBOOT EMTA	Power cycles the modem
CABLE Connector Color: White	F-connector connects to an active cable signal from your service provider

Figure 4. Models Available

Product Specifications

Table 3. Product Specifications

Specification	Value
Voice Specifications	
Call Signaling Protocol	• MGCP/NCS including configurable IPsec encryption • Configurable to support RFC2833 event signaling • Supports Bell103 protocol • Software upgradeable to support Session Initiation Protocol (SIP) • The following SIP standards are supported: ◦ RFC 2617 HTTP Authentication: Basic and Digest Access Authentication ◦ RFC 2976 The SIP INFO Method ◦ RFC 3261 SIP: Session Initiation Protocol ◦ RFC 3262 Reliability of Provisional Responses in Session Initiation Protocol (SIP) ◦ RFC 3263 Session Initiation Protocol (SIP): Locating SIP Servers ◦ RFC 3264 An Offer/Answer Model with Session Description Protocol (SDP) ◦ RFC 3265 Session Initiation Protocol (SIP)-Specific Event Notification ◦ RFC 3420 Internet Media Type message/sipfrag ◦ RFC 3428 Session Initiation Protocol (SIP) Extension for Instant Messaging ◦ RFC 3515 The Session Initiation Protocol (SIP) Refer Method ◦ RFC 3842 A Message Summary and Message Waiting Indication Event Package for the Session Initiation Protocol (SIP) ◦ RFC 3892 The Session Initiation Protocol (SIP) Referred-By Mechanism ◦ RFC 3903 Session Initiation Protocol (SIP) Extension for Event State Publication ◦ Draft-ietf-mmusic-sdp-new-24 SDP: Session Description Protocol (Replacement for RFC 2327) ◦ Draft-ietf-sipping-cc-transfer-01 Session Initiation Protocol Call Control – Transfer ◦ Draft-ietf-sip-session-timer-08 The SIP Session Timer ◦ Draft-ietf-sipping-realtimefax-01 SIP Support for Real-time Fax: Call Flow Examples and Best Current Practices ◦ Draft-ietf-mmusic-sdescription-09 Session Description Protocol Security ◦ Descriptions for Media Streams ◦ Draft-ietf-sip-replaces-02 The Session Initiation Protocol (SIP) "Replaces" HeaderProvisioning Modes
Provisioning Modes	• Full PacketCable secure provisioning • Kerberos support with NVRAM ticket caching • Configurable PacketCable-lite (MTA config file provisioning without security) • Configurable for non-PacketCable (MTA configuration using DOCSIS config file) CODECs
CODECs	Standard: G.711, T.38 Fax Relay, iLBC and BV16 Software upgradeable to support other CODEC combinations, including: • G.711 and G.728 • G.711 and G.729 • G.711 and G.729 a/e • G.711 and BV16 and BV32 (High fidelity – near CD quality) • G.711 and G.723 • G.711 and G.726 **Note:** Other codec combinations can be downloaded as required.
CODEC Packetization Intervals	10, 20, and 30 ms
CODEC Synchronization	CODEC synchronization to UGS time clock allows slip-free end-to-end sync to PSTN clock (minimizes frame slips that can cause Fax/Analog Modem call failures)
CODEC Encryption	Configurable to support AES-128 encryption or no encryption modes
Hearing Impaired Services Support	TDD support including detection of V.18 including Annex A
Fax and Analog Modem Support	DSP based Modem/Fax Tone detection and support for Voice Band Data Mode with auto-CODEC negotiation and auto-control of echo canceller, jitter buffer, and Voice Activation Detection (VAD)
Jitter Buffer Support	Adaptive dynamically controlled

