

F9443 Floating-Point Processor

Advance Product Information

Microprocessor Product

Description

The F9443 Floating-Point Processor is designed to provide enhancement to the numeric capabilities of 16-bit microprocessors by providing a set of floating-point instructions. It can interface with the F9445, F9450 or any other standard 16-bit microprocessor, and it uses the microprocessor memory to directly fetch the required operands. It has eight general-purpose registers on-chip and supports all the basic functions with on-chip microcode. Use of additional off-chip microcode read-only memories (ROMs) provides extended capabilities. Figure 1 is a block diagram of the F9443.

Circuit Description

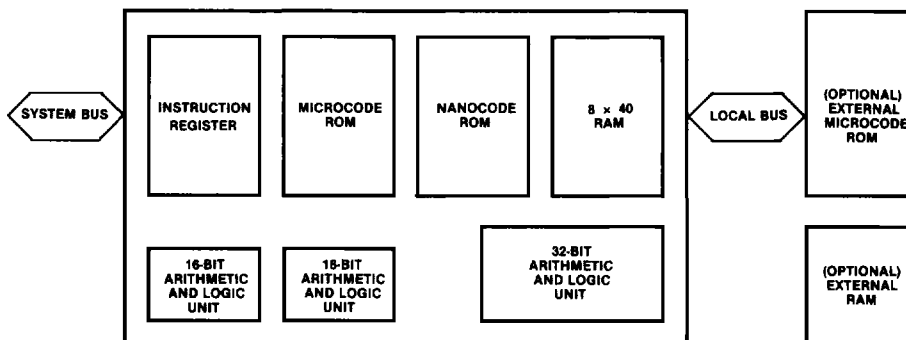
The F9443 includes special hardware to provide fast algorithms for the basic functions. This hardware includes full-carry look-ahead for add and subtract (ADD/SUB) functions, recoding logic for multiply and square root functions, and partial-remainder-prediction logic for divide functions. An advanced control scheme provides a 2-level microcode/nanocode control with off-chip microcode expansion. The off-chip microcode can be programmable ROM (PROM) or random-access memory (RAM), with easy expansion for fast implementation of user algorithms.

Operation of the F9443 can proceed in parallel with the host processor to maximize throughput. Multiple F9443s can be connected to the host processor for array processing or other high-speed applications.

- Full IEEE SP D DX Floating-Point Standard Support (80 Bits)
- Fast Algorithms for Add, Subtract, Multiply, Square Root, and Divide Functions
- Support for Full Set of Trigonometric Exponential and Logarithmic Functions
- Expandable Instruction Set That Can Include Macro Operations (e.g., Vector rotate, Fourier Transform, Array and Matrix Applications)
- User-Alterable Microcode for User Functions
- Support of Integer Decimal and Logical Functions
- Standard 64-Pin Package
- I³L[®] High Speed Bipolar Logic
- Low-Power Schottky-Compatible I/O
- Very Fast Execution Times
- Interface to Any 16-Bit Microprocessor

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Figure 1 9443 Block Diagram



* I³L is a registered trademark of Fairchild Camera and Instrument Corp.