

Catalyst 8540 MSR ATM OC-48c Super Port Adapter Modules

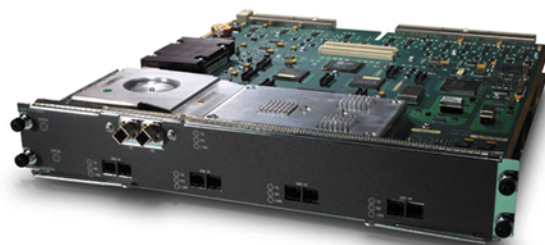
THE CATALYST[®] 8540 MSR ATM OC-48c SUPER PORT ADAPTER MODULES ARE IDEAL FOR SUPPORTING HIGH-SPEED ATM BACKBONE APPLICATIONS. THE OC-48c SUPER PORT ADAPTER MODULES ARE SUPPORTED BY THE CATALYST 8540 MSR, A HIGH-END MULTISERVICE SWITCH THAT INTEGRATES L3 AND ATM SWITCHING IN ONE HIGH-PERFORMANCE PLATFORM.

Module Description

The ATM OC-48c super port adapter modules are dual-slot, full width interface modules available for the Catalyst 8540 MSR. The OC-48c long-reach (LR) version allows customers to connect sites with link spans of a maximum of 80Km, while the OC-48c intermediate-reach (IR) version of the OC-48c interface allows customers to connect sites with link spans up to 15Km. The following five OC-48c versions are available:

- C85MS-2F-OC48LR: Two-port OC-48c SMF-LR
- C85MS-1F4S-OC48LR: One-port OC-48c SMF-LR + four-port OC-12c SMF-IR
- C85MS-2F-OC48SS: Two-port OC-48c SMF-IR
- C85MS-1F4S-OC48SS: One-port OC-48c SMF-IR + four-port OC-12c SMF-IR
- C85MS-1F4M-OC48SS: One-port OC-48c SMF-IR + four-port OC-12c MMF

