

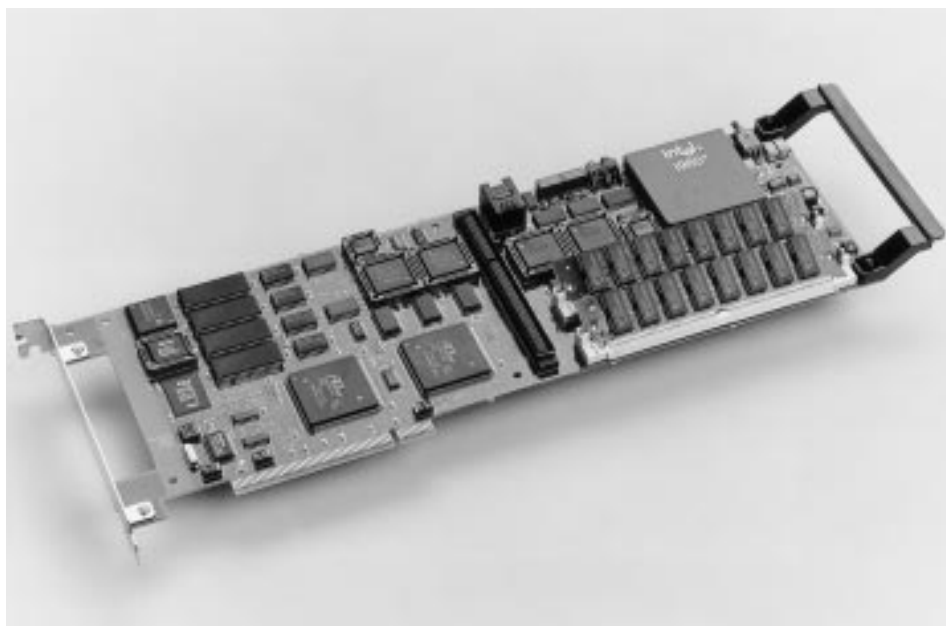
PCI-914 Intelligent I/O Controller

- i960® HD Superscalar RISC Microprocessor Operating at 66 MHz
- 4 or 8 Mbytes of Private DRAM Memory
- 4 to 64 of Shared DRAM Memory
- Primary PCI Interface Using PLX 9080 Device Supporting:
 - Master and Slave Transactions on the PCI Bus
 - Two DMA Channels
 - Mailboxes and Doorbell Registers
 - I₂O Messaging FIFO's
- Secondary PCI Interface With PLX 9060ES Device
- IQ Modules Supporting Up to Four PCI I/O Agents on the Secondary PCI Bus
- 2 or 4 Mbytes of Flash ROM
- Serial Console Port
- Eight Status LED's
- Two 32 Bit Counter/Timers
- Breeze Development Environment* With:
 - MON960 Debug Monitor
 - Cyclone System Services
- Board Support Packages (BSPs) For Prism*/pSOS* and Tornado*/VxWorks*

The PCI-914 offers a flexible, high performance way of expanding system processing power by off-loading I/O tasks from a host processor. The PCI-914 can be used as an intelligent I/O Controller for a wide range of high performance applications from telecommunications and networking to machine control and robotics.

The PCI-914 hosts an IQ expansion module providing I/O for specific applications. Cyclone has a wide range of modules with I/O such as OC-3 ATM, UltraSCSI, 100BaseT4 Ethernet, 100BaseTx Ethernet and 10BaseT Ethernet. Custom modules may be built by Cyclone or a customer to fulfill specific needs.

Because of the high transfer rates of today's I/O interfaces, the PCI-914 has



been designed to accommodate high throughput situations.

The memory architecture has been divided into private DRAM for the processor and a shared DRAM for the I/O to prevent the DMA controllers from starving the processor from the memory. Local buses and the bridge devices have been designed to handle 120 Mbyte/sec. data transfers via large FIFO's and synchronous burst transfers. The DRAM memory system has been optimized to read and write large burst cycles at 106 Mbytes/sec.

