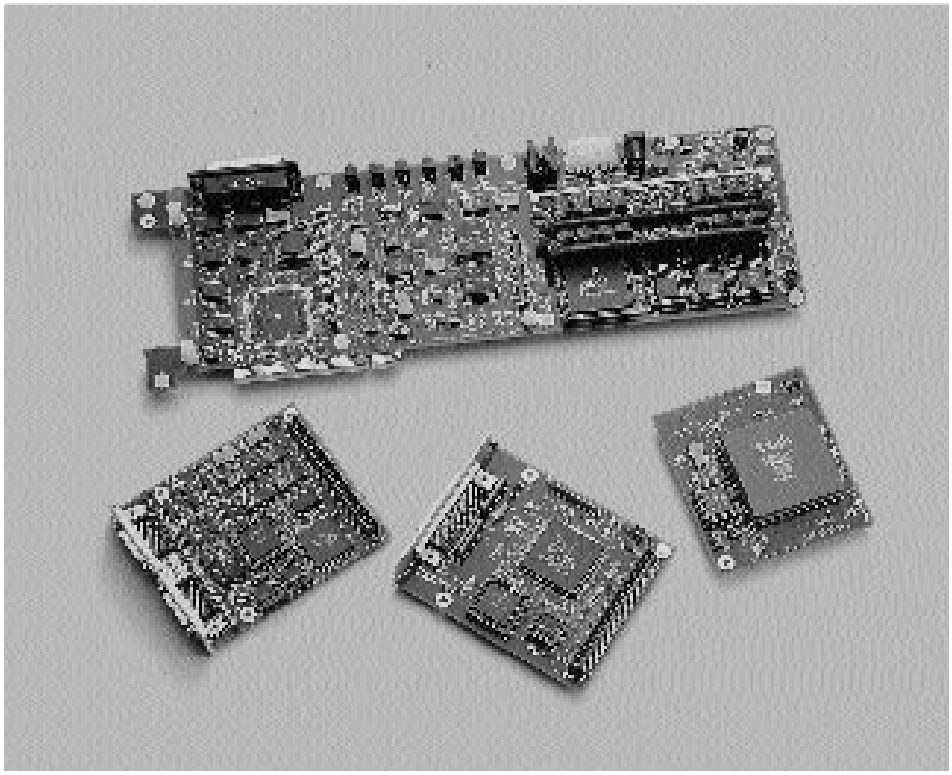
Intel's Cyclone Evaluation Platform

- Interchangeable i960® Processor Modules
- DIP Switch Selectable Processor Clock Frequency
- 2 Mbytes of DRAM, Expandable to 32 Mbytes
- DRAM Controller Automatically Optimizes Wait-States to Processor Frequency and Memory
- Flash ROM Sockets
- Parallel Download Port
- Three Sixteen Bit Counter/Timers
- Squall II Module I/O Expansion Interface
- Boards Currently Available Through Both Intel and Cyclone Microsystems are:
  - Ethernet
  - SCSI-3
  - SCSI-2
  - High Speed Serial



Flexibility Plus

Intel's Cyclone Evaluation Platform is designed to provide the developer with a flexible, low cost environment for code execution and software debug. Configured as a standalone base board with interchangeable modules, the Cyclone EP is capable of supporting the entire i960 processor family; from the low cost i960 SA processor to the newest and highest performance member of the i960 processor family, the i960 HT processor.

The standard interface incorporated on the Cyclone EP allows a designer to interchange application specific modules ranging from Ethernet to SCSI-3. Published specifications for the interface allow designers to build their own module or have Cyclone Microsystems custom develop it for them.

Processor Modules

Designed for the Cyclone EP are CPU modules featuring a specific i960 processor. By tailoring these four low cost modules to be interchangeable, the designer is freed from the burdensome and time consuming task of supporting multiple boards during an architectural evaluation. The CPU modules each contain a boot flash ROM with the MON960 monitor, appropriate glue logic and configuration switches. Using these switches the designer has the ability to further tune the design.