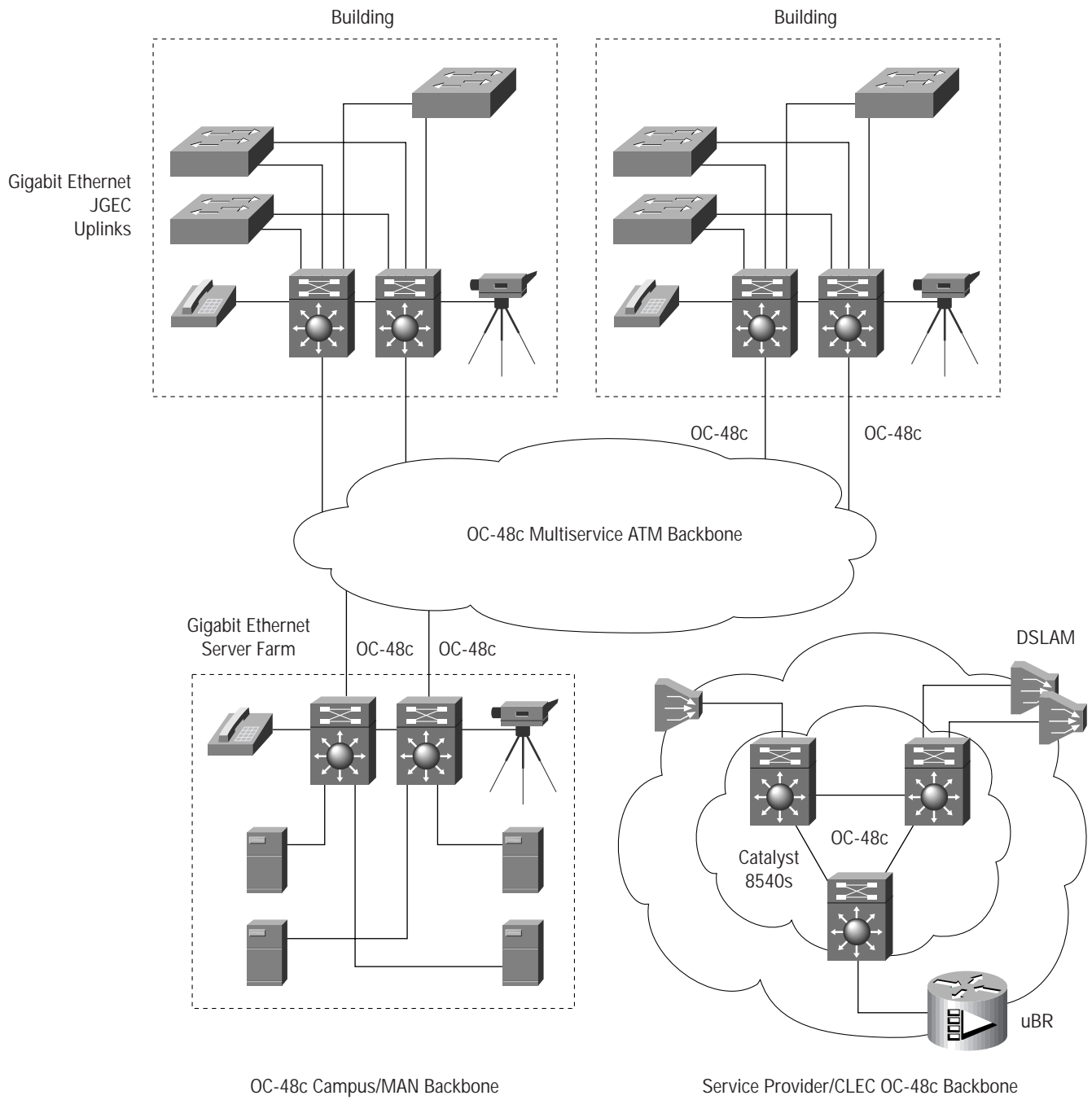
Figure 1 C85MS-1F4S-OC48SS



Function/Benefit

The ATM OC-48c interface modules are designed specifically to meet the demanding needs of large enterprise and service provider networks that require high capacity multiservice links between sites. Please see Figure 2.

Figure 2 Application/Network Design



Indicators

Status LED, one for OC-48c, and one for OC-12c:

- Green indicates that the board is functioning fine.
- Red indicates there is a fault on the board.
- Yellow indicates that the board has not yet initialized.

Port LEDs

Link: Green, Carrier/Signal is detected by the optics. Off indicates no signal.

TX LED

- Green blinking indicates that cells are being transmitted at low rate.
- Steady Green indicates cell transmitted at high rate.
- Red indicates AIS.
- Yellow indicates loopback state.

RX LED

- Blinking green indicates that cells are being received at a low rate.
- Steady Green indicates cell received at high rate.
- Red indicates far end alarm.
- Yellow indicates a loopback state.

Hardware

The physical dimensions of the board are as follows:

- Width: 15.35 inches (38.9 cm)
- Length: 16.76 inches (42.5 cm)
- Height: 2.37 inches (6 cm)

Table 1 Technical Specifications

Feature	Specification
Number of Slots:	Two
Data Rate (OC-48c):	2,488.32 Mbps
Line encoding:	Non-return to Zero (NRZ)
Framing:	STS-48c/STM-16c
Clock Accuracy:	+/- 20 ppm (without network clock module) +/- 4.6 ppm (with network clock module)
Clock Source:	Reference clock—free run Network derived—Primary and Secondary Loop Timed
Statistics/Alarms:	Alarm Indication Signal (AIS) Remote Defect Indication (RDI) Bit Interleaved Parity Errors (BIP) Header Check Sequence Errors (HCS) Loss of Service (LOS) Loss of Frame (LOF) Loss of Pointer (LOP) Loss of Cell Delineation (LCD)
Compliance (OC-12c) MMF:	ATM Forum AF-PHY-0046.000 ITU: • I.432 • G.707 • G.783 ANSI: • T1.105-1995 • T1.646-1995 Bellcore: • GR-253-CORE
Compliance (OC-12c) SMF:	ATM Forum AF-PHY-0046.000 ITU: • I.432 • G.707 • G.783 ANSI: • T1.105-1995 • T1.646-1995 Bellcore: • GR-253-CORE
Compliance (OC-48c):	ITU • I.432 • G.707 • G.783 • G.957 ANSI • T1.105-1995 • T1.646-1995 Bellcore • GR-253-CORE

