

# Plug & Play™ Gigabit Ethernet Media Conversion Module



## Application Note

The Plug & Play™ Universal Systems Media Converter Module offers the best of both worlds – easy fiber optic scalability and future proofing with today's cost-effective copper electronics.



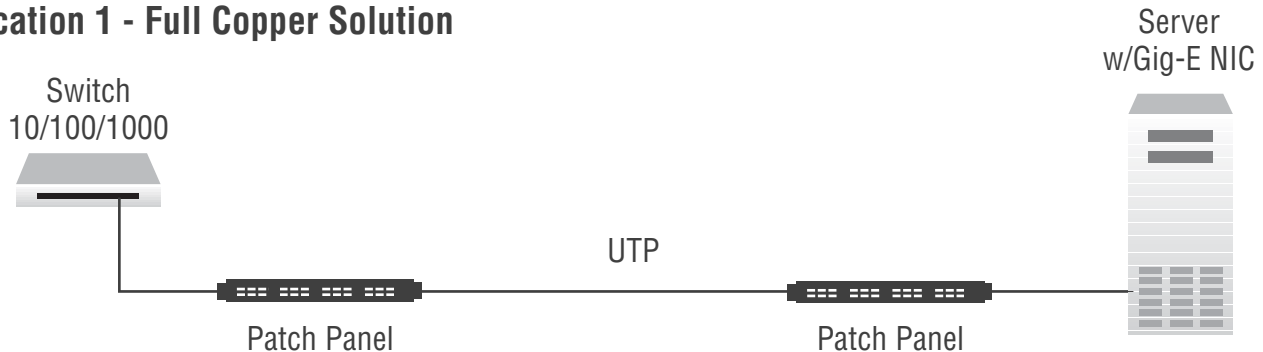
The Plug & Play™ Universal Systems Media Converter Module (MCM) is a Gigabit Ethernet (1000BASE-SX) media conversion solution within a Plug & Play™ Universal Systems pre-terminated module, part of Corning Cable Systems' LANscape® Pretium™ Solution. Each Media Converter Module is configured with 12 modular RJ-45 ports on the front and two MTP® Connector ports on the back. Each port on the MCM converts a Gigabit Ethernet 1000BASE-T signal, transmitting over copper, to a 1000BASE-SX signal, transmitting over fiber.

Whether using two modules in the 1U housing (24-port capacity) or up to 8 modules in the 4U housing (96-port capacity), the MCM provides the highest-density media conversion solution available. Utilization of the Media Converter Modules allows you to reap all the benefits of installing a modular MTP® connector-based fiber cabling system, while at the same time leveraging your existing copper port-based electronics.



# Typical Gigabit Installation Applications

## Application 1 - Full Copper Solution



In this application, the 10/100/1000 workgroup switch is being connected to the Gigabit Ethernet NIC of a centralized server via Augmented Category 6 copper cabling.

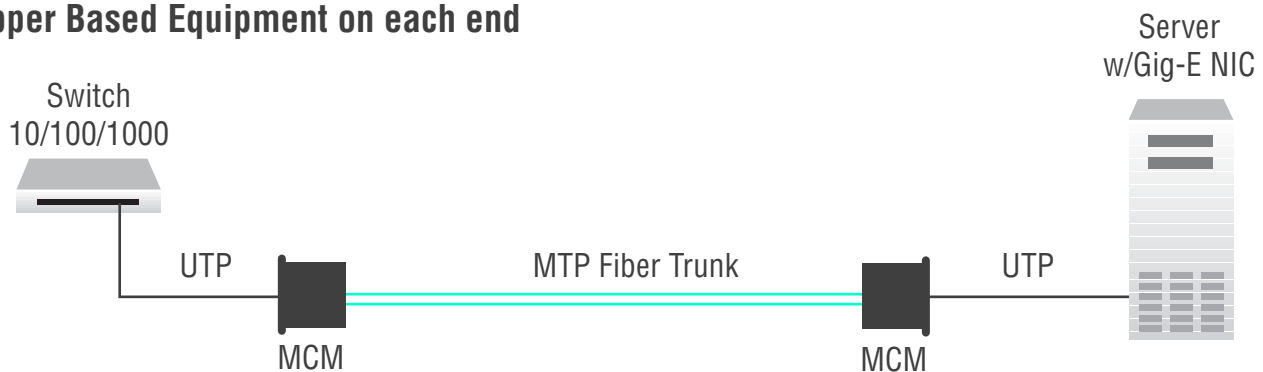
### Benefits

- Lowest Cost
- Meets today's needs up to 10Gigabit speeds

### Limitations

- Questionable upgradability to speeds > 10Gigabit
- Cable congestion - large cable diameter
- Restricted airflow
- Limited link distance

## Application 2 - Implementing Fiber Optics via the Media Conversion Module w/Copper Based Equipment on each end



In this application, the 10/100/1000 workgroup switch is being connected to the Gigabit Ethernet NIC of a centralized server by utilizing the Media Conversion Module on each end of an MTP fiber trunk.

