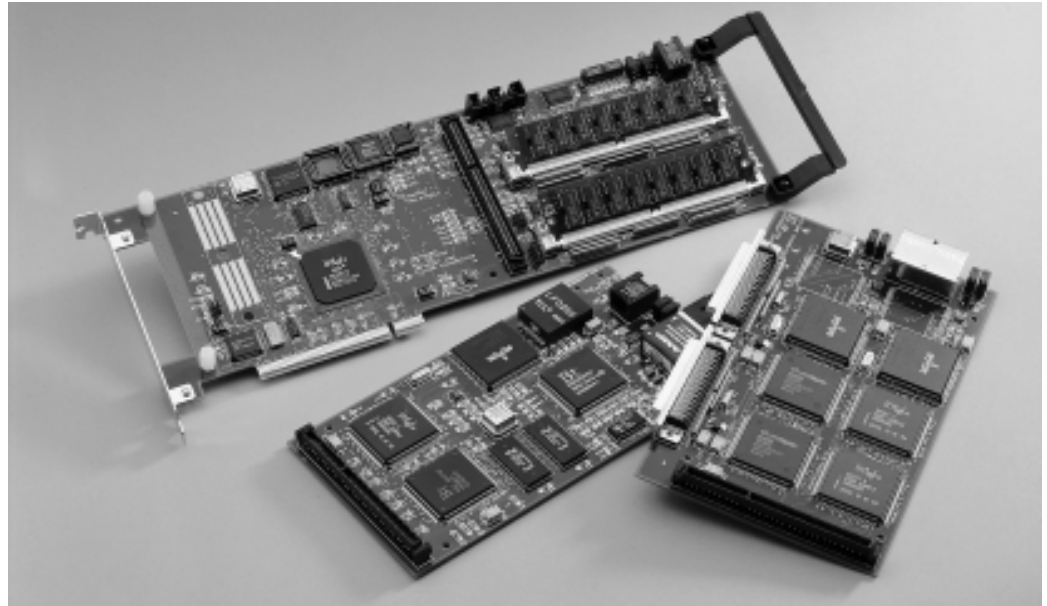


# IQ Software Development Kit (IQ-SDK) Based on the i960<sup>®</sup> RP Processor

**THE IQ-SDK  
IMPROVES  
DEVELOPMENT TIME  
FOR EXISTING  
AND EMERGING  
INTELLIGENT  
PCI-I/O  
APPLICATIONS LIKE  
RAID, CACHING  
SCSI/FAST  
ETHERNET AND  
ATM.**



