

MISSION-CRITICAL  
INTERCONNECT  
SOLUTIONS

*Glenair*<sup>®</sup>



*Glenair*  
SIGNATURE SERIES

# High-Speed Interconnect Solutions

Rugged Electrical, Optical, and Hybrid Solutions for Mission-Critical Aerospace and Defense Applications

# Signature High-Speed Datalink

## Contacts and Insert Modules

- El Ochito
- SpeedMaster
- SuperSeal
- VersaLink
- High-Speed Micro-D

SPEEDMASTER

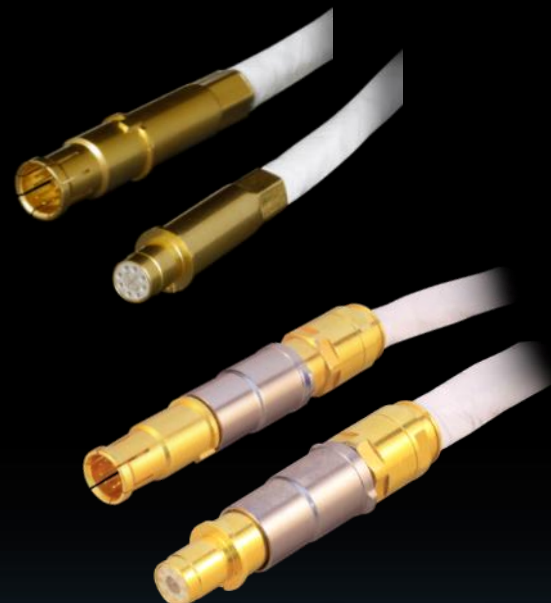
El  
Ochito



# El Ochito<sup>®</sup> High-Density Octaxial Contact

Our premier solution: Drop-in Size 8 octaxial contacts with outstanding high-speed signal integrity – now for both AWG#26 and AWG#24 wire!

- Market leader for Mil-Aero high-speed Ethernet
- 4 differential contact pairs, 90/100 Ohm Impedance
- Patented cross-talk isolation technology
- Snap-in, rear release, for keyed size 8 contact cavities
- Integrated removal tool
- Repairable contact
- Compatible with most current data protocols



# El Ochito<sup>®</sup> Two Contact Types

## Type I

- 26 AWG wire only
- Permanent crimp wire shield termination (non-serviceable)
- Uses standard Size #8 contact insertion / removal tools

## Type II

- 24 – 26 AWG wire
- Threaded wire shield termination (serviceable)
- Integral contact release sleeve

# El Ochito<sup>®</sup> Performance-Tested Wire and Cable

## Aerospace-grade wire for optimal protocol performance

### El Ochito White (1000 and 10G BASE-T Ethernet)

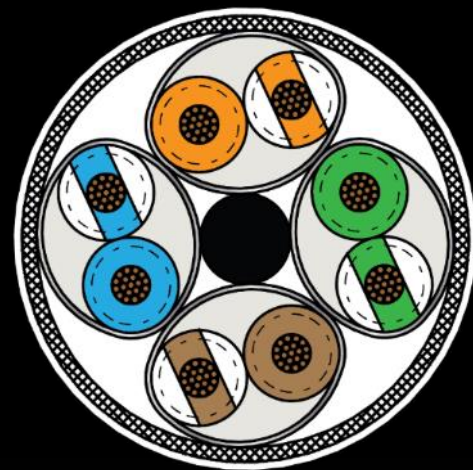
- #24 AWG and #26 AWG PIC and Gore 100 Ohm twisted pair wire
- Catalog P/N 963-033, 963-003

### El Ochito Blue (SuperSpeed USB 3.0/3.1 Gen1)

- #26 AWG Glenair 90 Ohm abrasion-resistant / high-temp twisted pair
- Catalog P/N 963-110, 963-118

### El Ochito Red (HDMI / DisplayPort / SATA)

- #26 AWG Glenair 100 Ohm high-temperature twisted pair
- Catalog P/N 963-127



# El Ochito Connectors



- Ultra low profile circular connectors for single El Ochito assemblies



- Size and weight savings over 38999 while meeting every performance requirement



- 38999 style connectors, offers the most size 8 insert arrangements of any Glenair connector



