

### FEATURES

Fully Compatible with IEEE Standard 754

Three Data Formats:

- 32-Bit Single-Precision Floating Point
- 64-Bit Double-Precision Floating Point
- 32-Bit Fixed Point

High Speed:

- Single-Precision Throughput of 100ns/10 MEGAFLOPS
- Double-Precision Throughput of 400ns/2.5 MEGAFLOPS
- Fixed Point Throughput of 100ns/10MHz
- Low Latency for Scalar Operations:
  - 300ns Single-Precision Latency
  - 600ns Double-Precision Latency
  - 300ns Fixed-Point Latency

Two-Port Structure Supports Full Data Transfer Rate

One Internal Pipeline Stage

Low-Power TTL-Compatible 1.5 Micron CMOS Technology

400mW Max Power Dissipation

Fully Registered I/O and Controls

Three-State Outputs with Separate Enables

100-Lead Pin Grid Array

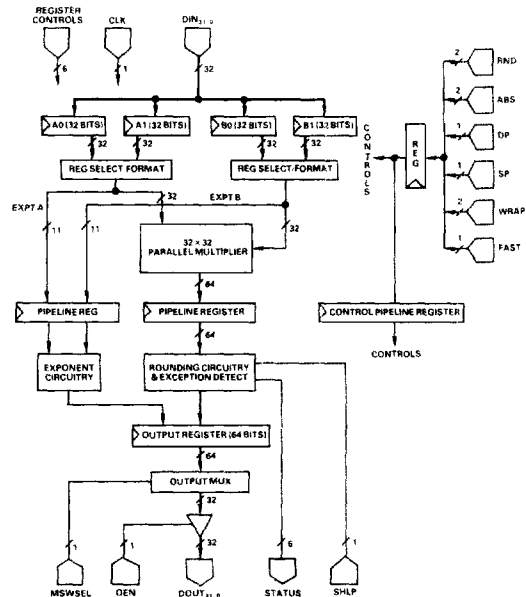
### GENERAL DESCRIPTION

The ADSP-3210 is a high-speed floating point multiplier. The ADSP-3210 and its companion ALU, the ADSP-3220 are basic building blocks for high-speed numerical processors. These devices offer a full set of operations on three data formats: 32-bit single-precision floating point, 64-bit double-precision floating point, and 32-bit two's-complement fixed point.

The ADSP-3210 provides a high-speed, low-power solution to floating point multiplication requirements. Pipelined results are produced every 100ns for single-precision floating point and fixed-point data formats. The direct operand feed mode yields low total latency of 300ns<sup>1</sup>. Pipelined double-precision floating point results are produced every 400ns. Maximum power dissipation is less than 400mW, worst case.

The ADSP-3210's data formats and floating point operations conform to the proposed IEEE Standard 754. The ADSP-3210 supports all four rounding modes in the standard for all three data formats. All four exception conditions—overflow, underflow, invalid operation, and inexact result—are flagged by dedicated status pins.

### ADSP-3210 IEEE FLOATING POINT MULTIPLIER



The ADSP-3210 has a two-port structure: one 32-bit input port and one 32-bit output port. Two 32-bit registers are available for each of the A and B operands. Data inputs and outputs are registered at twice the cycle rate, allowing two 32-bit input operations and one 64-bit output operation on every cycle. All inputs and outputs are registered.

The ADSP-3210 is available for both commercial and military temperature ranges. Extended temperature range parts are available with high-reliability processing ("PLUS" parts). MIL-grade parts are available processed fully to MIL-STD-883, Class B.

<sup>1</sup>Setup + processing + output delay of most significant output word.

ORDERING INFORMATION		
ADSP-3210TG/883B	— Processing	Package
	— Package	G — Pin Grid Array
	— Performance, Temp. Range	Performance/ Temperature
	— Part Number	J — Standard, 0 to +70°C
	— Analog Devices	K — High Speed, 0 to +70°C
	Digital Signal Processing	S — Standard, -55°C to +125°C
		T — High Speed, -55°C to +125°C
		Processing
		Blank — Standard
		+ — High Reliability
		883B — MIL-STD-883