### Benefits

- Future Proof
- Future Upgradability
- Improved airflow
- Reduced cable congestion

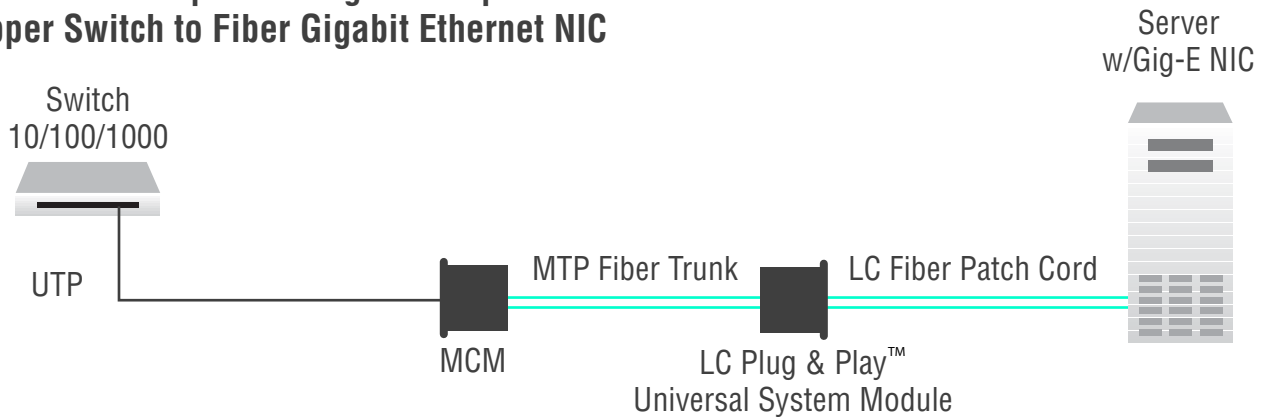
- No bandwidth limitations
- Utilize existing copper-based electronics
- Migration to all fiber architecture simple (see app. #4)

### Limitations

- Higher cost today

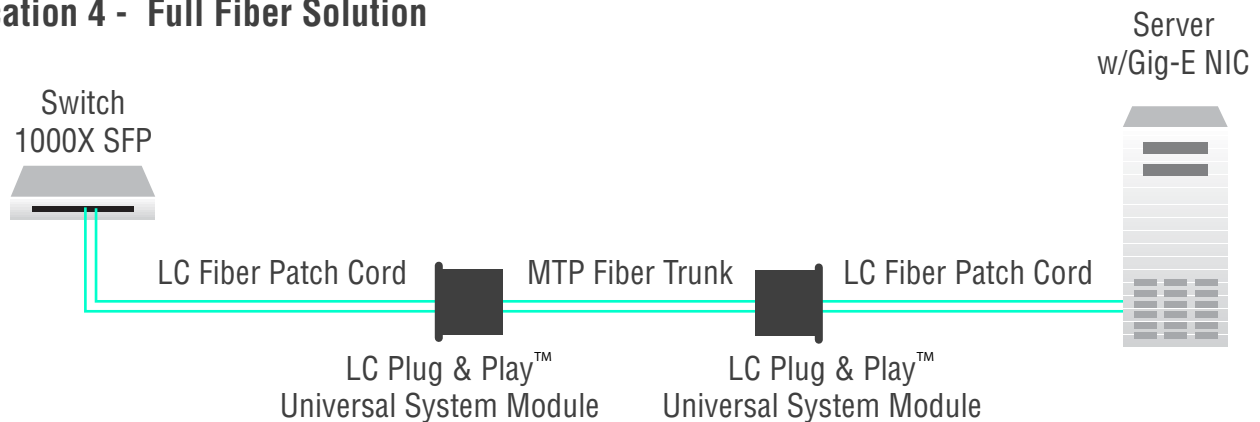
# Typical Gigabit Installation Applications

## Application 3 - Implementing Fiber Optics via the Media Conversion Module w/Copper Switch to Fiber Gigabit Ethernet NIC



In this application, the 10/100/1000 workgroup switch is being connected to the Fiber Gigabit Ethernet NIC of a centralized server by utilizing the Media Conversion Module and a Corning LC Plug & Play™ Universal Systems Connector Housing Module on each end of an MTP fiber trunk. Since this is a variation of Application #2, the same benefits/limitations apply.

