C-10GR-STS Media Converter Module

perle.com/products/media-converters/10-gigabit-rate-converter-module.shtml

1G to 10G Fiber and Rate Converters

- Fiber to Fiber, copper to fiber and copper to copper conversion
- Conduct 1G to 10G rate conversion
- 2 empty slots that use a variety of transceivers supplied by Perle, Cisco or other MSA compliant SFP+ and XFPs
- Advanced features: Cut-Through Forwarding, –Smart Link Pass-Through, Fiber Fault Alert, Built-in Link Test Generator and Loopback
- High density applications with Perle MCR1900 Media Converter Chassis
- Support for Power Level 1 and 2
- Optical signal regeneration: 3R (re-amplify, reshape, and retime)

Installed in a high density MCR1900 Media Converter Chassis, **C-10GR-STS Media and Rate Converter Module** transparently connects 1G and 10G Ethernet links over multimode or single mode fiber. Each Media Converter comes with two pluggable transceiver ports that support fiber to fiber, copper to fiber or copper to copper media conversion. 10G Media Converter Modules are also available for managed networks with AAA security or and as stand alone models.

C-10GR-STS Media and Rate Converter Modules supports key features for ultimate network flexibility and growth.

- 1G and 10G rate conversion can be enabled to automatically detect Ethernet port speed and do a rate conversion between the two ports if the Ethernet speed is different. This is ideal in scenarios where disparate networks need to be connected.
- Cut-Through Forwarding can be configured for environments where throughput speed is critical. This will increase the media converter's throughput and reduce latency by performing packet forwarding in the most efficient manner possible.

Fiber to Fiber and Copper to Fiber conversion is achieved by inserting SFP or SFP+ fiber transceivers that support multimode and single-mode fiber, including CWDM/DWDM wavelengths. Copper to copper is achieved by inserting SFP or SFP+ Direct Attach Cable (DAC), also known as twinax, transceivers.

The empty transceiver ports on the **C-10GR-STS Media and Rate Converter Modules** allow for flexible network configurations to meet any requirement using a variety of transceivers supplied by Perle, Cisco or other manufacturers of MSA compliant SFP. You can use the C-10GR-STS these products to convert:

Copper to Fiber Conversion (1G and 10G)

- 1G Copper SFP to 1G Fiber SFP
- 1G Copper SFP/SFP+ to 10G Fiber SFP+

Fiber to Fiber Conversion (1G and 10G)

- 1G Fiber SFP to 1G Fiber SFP

- 1G Fiber SFP to 10G Fiber SFP+
- 10G Fiber SFP+ to 10G Fiber SFP+

Copper to Copper Conversion (1G and SGMII)

1G Copper SFP to 1G Copper SFP

Perle 10 Gigabit Ethernet to Fiber Converters provide an economical path to extend the distance of an existing 10GbE link. Network Administrators can “see-everything” with Perle’s advanced features such as Smart Link Pass-Through, Fiber Fault Alert, a built-in Link Test capability and Loopback. These cost and time saving features, along with a lifetime warranty and free worldwide technical support, make **C-10G Media Converter Modules** the smart choice for IT professionals.

C-10GR-STS Media Converter Features

Rate Conversion	The Media Converter can automatically detect Ethernet port speed and do a rate conversion between the two ports if the Ethernet speed is different.
Cut-Through Forwarding	The C-10GR Media Converter can be configured for Cut-Through Forwarding. This will increase the media converter’s throughput and reduce latency by performing packet forwarding in the most efficient manner possible. Forwarding of a packet will begin as soon as the destination address is processed.
SFP Speed Sensing	Automatically detects whether a SFP has been inserted and adjusts the speed accordingly.
SGMII Interface Support	The Media Converter supports 1000Mbps SGMII SFPs on port 1.
Smart Link Pass-Through	When the Smart Link Pass-Through switch is enabled (default), each port will reflect the state of its port peer. In this mode, if a link loss is detected on one port, the transmit signal on the other port is disabled “passing through” the state of the failed link. This enables managed switches and other devices to report link failures to their network NMS. When the switch is in the down position, Smart Link Pass-Through is disabled. If a link loss is detected on one port, the transmit signal remains enabled on the other port.
Fiber Fault Alert	With Fiber Fault Alert the state of the 10 Gigabit Ethernet receiver is passed to the transmitter. This provides fault notification to the partner device attached to the 10G Ethernet interface of the media converter.
3R – Optical Signal Regeneration	Optical signal regeneration: 3R (**R**e-amplify, **R**eshape, and **R**etime the signal) ensures that there is a quality link at 10 Gigabit speeds.
Module Temperature Protection	Protects your DOM/DMI capable SFP or SFP+ module by monitoring its internal temperature and will automatically shut down the SFP or SFP+ if the module is operating above its maximum temperature threshold.