- Rectangular connectors with all the mechanical features of 791 now with size 8 inserts



# SUPERFLY DATA LINK



Our most innovative and high-performance E1 Ochito package solution

- Ultra small size
- Up to 5Gbps
- 10GbE and SuperSpeed USB
- PCB or cable termination
- Threaded or QCD
- Environmentally protected
- Aerospace-grade performance

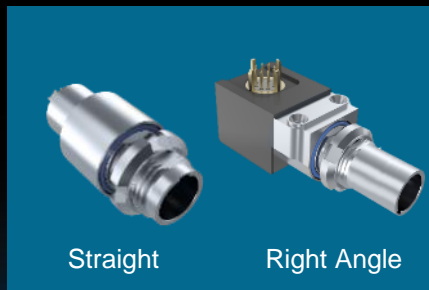
Push-Pull



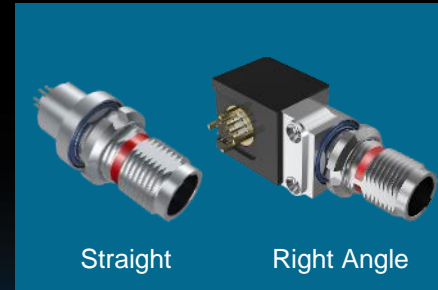
Threaded



Push-Pull



Threaded



# El Ochito® Series 806 Mil-Aero



## Advanced-performance micro-miniature IAW D38999

- High-speed Ethernet, USB 3.0, HDMI, and DisplayPort
- Next-generation small form factor aerospace-grade circular connector
- Upgraded environmental, electrical and mechanical performance
- Integrated anti-decoupling technology
- High-Speed El Ochito® and hybrid #22HD contact arrangements





## “Better than QPL” MIL-DTL-38999 high-speed solution

- Tooled and ready-to-ship high-speed and hybrid insert arrangement connectors for size #8 El Ochito shielded contacts
- Arrangements for #8, #12, and #16 Coax, Twinax, and Quadrax also available
- Supported applications: 10/100/1G/10G BASE-T Ethernet, HDMI, DisplayPort, SATA, USB 3.0 , 1553 databus and general RF or differential data transmission
- PC tail and crimp contact configurations



# El Ochito® Series 792

SERIES

792

SEVEN  
NINETY-TWO

The next-generation mil-aero rectangular for high-speed datalink applications

- Next-generation rear-release blind-mate rectangular
- Insert arrangements for 1 – 9 El Ochito® contacts, combo inserts accommodate #23 signal and/or power contacts
- Polarization key and ground spring options available
- Dual-lobe, scoop-proof interface



# El Ochito<sup>®</sup> Catalog Cable Assemblies

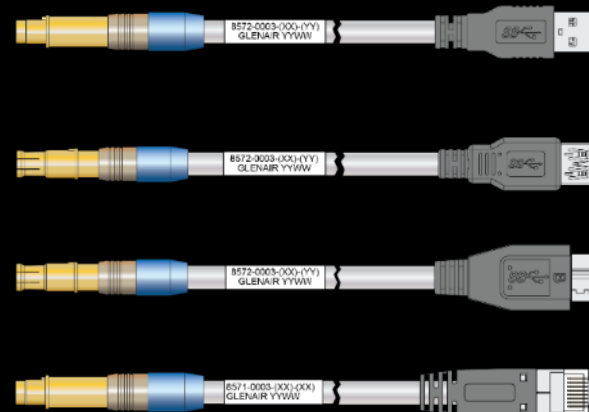
## Single-ended



## Point-to-point



## Ochito-to-COTS





# Octobyte 4/8 Pole Interconnect System

## The faster ruggedized 4/8 pole interconnect system for Ethernet data applications

- For harsh-environment transit, industrial, or marine/subsea applications
- RF Coax applications (RG58 and RG59U cables)
- High-speed interconnect solution for audio, video, and digital displays
- Qualified for use in safety systems, sensors, detection devices, and control panels
- Tested in accordance with: ISO F0 STP: CAT 7A  
EN50173-1 F600-STP: CAT 7 EN50173-1 D STP:  
CAT 5E



