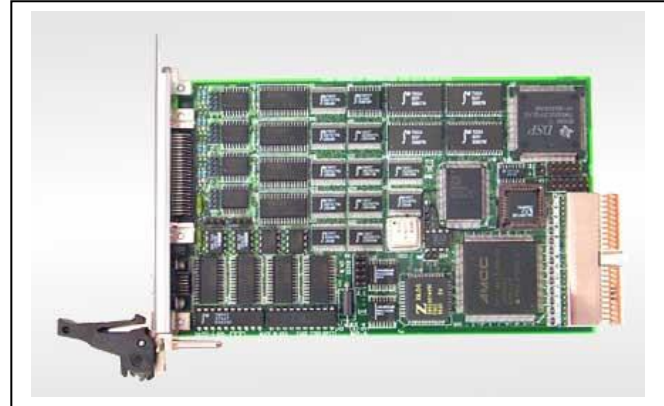


CPCI 320C31 DSP, 4 channel 16-Bit A/D, 4 Channel 16-bit D/A

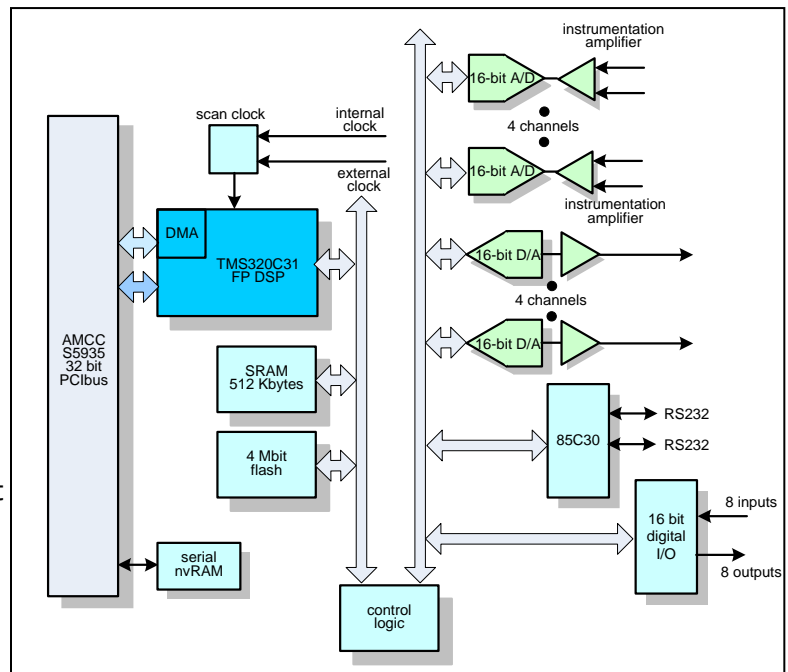
Features

- Based around the Texas Instruments floating-point Digital Signal Processor TMS320C31 running at 32 MHz
- 3U high Compact PCI module
- Quad 16-bit, 10 μ sec A/D
- Selectable differential or single ended inputs
- Quad 16-bit D/A converters with buffered outputs
- Eight TTL digital inputs with internal pull-ups
- Eight TTL digital outputs
- External or internal sample gate logic
- Dual RS232 serial ports
- Front panel I/O accessible
- External power supply input option



Block Diagram Overview

The floating point 32-bit, 32 MHz DSP TMS320C31 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. Quad input instrumentation amplifiers provide differential input buffering and gain. 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 CPCI-ADDA supports P.I.D. loop closure frame rates of up to 4 KHz per channel. The CPCI host can download gain and setpoint changes on the fly. The CPCI host can read back the current values for feedback, error, set-point and output drive on each channel. The local DSP processor can be used for data processing such as digital filters and FFT's. The DSP can also be used as a waveform generator to drive the 16 bit DAC.

TMS320C31 DSP Features:

- 32-bit floating point DSP at 32 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

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
- 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

D/A Specifications:

- Quad 16-bit D/A

Digital I/O Specifications:

- TTL inputs with internal pull-ups
- TTL outputs

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/HDLC capabilities
- NRZ, NRZI, or FM encoding/decoding
- Each serial channel has independent baud rate generator
- DLL for clock recovery

Instrumentation Amplifier Specifications:

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

Mechanical Environment:

- Size – 3U CPCI module
100mm x 160mm
- Single wide PMC 2.92" X 5.87"
- 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-ADDA	3U compact PCI with quad 16-bit A/D channels at 100Ksamples/sec and 320C31 DSP
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Optional Accessories

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