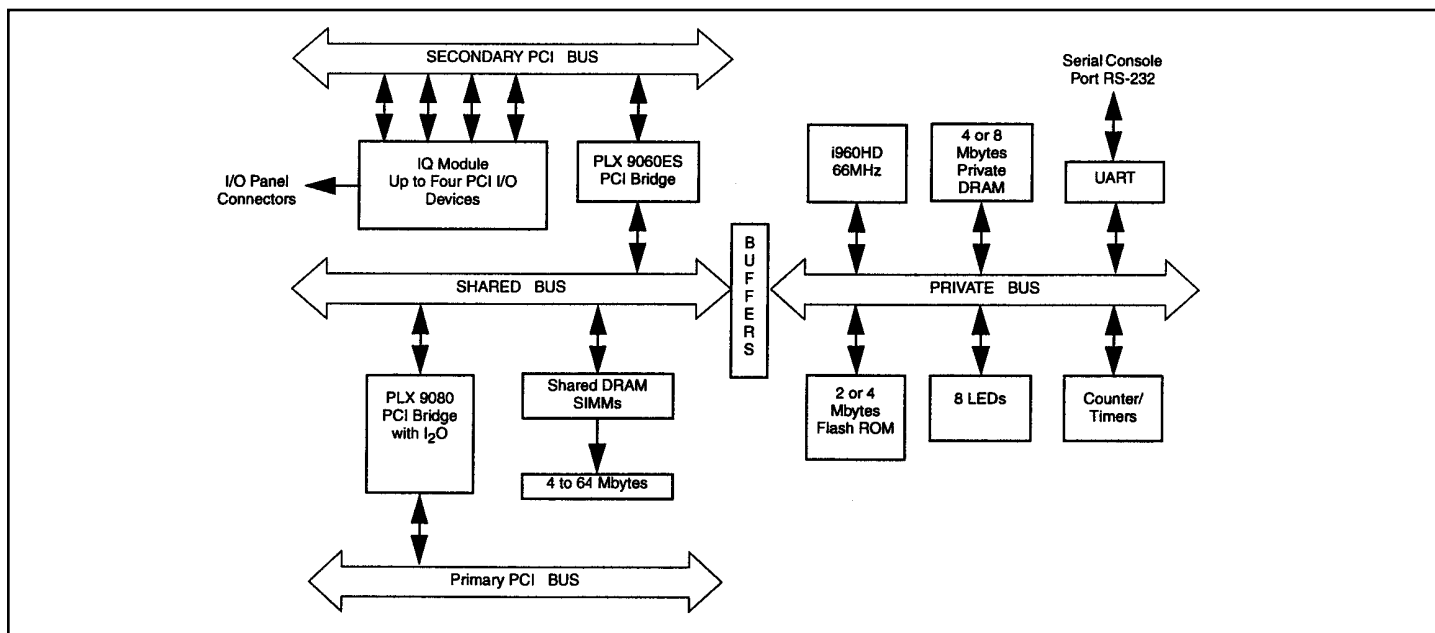
The PCI-914 has the Cyclone Breeze Development Environment resident in the Flash ROM. The Breeze Development Environment accelerates the time to develop an embedded system by taking the risk out of building and testing boot ROMs; providing a resident debug monitor; providing an automatic boot user application feature; and reducing the amount of hardware level programming involved with the System Services calls.

The host development station communicates to the target PCI-914 via the serial console port or the PCI bus. The Breeze

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CYCLONE
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Development Environment helps OEMs get product to market faster, with less engineering effort. Cyclone also provides board support packages for pSOSystem™ and Tornado/VxWorks™. PCI-914 boards can be ordered with pSOSystem or Tornado/VxWorks™ boot ROMs factory loaded into the Flash ROM.

i960® HD MICROPROCESSOR

The i960 HD microprocessor, Intel's third generation RISC microprocessor, operates at 66 MHz. Multiple instructions per clock cycle, parallel processing units, on chip data and instruction caches form the foundation of one of the most advanced RISC microprocessors on the market today. Capable of executing two instructions per clock cycle, the superscalar i960 HD microprocessor is rated at 132 MIPS.

PRIMARY PCI INTERFACE/BRIDGE

The Primary PCI Interface/Bridge is a 32-bit bridge device able to operate as a PCI bus master and target. The bridge device features two independent bidirectional DMA channels for data transfers between local memory and the PCI host bus. Four bidirectional FIFOs with zero wait state burst operation are provided: one for each DMA channel; one for the direct master interface; and one for the slave interface. The PCI Interface/Bridge supports peak transfer rates of up to 132 Mbytes/second.

The PCI Interface/Bridge also supplies PCI configuration and interprocessor communication resources such as interrupts, mailbox registers, doorbell registers and I₂O™ message passing support.

I₂O SUPPORT

The PCI-914 supports the I₂O specification for interprocessor communication. The I₂O message passing FIFOs allow processors like the Pentium® to communicate I/O request with the i960 processor through a standard protocol.

SECONDARY PCI INTERFACE/BRIDGE

The Secondary PCI Interface/Bridge is a 32-bit bridge device able to operate as a PCI bus master and target on the secondary PCI bus. The bridge features two bidirectional FIFOs with zero wait state operation. One for the direct master accesses and one for the direct slave interface. The PCI bridge supports peak transfer rates of up to 132 Mbytes/sec.

IQ MODULE INTERFACE

The IQ Module Interface provides I/O expansion and flexibility by allowing users to add different I/O interfaces to the PCI-914. The IQ Module, an open domain specification is the secondary PCI bus with clock and arbitration support for up to four PCI agents. If custom or unique I/O is required users can build their own modules or contact Cyclone Microsystems for customized modules and boards. Cyclone Microsystems has an expanding selection of off-the-shelf modules available including:

- IQ71 10/100BaseTx ATM OC-3
- IQ73 Dual UltraSCSI, Dual 10/100BaseTx

STATUS LEDs

Eight user programmable LEDs are provided for diagnostic or user defined applications.