Features

- Based around the Texas Instruments floating-point Digital Signal Processor TMS-320C6713
- High performance and flexible DSP + I/O board for servo control and data acquisition
- Ideally suited for ultra high-speed, wide dynamic range signals and signal processing
- Virtually an unlimited customization of the input-output functions as well as hardware-accelerated, signal processing
- Adds high-speed, low latency IO and deterministic control to a low cost PC system solution

Block Diagram Overview

The board consists of private SDRAM and dual-ported SRAM attached to the DSP. An FPGA provides the timing and control as well as I/O drive for the 48 programmable I/O pins. Peripherals include a serial port and an USB port. Flash memory is available for downloading programs into a non-volatile memory. 16 channels of A/D and 16 channels of D/A provide analog interfaces to real-world signals. A PCI bus connector provides the interface to the host computer.

Software Support:

The TMS320C67x DSP generation is supported by the TI eXpressDSP™ set of industry development tools, including a highly optimizing C/C++ Compiler, the Code Composer Studio™ Integrated Development Environment (IDE), JTAG-based emulation, real-time debugging, and the DSP/BIOS™ kernel.

Available Drivers:
- Labview
- Linux
- Window XP

Applications:

This is a perfect solution for a wide array of advanced real-time control applications such as:
- digital servo controls,
- military SONAR - RADAR,
- aerospace communication systems,
- test systems,
- adaptive control,
- vibration control systems,
- semiconductor testing, and
- other high-speed acquisition & controls systems
PCI-DSP-6713-MFIO

Board Features:
PCI Bus Interface 3.3 / 5 Volt via PLX 9056
High Performance Floating-Point Digital Signal Processor (DSP): TMS320C6713B with a 300MHz system clock.
Up to 32MB of SDRAM
4MB of Dual-Ported SRAM- PCI and DSP
4.0 Mbit flash memory for bootstrap program
USB 2.0 CY68001 controller
RS232C controller
Internal/external trigger
16 independent 16 bit differential A/D up to 1 MSPS
16 independent buffered 16 bit D/A, 2µS settling
User programmable Cyclone w/ 48 buffered I/O

DSP Specifications:
TMS320C6713B™ DSP @ 300 MHz
64K-Byte L2 Unified Cache/Mapped RAM, and 192K-Byte Additional L2 Mapped RAM
Dual 32 bit general purpose timers
16 channel EDMA ‘Enhanced DMA’
16-bit Host-Port Interface (HPI)

PCI Bus:
PCI Bus Interface 3.3 / 5 Volt
PLX 9056 33/66MHz 32-bit, PCI r2.2 compliant
3.3V I/O, 5V tolerant bus interfaces

Multi-Board Synchronization:
Multiple board synchronization via software control for clocks and triggers.

Debug Port:
JTAG emulator port, RS-232 RJ45

ADC Specifications:
16 channels, 16 bit ADC per channel
Simultaneous Sampling
Sample and Hold Converter
High precision internal reference

I/O panel connectors:
50 pin SCSI for digital I/O
68 pin SCSI for analog I/O
Standard USB 2.0 connector
RJ45 for RS-232
Micro DB-9 for triggers and external clock

Speed Options:
- 250, 500, 1000 KSPS
External trigger/Internal trigger
128k byte FIFO
Instrumentation Amplifier per channel
Software programmable gain: 1, 2, 4, 8

Differential Input:
- +/- 1.25 volt input
- +/- 2.5 volt input
- +/- 5 volt input
- +/- 10 volt input

Over-voltage protection (+/- 40v)
ADC jumper selectable gain: 1, 2, 4, 8

DAC Specifications:
16 Channel, Ultra Precise 16 bit DAC
External load capability
Fast 2 µS settling time, Settling .0015% for 10v
High precision internal reference
4-quadrant multiplying DAC possibility with External reference, low noise
Buffered outputs: -10 to 10 volt

Digital I/O Specifications:
Dedicated Cyclone for user program
32 bit access
48 user I/O pins, controlled in groups of 8 TTL, 64 ma Buffered I/O
Direct read back of register
Direct output control
Pre-programmed output latch w/ output strobe
Change of state detection & interrupt
Edge selection: positive/negative or both
(2) 32 bit timers
Digital de-bounce

Ordering Information:
PCI-6713-MFIO-18 CH A/D @ 250K, 8 CH D/A@ 2us, 24 I/O, TTL
PCI-6713-MFIO-216 CH A/D @ 250K, 16 CH D/A@ 2us, 48 I/O, TTL
PCI-6713-MFIO-38 CH A/D @ 500K, 8 CH D/A@ 2us, 24 I/O, TTL
PCI-6713-MFIO-416 CH A/D @ 500K, 16 CH D/A@ 2us, 48 I/O, TTL
PCI-6713-MFIO-58 CH A/D @ 1M, 8 CH D/A@ 2us, 24 I/O, TTL
PCI-6713-MFIO-616 CH A/D @ 1M, 16 CH D/A@ 2us, 48 I/O, TTL

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