cPCI-EK01

Multifunction data acquisition board

INTRODUCTION

This product is specially designed for Compact PCI master and target logic development and an analog data acquisition board. Also it can be used for multi-purpose applications, for example waveform generator, high current driver and high speed analog data logger.

GENERAL DESCRIPTION

- ◆ Multi-function Data acquisition board
- ◆ PCI target 32bit/33Mhz
- ◆ 12bit 8 channel A/D input
- ◆ 12bit 4 channel D/A output
- ◆ 24 General Purpose I/O
- ◆ 32bit Timer/Counter
- ◆ 8M bit(4M bit with Type A) High speed (12nSEC) SRAM

APPLICATION

- ◆ Compact PCI Development and Evaluation
- ◆ Digital Data Acquisition
- ◆ Laboratory Instrumentation
- ◆ Process Control Systems
- ◆ Factory Automation

SOFTWARE

▣ **Operating System**
- ▪ Windows 2000/XP

▣ **Application Programming Interface**
- ▪ Direct control through WDM driver
- ▪ Windows DLL API

▣ **Software Development Kits**
- ▪ User who have strong interest in developing PCI DAQ board can buy SDK.
- ▪ SDK contents
  Basic VHDL source
  WDM Driver source
  DLL source
- ▪ Test Application(Waveform generator/ Waveform Display)

PHYSICAL/ENVIRONMENTAL

▣ **Dimensions**
- ▪ Standard 3U Compact PCI 32bit Form-Factor (160mm x 100mm)

▣ **Temperature**
- ▪ 0 to 70℃, Operating
- ▪ -20 to 80℃ Storage

▣ **Relative Humidity**
- ▪ 20 to 80 Percent, Non-condensing

▣ **Power Requirement**
- ▪ +5VDC(±5%) at max. 1A

SPECIFICATION

▣ Flexible Board

- PCI Target 32bit/33Mhz
- PCI 5V/3.3V Compatible
- Full 33Mhz burst read/write operation
- Average data rate is 30MB data to, 8MB data from the board without DMA.
- Very flexible to upgrade because of FPGA is used as PCI bridge and overall board control.
- Spartan 3 (XC3S200)
- 8Mbit(256K x 16) fast SRAM
- 2 User input tact switch
- 6 User definable output LED indication
- User expandable local memory through 64pin header connector.(3.3V operation)
- user selectable oscillator
- Video interface (TBD)
- UART interface (TBD)

▣ Analog input

- 12bit resolution
- 8 Single ended or 4 Differential Input
- 0 to +5V, ±2.5V Input Range
- Max. 200Ksps(5uSEC) conversion time
- Can change sampling interval in auto scanning mode by 2.5uSEC increment
- Power on auto-calibration
- ±1 (LSB) INL/DNL
- ±1uA analog input leakage current
- 20pF analog input capacitance
- On-board 1024 x 16 data FIFO
- On-board 512K(type B) x 16 data SRAM
- User can select ADC data storage, FIFO or SRAM
- In auto scanning mode, user can select any channel order.

▣ Analog output

- 12bit resolution
- 4 channel output
- 0 to +5V output range
- MAX 1M (1uSEC) update rate
- Can change update interval in waveform generation mode by 1uSEC increment
- Simultaneous update of outputs
- ±16 (LSB) INL
- ±1 (LSB) DNL
- ±3 (LSB) Offset error
- ±1 (LSB) Gain error
- Slew Rate 0.7V/usec
- On-board 1024 x 16 waveform generation dual-port RAM
- In waveform generation mode, user can select any channel order.

▣ Digital I/O(Rear I/O Option)

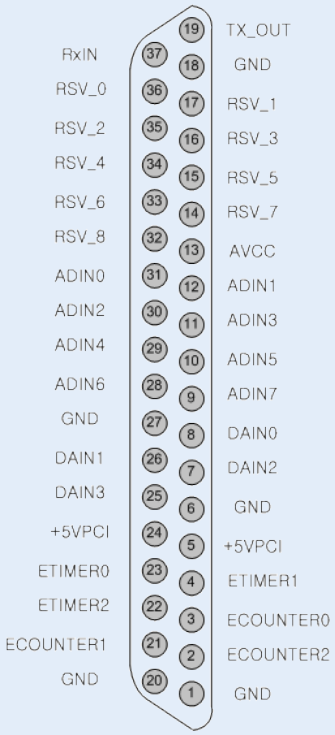
- On-board 82C55 chip
- 24bit general purpose I/O
- Three 8bit group(Port A/B/C)
- 3.3V CMOS logic level
- Power on floating or logic low

▣ Timer/Counter

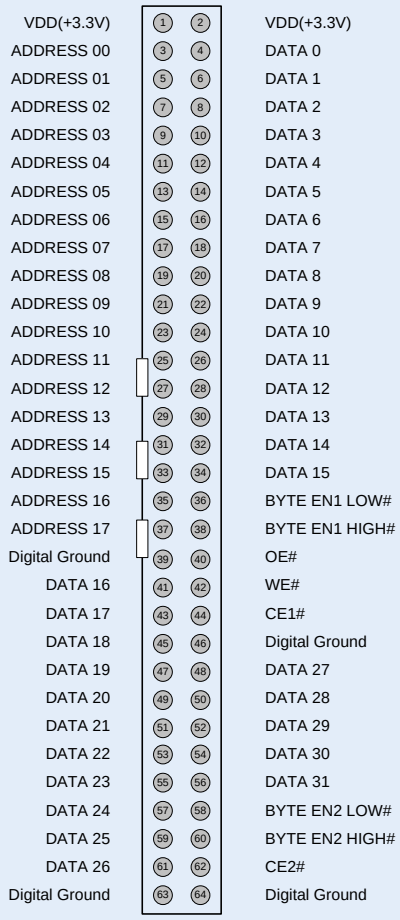
- Three 32-bit Timer
- Three 32-bit Counter
- Input Frequency max. 60Mhz
- 25n Timer Resolution
- One-shot or alternate timer output mode
- 3.3V CMOS logic level I/O interface 5V tolerant.

▣ External connection

- 37pin D-sub(Analog in-out, timer/counter)
- 64pin Box-header(Local memory bus)
- 10pin Header(Video signal) --- Future Upgrade



37pin D-sub(Analog in-out, timer/counter)



64pin Box-header(Local memory bus)

BLOCK DIAGRAM