



FASTER MEZZANINE CONNECTOR

Molex NeoScale High-Speed Mezzanine System Maximizes Data Rates

Upgraded system provides design engineers with 56 Gbps NRZ data transmission rates

BUSINESS CHALLENGE

Maximize speed while maintaining signal integrity in order to meet the advanced technology demands found in today's telecommunications and data networking market

Meeting the needs of today's mobile, IoT and cloud technologies requires faster connectors that align with new, high-powered processing chips. Adding to the complexity is the need for designers to develop solutions that increase speed and computing power without adding to the board real estate.

SOLUTION

NeoScale High-Speed Mezzanine System

The NeoScale High-Speed Mezzanine System from Molex was designed from inception to deliver faster data rates and improved performance. By fine-tuning the triads (differential pairs), Molex has been able to take the existing NeoScale solution and elevate it to data rates up to 56Gbps NRZ, benefitting both existing and new customers.

Offering clean signal integrity, the modular mezzanine interconnect is ideal for high-density printed circuit board (PCB) applications with limited real estate. Because the connectors allow system architects and designers to stack boards, real estate and computing power can be expanded without increasing the device footprint. Molex also has a roadmap for a next-generation triad (differential pair) that can offer better cross-talk and 56Gbps PAM4 data rates to meet customer's signal integrity needs.

Comprised of a vertical plug and vertical receptacle, the NeoScale High-Speed Mezzanine System features a patented modular triad wafer design that enables customizable PCB routing in high-density applications. The system's patented Solder-Charge Technology PCB attachment method delivers robust solder joints. Designers can choose among 85 Ohm, 100 Ohm, power triads and low-speed signals to build a mezzanine solution that meets their

requirements. The connector design can also be blind mateable with rugged triads for multiple connectors.

The NeoScale High-Speed Mezzanine System is available in 12.00 to 42.00mm stack heights, circuit sizes of 8 to 300 triad wafers in 2-, 4-, 6-, 8- and 10-row configurations and 85 or 100 Ohm impedance to provide optimal design flexibility. Customized versions are also available, such as 10.00 and 45.00mm stack heights.

CUSTOMER BENEFITS

The NeoScale High-Speed Mezzanine System helps telecommunications and data networking providers deliver high transmission speeds in limited PCB real estate.

Signal Integrity: By using differential pair triads with dedicated ground shields, NeoScale provides superior signal integrity up to 56Gbps, and its dedicated ground shields minimize cross-talk and offer almost negligible skew.

Design Flexibility: Its modular triad wafer is comprised of three pins per differential pair — two signal pins and one shield pin. Each triad is a standalone, shielded, 56-Gbps capable differential pair or an 8A power feed. Triads can be optimized for signals supporting high-speed 85 Ohm or 100 Ohm differential pairs, high-speed single-ended transmissions, low-speed

single-ended/control signals, and power pins.

Streamlined Solution: Other mezzanine options offer high-speed differential pairs either at 90-92 Ohms to accommodate the 85-100 Ohm range, or they offer mezzanine options with only 85 or 100 Ohm options. The NeoScale High-Speed Mezzanine System allows designers to run 85 and 100 Ohm high-speed signals through one connector. In addition, low-speed, single-ended signals (three signals per triad) and power (8A per triad) can be utilized.

Small Footprint: Because the system features multiple height options and flexible pin counts, Molex can offer its customers design options that go beyond what is tooled. These customized solutions allow Molex to design configurations and mated stack heights that meet a constrained PCB footprint layout and because it can effectively replace four connectors, NeoScale offers exceptional real estate savings.

Added Protection: The system's honeycomb housing routes each triad to minimize crosstalk and effectively route out of the PCB in one or two layers, reducing the need for PCB real estate. In addition, unique "pillar of strength" structures in the housing protect the mating interface and flexible contacts to help prevent terminal damage.

To learn more www.molex.com/link/neoscale.html

Molex is a registered trademark of Molex, LLC in the United States of America and may be registered in other countries; all other trademarks listed herein belong to their respective owners.