CPCI 320C32 DSP, 32 channel 16-Bit A/D
## With PMC slot

Features

- Based around the Texas Instruments floating-point Digital Signal Processor TMS320C32 at 60 MHz
- 6U high Compact PCI module
- 32 16-bit channels, 100 Ks/sec or optional 200 Ks/sec A/D
- 8Kword sample buffer FIFO
- One PMC expansion slot
- External or internal sample gate logic
- Differential instrumentation amplifier for each analog input
- Programmable gain 1, 2, 4, 8 standard
- Front and rear panel I/O accessible
- Rear panel I/O module connections
- PXI compatible for multi-board triggering
- External power supply input option

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. 32 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 PMC expansion slot is available. A PCIbus connector provides the interface to the host computer. This module can use external power source for reduced noise operation.
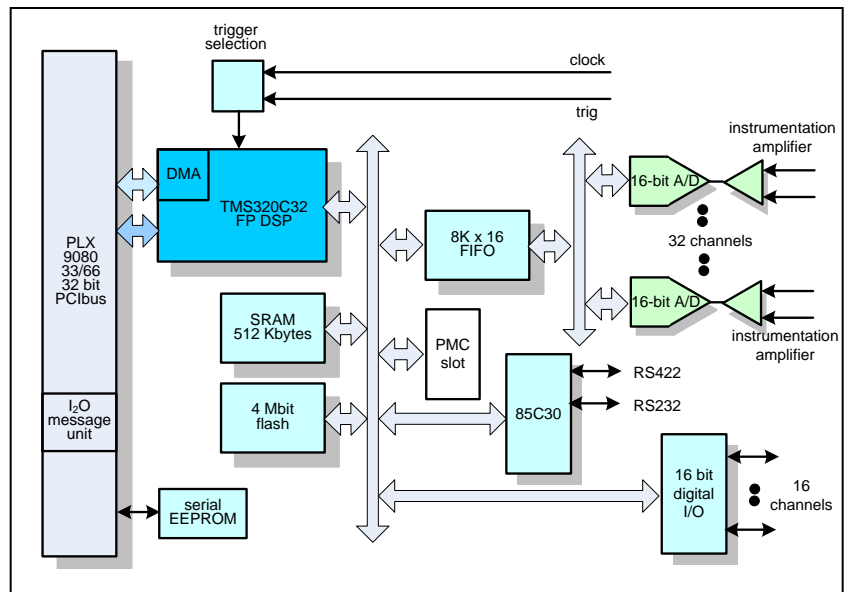
Available Software Drivers and Software Tools:

- 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

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_2O 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

AD976A specifications:

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

85C30 Specifications:

- 2 serial channels
- Up to 1Mbps using a 16MHz clock, synchronous mode
- 5, 6, 7, or 8 bits per character
- 1, 1 1/2, or 2 stop bits
- Odd or even parity
- X1, x16, x32, or x64 clock modes
- Character-oriented synchronous capabilities
- SDLC/HLDC capabilities
- NRZ, NRZI, or FM encoding/decoding
- Each serial channel has independent baud rate generator
- DPLL for clock recovery

Instrumentation Amplifier Specifications:

- Differential input support
- ± 10VDC input range
- Software programmable gain of 1, 2, 4, or 8
- Over-voltage protection to ± 40 VDC

PMC Optional Slot Specifications:

Digital I/O Specifications:

Operating Environment:

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

Mechanical Environment:

- Size – 6U CPCI module
  233.35mm x 160mm
- Power – 1.5 watt
- Vibration – 0.5G, 20-2000 Hz rand
- Shock – 20G, 11 msec, ½ sine
- Weight – tbd
- MTBF – >250,000 hours

Ordering Information:	
CPCI-AD320	6U compact PCI with 32 16-bit A/D channels at 100Ksamples/sec and 320C32 DSP
Option-200	with 200Ksamples/sec 32 16-bit A/D channels
Option-16	16 channels of 16-bit A/D
Optional Accessories	
CBL-SCSI-50	50-pin terminal block with cable
TB-50	50-pin SCSI to SCSI terminal block