Octobyte





# SuperSeal® RJ45 and USB Field Connectors



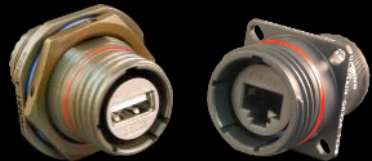
Improved environmental sealing, grounding, and a broader range of wire termination options for RJ45 and USB — now for SuperSpeed 3.0



- New SuperSpeed USB 3.0 protocol support
- Superior sealing — IP67 unmated — for complete system protection against water, sand and dust
- Highly durable SuperSeal insert design, provides enhanced operating temperature, increased life-cycle, and rugged vibration and shock performance
- Crimp, solder-cup, PC tail and cable assemblies



# SuperSeal Growing Family



MIL-DTL-38999 Type



Mighty Mouse 801, 804, 805



HDMI 2.0



USB 3.0 Repeater



Series IPT (26482) Type



MIL-DTL-28840 Type



Display Port



USB Memory Keys



Super ITS – RJ45 (5015) Type



# SuperSeal™

## DriveThru

- High Speed protocols, custom & combination
  - Ethernet, USB 2.0, USB 3.0, USB-C, HDMI, Display Port, DVI
- Ease of assembly
- No need to cut the cable for installation
- Alternative to plug coupler and plug crimp removable versions
  - Shorter connector assembly
  - Replaces 2 electrical connections with 1

233-358 (USB 3.0)



233-368 (HDMI)



233-388 (Type C)



# VersaLink: Ultra High-Density Twinax



Signature Twinax contact module optimized for high-bandwidth USB 3.1 gen 2, USB-C, SATA, PCIe, Display Port and HDMI

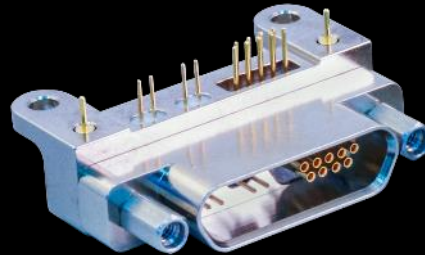
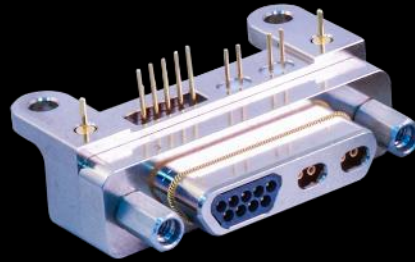
- Higher speed and density than mil-spec style Twinax
- Space-efficient, high-density contact module
- Requires dedicated VersaLink connector inserts
  - Series 794, Micro-D, Mighty Mouse 806 and SuperFly
- Individually shielded pairs results in virtually no cross talk
- VersaLink Bridge configuration for replacing high-loss board traces



# VersaLink Connector Options



- Straight board mount
- 90° board mount
- Wired pigtails or back-to-back



# VersaLink Bridge



Bypass high-loss board traces with low insertion loss / low latency jumpers

- Quick disconnect
- Bayonet-lock
- Point-to-point cordsets

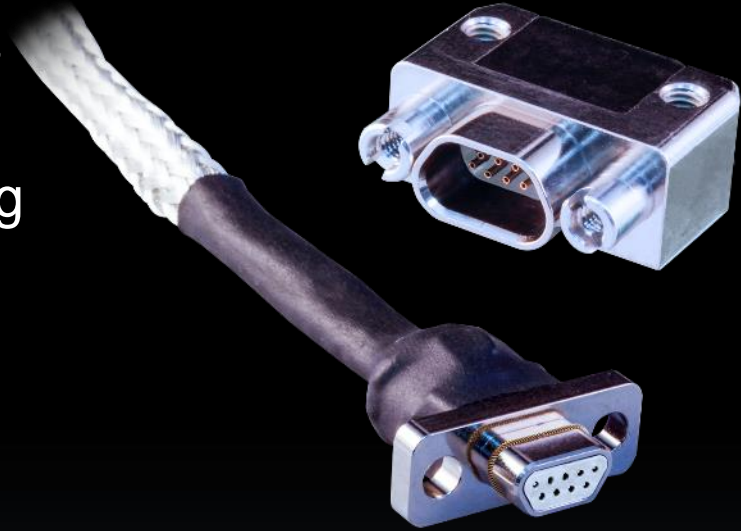




# High-Speed Micro-D

**Miniaturized Micro-D Connector / TwistPin contact solution with 10+ Gb/sec. performance per differential pair**

- Pre-wired factory cordsets and PCB connectors
- Unique contact isolation and spacing for optimal high-speed performance
- Standard layouts support maximum #28 AWG wire







