Gigabit SFP Media Converter Module

perle.com/products/gigabit-sfp-media-converter-module.shtml

Unmanaged

- 1000Base-T to 1000Base-X Fiber SFP Media Converters
- Advanced features - Smart Link Pass-Through, Fiber Fault Alert, Auto-MDIX and Loopback
- Empty slot for Cisco and other industry standard Gigabit Fiber SFPs
- High density applications with Perle Media Converter Chassis

Installed in a high density Perle Media Converter Chassis, Perle's line of feature rich **Gigabit SFP Media Converter Modules** transparently Gigabit copper to SFP for multimode or single mode fiber. Our Gigabit Ethernet to Fiber Converters provide an economical path to extend the distance of an existing network, the life of non-fiber based equipment, or the distance between two devices. The pluggable fiber optics port allows for flexible network configurations using SFP tanceivers supplied by Perle, Cisco or other manufacturers of MSA compliant SFPs.

Network Administrators can "see-everything" with Perle's advanced features such as Auto-Negotiation, Auto-MDIX, Link Pass-Through, Fiber Fault Alert, and Loopback. This allows for more efficient troubleshooting and less on-site maintenance. These cost and time saving features, along with a lifetime warranty and free worldwide technical support, make Perle's **Gigabit SFP Converter Modules** the smart choice for IT professionals.

Gigabit SFP Media Converter Module Features

Auto-Negotiation (802.3ab)	The media converter supports auto negotiation. The 1000Base-X fiber interface negotiates according to 802.3 clause 37. The 1000Base-T negotiates according to 802.3 clause 28 and 40. The 1000Base-X will link up with its partner after the highest common denominator (HCD) is reached and the copper has linked up with its partner. The 1000Base-X will continue to cycle through negotiation transmitting a remote fault of offline (provided this is enabled through the switch setting) until the copper is linked up and the HCDs match. The media converter supports auto-negotiation of full duplex, half duplex, remote fault, full duplex pause, asymmetric pause and Auto MDI-X.

Auto-MDIX with Skew Correction	Auto-MDIX (automatic medium-dependant interface crossover) detects the signaling on the 1000Base-T interface to determine the type of cable connected (straight-through or crossover) and automatically configures the connection when enabled. The media converter can also correct for wires swapped within a pair. The media converter will adjust for up to 64ns of delay skew between the 1000Base-T pairs.
Smart Link Pass-Through	When the Link Mode switch is placed into Smart Link Pass-Through mode, the 1000Base-T port will reflect the state of the 1000Base-X media converter port. This feature can be used whether fiber auto-negotiation is enabled or disabled.
Fiber Fault Alert	With Fiber Fault Alert the state of the 1000Base-X receiver is passed to the 1000Base-X transmitter. This provides fault notification to the partner device attached to the 1000Base-X interface of the media converter. If the 1000Base-X transmitter is off as a result of this fault it will be turned on periodically to allow the condition to clear should the partner device on the 1000Base-X be using a similar technique. This eliminates the possibility of lockouts that occur with some media converters. Applies only when fiber auto-negotiation is disabled.
Pause (IEEE 802.3x)	Pause signaling is an IEEE feature that temporarily suspends data transmission between two devices in the event that one of the devices becomes overwhelmed. The media converter supports pause negotiation on the 1000Base-T fiber connection and 1000Base-X fiber connection.
Duplex	Full and half duplex operation supported.
Jumbo Packets	Transparent to jumbo packets up to 10KB.
VLAN	Transparent to VLAN tagged packets.
Remote Loopback	Capable of performing a loopback on the 1000Base-X fiber interface.

Indicators

Power / TST	This green LED is turned on when power is applied to the media converter. Otherwise it is off. The LED will blink when in Loopback test mode.
Fiber link on / Receive activity (LKF)	This green LED is operational only when power is applied. The LED is on when the 1000Base-X link is on and flashes with a 50% duty cycle when data is received. The LED will slow blink when the 1000Base-X interface has been taken down as a result of a fault on the 1000Base-T interface.

Copper link on / Receive activity (LKC)	This green LED is operational only when power is applied. The LED is on when the 1000Base-T link is on and flashes with a 50% duty cycle when data is received. The LED will slow blink when the 1000Base-T interface has been taken down as a result of a fault on the 1000Base-T interface.