Specification	Value
Latency Control	Configurable min / max jitter buffer size
Audio Gain Levels	Independently configurable Tx and Rx audio gains
Silence Suppression	Configurable VAD with comfort noise generation
Packet Loss Concealment	ANSI T1.521-1999
Call Connection Quality Monitoring	RTCP, RFC1889, RFC1890, SNMP MIB for last call quality statistics
Dialing Modes	DTMF and configurable pulse dial support
DTMF Relay	RFC2833 including fast (40mS) DTMF Relay for alarm system signaling compatibility
Layer 2 Quality of Service	• Full PacketCable secure DQOS with GateID including UGS and UGS/AD • DQOS Lite support including UGS and UGS/AD
Layer 3 Quality of Service	Configurable DiffServe/TOS support for Signaling, RTP, and RTCP flows
Payload Header Suppression (PHS)	• Supported for RTP and RTCP packet flows to reduce per-call network bandwidth • Advanced support for Dynamic Payload Header Suppression using Propane Technology
Management	SNMPv3, SNMPv2, and SNMPv1, Telnet /SSH with configurable user ID and password, internal log, and external Syslog support
Echo Cancellation	G.168 with extended echo tail support
Call Feature Support	• Caller ID • Call Waiting with Caller ID • Cancel Call Waiting • Call Conferencing (3-way calls) • Configurable hook flash support • Distinctive Ringing (Configurable for up to 11 ring patterns per phone line) • Ring Splash • Stutter Dial Tone • Off hook warning tone • Open Switch Interval support to enhance answering machine compatibility • Configurable star codes • Euro/US hook-flash type • Call transfer • Message Waiting Indicator • Warm Line • Call Forwarding Unconditional • Call Forwarding on Busy • Call Forwarding No Answer • Call return • Redial Call • Automatic redial • Other call features available with compliant CMS or gateway
Telephone Ring Loading	Full 5 REN support on each phone line (10 REN total)
Ring Signal	Configurable balanced ring with configurable DC offset
Max Phone Line Distance	Supports up to 1000 ft of 26 AWG (0.4mm) wire on each phone line. Supports operation with typical in-home telephone wiring
Country-Specific Telephone Parameters Supported	United States, Japan, United Kingdom, Germany, France, Belgium, Netherlands, Finland, Italy, Switzerland, Sweden, Denmark, Brazil, Australia, Poland, Czech Republic, Hungary, Romania, ETSI 101 909-18
RF Downstream	
Operating Frequency Range	88 to 1002 MHz or 108 to 1002 MHz
Tuner Frequency Range	88 to 1002 MHz
Tuner	(1) Frequency agile block tuner, 96 MHz bandpass each
Demodulation	8 demodulators, 64 QAM or 256 QAM
Maximum Data Rate	8 downstream channels, each 6 MHz channel: 42.88 Mbps for 256 QAM and 30.34 Mbps for 64 QAM

