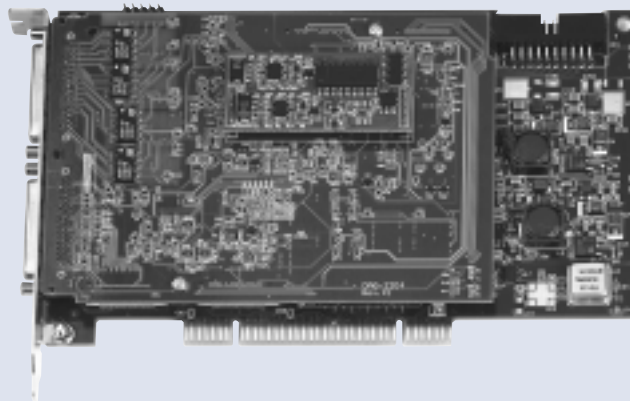


# DAQ-2200 Series

64-CH Multi-function Cards

## Features

- 32-bit PCI Bus, plug and play
- 64-CH single-ended and 32-CH differential analog inputs
- Input channels can be mixed with single-ended and differential
- Bipolar/Unipolar analog input
- 512 Analog input configuration space
- 1024 Analog input data FIFO
- Analog and Digital trigger
- Data transfer: Software Polling, Interrupt, Bus-mastering DMA with Scatter/Gather
- 2 channel D/A output with waveform generation
- Bipolar/Unipolar analog output
- 1024 output data FIFO for D/A channels
- D/A data output : 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-2200 series can sample up to 64-channel analog signal with different gain setting and scan sequence. This allows DAQ-2200 series can deal with high density analog signal with various input range and sampling speed. Like all the members in the DAQ-2000 family, DAQ-2200 series allows analog input function and analog output function operate at the same time and multiple cards can be synchronized by the system synchronization interface.

## Specifications

### Analog Input (A/D)

- Converter:
  - LTC1412 (DAQ-2204)
  - AD7665 (DAQ-2205)
  - AD7663 (DAQ-2206)
- Sampling rate: (sampling)
  - 3MS/s max. (DAQ-2204)
  - 500KS/s (DAQ-2205)
  - 250KS/s (DAQ-2206)
- Data throughput:
  - 3MS/s max. for single channel with DMA data transfer and 1MS/s max. for multiple channels with DMA data transfer (DAQ-2204)
- Resolution:
  - 12-bit (DAQ-2204)
  - 16-bit (DAQ-2205 & DAQ-2206)
- Number of channels:
  - 64-channel single-ended (SE)
  - 32-channel differential (DI)

- Analog input range: (programmable)
  - Bipolar:  $\pm 10V$ ,  $\pm 5V$ ,  $\pm 2.5$ ,  $\pm 1.25V$
  - Unipolar: 0~10V, 0~5.0V, 0~2.5V, 0~1.25V
- Over-voltage protection: Continuous  $\pm 25V$  maximum
- FIFO Size: 1024 samples
- Programmable analog input channel gain queue: 512 configurations:
- 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, EOC interrupt, FIFO half full interrupt, and bus-mastering DMA transfer with Scatter/Gather

### Analog Output (D/A)

- Converter: LTC7945
- Update rate: 1MHz max
- Resolution: 12-bit
- Number of channels:
  - 2 simultaneous channels
- Analog output range:
  - Unipolar: 0~10V
  - Bipolar:  $\pm 10V$
- FIFO Size: 1024 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
- w L.T. Stability: 6ppm/1000Hr

### General Specifications

- Connector: AMP-787254-1 or equivalent 68-pin connector X2
- 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-2204