Switches: On-Board

Auto-Negotiation	*Enabled (Default - Up)* In this mode the 1000Base-X and the 1000Base-T will negotiate to the HCD of the two link partners. The 1000Base-X will link up after the negotiation is completed and the 1000Base-T has linked up. *Disabled* - The 1000Base-X will not use auto negotiation. The 1000Base-T will negotiate to the HCD of the Switch settings and the link partner.
Link Mode	Link Mode provides a transparency to the state of the copper link allowing for simplified trouble shooting from the devices connected to the media converter. *Normal (Default - Up)* With Fiber Auto Negotiation enabled when the 1000Base-T link goes down the 1000Base-X link is brought down. The 1000Base-X link will advertise Remote Fault (Link Fault). With Fiber Auto Negotiation disabled the state of the 1000Base-T link has no effect on the 1000Base-X link. *Smart Link Pass Through (Down)* With Fiber Auto Negotiation enabled the behavior is as follows. When the 1000Base-T link goes down the 1000Base-X link is brought down. The 1000Base-X link will advertise Remote Fault (Link Fault). When Remote Fault (Link Fault) is received on the 1000Base-X interface the 1000Base-T transmitter will be turned off. When the 1000Base-T receiver is off the 1000Base-X transmitter will be turned off. When the 1000Base-X receiver goes off the 1000Base-T transmitter will be turned off. With Fiber Auto-Negotiation disabled the behavior is as follows. When the 1000Base-T receiver is off the 1000Base-X transmitter will be turned off. When the 1000Base-X receiver goes off the 1000Base-T transmitter will be turned off.
Pause	When Fiber Auto Negotiation is disabled Pause should only be enabled when all devices connected to the media converter support pause. *Enabled(Default)* - The Media converter will advertise Pause capable, Asymmetric pause not needed during Auto-Negotiation. *Disabled* - The Media converter will advertise that it does not have Pause capability during Auto-Negotiation.
Fiber Fault Alert	The Fiber Fault Alert switch has meaning when Auto-Negotiation is disabled

	Enabled (Default - Up) When the 1000Base-X receiver is off the 1000Base-X transmitter is turned off. Periodically the 1000Base-X receiver will be turned on for a short period to allow the condition to clear if the 1000Base-X link partner is using a similar feature. *Disabled (Down)*
Duplex	*Full (Default-Up)* - The media converter will advertise Full Duplex Capable, Half Duplex Capable. *AUTO (Down)* -The Media converter will advertise Full Duplex Not Capable, Half Duplex Capable.
Remote Loopback	The media converter can perform a loopback on the 1000Base-X fiber interface. *Disabled (Default - Up)* *Enabled* - The 1000Base-X receiver is looped to the 1000Base-X transmitter. The 1000Base-T transmitter is taken off the interface.
Connectors	
1000Base-T	RJ45 connector, 4 pair CAT 5 UTP cable or cable
Magnetic Isolation	1.5kv
Small Form Factor Pluggable (SFP) slot	Empty slot for 1000Base-X SFP modules supplied by Perle, Cisco or other manufacturers of MSA compliant SFPs. Hot insertion and removable (hot swappable)
Packet Transmission Characteristics	
Bit Error Rate (BER)	$<10^{-12}$
Environmental Specifications	
Operating Temperature	0° C to 50° C (32° F to 122° F)
Storage Temperature	minimum range of -25° C to 70° C (-13° F to 158° F)
Operating	5% to 90% non-condensing

