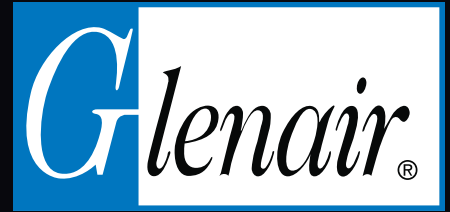


MISSION-CRITICAL  
INTERCONNECT  
SOLUTIONS



*Glenair*  
SIGNATURE SERIES

# Micro-D & Nanominiature Rectangular Connectors

For Missile Systems and other Mil-Grade Applications



# MILITARY GRADE RECTANGULAR CONNECTORS



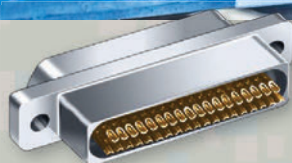
## Micro-D Connectors for Missile System Applications



Standard



Hermetic



EMI Filter

- High density Micro TwistPin contacts set on .050" centers
- 9 to 130 contact arrangements
- Pigtail, PCB, solder cup, and flex terminations
- Single row, multi-row, low profile and high density insert arrangements
- QPL and commercial versions

**TwistPin equipped MIL-DTL-83513 Micro-D connectors offer outstanding mating performance, durability and minimal contact resistance**



MasterLatch™



Surface Mount



Rear Panel Mount



Flex Circuit

# MIL-DTL-83513 AND GLENAIR SIGNATURE Micro-D Connectors



Mission-critical mating performance

## Metal Shell Micro-D for Harnessing Applications

|                         |                       |                       |                    |                     |                    |
|-------------------------|-----------------------|-----------------------|--------------------|---------------------|--------------------|
|                         |                       |                       |                    |                     |                    |
| GRPM Solder Cup         | GRPM Insulated Wire   | GRPM Uninsulated Wire | MWDM Solder Cup    | MWDM Insulated Wire | MWDM Back-To-Backs |
|                         |                       |                       |                    |                     |                    |
| Shielded Cable Assembly | MWDM Uninsulated Wire | GMDR Insulated Wire   | GMDE Environmental | GSWM SpaceWire      | GMLM MasterLatch   |

## Micro-Ds for Printed Circuit Board

|          |          |                   |                    |
|----------|----------|-------------------|--------------------|
|          |          |                   |                    |
| GRPM-CBS | GRPM-CBR | MWDM-BS           | MWDM-BR            |
|          |          |                   |                    |
| MWDM-CBR | MWDM-CBS | 90° Surface Mount | GMR7580            |
|          |          |                   |                    |
| GMR7590  | GMR7580C | GMR7590C          | Right Angle Filter |



WellMaster™ 260



Sav-Con®



Latching MicroStrip



Low Profile

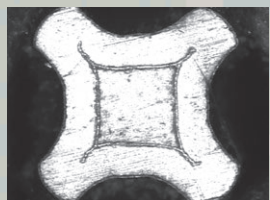
# MILITARY GRADE RECTANGULAR CONNECTORS



**MIL-DTL-32139 qualified connectors for mission-critical board-to-wire applications—simply the smallest and lightest mil-spec connector in the business**

- .025 Inch (0.64 mm) contact spacing
- #30 And #32 gage wire accommodation
- Single and double row
- TwistPin contact system
- Thru-hole and surface-mount PCB versions

## THE NANO TWISTPIN ADVANTAGE



Transverse cross-section of a TwistPin contact crimped to solid wire



- Gas-Tight Crimp Joint
- Better Shock and Vibration Performance
- Corrosion Proof Contact Alloy



# SERIES 89 Nanominiature Connectors



The smallest and lightest  
mil-spec connector

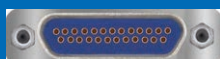
| Series 89 Nanominiature Connector Performance Summary |                                   |
|-------------------------------------------------------|-----------------------------------|
| Contact Spacing                                       | .025" (0.64mm)<br>Contact Centers |
| Wire Accommodation                                    | #30-#32 AWG                       |
| Current Rating                                        | 1 AMP Max                         |
| DWV                                                   | 250 VAC RMS Sea Level             |
| Insulation Resistance                                 | 5000 Megohms Minimum              |
| Operating Temperature                                 | -55° C. to +125° C.               |
| Contact Resistance                                    | 71 Millivolt Drop Maximum         |
| Shock, Vibration                                      | 100g's, 20 g's                    |
| Durability                                            | 200 Mating Cycles                 |
| Corrosion Resistance                                  | 48 Hours Salt Spray               |
| Mating Force                                          | 5 Ounce Max, 0.4 Ounce Min        |