64-CH 3MS/s high speed multi-function card

### DAQ-2205

64-CH 500KS/s high speed multi-function card

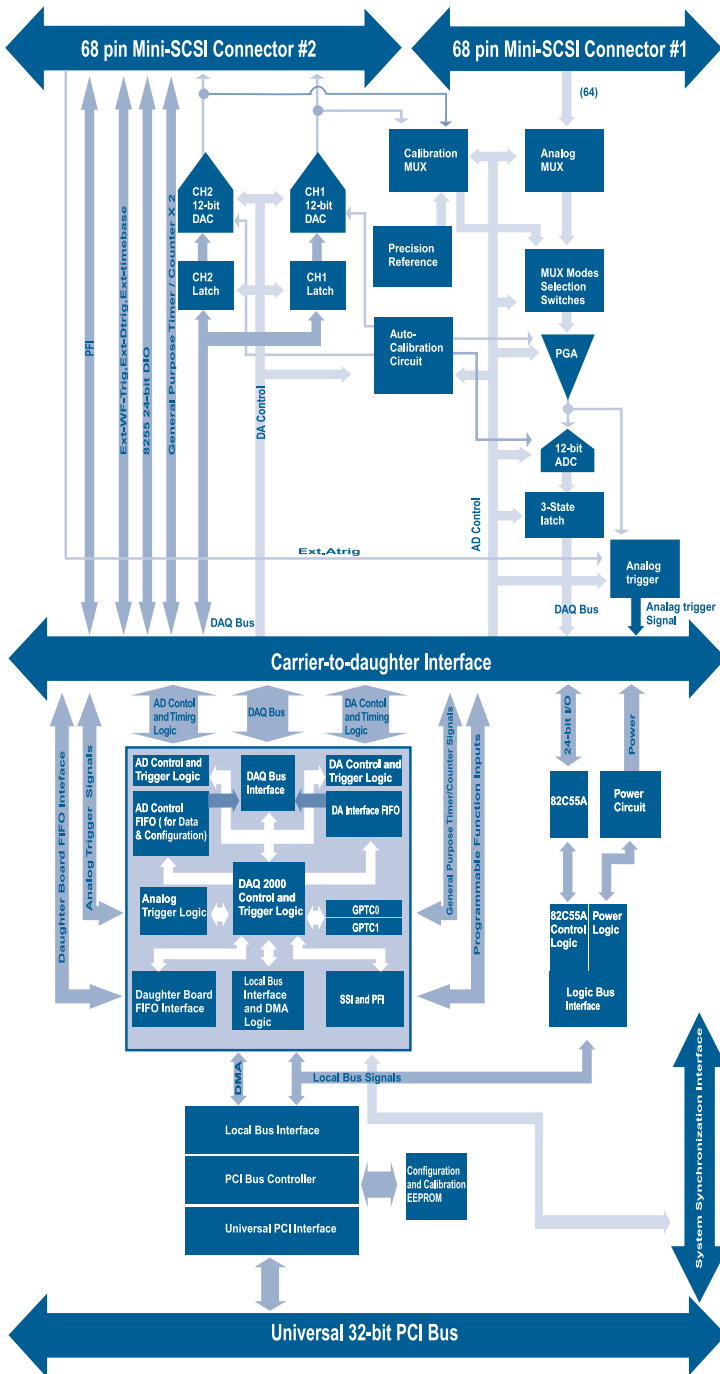
### DAQ-2204

64-CH 250KS/s high speed multi-function card

# DAQ-2200 Series

## 64-CH Multi-function Cards

### Block Diagram



### Connector 1 Pin Assignment

CH0/CH0+	1	35	CH8/CH0-
CH1/CH1+	2	36	CH9/CH1-
CH2/CH2+	3	37	CH10/CH2-
CH3/CH3+	4	38	CH11/CH3-
CH4/CH4+	5	39	CH12/CH4-
CH5/CH5+	6	40	CH13/CH5-
CH6/CH6+	7	41	CH14/CH6-
CH7/CH7+	8	42	CH15/CH7-
CH16/CH8+	9	43	CH24/CH8-
CH17/CH9+	10	44	CH25/CH9-
CH18/CH10+	11	45	CH26/CH10-
CH19/CH11+	12	46	CH27/CH11-
CH20/CH12+	13	47	CH28/CH12-
CH21/CH13+	14	48	CH29/CH13-
CH22/CH14+	15	49	CH30/CH14-
CH23/CH15+	16	50	CH31/CH15-
AISENSE	17	51	AI_GND
CH32/CH16+	18	52	CH40/CH16-
CH33/CH17+	19	53	CH41/CH17-
CH34/CH18+	20	54	CH42/CH18-
CH35/CH19+	21	55	CH43/CH19-
CH36/CH20+	22	56	CH44/CH20-
CH37/CH21+	23	57	CH45/CH21-
CH38/CH22+	24	58	CH46/CH22-
CH39/CH23+	25	59	CH47/CH23-
CH48/CH24+	26	60	CH56/CH24-
CH49/CH25+	27	61	CH57/CH25-
CH50/CH26+	28	62	CH58/CH26-
CH51/CH27+	29	63	CH59/CH27-
CH52/CH28+	30	64	CH60/CH28-
CH53/CH29+	31	65	CH61/CH29-
CH54/CH30+	32	66	CH62/CH30-
CH55/CH31+	33	67	CH63/CH31-
EXT_ATRIG	34	68	AI_GND

### Connector 2 Pin Assignment

DA0OUT	1	35	AO_GND
DA1OUT	2	36	AO_GND
EXT_AOREF	3	37	AO_GND
EXT_ADCONV#	4	38	DGND
EXT_UPDATE#	5	39	DGND
EXT_WFTRIG	6	40	DGND
EXT_DTRIG	7	41	DGND
SSH_OUT#	8	42	SDI_0
AO_TRIG_OUT	9	43	SDI_1
AI_TRIG_OUT	10	44	SDI_2
PF11	11	45	SDI_3
PF10	12	46	DGND
GPTC0_SRC	13	47	DGND
GPTC0_GATE	14	48	DGND
GPTC0_UPDOWN	15	49	DGND
GPTC0_OUT	16	50	DGND
GPTC1_SRC	17	51	DGND
GPTC1_GATE	18	52	DGND
GPTC1_UPDOWN	19	53	DGND
GPTC1_OUT	20	54	DGND
EXTTIMEBASE	21	55	DGND
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