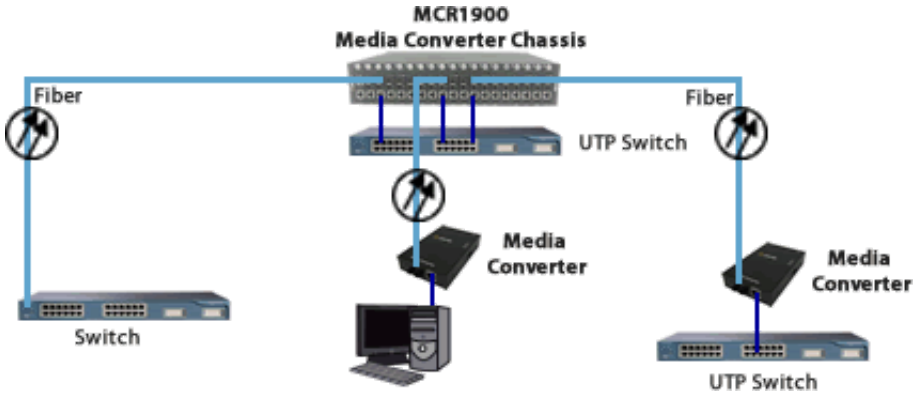
Humidity	
Storage Humidity	5% to 95% non-condensing
Operating Altitude	Up to 3,048 meters (10,000 feet)
Heat Output (BTU/HR)	10.2
Maximum Power Consumption (Watts)	3.0
MTBF (Hours)*	745,000
Mechanical - Hot Swapping Card	
Edge Connecter	32 pin DIN 41612 / IEC 60603-2 Type B/2 Male. Fist make, last break for ground and power
Card insertion and removal	Captive thumb screws enable fast insertion and removal. Can be further tighten with a screwdriver.
Product Weight	
Weight	0.1 kg, 0.22 lbs
Packaging	
Shipping Weight	0.22 kg, .49 lbs
Shipping Dimensons	203 x 38 x 152 mm, 8 x 1.5 x 6 inches
Regulatory Approvals	
Emissions	FCC Part 15 Class A, EN55022 Class A
	CISPR 22 Class A
	EN61000-3-2

Immunity	EN55024
Electrical Safety	UL 60950-1
	EN60950
	CE
Environmental	Reach, RoHS and WEEE Compliant
Other	ECCN: 5A991
	HTSUS Number: 8517.62.0050
	Perle Limited Lifetime Warranty

*Calculation model based on MIL-HDBK-217-FN2 @ 30 °C

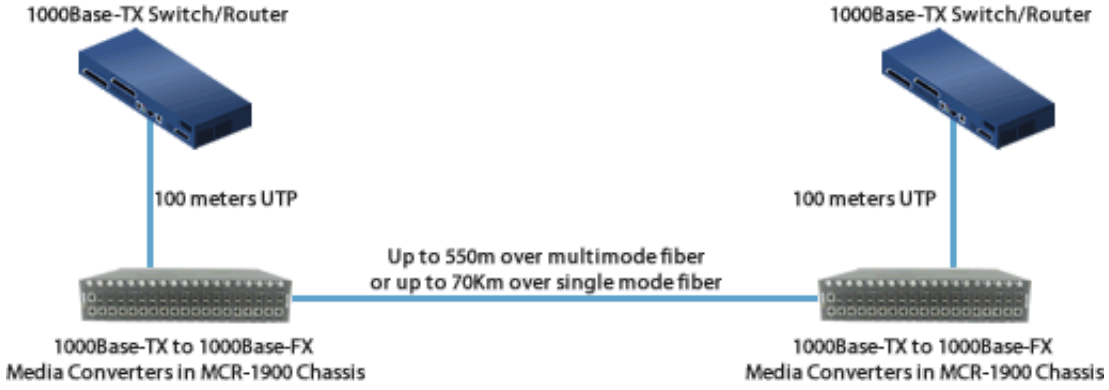
High Density Fiber Distribution from UTP Switch Equipment at Corporate Headquarters

In this enterprise campus application, up to 19 Perle C-1000 Gigabit to Fiber Media Converters are installed in the MCR1900 Media Converter Chassis. A remote fiber enabled Ethernet switch is connected directly to the central MCR1900 Chassis. A standalone S-1000 Media Converter converts the fiber to Ethernet in a fiber-to-desktop application. Another S-1000 Fiber Media Converter is connected to a remote office Ethernet switch. In all cases, multimode or single-mode fiber can be used. Fiber links can be extended up to 120km using single-mode fiber.



Extend between two TP Gigabit Switches

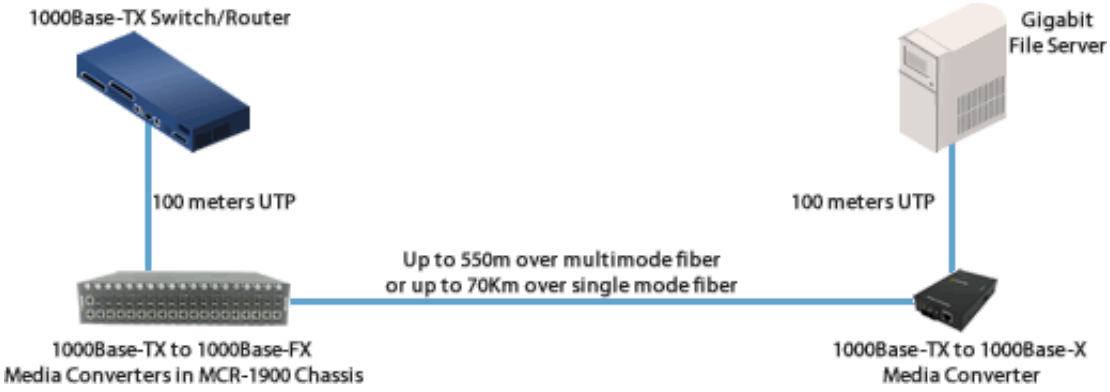
Extend the network distance between two twisted pair Gigabit Switches
Two Gigabit Ethernet Media Converters can extend the distance between 1000Base-T Switches across a fiber link up to 120km in length.