## **PRODUCT OVERVIEW**

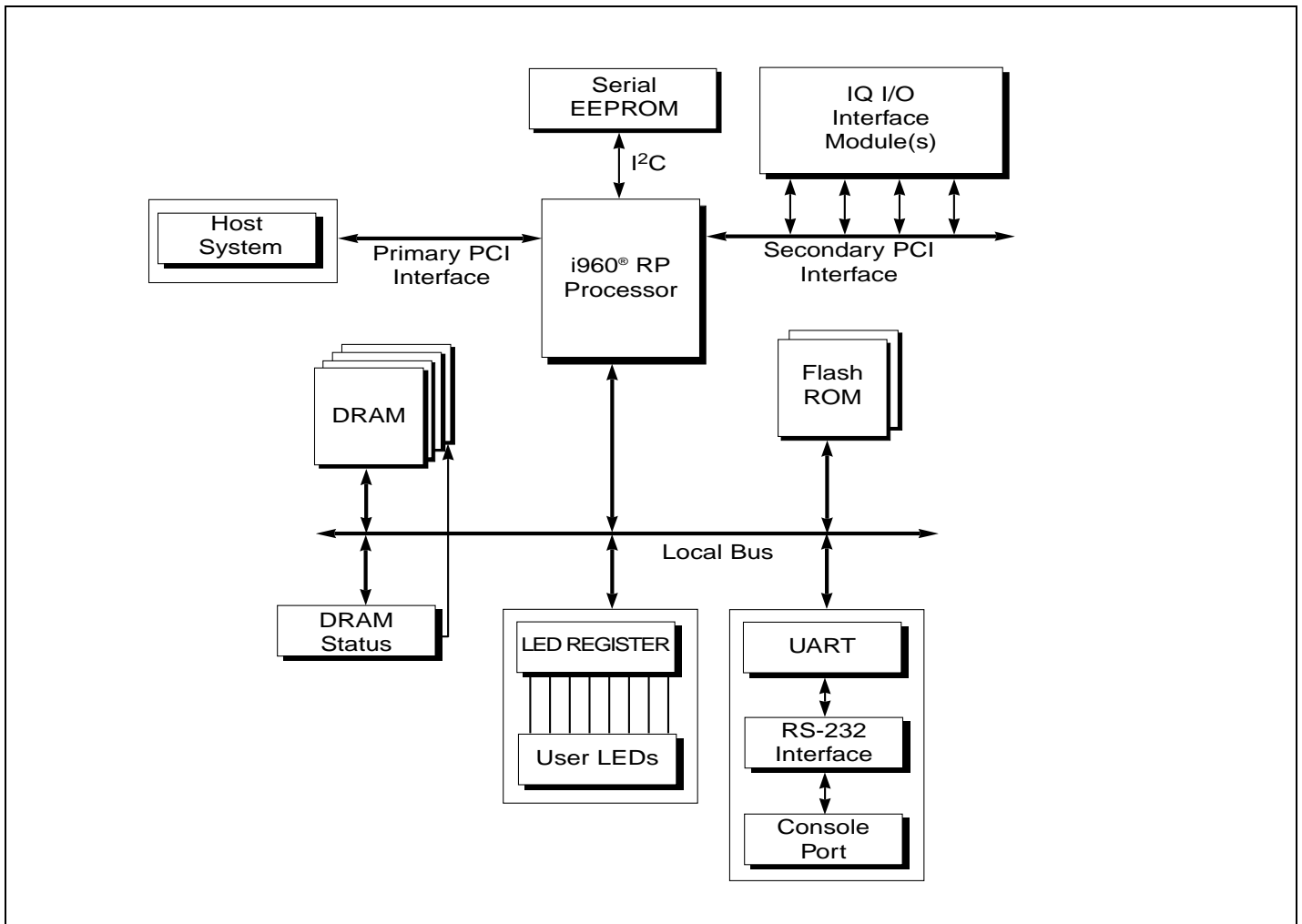
### **RAPID DEVELOPMENT OF INTELLIGENT I/O SOFTWARE**

Intel's IQ Software Development Kit (IQ-SDK), based on the i960<sup>®</sup> RP processor, is a low-cost platform for intelligent I/O software development. The kit also includes an IQ I/O interface module, a complete set of software development tools, RTOS, and related documentation to enable improved development time.

### **i960 RP PROCESSOR: COMPLETE I/O SUBSYSTEM ON A CHIP**

The i960 RP processor, integrating an i960 Jx processor core, a PCI-to-PCI bridge, memory controller, and other peripherals, provides servers with the ability to balance I/O requirements with application processing demands. By offloading the I/O processing to the i960 RP processor, servers can achieve higher I/O throughput at a much lower host CPU utilization – improving overall server performance.

**intel**<sup>®</sup>



**IQ-SDK Evaluation Platform Block Diagram**

### **IQ-SDK FEATURES AND BENEFITS**

- Complete PCI Intelligent I/O software development platform
- Development environment for the i960<sup>®</sup> RP processor, a single-chip intelligent I/O subsystem. The i960 RP processor integrates an i960 Jx processor with a compliant PCI-to-PCI bridge, memory controller and other peripherals.
- IxWorks I<sub>2</sub>O-compatible Real Time Operating System by Wind River Systems (License included with processor)
- Interchangeable IQ I/O modules with multiple expansion interfaces, including, SCSI/Fast Ethernet, ATM/Fast Ethernet, Fibre Channel, and PCI extender
- Developers can custom design IQ I/O modules
- Product manuals, documentation, and a getting started guide to enhance the kit's ease-of-use
- CTOOLS Cross Development Toolset, with profile-driver compiler, assembler, linker, libraries, debugger, monitor, and utilities. DOS and Windows 95 host environments available.
- Fast download across the PCI backplane; debug and download through the serial port
- PLD equations and schematics are easily available via bulletin board service
- Full length PCI add-in card format
- 32 pin PLCC Flash ROM/EPROM sockets
- Serial console ports
- 2 MB Interleaved DRAM, expandable to 64 MB
- Secondary PCI bus expansion connector with clock and arbitration signals for up to 4 PCI master devices
- 512 Kbytes serial EEPROM connected to the i960 RP processor I<sub>2</sub>C Bus Port
- APIC bus header, Emulator header, and JTAG Header

## **DEVELOP I<sub>2</sub>O COMPATIBLE SOFTWARE WITH THE IQ-SDK**

In order to provide a framework for the rapid deployment of emerging intelligent I/O solutions, leading enterprise computing vendors developed an Intelligent Input/Output specification via the I<sub>2</sub>O Special Interest Group. The i960<sup>®</sup> RP processor is the first I/O processor to implement the I<sub>2</sub>O specification.

