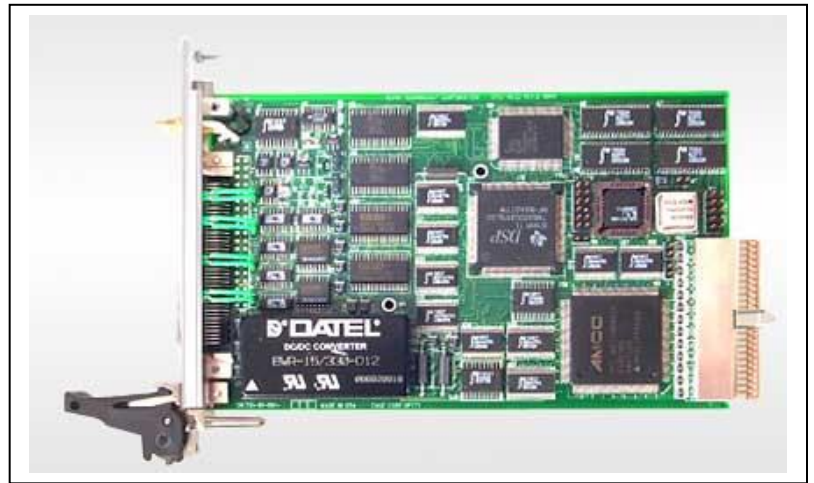


CPCI 320C31 DSP, 32 Channel 16-Bit A/D, 2 Channel 16-Bit D/A

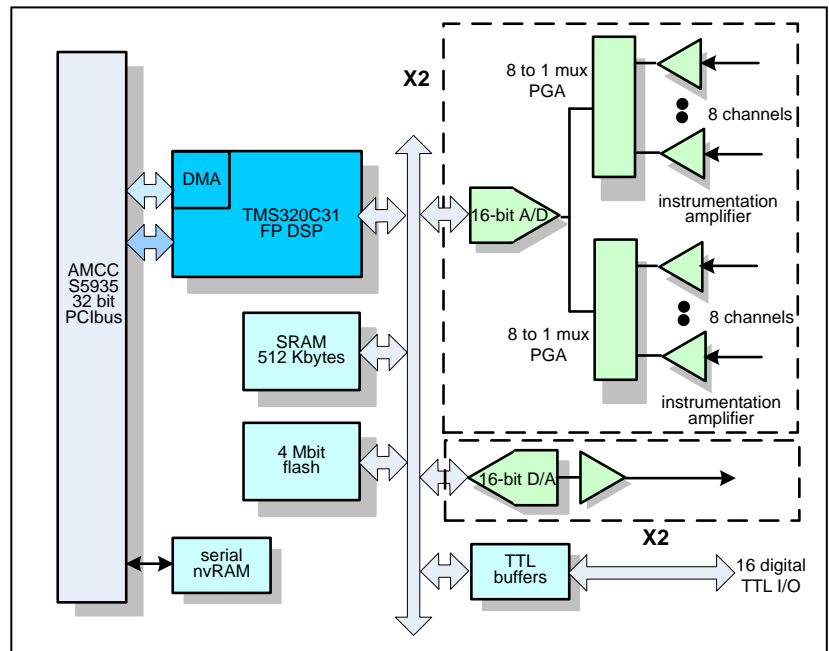
Features

- Based around the Texas Instruments floating-point Digital Signal Processor TMS320C31 at 60 MHz
- 3U high Compact PCI module
- Dual 16-bit A/D converters and four 8 to 1 multiplexers support 32 analog input channels
- Dual 16-bit D/A converters
- Front panel I/O
- 16 digital I/O with counter/timers
- Differential or single ended analog inputs
- Built in DMA support for PCI and system high speed data transfers
- instrumentation amplifier input support with software programmable gain



Block Diagram Overview

The floating point 60 MHz, 32-bit DSP TMS320C31 provides input/output 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 a 4 Mbit flash memory. Up to 32 input analog channels are optionally filtered after software gain amplification instrumentation amplifiers provide differential or single-ended input buffering. A/D operations can be triggered internally or externally through the front panel. 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 control for factory automation, automatic test equipment, and control systems where control feedback is necessary (PID control, etc.). Custom application software can be downloaded to the DSP via the CompactPCI bus.

TMS320C31 DSP Features:

- 32-bit floating point TMS320C31 DSP at 60 MHz
- Single-cycle instruction execution
- 2 Kbytes of internal RAM
- DMA internal co-processor for concurrent I/O and CPU operation
- Boot loader program built-in
- 64 x 32 internal cache for data
- 2 built-in timers
- Two Integer and floating point multipliers
- Parallel multiply and arithmetic/logical operations on integer or floating-point numbers in a single cycle
- Internal or external trigger support for A/D conversion synchronization tied to DSP operations
- Two 32-bit timers which can also be configured for bit I/O

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

PGA204 Instrumentation amplifier specifications:

- Differential or single ended input support; single ended output referenced to V_{ref}
- ± 10 VDC input range
- Software programmable gain of 1, 10, 100, or 1000
- Over-voltage protection to ± 40 VDC
- Low offset voltage: 50 μ V max
- Low offset voltage drift: 0.25 μ V/ $^{\circ}$ C
- Low input bias current: 2nA max
- Low quiescent current: 52 mA typical
- Offset voltage, voltage drift, and quiescent current are laser trimmed

Instrumentation amplifier specifications:

- Differential or single ended input support
- ± 10 VDC input range
- Software programmable gain of 1, 2, 4, or 8 or optional 1, 10, 100, or 1000
- Over-voltage protection to ± 40 VDC

Digital I/O:

- 16 bi-directional TTL I/O with counter/timer

D/A specifications:

- 2 channels of 16-bit D/A

PCI Bus Controller Features:

- Uses the AMCC S5935 PCI controller
- PCI 2.1 compliant master/slave
- 132 Mbytes/sec transfer rate
- Supports Windows NT service pack 2 & 3
- PCI bus operation DC to 33 MHz
- Four definable pass-through data channels
- Two 32 byte internal FIFOs with DMA
- Four mail box registers with byte level status and data strobe/interrupts
- Direct PCI and add-on interrupt pins
- Serial nvRAM interface or byte-wide non-volatile memory interface

Operating Environment:

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

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 – tbd
- MTBF – >250,000 hours



Ordering Information:

CPCI-AD32
 CPCI-ASD32-2

Multifunction A/D, D/A & TTL with TMS320C31 DSP with optional input gain of 1, 10, 100, or 1000

Optional Accessories

CBL-SCSI-80
 TB-80

80 pin SCSI cable only
 80-pin terminal block with cable