

Extra Low Noise | High Accuracy



DESCRIPTION

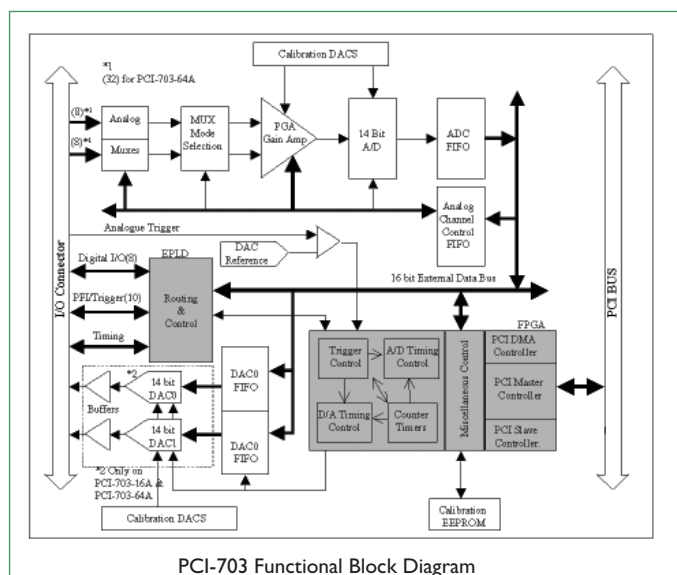
Our flagship data acquisition board, the **PCI-703** is known for its low noise and high performance. It is a 14-bit 400kHz analog input and analog output board for PCI based systems.

The board features 16/32/64 single-ended or 8/16/32 differential analog inputs. Analog sampling can be done via polled I/O or bus-master DMA. Eighteen digital I/O lines and 3 counter/timers are fitted as standard. Ten of the I/O lines are for multi-function use, such as for external trigger source or external convert. The balance are for standard digital I/O use. The two optional analog output channels can be used for waveform generation or reference voltage outputs.

Boards are supplied with free EDR Enhanced Software SDK which includes drivers and examples for Labview, DasyLab and VEE Pro.

FEATURES

- 16/32/64 Single-Ended or 8/16/32 Differential Inputs
- 14-bit Resolution
- 2x 14-bit Analog outputs
- 8 TTL Compatible digital I/O lines
- Programmable gain
- PCI-bus mastering DMA
- Channel list FIFO onboard for auto A/D channel scanning
- 64 input ideal for building dataloggers or high input count test systems
- Windows98/ME/2000/XP OS Support (NT on request)
- Linux Operating System
- WaveView for Windows Data Acquisition & Logging Software
- Labview, Testpoint and VEE Pro Drivers
- 400kHz Sampling rate
- 3 Counter/Timers
- Analog or Digital Triggering
- PCI-bus rev. 2.2 compliant



Specifications

ANALOG INPUTS (A/D)

Input Characteristics

Input Channels:	16 / 32 / 64 Single-Ended or 8 / 16 / 32 Differential
Input Ranges:	± 10V, ± 5V, ± 2.5V, ± 1V, ± 500mV, ± 250mV, ± 100mV, ± 50mV
Overvoltage Protection:	± 25V (power on); ± 35V (power off)
Maximum Working Voltage:	±1 1V relative to module ground
Resolution:	14-bit (1 in 16384)
Input Coupling:	DC

A/D Conversion Characteristics

Max sampling rate:	400KS/s (for a single channel)
Relative Accuracy:	± 1 LSB (averaged over 100 samples)
A/D FIFO buffer:	2x Channel List Depth
Offset error (post gain)	
	Before Calibration: ± 5mV max.
	After Calibration: ± 0.4mV max.
Gain error:	
	Before Calibration: 0.25% of reading max.
	After Calibration: 0.012% of reading max.
Acquisition Modes:	Triggered interrupts, DMA or programmed I/O

Input Amplifier Characteristics

Input Impedance:	10G Ohm in parallel with 100pF minimum
Bandwidth:	600KHz
Settling Time:	4mS to 0.012% (2 LSB)
(all gains, full scale step)	10mS to 0.006% (1 LSB)
System Noise:	For gains less than 5: 0.6 LSB (rms)
	For gains greater than 5: 0.8 LSB (rms)