The basic objective of the I<sub>2</sub>O specification is to provide an I/O architecture in which the device driver is independent of the host architecture and operating system. The I<sub>2</sub>O specification will facilitate intelligent I/O subsystems through support for message-passing between multiple independent processors. This open, standards-based approach enables a new generation of portable intelligent I/O solutions.

## **SOFTWARE DEVELOPMENT SUPPORT**

For ease-of-use, the IQ-SDK platform mimics the current Intel PCI I/O Software Development Kit (PCI-SDK). The platform includes a complete set of software development tools and related documentation, including Intel's CTOOLS profile-driven compiler, assembler, linker, libraries, debugger, monitor, and utilities. The compiler provides code execution profiling and instruction scheduling optimizations for the i960 RP microprocessor. Profiling capability reduces tuning effort by as much as 75% by minimizing the need to write hand-tuned assembly code. It also increases code performance by an average of 25%.

In addition, the kit includes IxWorks, an I<sub>2</sub>O compatible RTOS developed by Wind River Systems. IxWorks provides a powerful, general-purpose real-time operating system that has clearly defined application program interfaces (APIs). All of this creates a user-friendly environment to rapidly develop basic device drivers, support NOS-to-driver independence, and allow multiple I/O software to coexist.

## **IQ I/O INTERFACE MODULES**

The IQ I/O Interface Modules are PCI daughtercards which interface to the secondary PCI bus of the i960 RP processor. IQ I/O Interface Modules available include:

- Dual SCSI/Dual Fast Ethernet (included in kit)
- Fast Ethernet/ATM (optional)
- PCI extender – Three standard PCI expansion slots

These cards will greatly reduce the development time of software applications for I/O interfaces by providing a software target. The developer will also have the option on designing a custom IQ I/O Interface Module with the documentation and support provided by Intel.

## **PRODUCT ORDERING INFORMATION Kit**

<b>IQ80960RPK</b>	Includes evaluation platform, I/O module, documentation and software
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## **IQ I/O Interface Modules**

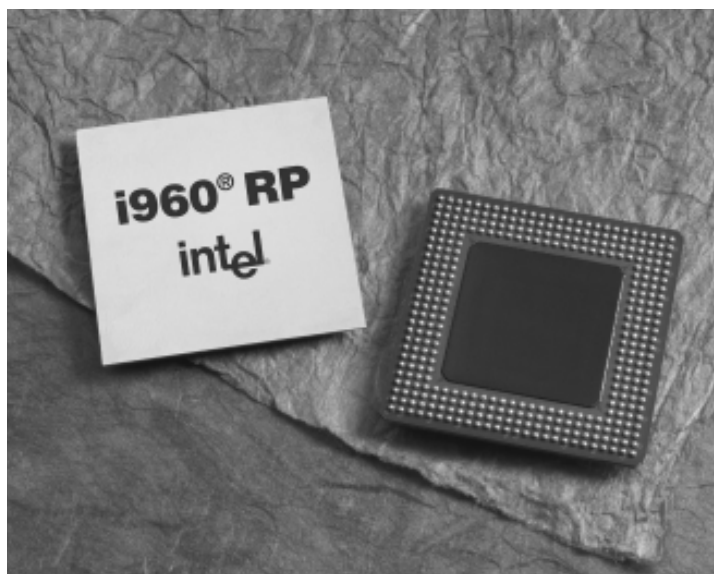
<b>IQSCSIFENET</b>	Two Intel 82557 10/100 Ethernet controllers, Two Symbios Logic 82C875 SCSI-2 controllers
<b>IQATMENET</b>	Brooktree ATM SAR device with PCI interface
<b>IQEXTENDER</b>	Intel 82557 10/100 Ethernet controllers PCI extender card

## **CONTACT:**

Local Distributor, Intel Sales Office or Intel Support at (800) 628-8686.

