



NC316XPR72

Media Cross Connect™ 72



Overview

The Fiber Driver® NC316XPR72 is an SFP-based 72 port cross connect, which allows you to program physical layer connectivity from any port to any other port. The system is compatible with all major data, storage, voice and video protocols, allowing a single cross connect to be used for a wide variety of applications. The XPR72 brings all the capabilities of SFP-based optical interfaces as well, including hot-swap, flexibility, inventory control and Digital Diagnostics.

A cross connect is used primarily as an intelligent patch panel. Whereas with a typical patch panel, wires must be physically disconnected, moved, and reconnected to change the network configuration, with the XPR72, the network administrator can make any desired configuration changes without touching the physical wires. This is accomplished by providing a fully programmable path between all the ports on the cross connect.

Features and Benefits

- **Any-port-to-any-port programmable connectivity** - allows the network to be configured and reconfigured at will, without rewiring
- **Wide range of applications** - fiber exchange points, wire-once Enterprise, test and simulation labs, video distribution via physical layer multicasting
- **High-density form factor** - 72 data ports in 2 U of rack space
- **Protocol support ranging from 1 Mbps to 4.25 Gbps** - a wide variety of needs can be met
- **SFP hot-swappable optical transceivers for enormous flexibility, simplified inventory control and reduced down-time:**
 - Copper (RJ45/Coax)
 - Fiber (850/1310/1550nm)
 - CWDM as per ITU G.694.2 and G.695 standards
- **Network monitoring features:**
 - Select a port to monitor data transparently from any other port - allows a bit-level protocol analyzer to watch over any port
 - SFP digital diagnostics (SFF-8472) - monitors all optical parameters

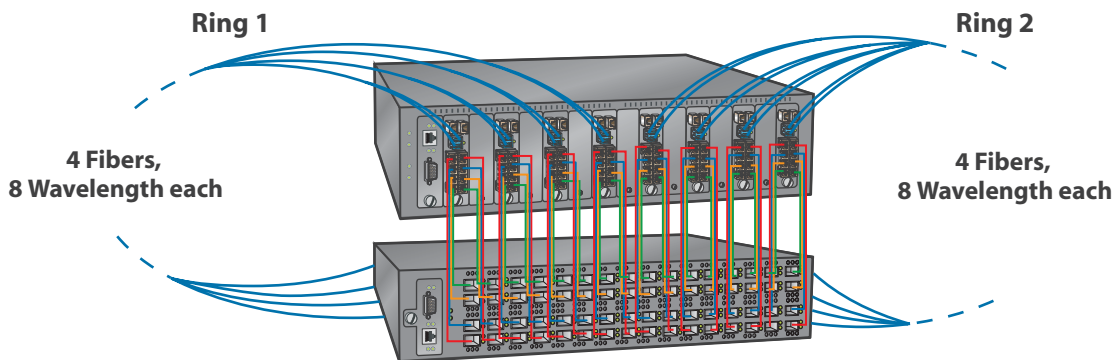


Figure 1: XPR72 in a WDM fiber exchange point providing complete control over two fiber rings each with four fibers, 8 colors per fiber



Establishing a data connection with a Media Cross Connect chassis is simple and straightforward. Simply insert the SFP transceivers into the chassis and then via software management set the port-to-port connections (including port-to-multiport; physical layer multicasting). Changing port-to-port assignments is easily done at any time through the management interface, either command-line, Telnet, SNMP or via MegaVision Web®.

Applications

The NC316XPR72 can be used in a wide variety of applications:

Fiber Exchange Points

Wherever large numbers of fiber strands come together in a junction place, the XPR72 can be used to connect all the fibers together, allowing complete programmable connections.

In many cases, these fiber strands are using CWDM to multiplex many streams or customers onto each fiber. In this case, the XPR72 can be used together with passive Mux/Demuxes and 'colored' SFP optical interfaces to provide a completely configurable wavelength and fiber switch, allowing total control over which wavelength from each fiber is connected to which other fiber and wavelength.

Wire-Once Enterprise

In many Enterprise wiring closets, the state of change is the normal state of affairs. Here, the XPR72 can be used to replace the optical or copper patch panels so that any change in fundamental topology (for example, if a router or switch is added or removed, or simply needs a different connection) can be achieved by simply reprogramming the cross connect, without the administrator having to physically touch any of the cables.

Test Labs

Test lab administrators face several challenges that are eased with the XPR72. First, test operators need to use expensive test equipment efficiently. The XPR72 allows operators to share interfaces on a piece of test equipment that is located centrally. Additionally, someone constantly has to rewire or move cables around from place to place, which is cumbersome, and can interfere with test results. A programmable cross connect allows total control over the entire test lab infrastructure, and enables the test operators quickly and easily to change the test setup.

Network Simulation

The XPR72 dramatically simplifies network simulation setup and reconfiguration by simply allowing a software programmable connection between the various devices on simulated network. Each device is attached to the XPR72 via as many connections as necessary, and the cross connect is programmed and reprogrammed to create the desired network topology. The cross connect can easily be used to simulate network outages or cable breaks as well. Ports on the XPR72 can also act as network analysis (or mirror) ports, allowing a single network analysis device to be used for any given protocol (Gigabit Ethernet or ATM, for example).

Video Distribution Via Physical Layer Multicasting

The XPR72 can be used in a digital video distribution environment, such as an educational video network on a campus. The cross connect broadcasts the video from a single source to all the other ports, using the port-to-multiport physical layer multicasting feature. In doing this, the digital signal is regenerated, which allows a better quality signal than the traditional 'vampire-tap' approach. Additionally, using optical SFPs, fiber optic cabling can be used to reach long distances between devices, allowing a Metro-wide deployment of a single digital video source.

High Density, Wide Protocol Support

The NC316XPR72 handles data connections with rates from 1 Mbps to 4.25 Gbps while performing 2R signal conditioning, and from 1 Gbps to 4.25 Gbps while performing 3R signal regeneration. This includes:

- Fast and Gigabit Ethernet, FDDI
- Fibre Channel (1, 2 & 4 Gbps)
- ESCON/FICON
- SONET (OC-3, OC-12, OC-48 and OC-48 with FEC)
- Serial Digital Video Interface (SDI) SMPTPE-269 and SMTPE-292, DVB, HDTV (1.5 Gbps)
- Any other protocol from 100Mhz to 4.25GHz

SFP Interfaces

SFP modules provide unmatched flexibility. It is often a requirement to use many types of networking protocols and interfaces in the same general vicinity. For example, most major data centers have large Ethernet (and Gigabit Ethernet) networks with copper, multimode and single-mode fiber, and also have Fibre Channel, FICON or ESCON networks as well.