# High-Speed Micro-D

## Smallest and lightest aerospace-grade high-speed connector solution

- Ultra-low dielectric material combined with optimized contact size and spacing
- Auxiliary EMC ground spring on plug
- Hybrid contact solutions available with 3 amp and 1 amp TwistPin contacts (perfect for USB 3.0 SuperSpeed applications)



# MIL-DTL-38999 Series III Type Tight-Tolerance Fiber Optic Connection System

## Glenair mil-qualified 29504/4 and /5 termini

- Available materials range from composite thermoplastic to stainless steel
- Shell sizes range from 11 to 25, and the corresponding cavity counts from 2 to 37 channels
- Same Day inventory for connectors and termini



# Glenair High Density (GHD) Fiber Optic Connection System

**Nearly double the density of M28876 and D38999**

- Genderless, front release termini
- $\text{Ø}1.25\text{mm}$  precision ceramic ferrule and alignment sleeve
- Precision guide pin mating
- Removable alignment sleeve module
- PC and APC polish terminus options
- Complete environmental sealing
- Equal optical performance to D38999
- M85045/16 cable support



GHD Keyed Terminus  
(APC)

# GFR: Glenair Front Release Fiber Optic Connection System

## Unique terminus design for rapid integration

- Precision size 16 pin-socket front release termini with integrated retention clip
- Singlemode and multimode for all popular fiber sizes
- Typical insertion loss less than 0.5 dB
- Cylindrical and rectangular connectors
- Connector shells available in aluminum and stainless steel



# SuperNine MT



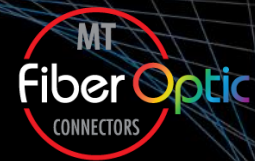
**Ultra high-density, multiple termination (MT)  
commercial interconnect in a ruggedized mil-aero package**

- IP 67 environmental performance (IP 68 available) mated
- Precision alignment keys and pins
- MIL-STD-810F shock and vibrate
- 85°C high temperature tolerance
- 500 mating cycles





# SuperNine MT: Fully Qualified and Available



**SIZE 11**  
Up to 24 channels



**SIZE 15**  
Up to 72 channels



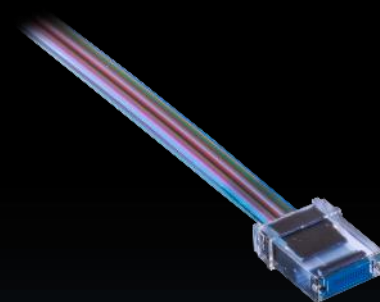
**Expanded-Beam  
MT Ferrule**



**SIZE 13**  
Up to 48 channels



**SIZE 17**  
Up to 96 channels





# Series 79 MT Ultraminiature: the Mission-Critical Ruggedized MT Fiber Optic Rectangular

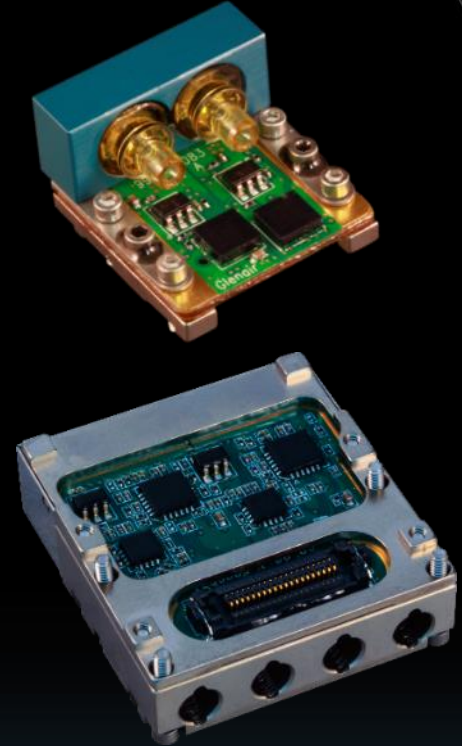


- Small form-factor, high-density mil-aero solution designed for “inside the box” applications
  - Parallel optics, optical backplanes, missile systems, heads-up displays, etc.
- Single-ferrule version available soon, dual and quad in development