## How Small Are They?



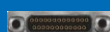
### D-Subminiature Connector

25 Contacts  
on 0.109 Inch Spacing



### Micro-D Connector

25 Contacts  
on 0.050 Inch Spacing



### Nano Connector

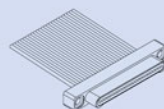
25 Contacts  
on 0.025 Inch Spacing



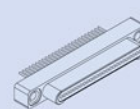
Also available: space-grade  
Nano circulars

## SERIES 89 NANOMINIATURE PRODUCT SELECTION GUIDE

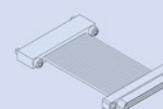
### Pre-Wired Single Row Connectors



Insulated Wire

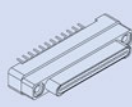


Uninsulated Wire

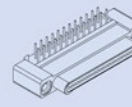


Back-to-Back Cables

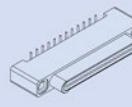
### Pre-Wired PCB Connectors



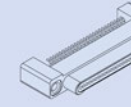
Thru-Hole Vertical



Thru-Hole 90°

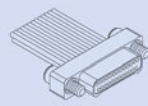


SMT Vertical

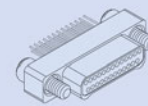


SMT 90°

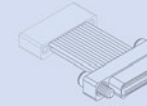
### Pre-Wired Double Row Connectors



Insulated Wire



Uninsulated Wire



Back-to-Back Cables

### Double Row PCB Connectors



Thru-Hole Vertical



Thru-Hole 90°



SMT Vertical

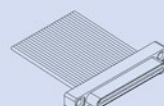


SMT 90°

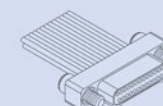


SMT Straddler

### Pre-Wired MIL-DTL-32139 Connectors



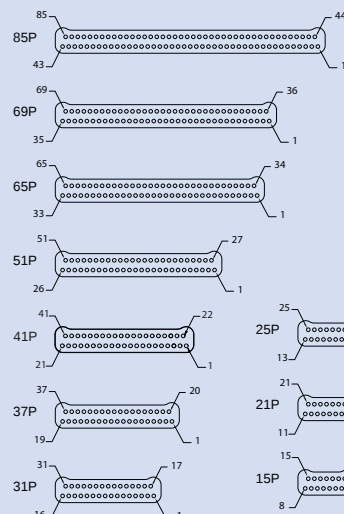
Single Row, Insulated Wire



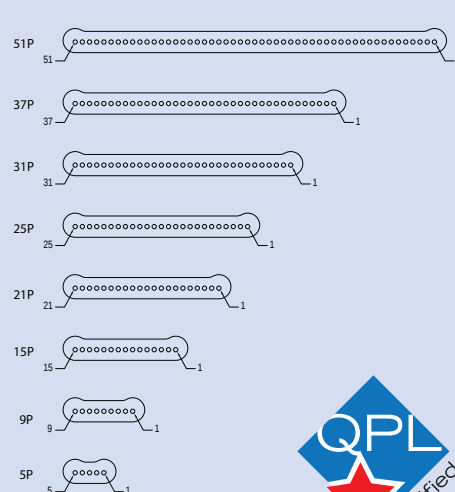
Double Row, Insulated Wire

## NANOMINIATURE CONTACT ARRANGEMENTS

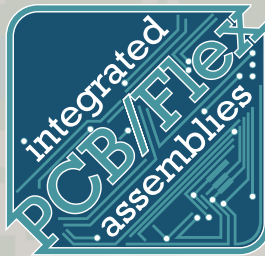
### Single Row Mating Face of Pin (Plug) Connector



### Double Row Mating Face of Pin (Plug) Connector



# MILITARY GRADE RECTANGULAR CONNECTORS



Micro-D and Nanominiature  
Flex Circuit Assemblies—a  
Glenair UK and Glenair US  
Signature Capability



