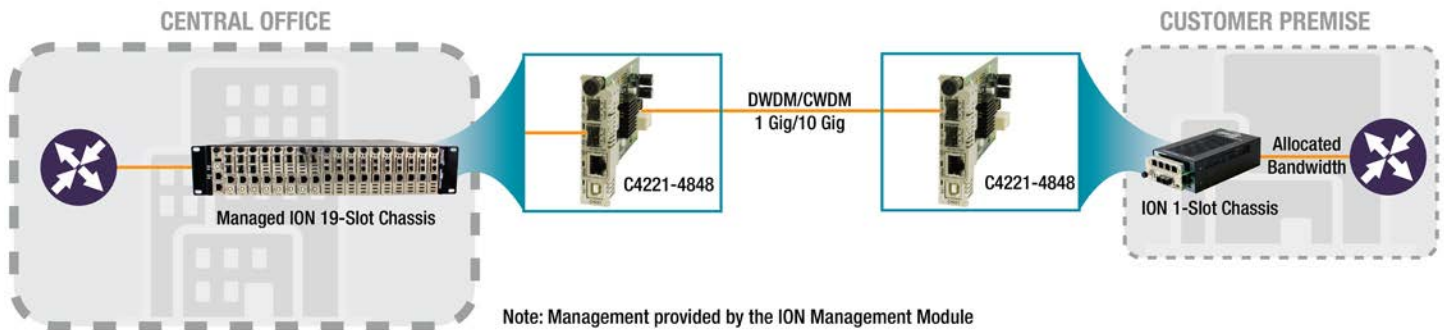


# ION 10 Gigabit Ethernet Remotely Managed Media & Rate Converter NID



## Applications

**Business Ethernet:** Service providers selling contracted levels of bandwidth to business customers and providing a managed network hand-off demarcation point

**Mobile Backhaul:** Service providers can create high capacity 10 Gigabit Ethernet links between central offices and/or cell phone tower locations by extending the network reach over different types of fiber cabling

**Enterprise Business:** Create a 10 Gig Ethernet backbone link between buildings in a large corporate campus or a college/university campus. 10 Gig fiber extension is needed at the maximum transmission distance based on the grade of multimode or single mode fiber available to make the network connections

**10 Gig Ethernet Repeater:** Used as a signal regeneration device, the C4221-4848 can be used to extend Ethernet service on circuits beyond normal distances. It will reamplify, retime and reshape the signal so customers in long-reach extended locations can be serviced. Typically expensive router ports are used to regenerate 10 Gig circuits

## Features

## Benefits

Fiber to Fiber Network Extension	Provides a hand-off point between a service provider's network and their customer's network
Campus - Fiber to Fiber Network Extension	Extend the reach of a 10 Gig Ethernet fiber network at the maximum transmission distance of the grade of fiber available
10 Gig SFP+ Ports Support Various Speeds	Support for 100Base-FX, 1000Base-X, SGMII, and 10 Gig SFP modules provides flexibility when connecting legacy devices to 10 Gig Ethernet backbones
3R Signal Regeneration	The device transmits fully generated (Reamplify, Reshape, and Retime) 10 Gigabit Ethernet Packets which ensure maximum transmission distances
Managed via an IONMM Management Module	Can be managed locally when installed in a managed ION chassis and accessed by various methods including DHCP Client, Telnet, Command Line Interface (CLI), web management, SNMP v1, v2c, and v3, and a Management VLAN
Management of Remote Units	Flexibility to manage a remote unit without having to send a technician into the field. Remote management is possible when two C4221-4848 units are linked together over fiber and one card is installed in a managed ION chassis while the other is installed in an unmanaged ION chassis
Bandwidth Allocation	Available bandwidth can be controlled on each port from 1 Gig to 10 Gig in increments of 1 Gig to meet the bandwidth requirements of the link to the customer
Remote Firmware Upgrades	Field upgradable firmware allows the user of this device to upgrade firmware in the field without long service interruptions. Allows users to keep the hardware current with bug fixes and new feature support