Table 2 Optical Specifications

Module	Specifications
OC-48c Long Reach:	<ul style="list-style-type: none"> • Link Length (max): 80km • Wavelength: 1.5u (1500–1580nm) • Spectral Line width (–20dB): 1nm • Transmit Launch Power: <ul style="list-style-type: none"> – MAX: 2 dBm – MIN: –3 dBm • Receiver Input Range: <ul style="list-style-type: none"> – MAX: –9 dBm – MIN: –28 dBm • Optical Loss budget (using above tx/rx) (tx–rx)=25 dBm • Optical Interface: individual SC connectors (single mode)
OC-48c Intermediate Reach:	<ul style="list-style-type: none"> • Link Length (max): 15km • Wavelength: 1.3u (1260–1360nm) • Spectral Line width (–20dB): 1nm • Transmit Launch Power: <ul style="list-style-type: none"> – MAX: 0 dBm – MIN: –5 dBm • Receiver Input Range: <ul style="list-style-type: none"> – MAX: 0 dBm – MIN: –18 dBm • Optical Loss budget (using above tx/rx) (tx–rx)=13 dBm • Optical Interface: individual SC connectors (single mode)
OC-12 Single Mode:	<ul style="list-style-type: none"> • Link Length (max): 15km • Wavelength: 1.3u (1293–1334nm) • Spectral Line width (–20dB): 4nm • Transmit Launch Power: <ul style="list-style-type: none"> – MAX: –8 dBm – MIN: –14 dBm • Receiver Input Range: <ul style="list-style-type: none"> – MAX: –3dBm – MIN: –28dBm • Optical loss budget (using above tx/rx): (tx–rx)= 14dBm • Optical Interface: individual SC connectors (single mode)
OC-12 Multimode:	<ul style="list-style-type: none"> • Link Length (max): 500m • Wavelength: 1.3u (1270–1380nm) • Spectral Line width (–3dB): 200nm • Transmit Launch Power: <ul style="list-style-type: none"> – MAX: –14dBm – MIN: –20dBm • Receiver Input Range: <ul style="list-style-type: none"> – MAX: –14dBm – MIN: –26dBm • Optical loss budget (using above tx/rx): (tx–rx)= 6dBm • Optical Interface: individual SC connectors (single mode)

Table 3 Product Number and IOS Software Image

Product Number	Description	Minimum IOS Software Image Required	Software Product Number
C85MS-2F-OC48LR	Two-Port OC-48c SMF-Long Reach	12.0(7)W5(15c)	S854R2-12.0.7W
C85MS-1F4S-OC48LR	One-Port OC-48c SMF-Long Reach + Four-Port OC-12c SMF-IR	12.0(7)W5(15c)	S854R2-12.0.7W
C85MS-2F-OC48SS	Two-Port OC-48c SMF-IR	12.0(4a)W5(11a)	S854R2-12.0.4W
C85MS-1F4S-OC48SS	One-Port OC-48c SMF-IR + Four-Port OC-12c SMF-IR	12.0(4a)W5(11a)	S854R2-12.0.4W
C85MS-1F4M-OC48SS	One-Port OC-48c SMF-IR + Four-Port OC-12c MMF	12.0(4a)W5(11a)	S854R2-12.0.4W



Corporate Headquarters
 Cisco Systems, Inc.
 170 West Tasman Drive
 San Jose, CA 95134-1706
 USA
<http://www.cisco.com>
 Tel: 408 526-4000
 800 553-NETS (6387)
 Fax: 408 526-4100

European Headquarters
 Cisco Systems Europe
 11, Rue Camille Desmoulins
 92782 Issy Les Moulineaux
 Cedex 9
 France
<http://www-europe.cisco.com>
 Tel: 33 1 58 04 60 00
 Fax: 33 1 58 04 61 00

Americas
 Headquarters
 Cisco Systems, Inc.
 170 West Tasman Drive
 San Jose, CA 95134-1706
 USA
<http://www.cisco.com>
 Tel: 408 526-7660
 Fax: 408 527-0883

Asia Headquarters
 Nihon Cisco Systems K.K.
 Fuji Building, 9th Floor
 3-2-3 Marunouchi
 Chiyoda-ku, Tokyo 100
 Japan
<http://www.cisco.com>
 Tel: 81 3 5219 6250
 Fax: 81 3 5219 6001

Cisco Systems has more than 200 offices in the following countries. Addresses, phone numbers, and fax numbers are listed on the

Cisco Connection Online Web site at <http://www.cisco.com/go/offices>.

Argentina • Australia • Austria • Belgium • Brazil • Canada • Chile • China • Colombia • Costa Rica • Croatia • Czech Republic • Denmark • Dubai, UAE
 Finland • France • Germany • Greece • Hong Kong • Hungary • India • Indonesia • Ireland • Israel • Italy • Japan • Korea • Luxembourg • Malaysia
 Mexico • The Netherlands • New Zealand • Norway • Peru • Philippines • Poland • Portugal • Puerto Rico • Romania • Russia • Saudi Arabia • Singapore
 Slovakia • Slovenia • South Africa • Spain • Sweden • Switzerland • Taiwan • Thailand • Turkey • Ukraine • United Kingdom • United States • Venezuela

Copyright © 2000, Cisco Systems, Inc. All rights reserved. Catalyst, Cisco, Cisco IOS, Cisco Systems, and the Cisco Systems logo are registered trademarks of Cisco Systems, Inc. or its affiliates in the U.S. and certain other countries. All other trademarks mentioned in this document are the property of their respective owners. The use of the word partner does not imply a partnership relationship between Cisco and any of its resellers. (9912R) 04/00 LW