Turnkey connectorized flex/PCB cable assemblies incorporating Glenair's broad range of small form-factor Micro, Nano, and circular connector solutions, backpotted for protection during conformal coating

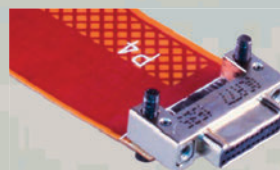
## GLENAIR SIGNATURE PCB CONNECTOR TYPES AVAILABLE IN TURNKEY FLEX ASSEMBLIES



Series MWD Micro-D  
and innovative pogo-pin  
AlphaLink



Series MWD Micro-D to  
M55302 flex assembly



MIL-PRF-32139  
Nanominiature flexi



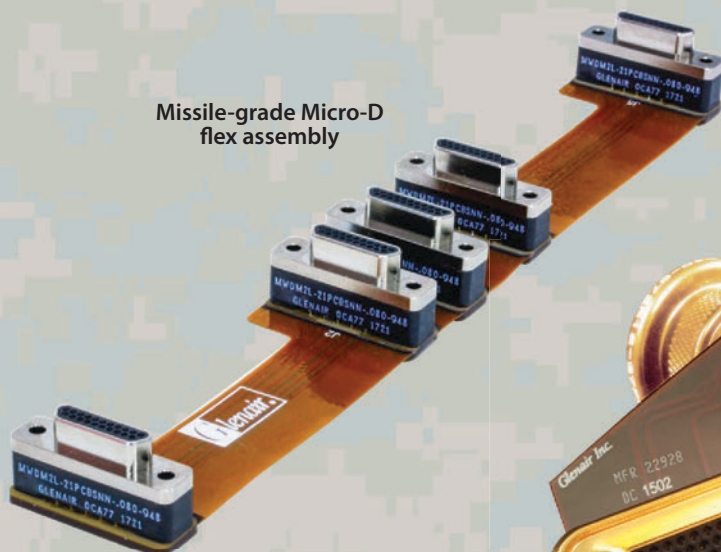
Series 79  
Micro-Crimp flexi

# TURNKEY PCB/Flex Circuit Assemblies with Glenair signature PC tail connectors

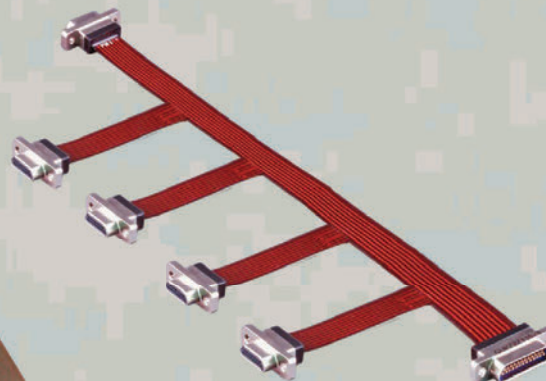


## MULIBRANCH FLEX / PCB ASSEMBLIES WITH GLENAIR SIGNATURE CONNECTORS

Missile-grade Micro-D  
flex assembly



Multibranch Micro-D  
flex assembly



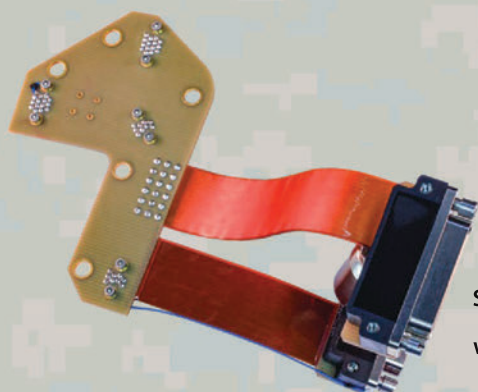
Exoatmospheric Series  
28 HiPer-D to Series 80  
Mighty Mouse I/O jumper



Dual-gang series  
20 Super-Twin™ I/O  
connector to AlphaLink  
SL PCB connector



Stacked Micro-D  
I/O connectors  
with flex jumper  
to rigid PCB  
assembly



Hybrid flex/rigid flex multibranch  
Micro-D and Series 23 SuperNine  
flex assembly with discrete  
RF circuits