## ION 10 Gigabit Ethernet Remotely Managed Media and Rate Converter NID

10GBase-X to 10GBase-X + 10/100/1000Base-T with Remote Layer 2 Management



The ION C4221 Network Interface Device (NID) is a remotely managed product that offers management via the ION Management Module for secure management of Ethernet services for business and mobile backhaul applications. The C4221 is a 10 Gig product with advanced features like remote management of the local and remote cards, VLAN, jumbo frame support, and bandwidth allocation of 10 Gig interfaces. The C4221 offers the additional functionality of a rate converter by also offering a 10/100/1000Base-T RJ-45 port allowing 10/100/1000 based devices to connect to 10 Gigabit Ethernet fiber backbone.

### Ordering Information

**C4221-4848**  
 (2) 10GBase-X SFP+ slot (empty)  
 + (1) 10/100/1000Base-T RJ-45 ports

Optional Accessories (sold separately)

**SFP Modules**  
 SFP+ modules supported:  
 100FX, 1000X, SGMII, and 10 Gig

Media Converters

### Features

- Full non-blocking switching on all interfaces
- (2) 10 Gig SFP+ ports supporting 100FX, 1000X, SGMII, and 10 Gig
- SFP ports individually support same or different speeds simultaneously
- (1) 10/100/1000Base-T port
- Local and remote units can be fully managed by the ION platform
- IPv4 IP TOS, DiffServ and IPv6 traffic class QoS classification via IONMM
- Bandwidth Allocation, per port, from 1 Gig to 10 Gig in 1 Gig increments
- Basic VLAN support
- Jumbo frame support, up to 10,240 bytes
- 16K maximum MAC Addresses
- 8Mbit shared buffer memory
- Remote firmware upgrades
- Auto-MDI/MDIX
- Auto-Negotiation
- Can be used in the ION 19-Slot, 6-Slot, and 1-Slot chassis

### Specifications

Standards	IEEE 802.3 IEEE 802.3u IEEE 802.3x IEEE 802.3z IEEE 802.3ab IEEE 802.3ae
Ports	(1) Copper RJ-45 10/100/1000Base-T port (2) Fiber 10 Gig SFP+ ports supporting 100FX, 1000X, SGMII, and 10 Gig USB port for basic setup
Status LEDs	Power SFP+ Link/Activity for each port TP – Left LED: Duplex, TP Link/Activity TP – Right LED: TP Speed USB – Activity
Switches/Jumpers	One jumper to load factory defaults
Dimensions	Width: 0.86" [21.85 mm] Depth: 6.5" [165 mm] Height: 3.4" [86.36 mm]
Power Input	ION Chassis Backplane
Power Consumption	6.24 Watts, 520mA!@ 12VDC
Environment	Operating: 0°C to 50°C Storage: -40°C to 85°C Humidity: 5% to 95% (non-condensing) Altitude: 0 – 10,000 ft.
Weight	1 lb. [0.45 kg]
MTBF	Greater than 250,000 Hours (MIL-HDBK-217F) Greater than 687,500 Hours (Bellcore)
Certifications	Safety: CE Mark; Emissions: EN55022 Class A; Immunity: EN55024
Warranty	10 Years

### Features Continued

- Management provided by IONMM
  - DHCP client
  - Telnet
  - Command Line Interface (CLI)
  - Web management
  - SNMP v1, v2c, and v3
  - Management VLAN

### Features Coming Soon

- SFP+ DMI monitoring
- Fully compliant with OAM from IEEE 802.3ah – 2004 standard
- Loopback
- IEEE 802.1p QoS
- Transparent Link Pass Through
- Utilizes USB Type B connector for basic setup
- Full IEEE 802.1Q VLAN and double VLAN tagging
- RMON/Statistics counters per port
- Pause
- IP-addressable management support
- Compliant with IEEE 802.1X