i960® SA/SB 32-Bit Embedded Microprocessors with 16-Bit Burst Data Bus
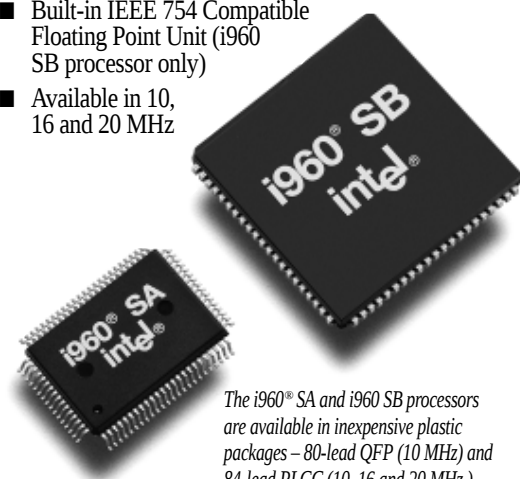
Product Overview

With a full 32-bit internal architecture and a 16-bit external bus, the i960® SA/SB embedded processors are faster than all other 16-bit processors on the market. Although the powerful i960 SA/SB components are actually the low-end members of the i960 microprocessor family, these high-speed processors are ideal for today's more demanding applications, such as entry-level page printers, I/O controllers, games and communications products. The integrated burst control reduces bus bottlenecks. The powerful 32-bit CPU increases throughput. And the high level of integration minimizes chip count to lower system costs.
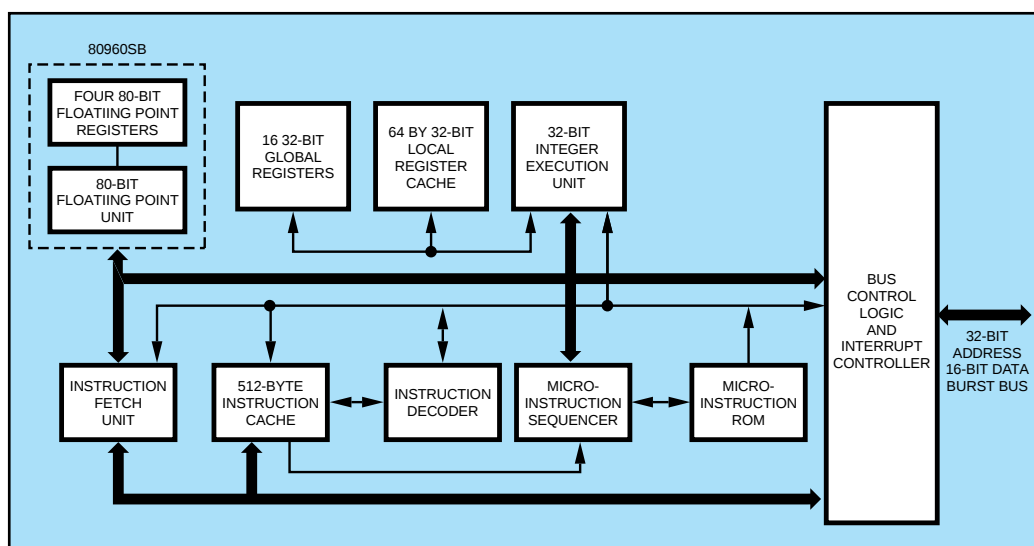
The i960 SB processor is pin-compatible with the i960 SA processor, and integrates an IEEE 754 compatible floating point unit. The i960 SA/SB microprocessors are object code-compatible with all of the i960 microprocessor family members, including the mid-range i960 KA/KB processors; the superscalar i960 CA/CF processors; and the military i960 MC processor.

Product Highlights:

- High-Performance 32-bit Embedded Architecture
- High-Speed 16-bit Burst Data Bus
- 512-byte Direct Mapped Instruction Cache
- Multiple Register Sets with Register Scoreboarding
- Built-in Interrupt Controller
- Built-in IEEE 754 Compatible Floating Point Unit (i960 SB processor only)
- Available in 10, 16 and 20 MHz

The i960® SA and i960 SB processors are available in inexpensive plastic packages – 80-lead QFP (10 MHz) and 84-lead PLCC (10, 16 and 20 MHz.)

i960® SA/SB Microprocessor Block Diagram

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Features

- High-Performance 32-bit RISC Processor
    - 20 MIPS burst
    - 6 MIPS sustained
- High-Speed 16-bit Burst Data Bus
    - 32 MB/sec burst
    - 16 bytes transferred per burst
- Integrated Interrupt Controller
    - 4 direct interrupt inputs
    - 256 interrupt vectors
    - 32 priority levels
    - 8259A support
- Integrated Burst Control
- 32-bit Address Space

- Integrated FPU (i960 SB processor only)
    - Full IEEE 754 Compatible
- Integrated 512-byte Instruction Cache
- Large Register Set
    - 16 32-bit Local registers
    - 16 32-bit Global registers
- Integrated 256-byte Register Cache
- Upwardly Compatible with other i960 Products such as the i960 KA/KB and the i960 CA/CF processors.
- System Level Testing
    - ONCE Mode
    - Integrated debug and tracing
- Integrated Self-Test
- Inexpensive Plastic Packages
    - 80-lead QFP (EIAJ) Package
        - (10 MHz Only)
    - 84-lead PLCC Package
        - (10, 16 and 20 MHz)
- Full Solutions960™ Program Support Including:
    - Evaluation Board — Debug Tools
    - C Compiler — Operating Systems
    - Assemblers — Support Components
- Complete Technical Services

Benefits

- Brings a high performance edge to your design.

- Provides high system performance using low-cost memory devices. In addition, this eases design and shortens time-to-market.
- Reduces board level costs by reducing chip count.

- Reduces chip count and system cost.
- Offers flexibility in memory mapping peripherals and memory components.
- Provides high-speed arithmetic without additional parts.
- Fast execution for critical routines.
- Fewer memory accesses means faster execution.

- Fast context switching for critical routines.
- Offers a strong growth path for the future.

- Makes testing and debug of surface mount systems possible using ICE™ In-Circuit Emulator.

- Aids in assuring system reliability.
- Packs a full RISC processor in a small area at a low cost.

- Provides a complete development environment from hardware debug to software development and debug.

- Helps you get to market sooner.

Support Information

Product and Sales Information	Intel product information, sales office and distributor phone numbers.	**800-628-8686**
Literature Department	To order Intel product literature.	**800-548-4725**
Development Tools Hotline	Technical applications support for Intel development tools.	**800-843-4481**
FaxBack Service	Automated response system that faxes Intel documents to your fax machine at no cost. For a listing of all i960 microprocessor documents, order FaxBack service document #2068.	**800-628-2283**
Applications Bulletin Board Service	24-hour access via modem to publicly available technical information. For a complete listing of all files available on BBS, call the FaxBack service and request catalog #6 (BBS Master File Listing).	**916-356-3600**

Phone numbers listed above are for U.S. and Canada only.

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