# MILITARY GRADE RECTANGULAR CONNECTORS



Ultraminiature crimp-contact rectangular with advanced environmental and EMC performance



Series 79 is the advanced-performance, aerospace-grade crimp-contact rectangular connector

## SERIES 79 MICRO-CRIMP PRODUCT SELECTION GUIDE

- Crimp, PCB, fiber optic, coax, power and pitot
- Precision machined aluminum shells sealed to IP67
- High-density #23 contact arrangements set on .076 centers
- Blind mating for rack and panel applications
- Environmental, hermetic and filter versions
- Integrated ground spring for improved EMI shielding



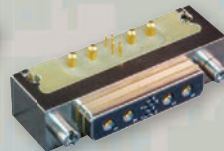
Crimp terminated cable connectors



Crimp terminated panel mount connectors



Panel mount connector with auxiliary sealing



90° PCB panel mount and free-standing connectors

# SERIES 79 Micro-Crimp

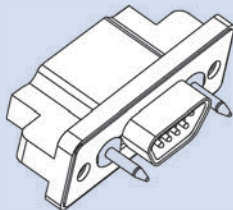


## Ultraminiature crimp-contact rectangular

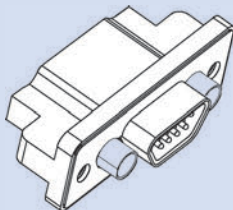


31 insert arrangements supporting signal, power, and high-speed contacts

### Blind Mate Guide Pins and Sockets



**Guide Pins**  
Stainless steel non-removable guide pins.



**Guide Sockets**  
Stainless steel non-removable bushings.

### Series 790 Performance Specifications

|                          |                                                                                      |
|--------------------------|--------------------------------------------------------------------------------------|
| Current rating           | Contact size #23 5 Amps, size #16 13 Amps, size #12 23 Amps maximum                  |
| Voltage rating (DWV)     | size #23 500 VAC rms. size #16 and #12 1800 VAC rms. Sea level.                      |
| Insulation resistance    | 5000 megohms minimum                                                                 |
| Operating temperature    | -65° C. to +150° C.                                                                  |
| Contact resistance       | 5 milliohms maximum                                                                  |
| Water ingress protection | IP67                                                                                 |
| Shielding effectiveness  | >75 dB attenuation from 100 MHz to 1000MHz, >60dB 1GHz to 4GHz, >40dB 4GHz to 10GHz. |



## The next-generation ultraminiature rectangular connector for demanding defense applications



*M-17P17 with size 16 contacts*

- Two to 102 contacts
- Coax, twinax, quadax and Ochito octaxial contacts
- Rugged aluminum shell with dual polarizing lobes

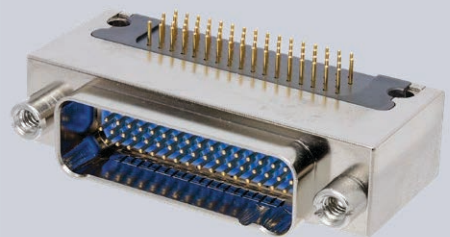


*Shell size A – the smallest 791*

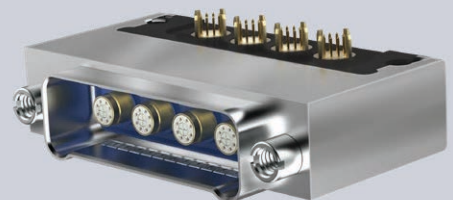
- Integral band platform for direct attachment of cable braid
- -65°C to +150°C
- Panel mount versions with O-ring or EMI spring



- 37 contact arrangements
- Crimp-and-poke or epoxy-sealed board mount versions
- Scoop-proof recessed pins
- Size 23, 16, 12 and 8 contacts



- Straight and right angle printed circuit board mounting
- 12 shell sizes
- Guide pins for blind mate modules

