

## PCI TMS-320C6713 Floating Point DSP MULTI-FUNCTIONS BOARD

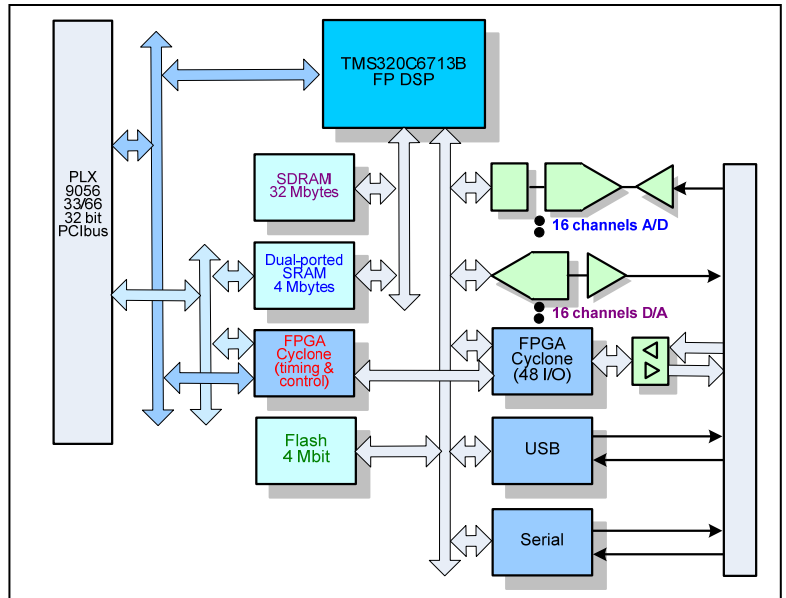
### Features

- 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 a 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 PCIbus 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  
 33/66MHz  
 High Performance Floating-Point Digital Signal Processor (DSP): TMS320C6713B with a 300MHz system clock.  
 Up to 32Mbytes of SDRAM  
 4Mbytes 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, 2 $\mu$ S 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  $\mu$ S 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 @ 2 $\mu$ s, 24 I/O, TTL  
 PCI-6713-MFIO-216 CH A/D @ 250K, 16 CH D/A @ 2 $\mu$ s, 48 I/O, TTL  
 PCI-6713-MFIO-38 CH A/D @ 500K, 8 CH D/A @ 2 $\mu$ s, 24 I/O, TTL  
 PCI-6713-MFIO-416 CH A/D @ 500K, 16 CH D/A @ 2 $\mu$ s, 48 I/O, TTL  
 PCI-6713-MFIO-58 CH A/D @ 1M, 8 CH D/A @ 2 $\mu$ s, 24 I/O, TTL  
 PCI-6713-MFIO-616 CH A/D @ 1M, 16 CH D/A @ 2 $\mu$ s, 48 I/O, TTL