Gigabit SFP support	The 10 Gigabit media converter model with dual SFP+ slots can also support Gigabit (1000Base-X) SFPs. This allows users to use Gigabit SFPs today and migrate to 10G SFP+ in the future. Both slots must be populated with Gigabit SFPs.
Jumbo Packets	Transparent to Jumbo Frames with a maximum MTU size of 10,024 bytes
VLAN	Transparent to VLAN tagged packets.
Remote Loopback	Capable of performing a loopback on each 10 Gigabit interface. In this mode, all frames received on the port in loopback mode will be transmitted back. This provides users with the capability of utilizing their own in-house test generators for testing the link.

Hardware Specifications

Power	
Maximum Power Consumption	17.2 watts*
Total Transceiver Power Supported	3.0 watts
Indicators	
Power / TST	• On: Power indication and in normal operation • Blinking slowly: the unit is in loopback or test mode (either port) • Red solid: the unit has a hardware error (upon power up) • Red and blinking: the unit has a hardware error specified by combination of LK1 and LK2
LK1, LK2	• On: Fiber link present • Blinking quickly: Fiber link present and receiving data.(including test data) • Blinking slowly: Fiber link disabled because the other fiber link went down. • Blinking 1 sec on 3 sec off – module shut down due to high temperature. • Off: No fiber link present or no module inserted
Switches	

Smart Link Pass-Through	*Enabled (Default - Up)* When the Smart Link Pass-Through switch is enabled (default), each port will reflect the state of its port peer. In this mode, if a link loss is detected on one port, the transmit signal on the other port is disabled “passing through” the state of the failed link. This enables managed switches and other devices to report link failures to their network NMS. When the switch is in the down position, Smart Link Pass-Through is disabled. If a link loss is detected on one port, the transmit signal remains enabled on the other port.
Fiber Fault Alert	*Enabled (Default - Up)* With Fiber Fault Alert the state of the 10 Gigabit ethernet receiver is passed to the transmitter. This provides fault notification to the partner device attached to the 10G ethernet interface of the media converter.
Cut-through / Rate converting	*Rate Converting (Default - Up)* The Media Converter can automatically detect Ethernet port speed and do a rate conversion between the two ports if the Ethernet speed is different. When the same Ethernet speed for both ports is enabled, the Media Converter can be configured for Cut-Through Forwarding. This will increase the media converter’s throughput and reduce latency by performing packet forwarding in the most efficient manner possible. Forwarding of a packet will begin as soon as the destination address is processed
Fiber Interface Loopback	*Disable (Default - Up)* When enable, the media converter will be in fiber loopback mode. In this mode all frames received on the fiber port will be transmitted back. This provides users with the capability of utilizing their own in-house test generators for testing the link
Loopback Interface	*Port 1(Default - Up)* In this mode, all frames received on the fiber port 1 in loopback mode will be transmitted back. When switch is set down, port 2 will be in loopback mode and transmitting all frames received back.
Connectors – Two SFP / SFP+ Transceiver Slots. Hot insertion and removable.	
Supported 10 Gigabit Fiber SFP+ Transceivers	Power Levels 1 and 2 IEEE 802.3ae compliant: • 10GBase-SR • 10GBase-LRM • 10GBase-LR • 10GBase-ER • 10GBase-ZR CWDM/DWDM

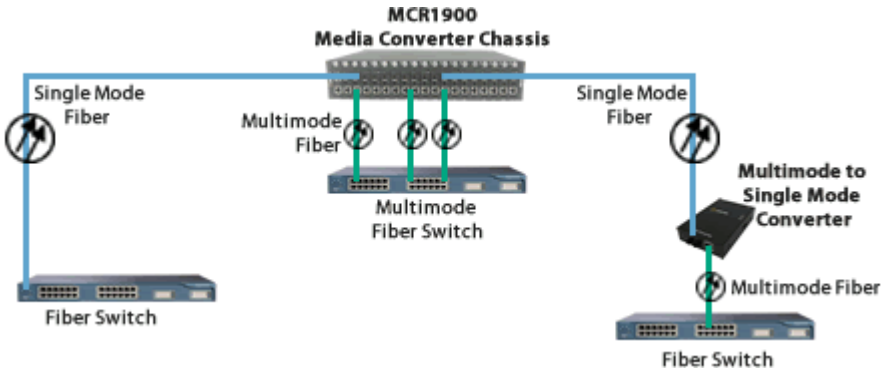
Supported 1 Gigabit Copper SFPs	1000Base-T 1000Base-T SGMII
Supported Gigabit Fiber SFPs	Standard SFP Power level 1 (1 watt) and level 2 (1.5 watts) as per SFP-8431 1000Base-SX 1000Base-LX/LH 1000Base-EX 1000Base-ZX 1000Base-BX CWDM/DWDM
Chassis Slot profile	Two slots
Environmental Specifications	
Operating 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 Humidity	5% to 90% non-condensing
Storage Humidity	5% to 95% non-condensing
Operating Altitude	Up to 3,048 meters (10,000 feet)
Heat Output (BTU/HR)	59
MTBF (Hours)	190,717 Calculation model based on MIL-HDBK-217-FN2 @ 30 °C
Packaging	
Shipping Weight	0.25 Kg, 0.55 lbs
Shipping Dimensions	150 x 210 x 40 mm, 5.9 x 8.3 x 1.6 inches
Regulatory Approvals	