Switch to Gigabit Server

Extend the network distance between a Gigabit Switche and a Gigabit File Server

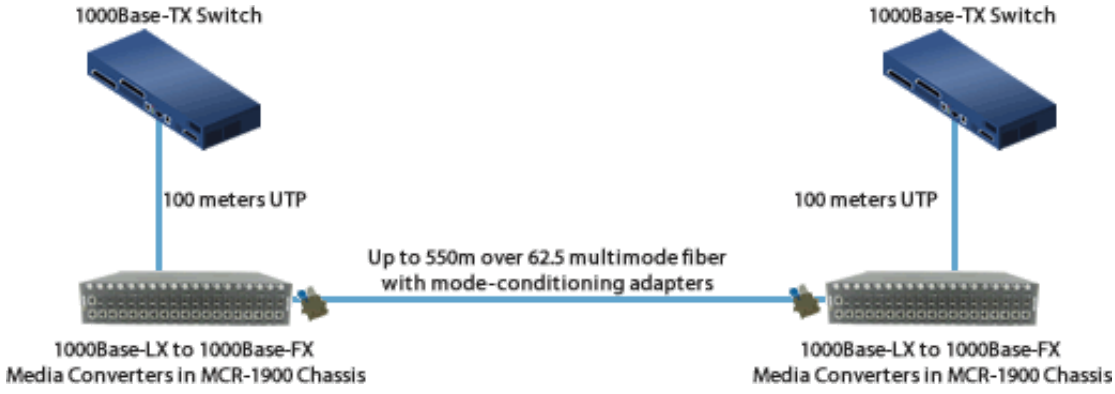
Two Gigabit Ethernet Media Converters can extend the distance between a 1000Base-T Switch and a Gigabit File Server across a fiber link up to 120km in length.



Gigabit Mode-Conditioning Adapters - More Distance

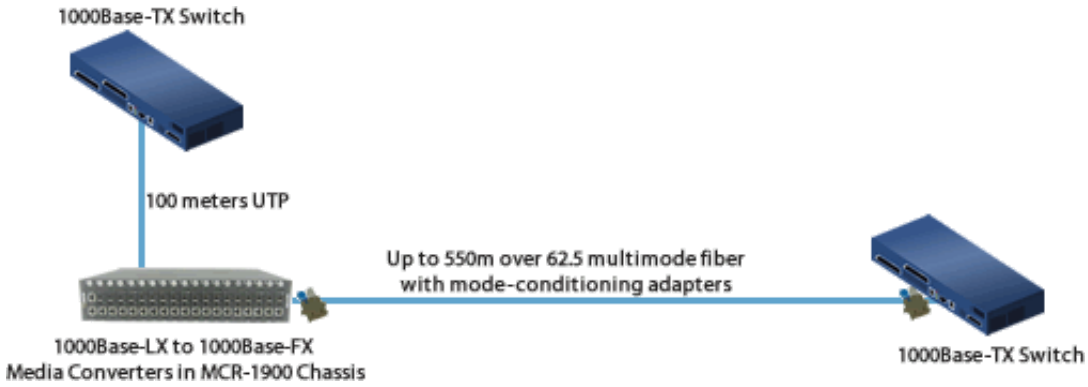
Extend Gigabit to 550m over 62.5 micron Multimode Fiber

Gigabit across 62.5 micron MMF cable is normally limited to 275 meters. By adding mode-conditioning adapters and 1000baseLX media converters you can extend the distance up to 550 meters on MMF cable plant.