World Wide: call +1 (503) 264-7354, 7-5:00, Mon-Wed & Fri; 7-3:00, Thur. All U.S. Pacific time.

WWW: <http://www.intel.com>



# i960<sup>®</sup> Microprocessor Literature

Title	Literature Order #	FaxBack Document #	Title	Literature Order #	FaxBack Document #
<b>PRODUCT INFORMATION</b>			<b>APPLICATION NOTES/APPLICATION BRIEFS (cont'd)</b>		
i960 <sup>®</sup> Processor Product Line Card		2033	AB-42 80960Kx Self-Test	270703	
i960 <sup>®</sup> Processor Literature List		2115	AP-506 Designing for 80960Cx and 80960Hx Compatibility	272556	
FaxBack Document List		2068	AP-703 DRAM Controller for the 33-MHz i960 <sup>®</sup> CA/CF Microprocessor	272627	
i960 <sup>®</sup> CA/CF 32-Bit Superscalar Microprocessor InfoGuide		2705	AP-704 A Simple DRAM Controller for the i960 <sup>®</sup> Cx Processor Using Flexlogic	272628	
i960 <sup>®</sup> KA/KB 32-Bit Embedded Microprocessor InfoGuide		2716	AP-706 DRAM Controller for the 40-MHz i960 <sup>®</sup> CA/CF Microprocessor	272655	
i960 <sup>®</sup> HA/HD/HT Superscalar Microprocessor InfoGuide		2730	AP-712 DRAM Controller for the 33-MHz i960 <sup>®</sup> JA/JF/JD Microprocessor	272674	
i960 <sup>®</sup> JX Microprocessor/ The Cobra Series InfoGuide		2731	i960 <sup>®</sup> RP Processor: A Single Chip Intelligent I/O Subsystem	272238	
i960 <sup>®</sup> SA/SB 32-Bit Embedded Microprocessors with 16-Bit Burst Data Bus	272233		<b>TOOLS</b>		
Enhanced PC I/O Performance with i960 <sup>®</sup> RP Processor	272740		Technical Assistance (tools) Solutions960 <sup>®</sup> Catalog	270791	2544
<b>DATA SHEETS</b>			i960 <sup>®</sup> Microprocessor Product Line and Support Tools Fact Sheet	272219	
80960HA/HD/HT 32-Bit High-Performance Superscalar Processor	272495		i960 <sup>®</sup> Microprocessor Evaluation Platform/Cyclone EP	272508	
80960JA/JF Embedded 32-Bit Microprocessor	272504		Cyclone* Evaluation Platform User's Guide	272577	
80960CA-33,-25,-16 32-Bit High Performance Superscalar Processor	270727		82596CA High-Performance 32-Bit Local Area Network Coprocessor	290218	
80960CF-33,-25,-16 32-Bit High Performance Superscalar Processor	272187		CTOOLS Application Development Tools	281434	
80960KA Embedded 32-Bit Microprocessor	270775		<b>MANUALS/DATABOOKS</b>		
80960KB Embedded 32-Bit Microprocessor with Integrated Floating-Point Unit	270565		i960 <sup>®</sup> Jx Microprocessor User's Manual	272483	
80960SA Embedded 32-Bit Microprocessor with 16-Bit Burst Data Bus	272206		i960 <sup>®</sup> Cx Microprocessor User's Manual	270710	
80960SB Embedded 32-Bit Microprocessor with 16-Bit Burst Data Bus	272207		i960 <sup>®</sup> KB Microprocessor Programmer's Reference Manual	270567	
82961KD Printer Coprocessor	272221		i960 <sup>®</sup> SA/SB Microprocessor Reference Manual	270929	
80960 Intelligent I/O Microprocessor	272737		82961KD Printer Coprocessor Reference Manual	272280	
<b>APPLICATION NOTES/APPLICATION BRIEFS</b>			i960 <sup>®</sup> Extended Architecture Programmer's Reference Manual	271191	
i960 <sup>®</sup> Microprocessor Competitive Benchmark Report	272392	2515	i960 <sup>®</sup> Processors and Related Products Databook	272084	
Internetworking and the Intel i960 <sup>®</sup> Microprocessor	272601	2359	i960 <sup>®</sup> RP Microprocessor User's Manual	272736	
Imaging and the Intel i960 <sup>®</sup> Microprocessor	272602	2360			

## Intel Reference Numbers

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