ANALOG OUTPUT (D/A)

No of Channels:	2x 14-bit
Output Ranges:	$\pm 10V$
Thruput Rate:	400kHz
Full Scale Error: Before Calibration:	$\pm 4LSB$
After Calibration:	$\pm 1LSB$
Slew Rate:	30V/mS
Output Coupling:	DC
Output Impedance:	0.2W
Output Drive:	$\pm 5mA$
Power On State:	0V

DIGITAL I/O (DIO)

No of TTL I/O lines:	18 (8 general purpose, 10 PFI (see digital trigger below))
I/O Characteristics	
Input Voltage:	High: 2.0V (min), 5.25V (max) Low: 0V (min), 0.8V (max)
Input Current:	High: 100μA Low: -100μA
Output Voltage:	High: 2.40V Low: 0.6V
Output Current:	High: 4mA Low: -24mA

TRIGGERS

Analog Trigger

Trigger Source:	Any of the analog input channels
Reference Source:	Analog Output Channel 1
Resolution:	14-bits
Level:	± 10V
Trigger Mode:	Level or Edge, greater or less than ref.

Digital Trigger

Trigger Source:	Ten PFI input channels (TTL)
Pulse Width:	100nS
Trigger Mode:	Level or Edge (rising & falling)

COUNTER/TIMERS

Resolution:	24-bit
Clock Frequency:	20MHz
No of counters:	3 (1 for A/D, 2 for user or for D/A)
Clock Source:	Internal 20MHz or 100kHz source or External 100kHz source

EXTERNAL INTERFACE

Connector Types:	SCSI 68-way DSub Right Angle Male
	DB-Type Connector (PCI703-16/16A)
	SCSI 100-way DSub Right Angle Female
	DB-Type Connector (PCI703-32/32A/64/64A)

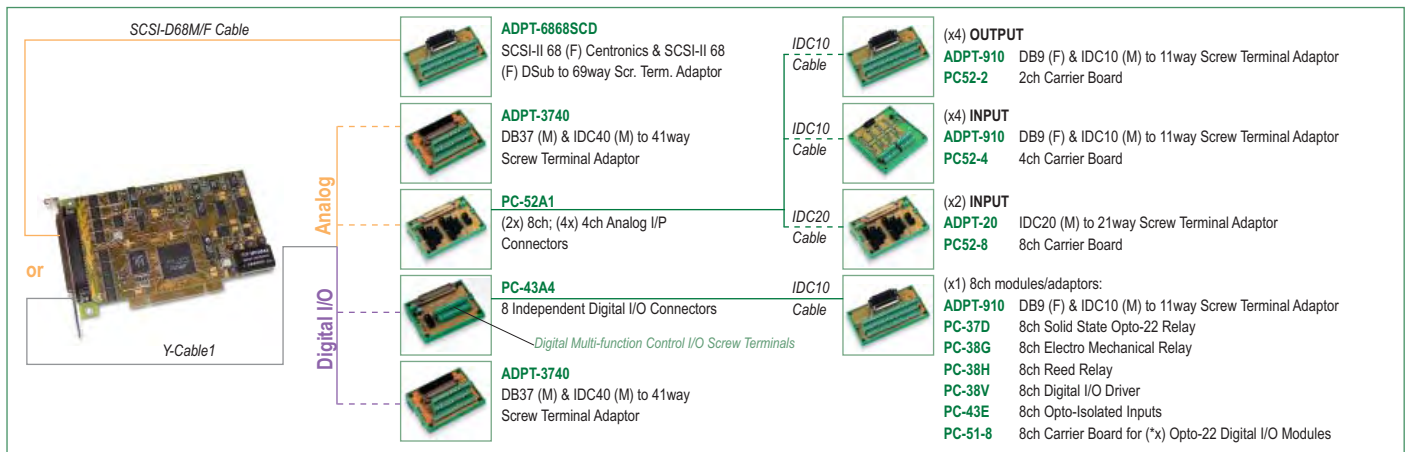
PCI INTERFACE

Compliant:	PCI 2.2 Master & Slave
	3.3V or 5.0V compatible with auto-detect
	Auto selected