DRAM Memory

The Cyclone EP is shipped with 2 Mbytes of interleaved DRAM memory upgradable to 8 or 32 Mbytes. The DRAM controller automatically adjusts the wait-states based on processor type, clock frequency, and memory speed. The controller supports burst transfers using the interleaved banks to maximize performance. The default memory configuration comes standard with 70ns memory. For processor frequencies of 25 and 40 MHz, performance can be significantly increased by using 60ns memory. The board requires no shunts or switches to adjust for memory changes. The presence detect signals and the controller automatically adjusts to minimum wait-states for the processor frequency and memory speeds. In addition the initialization code automatically sizes the memory so user software can take advantage of larger memory modules.

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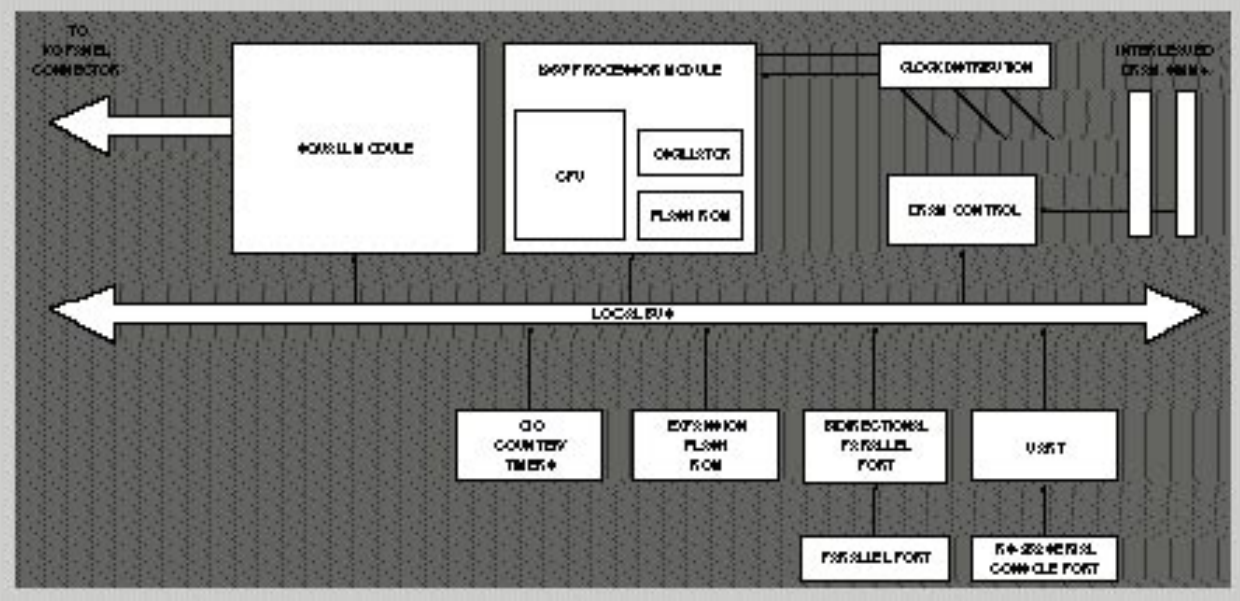

Cyclone Evaluation Platform Functional Block Diagram

Software Development Support
The Cyclone EP supports many software development tools. The installation instructions presented in the manual were verified using Intel's GNU/960 and IC960. These advanced C-language compilers for the i960 processor family are available for DOS-based systems and a variety of UNIX workstation hosts. Both products provide execution profiling and instruction scheduling optimizations for tuned code generation. In addition to the Intel tools, the Cyclone EP has been validated for use with many of the Solutions960® program development tools.

Console Serial Port/Parallel Port
The Cyclone EP has a single console port with an RS-232 line interface as well as a Centronix PC compatible input parallel port. Cables are supplied for both communication ports.

Squall II Module Interface
The Cyclone EP has a single expansion location (Squall II) and connector. While Cyclone Microsystems has many off the shelf modules available, users are also encouraged to build their own modules or contact Cyclone regarding custom modules and boards.

The Cyclone EP Functional Overview
I/O subsystem provides data buffers and simplified control:

- The Centronics compatible parallel port allows fast download of code or data to the Cyclone EP. The asynchronous serial (RS-232) port provides transfer up to 115.2 Kbaud.
- A Z8536 timer/counter provides three 16-bit counters, with interrupts. A single expansion bus (Squall II module) allows expansion cards and external devices direct access to the i960 processor's bus and control signals.