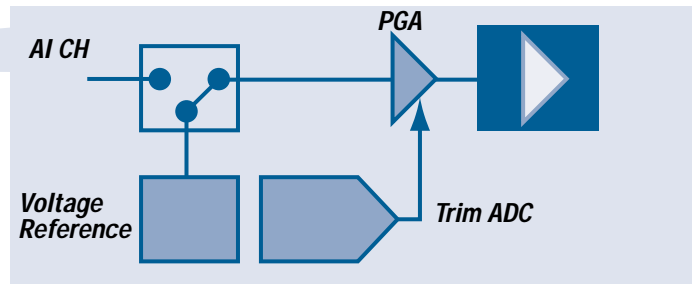


DAQ-2000 Series

The Smart DAQ Solutions

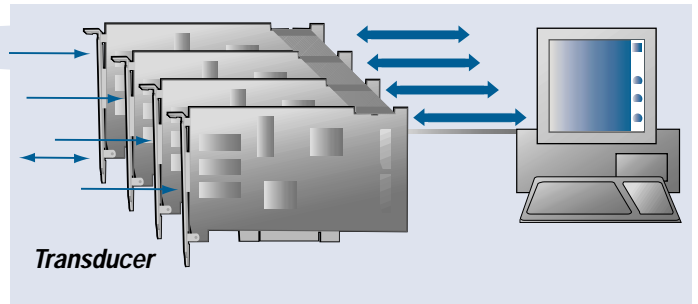
Automatic Calibration

The auto-calibration function of DAQ-2000 was performed with trim DACs to calibrate the analog input and analog output channels and the calibration value is stored in EEPROM. In addition to the auto-calibration, DAQ-2000 is self-calibrated. The onboard ultra-stable, on-board voltage reference is used for gain calibration and on-board circuit to ground the inputs for offset calibration. All the calibration can be conducted automatically by software command



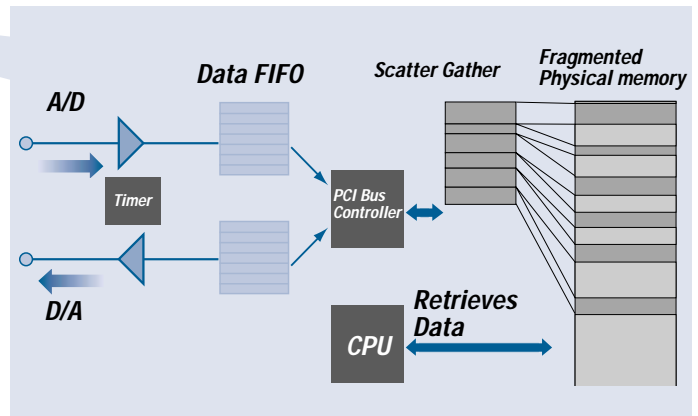
Multiple Card Synchronization

DAQ-2000 series provides high speed signal bus for trigger and clock transmission. This allows multiple cards can be integrated into a system and provide card to card synchronization.



Bus-mastering DMA with Scatter-gather

The Scatter-Gather Bus Mastering can transfer data to and from fragmented physical memory intelligently without CPU intervention. The DMA controller has a built-in linking table which tells the DMA controller the memory address and number of data to transfer and it can automatically load the next linking address to transfer data to and from the next memory segment. With this mechanism, Scatter-Gather Bus mastering allows the DMA controller transfer data to and from the memory up to the size limited by the system memory. Therefore it allows user to acquire high speed, huge number of data into the cost effective system memory.

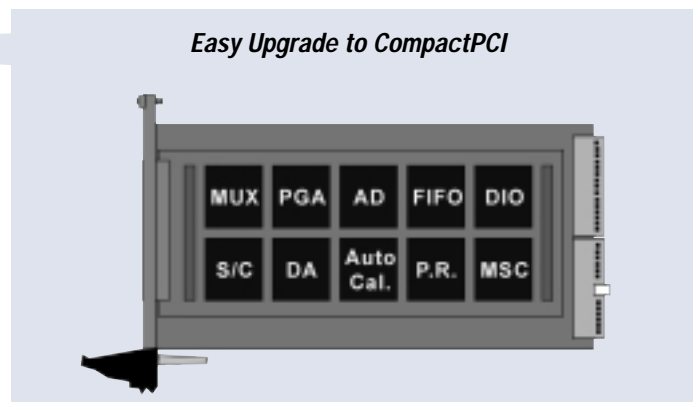


Small Foot Print

The piggy-back configuration of DAQ-2010 not only minimizes the noise induced from digital circuitry but also reduce the size of the board. This allows DAQ-2000 can be integrated into half size computer chassis to meet the applications which space is a concern.

