

**Delivering the market's cleanest signal integrity at 28+ Gbps, Molex's modular NeoScale™ Mezzanine System features a high-speed triad wafer design with Solder-Charge Technology™ for customized PCB routing in high-density system applications**

Ideal for space-constrained designs with limited PCB real estate, the modular NeoScale mezzanine system provides a durable and easily customizable design tool for high-density system applications. Each NeoScale triad wafer is an independent element in the housing and can be customized to a design layout. With four triad wafer configurations, customers can mix and match components to build a mezzanine solution to meet their requirements for signals supporting high-speed differential pairs (85 and 100 ohm), high-speed single-ended transmissions, low-speed single-ended signals and power contacts.

For more information visit: [www.molex.com/link/neoscale.html](http://www.molex.com/link/neoscale.html).

**NeoScale™ High-Speed Mezzanine System**

**170807 Vertical Plug**

**170814 Vertical Receptacle**



*NeoScale™ High-Speed Mezzanine System Left: Plug, Right: Receptacle 6-by-20 (120 triads)*

**FEATURES AND BENEFITS**

- Patent-pending modular triad wafer design with four triad configurations and high-speed differential pairs (in both 85 and 100 Ohm impedance), high-speed single-ended traces, low-speed single-ended lines and power contacts provides a customized system for design flexibility
- Housing design based on honeycomb construction isolates each differential pair for optimal performance and customization
- High-speed triad wafers comprise three pins per differential pair (two signal pins and one shielded ground pin) providing stand-alone 28+ Gbps fully shielded differential pairs with dedicated grounds
- Connectors feature 246 circuits with a density of 82 differential pairs per square inch offers ultra-high-density signal solution with optimal signal integrity performance
- Mirror-image triad layout enables the PCB routing in one or two layers for four- and six-row housings respectively providing ease in PCB routing and lowers overall system costs by decreasing the number of PCB layers required for signal routing
- Tombstone structures incorporated within the receptacle housing prevents terminal damage by protecting the mating contact interface
- Innovative PCB connection using patented Solder-Charge Technology™; proven surface mount technology (SMT) attach method for highly reliable and robust solder joints
- Available in 12.00 to 42.00mm stack heights, circuit sizes of 8 to 300 triad wafers in 2-, 4-, 6-, 8- and 10-rows and 85 or 100 Ohm impedance provides design flexibility to address engineering constraints in system envelopes
- Reliable mating interface with 2.00mm wipe gives sufficient conductive wipe for clean signal transmission and enhanced performance
- Durable housing material provides a robust system with mechanical stability

**SPECIFICATIONS**

**Reference Information**

Packaging: Tray  
 Mates With:  
 NeoScale Vertical Plug (Series 170807) mates with NeoScale Vertical Receptacle (Series 170814)  
 Designed In: Millimeters  
 RoHS: Yes  
 Halogen Free: Yes

**Electrical**

Voltage (max.): 30V AC RMS max.  
 Current (max.): 1.0A  
 Contact Resistance: 30 Milliohms max.  
 Dielectric Withstanding Voltage: 200V AC RMS  
 Insulation Resistance: 1000 Megohms min.

**Mechanical**

Contact Retention to Housing: 1N  
 Mating Force: 0.75N max.  
 Unmating Force: 0.25N min.  
 Durability (min.): 100 cycles

**Physical**

Housing: High-temperature LCP  
 Contact: Copper (Cu)  
 Plating:  
 Contact Area — 30µ" Gold (Au)  
 Solder Tail Area — 15µ" Gold (Au)  
 Underplating — 45µ" Nickel (Ni)  
 Operating Temperature: -55 to +85°C

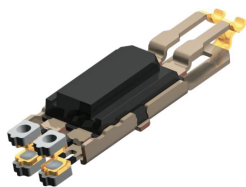
## ADDITIONAL PRODUCT FEATURES

- Plug assembly features one differential pair with a 2.80mm pitch
- Receptacle assembly housing includes polarization and keying features
- Ground pin has two SMT attachment points, with four solder charge joints per triad wafer
- The orientation of the NeoScale plug and receptacle provides a mirrored configuration with a dividing line of back-to-back shields. The resulting mirror line bisects the triad pair to facilitate PCB routing and RX/TX pin-out management for optimal signal integrity and mechanical stability.

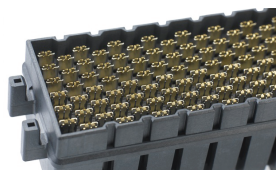
## NeoScale™ High-Speed Mezzanine System

170807 Vertical Plug

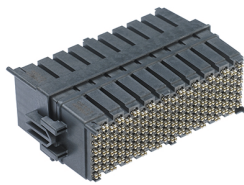
170814 Vertical Receptacle



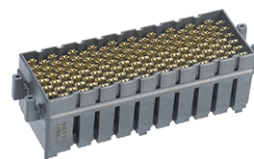
*Unique, patent-pending triad wafer design (individual triad close-up)*



*Triad wafer configuration*



*Dense mechanical envelope of mated system*



*Honeycomb housing structure for improved signal clarity*



*Tombstone feature in housing to prevent terminal damage*

## APPLICATIONS

- Telecommunication Applications
  - Hubs
  - Servers
- Enterprise Networking
  - NAS towers
  - Rack mount servers
- Industrial Controllers
  - Personality cards
- Medical and Military
  - High data-rate scanning



*Servers*

## ORDERING INFORMATION

### Plug

Order No.	Plating	Connector Height	Triad Wafer Configuration (row-by-column)
170807-0011	30μ" Gold	8.00mm	4-by-18
170807-0015		12.00mm	6-by-8

### Receptacle

Order No.	Plating	Connector Height	Triad Wafer Configuration (row-by-column)
170814-0009	30μ" Gold	8.00mm	4-by-18
170814-0015		12.00mm	6-by-8