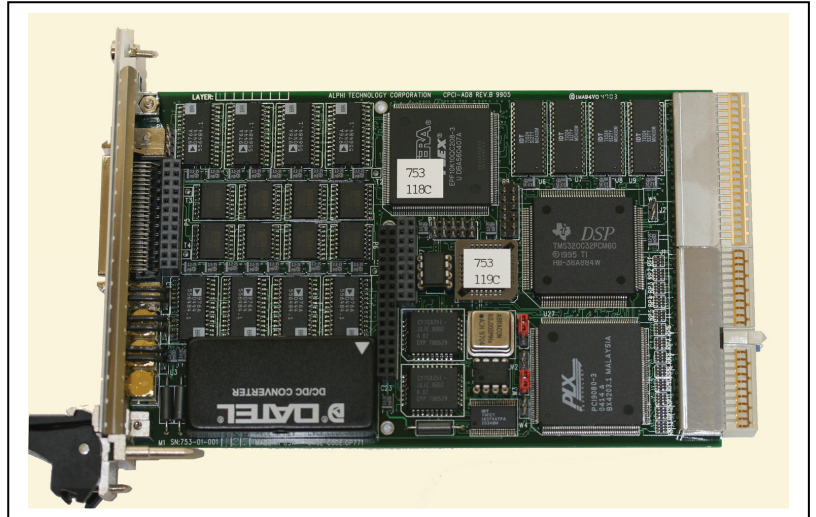


### CPCI-AD8 DSP C32, 8/16 Channel 16-Bit A/D

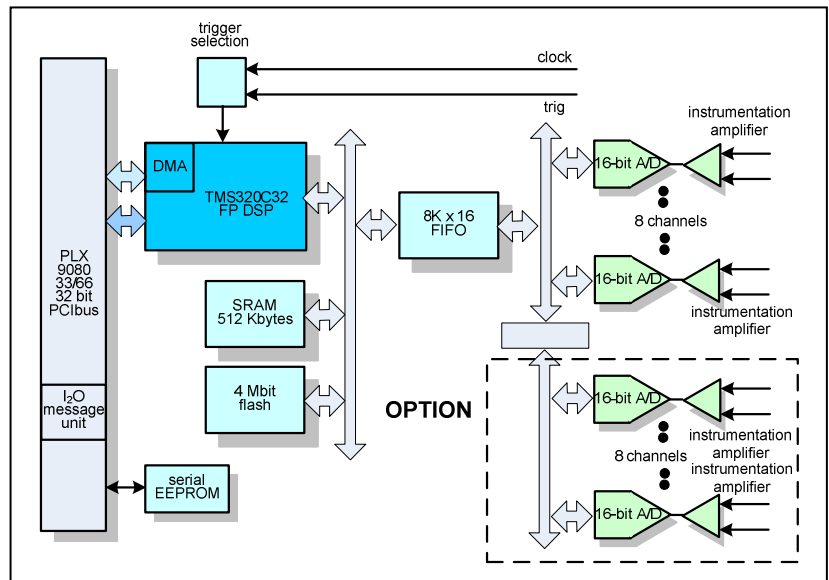
#### Features

- Based around the Texas Instruments floating-point Digital Signal Processor TMS320C32 at 60 MHz
- 3U high Compact PCI module
- 8 16-bit channels with optional 8 additional channels on mezzanine
- 100 Ks/sec or optional 200 Ks/sec A/D
- 8Kword sample buffer FIFO
- External or internal or PXI sample gate logic
- Differential instrumentation amplifier for each analog input
- Programmable gain 1, 2, 4, 8 standard; 1, 10, 100, 1000 optional
- External power supply input option
- PXI support with front panel I/O



#### Block Diagram Overview

The floating point 32-bit, 60 MHz DSP TMS320C32 provides input signal conditioning support. The DSP is supported by 512 Kbytes of zero wait state SRAM that provides temporary storage and workspace for DSP operations and 4Mbits of flash. 8 input instrumentation amplifiers provide differential input buffering and gain. A/D operations can be triggered internally or externally through the front panel. An 8Kword FIFO provides sample buffering. A PCibus connector provides the interface to the host computer. This module can use external power source for reduced noise operation.



#### Available Software Drivers and Software Tools:

- C library dll's
- Linux drivers
- Window XP drivers
- VxWorks drivers
- LabView

#### Applications:

The Local DSP can be used to simply move data to and from the CPCI bus or provide pre processing functions such as limit checking, FFT's, digital filtering, etc. Custom application software can be downloaded to the DSP via the CompactPCI bus.

### **TMS320C32 DSP Features:**

- 32/40-bit floating point DSP at 60 MHz
- 60 million floating-point operations (MFLOPS)
- Two 256 x 32-bit single-cycle, dual access on-chip RAM blocks
- One serial port
- Two 32-bit timers
- Two DMA internal co-processors
- Boot loader program built-in
- 64 x 32-bit on-board program cache
- Internal or external trigger support for A/D conversion synchronization tied to DSP operations

### **AD976A specifications:**

- Fast 16-bit ADC
- Successive approximation, switched capacitor architecture
- 200 Ksamples/sec throughput – AD976A
- Single 5 V supply operation
- Input range:  $\pm 10$  VDC
- 100 mW max power dissipation
- Choice of external or internal 2.5 VDC reference
- High speed parallel interface
- On-chip clock

### **Instrumentation amplifier specifications:**

- Differential input support
- $\pm 10$ VDC input range
- Software programmable gain of 1, 2, 4, or 8; optional 1, 10, 100, 1000
- Over-voltage protection to  $\pm 40$  VDC

### **Operating Environment:**

- Operating temperature  
Commercial: 0 to +70 °C  
Optional: -25 °C to +80 °C
- Non-operating: -40 °C to +85 °C
- Airflow requirement – 5 CFM
- Humidity – 5 to 90% (non-cond)
- Altitude – 0 to 10,000 feet

### **PCI Bus Controller Features:**

- The PLX PCI 9080 is PCI Version 2.1 compliant
- Bus Master interface chip for adapters and embedded systems
- Programmable local bus supports non-multiplexed 32-bit address/data, multiplexed 32- or 16-bit, and accesses of 32-, 16-, or 8-bit local bus devices
- I<sup>2</sup>O compatible messaging unit
- 3.3 or 5 volt PCI signaling, 5 volt core, low-power CMOS in 208-pin PQFP
- Two independent programmable DMA channels for local bus memory to/from PCI host bus data transfers
- Eight programmable FIFOs for zero wait state burst operation
- PCI to/from local data transfers up to 133MB/sec
- Local bus runs asynchronously to the PCI bus
- Eight 32-bit mailbox and two 32-bit doorbell registers
- Performs Big Endian/Little Endian conversion

### **Mechanical Environment:**

- Size – 3U CPCI module  
100mm x 160mm
- Power – 1.5 watt
- Vibration – 0.5G, 20-2000 Hz rand
- Shock – 20G, 11 msec, 1/2 sine
- Weight – 3 ounces
- MTBF – >250,000 hours



### **Ordering Information:**

CPCI-AD8	3U compact PCI with 8 16-bit A/D channels at 100Ksamples/sec and a 320C32 DSP
Option-200	with 200Ksamples/sec A/D channels
Option-16	8 additional channels of 16-bit A/D on mezzanine

### **Optional Accessories**

TB-50	50-pin terminal block with cable
CBL-SCSI-50	50-pin SCSI to SCSI cable only