Easy Upgrade to CompactPCI Form Factor

By taking the advantage of carrier and daughter card design, DAQ-2000 is very easy to upgrade to CompactPCI form factor. Simply move the daughter card from PCI-bus carrier to CompactPCI-bus carrier and not a single line of program need to be modified, the DAQ-2000 family can be migrated to CompactPCI form factor, the cDAQ-2000 series.



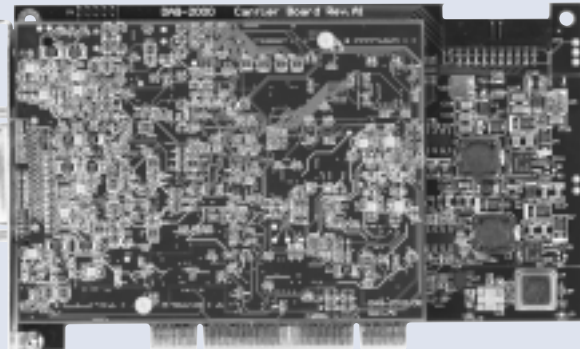
Data Acquisition Solutions

DAQ-2000 Series

Simultaneously Sampling
Multi-function Cards

Features

- 32-bit PCI Bus, plug and play
- 4-channel simultaneous analog inputs
- Bipolar/Unipolar analog input
- Analog and Digital trigger
- Data transfer: Software Polling, FIFO half-full Interrupt, & Bus-mastering DMA with Scatter/Gather
- 2 channel D/A output with waveform generation
- Bipolar/Unipolar analog output
- D/A: I/O update and Bus-mastering DMA with Scatter/Gather
- System Synchronization Interface
- Fully auto-calibration
- Fully software configuration
- Easy Upgrade to CompactPCI form factor



Introduction

DAQ-2000 series are simultaneously sampling multi-function data acquisition cards with four-channel simultaneous analog inputs, two-channel analog outputs, digital I/O and timer/counter functions. The four high speed A/D converters provide simultaneous sampling to allow sample four channels at the same time. If more channels required, multiple cards can be synchronized by the system synchronization interface provided by DAQ-2000 series. The two analog output function can operate together with analog input function. This makes DAQ-2000 series the ideal devices for the stimulus/response test.

Specifications

Analog Input (A/D)

- Converter:
 - LTC1414 (DAQ-2010)
 - AD7665 (DAQ-2005)
 - AD7663 (DAQ-2006)
- Sampling rate: (sampling)
 - 2MS/s (DAQ-2010)
 - 500KS/s (DAQ-2005)
 - 250KS/s (DAQ-2006)
- Resolution:
 - 14-bit (DAQ-2010)
 - 16-bit (DAQ-2005 & DAQ-2006)
- Number of channels: 4-channel simultaneous with differential input
- Analog input range: (programmable)
 - Bipolar: $\pm 10V$, $\pm 5V$, ± 2.5 , $\pm 1.25V$
 - Unipolar: 0~10V, 0~5.0V, 0~2.5V, 0~1.25V
- Over-voltage protection: Continuous $\pm 25V$ maximum

- FIFO Size:
 - 8K samples (DAQ-2010)
 - 512 samples (DAQ-2005 & DAQ-2006)
- Time base sources: 40MHz internal clock, external clock source
- Trigger sources: software trigger, external digital/analog trigger
- Trigger modes: pre-trigger, post-trigger, middle-trigger and delay-trigger
- Data transfer mode: polling, FIFO half full interrupt, and bus-mastering DMA transfer with Scatter/Gather

Analog Output (D/A)

- Converter: LTC7545A
- Update rate: 1MHz max
- Resolution: 12-bit
- Number of channels: 2 simultaneous channels
- Analog output range:
 - Unipolar: 0~10V
 - Bipolar: $\pm 10V$
- Trigger mode: Post and Delay trigger
- FIFO Size: 2K samples
- Data transfer mode: I/O instruction update and bus-mastering DMA transfer with Scatter/Gather

Digital Input/Output

- Number of channels: 24-bit 8255 Programmable DIO
- Signal type: TTL compatible

General Purpose Timer / Counter

- Two 16-bit up/down timer/counter

System Synchronization Interface

- Timebase
- ADCONV(AD)
- UPDATE(DA)
- TRIG(AD)
- WFTRIG(DA)

Calibration

- Fully auto-calibration
- On board precision reference: +5V
- T/C: 2 ppm/.C
- L.T. Stability: 6ppm/1000Hr

General Specifications

- Connector: AMP-787254-1 or equivalent 68-pin connector X1
- Operating temperature: 0°C ~65°C
- Storage temperature: -20°C ~ 80°C
- Humidity: 5 ~ 95%, non-condensing
- Dimension: 174mmx107mm