## Application 4 - Full Fiber Solution



In this application the Fiber 1000X SFP workgroup switch is being connected to the Fiber Gigabit Ethernet NIC of a centralized server utilizing Corning LC Plug & Play™ Universal Systems Connector Housing Modules on each end of an MTP fiber trunk. While this is an optimum solution, it also requires a forklift upgrade to the cabling infrastructure as well as the electronics - the latter being a very costly undertaking.

# Why Utilize the Media Conversion Module?

## Why Convert Copper Infrastructure to Fiber?

- **Bandwidth** - Future proofing the network infrastructure to support modular growth and future applications.
- **Space** - Fiber cable takes up considerably less space than bulky copper cabling.
- **Distance** - If a link needs to be extended, the value of utilizing fiber far outweighs installing copper equipment every 100 meters. Laser optimized MM fiber supports Gigabit speeds up to 550 meters.
- **Interference** - Fiber cable is immune to EMI/RFI interference.

## Why Utilize the Media Conversion Module?

Whether you are deploying a new network or extending the reach of an existing copper network, the Plug & Play Media Converter Module Solution allows you to gain all of the benefits of a fiber optic infrastructure and the advantages of a pre-terminated, modular solution, all while using the low-cost legacy copper electronics that are available today.

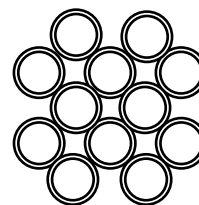
- **High density to optimize space and electronics usage:** With 12 copper ports in the front and two 12-fiber MTP ports in the back, the Media Converter Module offers the highest-density media conversion solution available, for space savings and higher port-to-converter cost efficiencies
- **Improved air flow:** Using high-density Plug & Play™ Universal Systems fiber trunks, you can dramatically reduce space utilization in cable trays and pathways and reduce air flow problems that stem from loading bulky copper cables in air handling spaces. (See Figure 1)

One 24-fiber cable (actual size) would require at least 12 UTP cables (actual size) to serve 12 ports.

Fig. 1



24-Fiber Cable



(12) Cat6 Cables

- **Modular and scaleable moves, adds and changes:** Plug & Play™ Universal Systems components, including the Media Converter Module, dramatically streamline network deployment – up to 90 percent over traditional deployment methods – reducing the total cost of ownership. Pay as you grow, quickly and easily adding connectivity when you need it, where you need it.

- **The best of both worlds, today and tomorrow:** The Media Converter Module Solution allows you to reap all of the benefits of installing a fiber-optic Plug & Play™ Universal Systems infrastructure today, while at the same time leveraging existing copper port-based electronics.

# Specifications and Ordering Information

## Corning Cable Systems Ordering Information

### **CCH-MCM12-RJ-70S**

Media Converter Module fits in the 1U and 4U Housings, 1000BASE-T (RJ-45) 100 m/328 ft to 1000BASE-SX 850nm multimode MTP® Connector 50µm fiber 500m/1640 ft, 12 modular EIA/TIA 568 RJ-45 ports on the front and 2 EIA/TIA 604-5. Type MPO ports on the back, status LEDs: PWR (power); LK (link); overtemp, fan fault.

### **PCH-04U-00**

4U Housing Solution accommodates up to 8 Media Converter Modules (96 RJ-45 ports); same footprint as Plug & Play Universal Systems components for an easy migration path to an all-optical networking, includes Power Cage, 2 power supplies and 1 power harness.

### **PCH-01U-00**

1U Housing Solution accommodates up to 2 Media Converter Modules (24 RJ-45 ports); same footprint as Plug & Play Universal Systems components for an easy migration path to an all-optical networking, includes Power Cage, 2 power supplies and 1 power harness.

## Accessories

### **PCH-04U-PWRS-MGMT**

4U Power Supply Management Module

### **PCH-01U-PWRS-MGMT**

1U Power Supply Management Module

### **A696924SD8AAU100F**

100ft Plug and Play MTP Trunk.

*Consult w/ Corning Rep to configure the part number for other lengths and fiber types.*