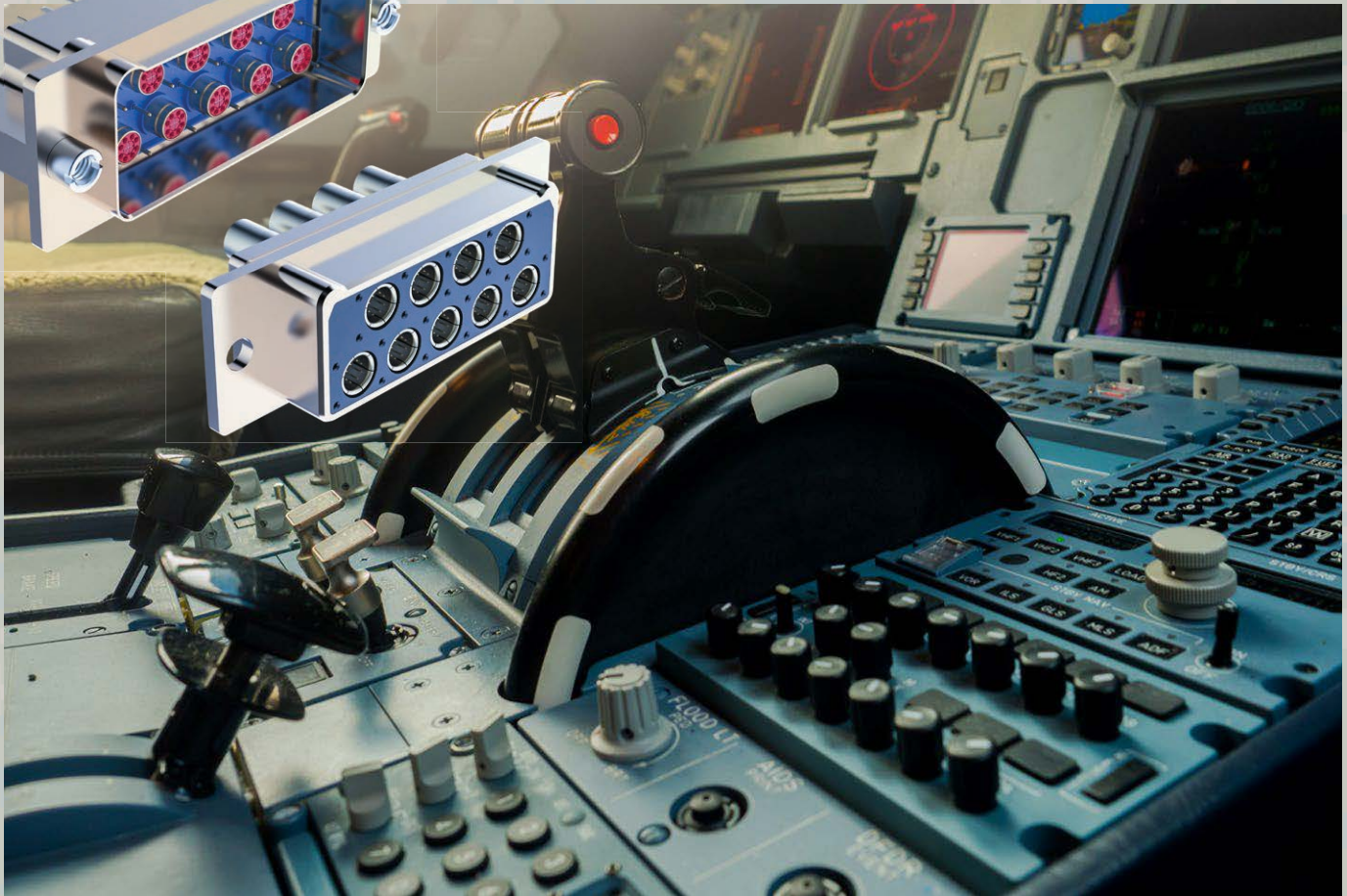
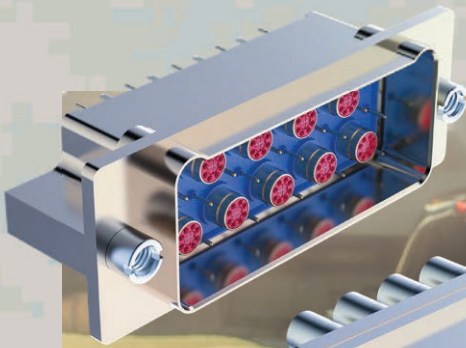


- Contacts meet SAE AS39029 requirements
- Internal ground spring for EMI protection
- Approved for manned space flight

## MILITARY GRADE RECTANGULAR CONNECTORS



The next-generation  
ultraminiature rectangular  
connector for high-speed  
aerospace applications



The Series 792 connector brings high-speed datalink performance to the Glenair Series 79 rectangular family. Size 8 cavities accept standard Quadrax and El Ochito™ datalink contacts making it a perfect choice for radars, weapons systems, communications gear and more.