Emissions	FCC Part 15 Class A, EN55022 Class A
	CISPR 22 Class A CISPR 32:2015/EN 55032:2015 (Class A)
	EN61000-3-2
Immunity	EN55024
Electrical Safety	UL/EN/IEC 62368-1 (previously 60950-1) CAN/CSA C22.2 No. 62368-1
	CE
Environmental	Reach, RoHS and WEEE Compliant
Other	ECCN: 5A991
	HTSUS Number: 8517.62.0020
	Perle Limited Lifetime Warranty

*Maximum rating for both media converter and modules inserted. Actual rating is dependent on the power consumption of the SFP or SFP+ modules inserted.

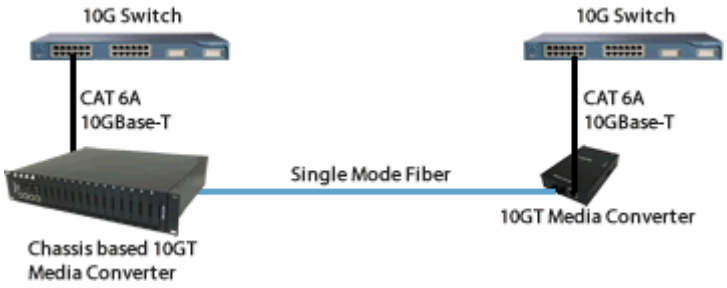
High Density Fiber Distribution from Fiber Switch Equipment at Corporate Headquarters

In this enterprise campus application, up to 19 Perle Fiber Media Converters (Multimode to Single mode) are installed in the MCR1900 Media Converter Chassis. A remote single mode fiber enabled Ethernet switch is connected directly to the central MCR1900 Chassis. Another standalone Fiber Media Converter is connected to a remote office Fiber switch. In all cases, multimode or single-mode fiber can be used. Fiber links can be extended up to 160km using single-mode fiber.



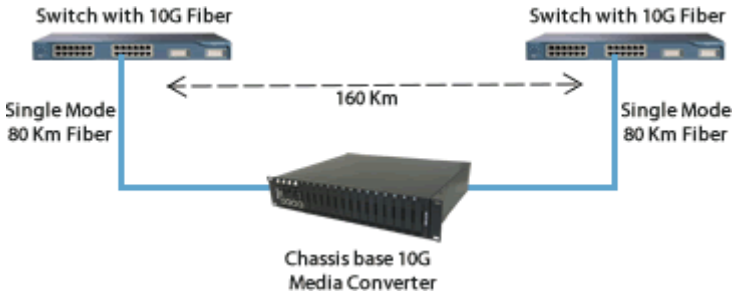
1G to 10 Gigabit Rate Conversion

Copper to Fiber or Fiber to Fiber Rate Conversion
Using the dual SFP slots, convert 1G copper to 10G multimode or single mode fiber. Or, convert 1G fiber to 10G fiber.



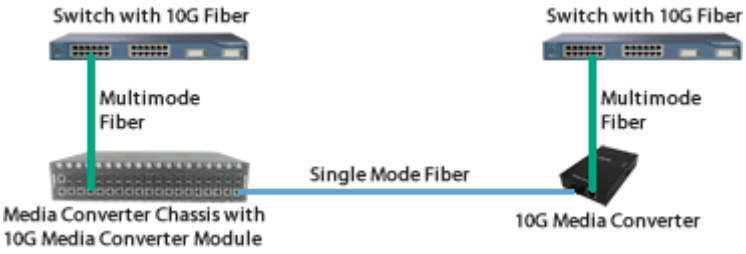
10 Gigabit Ethernet Fiber Repeater

Extend the network distance of 10 Gigabit Fiber Links
Create a 10 Gigabit Ethernet fiber link that can extend up to 160km.



10 Gigabit Ethernet Fiber Extender

Extend the network distance between two Fiber Switches
Two 10 Gigabit Mode Media Converters can extend the distance between 10 Gigabit Multimode Switches across a fiber link up to 80km in length.



C-10GR-STS 10 Gigabit Media Converter Module | Perle

Part Number: 05061620

C-10GR-STS - 10 Gigabit Media and Rate Converter Module with dual SFP+ slots (empty)