Termination Boards

- DIN-68S/1M

Ordering Information

DAQ-2010

4-CH 2MS/s simultaneously sampling multi-function card

DAQ-2005*

4-CH 500KS/s simultaneously sampling multi-function card

DAQ-2006*

4-CH 250KS/s simultaneous A/D multi-function card

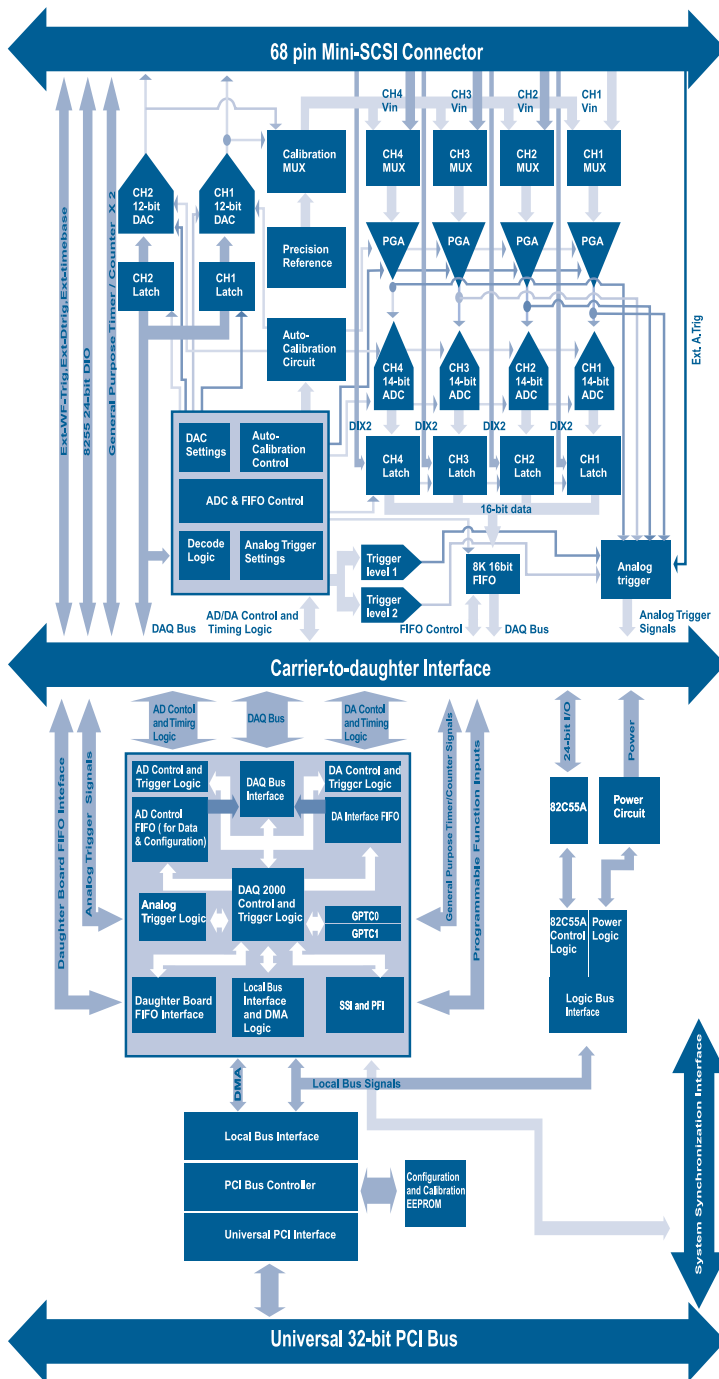
*Coming Soon

DAQ-2000 Series

Simultaneously Sampling
Multi-function Cards

Block Diagram

68-pin Connector Pin Assignment



CH0+	1	35	CH0-
CH1+	2	36	CH1-
CH2+	3	37	CH2-
CH3+	4	38	CH3-
EXTATRIG	5	39	AIGND
DA1OUT	6	40	AOGND
DA0OUT	7	41	AOGND
AOEXTREF	8	42	AOGND
SDI3_1	9	43	SDI3_0
SDI2_1	10	44	SDI2_0
SDI1_1	11	45	SDI1_0
SDI0_1	12	46	SDI0_0
AO_TRIG_OUT	13	47	EXTWFTRG
AI_TRIG_OUT	14	48	EXTDTRIG
GPTC1_SRC	15	49	DGND
GPTC0_SRC	16	50	DGND
GPTC0_GATE	17	51	GPTC1_GATE
GPTC0_OUT	18	52	GPTC1_OUT
GPTC0_UPDOWN	19	53	GPTC1_UPDOWN
EXTTIMEBASE	20	54	DGND
PF11	21	55	PF10
PB7	22	56	PB6
PB5	23	57	PB4
PB3	24	58	PB2
PB1	25	59	PB0
PC7	26	60	PC6
PC5	27	61	PC4
DGND	28	62	DGND
PC3	29	63	PC2
PC1	30	64	PC0
PA7	31	65	PA6
PA5	32	66	PA4
PA3	33	67	PA2
PA1	34	68	PA0