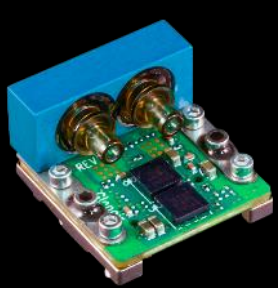
# Ruggedized, PC Board Mount Photonic Transceivers

- Small form factor
- Hardened for mission-critical applications
- Range of different data rates, wavelengths, laser types etc.
- For use with fast Ethernet, Gigabit Ethernet, Fibre Channel and other protocols
- High-resolution video and data server markets



# Available 5Gbps Radiation-Tolerant Transceivers

Heavy ion, proton, and gamma radiation tested devices  
(consult factory for exact tests and results)



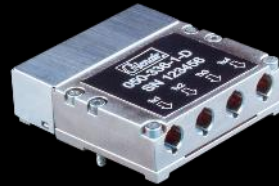
050-360  
Dual  
Transmitter



050-361  
Dual  
Receiver



050-362  
Transceiver



050-363  
Quad  
Transmitter



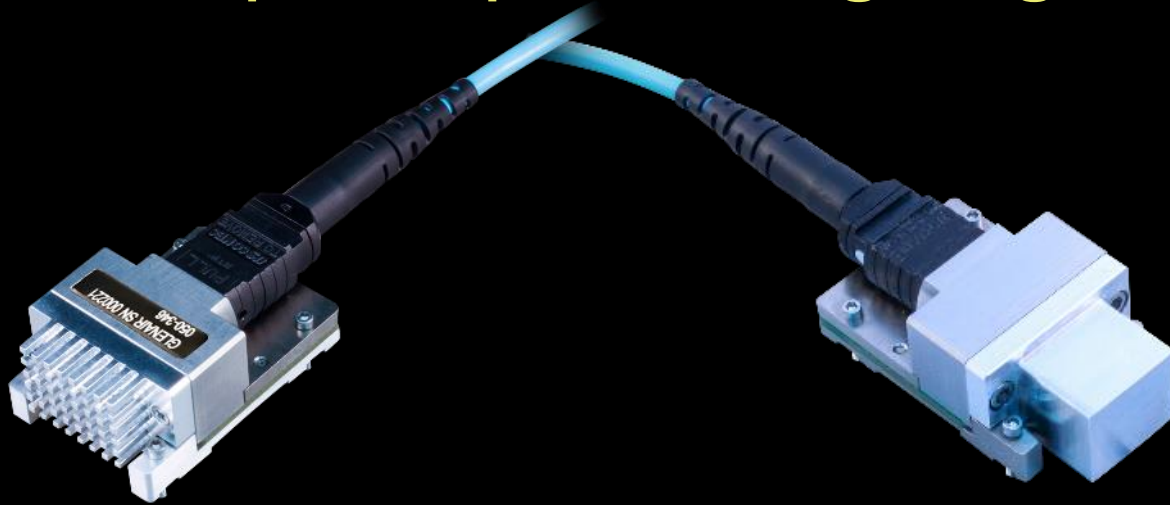
050-364  
Quad  
Receiver



050-385  
Dual  
Transceiver

# New Heat Management Designs

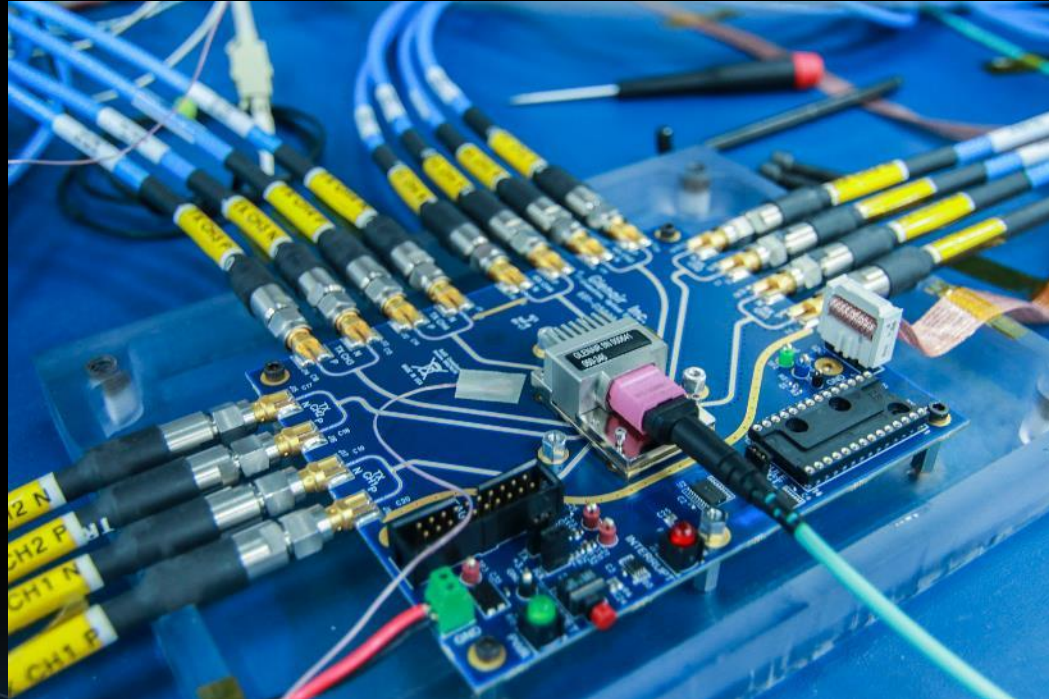
Absence of air in space requires cooling design change



Convection Cooling  
(Aerospace)

Conduction Cooling  
(Space)

# Parallel Photonic Devices Reduce Cable Complexity and Mass





# Ethernet Media Converters (Copper-to-Fiber)



Small Form Factor  
media converter



Lightning-strike  
hardened media  