- High-speed Ethernet, USB 3.0, HDMI
- Printed circuit board and cable connectors
- Scoop-proof interface
- 12 arrangements and 6 shell sizes
- Precision-machined dual-lobe polarized shells
- Environmentally sealed
- Integrated EMI shielding and grounding
- Blind mating

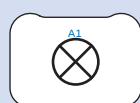
# HIGH-SPEED Series 792



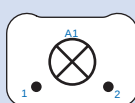
The next-generation ultraminiature rectangular for high-speed aerospace applications

| DESCRIPTION                                 | REQUIREMENT                                                 | PROCEDURE / NOTES                            |
|---------------------------------------------|-------------------------------------------------------------|----------------------------------------------|
| Operating temperature                       | -65° to +175°C                                              | EIA-364-32 Test Condition IV                 |
| Current rating                              | 1.5 Amps (datalink contacts)<br>5 Amps (Size #23 contacts)  | Datalink contacts tested: El Ochito® White   |
| Dielectric Withstanding Voltage (sea level) | 750 VAC (Size #23 contacts)<br>1800 VAC (datalink contacts) | EIA-364-20                                   |
| Insulation resistance                       | 5000 MΩ minimum                                             | EIA-364-21                                   |
| Contact resistance, 25°C                    | 55 millivolt maximum                                        | EIA-364-06, 1.0 A test current, #24 AWG wire |
| Shell-to-shell resistance                   | 2.5 millivolt maximum                                       | EIA-364-83                                   |
| Shielding effectiveness                     | Frequency                                                   | Attenuation dB                               |
|                                             | 100                                                         | 75                                           |
|                                             | 1000                                                        | 50                                           |
|                                             | 3000                                                        | 44                                           |
|                                             | 6000                                                        | 38                                           |
|                                             | 10000                                                       | 35                                           |
| Ingress protection                          | IP67 rating                                                 | IEC-60529                                    |

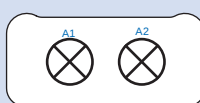
## SERIES 792 INSERT ARRANGEMENTS (PIN FACE SHOWN)



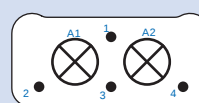
**A-1W1**  
1 #8



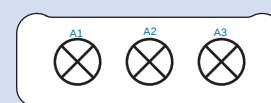
**A-3W1**  
1 #8, 2 #23



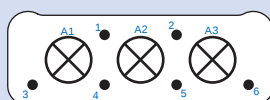
**B-2W2**  
2 #8



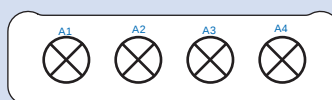
**B-6W2**  
2 #8, 4 #23



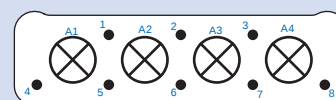
**C-3W3**  
3 #8



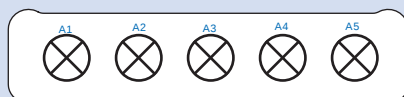
**C-9W3**  
3 #8, 6 #23



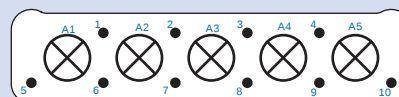
**D-4W4**  
4 #8



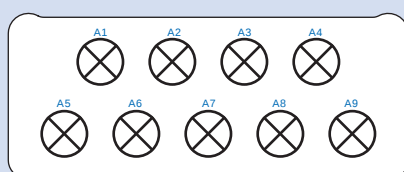
**D-12W4**  
4 #8, 8 #23



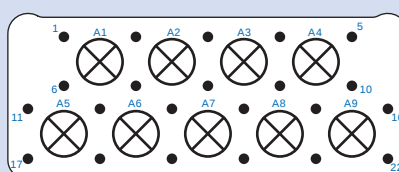
**E-5W5**  
5 #8



**E-15W5**  
4 #8



**F-9W9**  
9 #8



**F-31W9**  
9 #8

## MILITARY GRADE RECTANGULAR CONNECTORS

# HDSTACKER™

High-density, solder-free, rugged board-to-board stackable connectors



**HD Stacker: the innovative mission-critical board-to-board connector with fail-safe signal integrity and rugged, reliable harsh-environment performance**



