

4-Channel Serial GEIOX Card

The SRC® Serial GEIOX card has up to four low profile 1000BASE-T Gigabit Ethernet transceiver ports. Each port is IEEE Standard 802.3 compliant and functions independently, providing a highly configurable dedicated channel for reliable peer-to-peer communications. Each port has its own copy of a TCP/IP network stack driver; capable of supporting either a TCP, UDP or PPP application running on its own embedded NIOS II processor.

Each NIOS processor has 32Kbytes of Instruction and Data Cache available for very fast program execution. An additional shared external QDR-2 SSRAM is used for code space storage. The processors also share an external QDR-2 SSRAM for all receive packet processing. Internal FPGA memory is used for transmit packet processing.

The MAC layer is highly configurable and controls the node's access to the network media. This layer can be programmed to exclude internal FIFO buffers for low-latency applications, to support Virtual local area network (VLAN) and stacked VLAN tagged frames support as specified by IEEE 802.1Q, and it also can be configured to support auto-negotiation. Pause frame generation can be controlled by user applications; enabling flexible traffic flow control. Flow control by programmable pause quanta. Programmable maximum frame length up to 64 Kbytes, including jumbo frames. Programmable promiscuous mode support to omit destination MAC address checking on receive. The RGMII PCS sublayer performs the data encapsulation, including frame assembly before transmission, and frame parsing/error detection during and after reception. The copper-based physical medium uses a simple CAT 5 twisted pair cable.

Each node has a Management data input/output (MDIO) master interface. Optional statistics counters for Simple Network Management Protocol (SNMP) environments, supporting IEEE 802.3 basic and mandatory Management. Information Database (MIB) package as well as Ethernet MIC (RFC 2665) and Remote Network Monitoring (RFC 2819).

The card connects to the SRC MAP® processor board through the 524-pin GPIOX connector. Data is transmitted as LVDS signals, and the MAP processor supplies the power for the Serial GPIOX card. The Serial GEIOX card can be used with all SRC products that support GPIOX.

Physical Specifications	
Board Size	3" x 4" (7.62 cm x 10.16 cm)
Cooling Methodology	Air
Power Consumption	1.2W (estimated)
Voltages	3.3V, 2.5V and 1.5V supplied by the MAP processor; 1.2V generated onboard