converter



Small form-factor  
inline media  
converter



# Video Media Converters



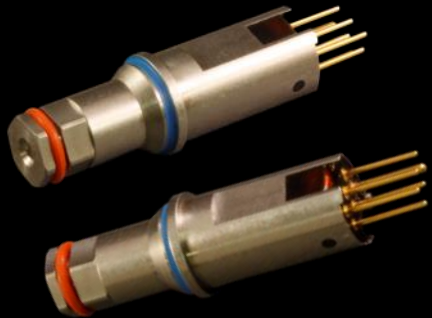
Custom and competitor-compatible form factors

# Mil-Aero High-Speed Ethernet Switches



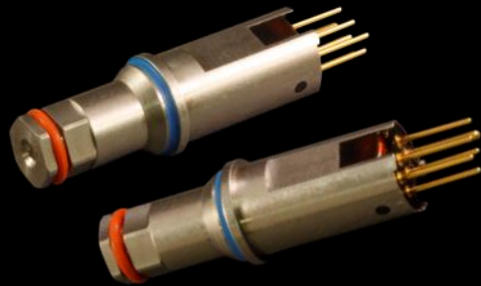
# Size #8 Cavity Opto-Electronic Contacts / Adapters

For high-speed signal/video applications such as Gigabit Ethernet, DVI, SMPTE 3G, HD-SDI etc.



050-301

1.25mm ARINC 801



050-307

2.5mm ELIO®



050-367

1.25mm LuxCis®

# Industry-Standard Connector / Converter Packages with Glenair Opto-electronic Transmit / Receive Contacts



MIL-DTL-38999 Series III

ARINC 801

HiPer-D M24308  
intermateable

# Summary of Glenair Opto-Electronic Technologies



PCB-Mount Transceivers

Opto-Electronic  
Contacts and  
Connectors

Ethernet  
Media  
Converters

Video  
Media  
Converters

Signal  
Aggregators

Ethernet  
Switches



MISSION-CRITICAL  
INTERCONNECT  
SOLUTIONS

*Glenair*<sup>®</sup>



*Glenair*  
SIGNATURE SERIES

# High-Speed Interconnect Solutions

Rugged Electrical, Optical, and Hybrid Solutions for Mission-Critical Aerospace and Defense Applications