

National Introduces Multi-Gigabit Analog Equalizer With Highest ESD Protection For High-Speed Ethernet, Storage

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Equalizer's Low Noise, High Crosstalk Immunity Extends the Life of XAUI, Fibre Channel and ATCA Backplanes

National Semiconductor Corporation today introduced a multi-gigabit analog equalizer that extends the reach of high-speed switch, router, storage area network (SAN) and server backplanes. The EQ50F100 offers best-in-class signal integrity and 8 kilovolts of ESD (electrostatic discharge), providing manufacturers with the greatest backplane protection in the industry.

Jointly developed with analog signal processing pioneer Quellan Incorporated, National's EQ50F100 backplane equalizer compensates transmission medium losses and reduces the medium-induced deterministic jitter in printed circuit backplanes, resulting in data rates up to 6.25 Gbps. The EQ50F100 meets data rates for 10 Gigabit Attachment Unit Interface (XAUI), Fibre Channel and Advanced Telecom Computing Architecture (ATCA) backplanes and is manufactured at National's fabrication facility in South Portland, Maine.

"The small package size, very high ESD protection and signal driving capabilities of the EQ50F100 make it an ideal complement to any board driving a high-speed signal over a backplane," said Jeff Waters, product line director for National Semiconductor's Communications Interface group. "Our EQ50F100 will allow communications, SAN and

telecommunications equipment makers to meet their high-density, low-power requirements without replacing their existing line cards.”

The EQ50F100, comprised of an equalizer, limiting amplifier and output driver, reduces system cost and power consumption by packing more high-speed backplane channels into less space. The EQ50F100 is coding-independent, operates equally well on 8B/10B or scrambled bit signal streams, and features on-chip current mode logic (CML) terminations on data inputs and outputs. Its very small, 3 mm x 3 mm packaging allows easy placement and routing.

The EQ50F100 can be paired with National’s SCAN50C400 quad serializer/deserializer (SerDes) transceiver introduced earlier this year to extend signal reach and enable the SCAN50C400 to transmit 5Gbps signals across legacy backplanes that were originally designed for lower data transfer rates. The higher rate of data transmission removes the need for “fork-lift upgrades” in existing backplanes. The EQ50F100 and SCAN50C400 also can interface easily with an ASIC (application-specific integrated circuits) or FPGA (field programmable gate-arrays), providing customers with higher signal integrity, better ESD protection and greater design flexibility.

“As backplanes are designed to handle XAUI and higher data rates, a higher level of robust operation is demanded between the passive components of the channel and the electrical I/O driving it,” said John D’Ambrosia, manager for semiconductor relations at Tyco Electronics. “National Semiconductor and Tyco Electronics have demonstrated error-free operation with the SCAN50C400 SerDes and EQ50F100 equalizer over different Tyco Z-PACK HM-Zd platforms based on low-cost FR-4 substrate.”

National’s Communication Interface Products

National Semiconductor, the LVDS (low-voltage differential signaling) technology innovator, offers a wide range of interconnect solutions that transfer high-speed digital and analog signals. These solutions help system designers develop high-performance applications in a variety of market segments, including communication and industrial systems. The products feature high reliability, low power, low noise and dramatic systems savings in cable and connector costs. National Semiconductor is the world's second largest supplier of high-speed interface products, according to Databean's 2003 Analog IC Market Share survey.

Pricing and Availability

Available now and packaged in a 6-pin LLP® package, the EQ50F100 is priced at \$4.95 in 1,000-unit quantities.

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