Specification	Value
Bandwidth	6 and/or 8 MHz
Operating Level Range	–15 to +15 dBmV
Input Impedance	75 ohms
RF Upstream	
Operating Frequency Range	5 to 42 MHz, 5 to 65 MHz, or 5 to 85 MHz
Transmitter Frequency Range	5 to 42 MHz, 5 to 65 MHz, or 5 to 85 MHz
Upstream Transmission	4 upstream channels
Modulation	QPSK, 8 QAM, 16 QAM, 32 QAM, 64 QAM at ATDMA mode QPSK, 8 QAM, 16 QAM, 32 QAM, 64 QAM, 128 QAM at SCDMA mode
Maximum Data Rate per Channel	Modulation / Channel Bandwidth (MHz) / Raw Data Rate (Mb/s) QPSK / 1.6 / 2.56 16 QAM / 1.6 / 5.12 QPSK / 3.2 / 5.12 16 QAM / 3.2 / 10.24 32 QAM / 3.2 / 12.8 64 QAM / 3.2 / 15.4 16 QAM / 6.4 / 20.5 32 QAM / 6.4 / 25.6 64 QAM / 6.4 / 30.72
Bandwidth	200 kHz to 6.4 MHz
Maximum Operating Level (± 2dB) TDMA	Modulation / 1 Channel / 2 Channels / 3 or 4 Channels QPSK / +61 dBmV / +58 dBmV / +55 dBmV 8 QAM / +58 dBmV / +55 dBmV / +52 dBmV 16 QAM / +58 dBmV / +55 dBmV / +52 dBmV 32 QAM / +57 dBmV / +54 dBmV / +51 dBmV 64 QAM / +57 dBmV / +54 dBmV / +51 dBmV
SCDMA	QPSK / +56 dBmV / +53 dBmV / +53 dBmV 8 QAM / +56 dBmV / +53 dBmV / +53 dBmV 16 QAM / +56 dBmV / +53 dBmV / +53 dBmV 32 QAM / +56 dBmV / +53 dBmV / +53 dBmV 64 QAM / +56 dBmV / +53 dBmV / +53 dBmV 128 QAM / +56 dBmV / +53 dBmV / +53 dBmV
Electrical	
Input Voltage	15 VDC (external power supply) 100-240 VAC / 50-60 Hz (internal power supply)
Power Consumption (Modem Module)	~ 5.8 Watts
Data Ports	Ethernet 10/100/1000BASE-T (Auto-sensing with Auto-MDIX); RJ-45 Ethernet (1)
RF	Female "F" type
Impedance	75 ohms
Mechanical	
Dimensions (W x D x H) (Approximate; not including "F" connector)	Non-Battery Enclosure: 6.99 in. x 6.15 in. x 1.93 in. (17.75 cm x 15.623 cm x 4.9 cm) Battery Enclosure: 7.01 in. x 6.31 in. x 2.76 in. (17.8 cm x 16.023 cm x 7.0 cm)
Weight (Approximate; not including battery cartridge)	Non-Battery Enclosure: 0.34 kg (11.99 oz) Battery Enclosure: 0.5 kg (17.64 oz)
Battery Type and Capacity	1 cartridge, Li-Ion, 2-cell, 2200 mAh

Specification	Value
Operating Temperature	32° to 104°F (0° to 40°C)
Operating Humidity	0 to 90% RH non-condensing
Storage Temperature	-4° to 140°F (-20° to 60°C)
Standards and Approvals	
Designed to Comply with the Following Standards	PacketCable 1.5, 1.0 DOCSIS 3.0, 2.0, 1.1, 1.0
Regulatory and Safety Approvals	As required per country where the DPC3208 will be used

Ordering Information

Table 4. Ordering Information

Description	Part Number
Enclosure with One (1) Battery Bay 5-42/54-1002 MHz Diplex Filter	
DPC3208 DOCSIS 3.0 Cable Modem with Embedded Digital Voice Adapter. Includes: • 100-240 VAC / 50-60 Hz, internal power supply with detachable power cord • Power cord, North America (polarized) • One (1) 2200 mAh Li-Ion battery provided • Ethernet cable • CD-ROM containing user guide ***North America***	4038337
DPC3208 DOCSIS 3.0 Cable Modem with Embedded Digital Voice Adapter. Includes: • 100-240 VAC / 50-60 Hz, internal power supply with detachable power cord • Power cord, North America (polarized) • No Li-Ion battery provided • Ethernet cable • CD-ROM containing user guide ***North America***	4038336
Enclosure with No Battery Bay 5-42/54-1002 MHz Diplex Filter	
DPC3208 DOCSIS 3.0 Cable Modem with Embedded Digital Voice Adapter. Includes: • 5-42/88-1002 MHz diplex filter • 100-120 VAC / 50-60 Hz, 15 VDC / 1 A desktop linear switching power supply, North America • Ethernet cable • CD-ROM containing user guide ***North America***	4039147

Replacement Components

Table 5. Replacement Components

Description	Part Number
Power Supply	
Class 2 Linear Switching	
100-120 VAC / 50-60 Hz, 15 VDC / 1 A desktop-style linear switching power supply, North America	4018776
Power Cord	
Power cord, 2 conductors, NEMA 1-15P to C7P, 6 foot, North America (polarized)	186750
Data Cable	
Ethernet, 1.2 meters	740580
Battery	
2200 mAh Li-Ion battery	4008300
CD-ROM	
CD-ROM with user guide	4040235

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Part Number OL-27170-01
May 2012