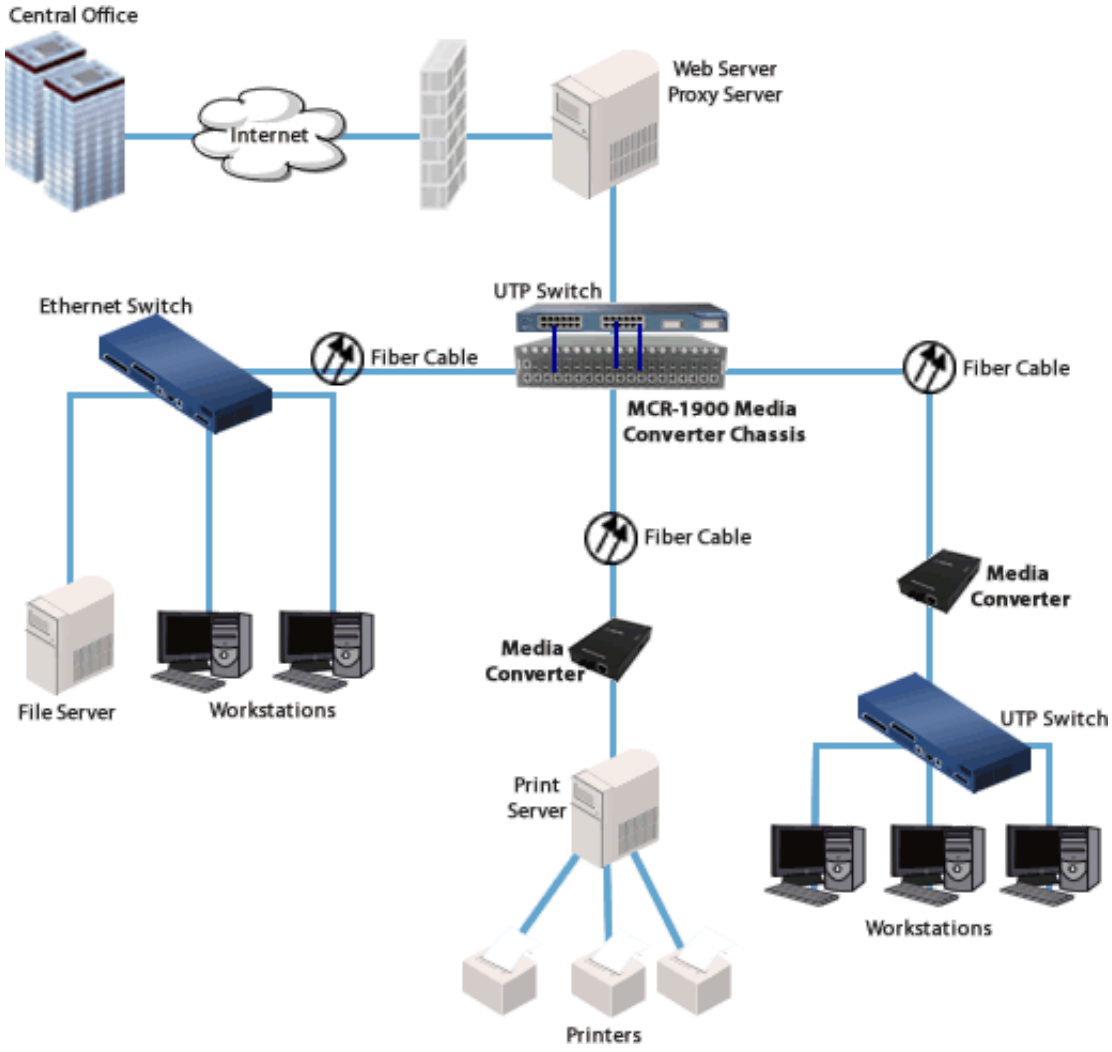
Gigabit Mode-Conditioning Adapters – 1000Base-LX

Installing Gigabit 1000Base-LX routers and switches into existing multimode cable plants
Using mode-conditioning adapters and a 1000Base-LX media converter, connect a copper based Gigabit Switch with a remote 1000base-LX switch/router over existing multimode cable plant.



Enterprise Infrastructure

Enterprise Infrastructure using Fiber Optics
Create a fiber infrastructure for your enterprise network without any wholesale replacement of existing copper-based equipment.


Central Office
Internet
Web Server
Proxy Server
UTP Switch
Ethernet Switch
Fiber Cable
Fiber Cable
MCR-1900 Media
Converter Chassis
Fiber Cable
Media
Converter
Media
Converter
UTP Switch
File Server
Workstations
Print
Server
Workstations
Printers