Solder-free press-fit (compliant pin) board mounting



.0625" pitch contact spacing: highest available density

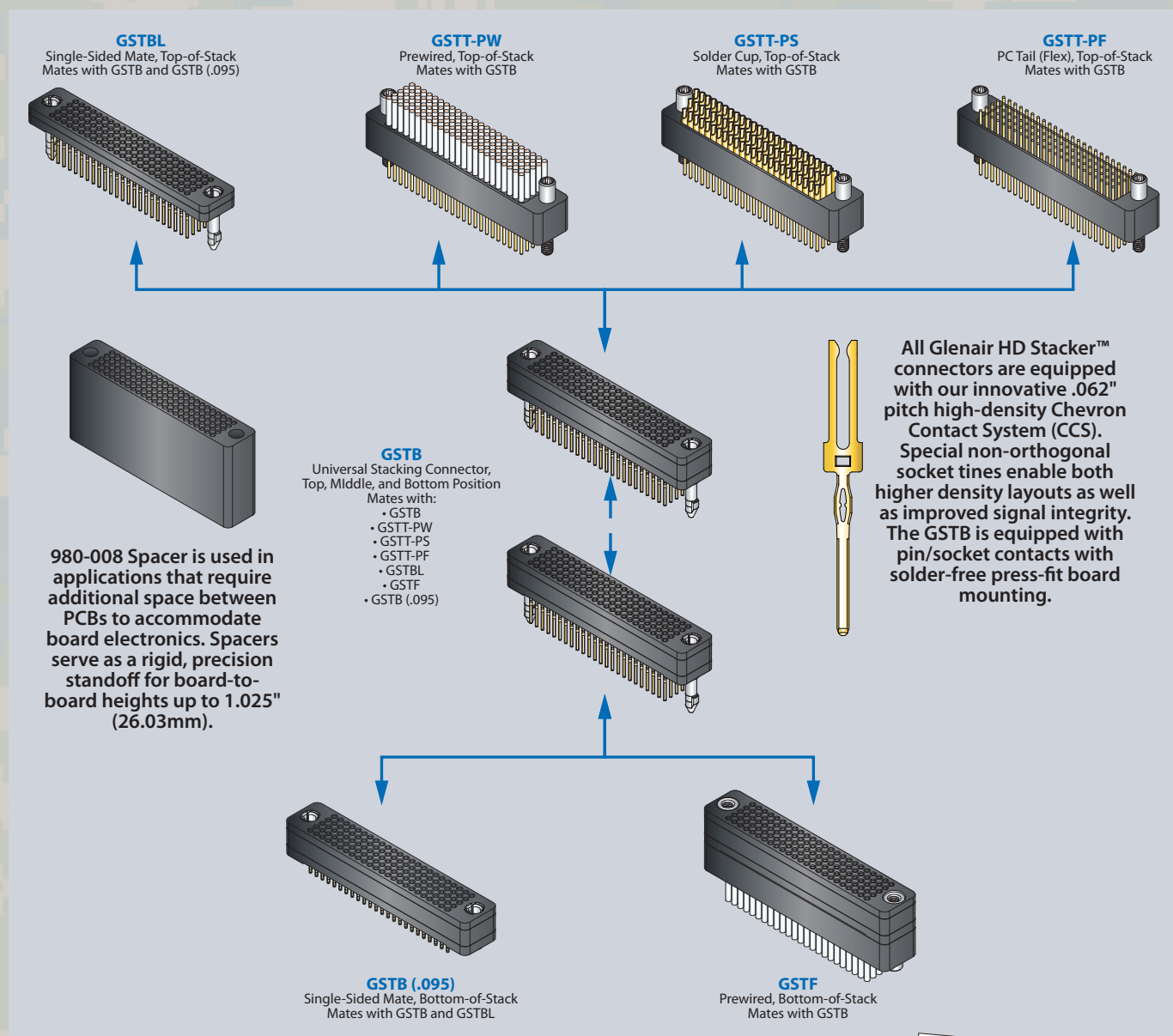


Polarized shells and keyed guide pin hardware prevent mis-mating

- High-density .0625" pitch Chevron Contact System: 55% more contacts per connector size
- PCIe 3.0 capable
- Performance up to 10.5 Gbps
- Polarized insulator and hardware options
- Solder free "eye of the needle" compliant tail for press fit installation
- High-temp PPS insulator meets NASA outgassing requirements
- Available wired / flex jumpers
- Available between-board spacers up to 1 inch

## High-density, rugged, high-pitch compliant pin board-to-board stackable connectors

### HD STACKER™ POSITION AND MATING COMPATIBILITY GUIDE



### QUALIFICATION TESTING / HIGH-SPEED PERFORMANCE

Stacker connectors were qualified in accordance with MIL-DTL-55302G testing for:

- Contact engagement/separation
- Contact retention
- DWV
- Electrical resistance
- Mechanical vibration and shock
- Insulation resistance
- Thermal shock
- Contact resistance
- Humidity

High-frequency electrical performance tests were performed for: Insertion loss, return loss, crosstalk, and time domain performance metrics including impedance and eye pattern. Complete test reports are available at [www.glenair.com/technical\\_information\\_test\\_reports](http://www.glenair.com/technical_information_test_reports)





## MISSION-CRITICAL INTERCONNECT SOLUTIONS

### Glenair, Inc.

1211 Air Way • Glendale, California • 91201-2497

Telephone: 818-247-6000 • Fax: 818-500-9912 • [sales@glenair.com](mailto:sales@glenair.com)

[www.glenair.com](http://www.glenair.com)

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#### Glenair Power Products Group

20 Sterling Drive  
Wallingford, CT  
06492

Telephone:  
203-741-1115  
Facsimile:  
203-741-0053  
[sales@glenair.com](mailto:sales@glenair.com)

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#### Glenair UK Ltd

40 Lower Oakham Way  
Oakham Business Park  
Mansfield, Notts  
NG18 5BY England

Telephone:  
+44-1623-638100  
Facsimile:  
+44-1623-638111  
[sales@glenair.co.uk](mailto:sales@glenair.co.uk)

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#### Glenair Microway Systems

7000 North Lawndale Avenue  
Lincolnwood, IL  
60712

Telephone:  
847-679-8833  
Facsimile:  
847-679-8849

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#### Glenair Nordic AB

Gustav III : S Boulevard 46  
SE-169 27 Solna  
Sweden

Telephone:  
+46-8-50550000  
[sales@glenair.se](mailto:sales@glenair.se)

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#### Glenair GmbH

Schaberweg 28  
61348 Bad Homburg  
Germany

Telephone:  
06172 / 68 16 0  
Facsimile:  
06172 / 68 16 90  
[info@glenair.de](mailto:info@glenair.de)

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#### Glenair Iberica

C/ La Vega, 16  
45612 Velada  
Spain

Telephone:  
+34-925-89-29-88  
Facsimile:  
+34-925-89-29-87  
[sales@glenair.es](mailto:sales@glenair.es)

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#### Glenair Italia S.p.A.

Via Del Lavoro, 7  
40057 Quarto Inferiore –  
Granarolo dell'Emilia  
Bologna, Italy

Telephone:  
+39-051-782811  
Facsimile:  
+39-051-782259  
[info@glenair.it](mailto:info@glenair.it)

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#### Glenair France SARL

7, Avenue Parmentier  
Immeuble Central Parc #2  
31200 Toulouse  
France

Telephone:  
+33-5-34-40-97-40  
Facsimile:  
+33-5-61-47-86-10  
[sales@glenair.fr](mailto:sales@glenair.fr)

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#### Glenair Korea

B-1304 Gunpo IT Valley  
148 Gosan-Ro, Gunpo-Si  
Kyunggi-Do, Korea  
435-733

Telephone:  
+82-31-8068-1090  
Facsimile:  
+82-31-8068-1092  
[sales@glenair.kr](mailto:sales@glenair.kr)