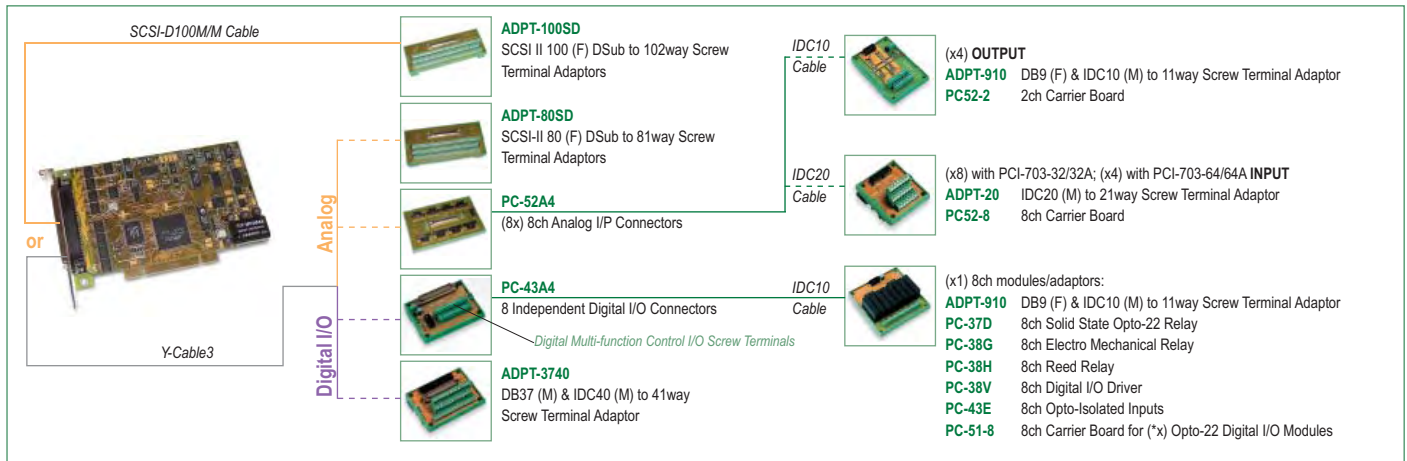
ENVIRONMENTAL / PHYSICAL

Dimensions:	168,5 mm x 98,5 mm
Rel. Humidity:	0% to 90% (non-condensing)
Operating Temp:	0°C to 70°C
Power Requirements	+5V @ 1.3A typ

Optional Accessories Diagram: PCI-703-16/16A



Optional Accessories Diagram: PCI-703-32/32A & PCI-703-64/64A



SCSI DSub 68M

DGND	35	1	FREQ_OUT
DGND	36	2	GPCTRO_OUT
PF18	37	3	PF19
PF17/STARTSCAN	38	4	DGND
DGND	39	5	PF16
GPCTR1_OUT	40	6	PF15
PF14	41	7	DGND
PF13/GPCTR1	42	8	+5V
PF12/CONVERT	43	9	DGND
DGND	44	10	PF11/TRIG2
EXTSTROB	45	11	PF10/TRIG1
SCANCLK	46	12	DGND
DIO3	47	13	DGND
DIO7	48	14	+5V
DIO2	49	15	DGND
DGND	50	16	DIO6
DIO5	51	17	DIO1
DIO0	52	18	DGND
DGND	53	19	DIO4
AOGND	54	20	RESERVED
AOGND	55	21	DAC1OUT
AIGND	56	22	DAC0OUT
ACH7	57	23	ACH15
ACH14	58	24	AIGND
AIGND	59	25	ACH6
ACH5	60	26	ACH13
ACH12	61	27	AIGND
AISENSE	62	28	ACH4
ACH11	63	29	AIGND
AIGND	64	30	ACH3
ACH2	65	31	ACH10
ACH9	66	32	AIGND
AIGND	67	33	ACH1
ACH0	68	34	ACH8

PCI-703-16/16A

SCSI DSub 100F

ACH63	100	50	FREQ_OUT
ACH55	99	49	GPCTRO_OUT
ACH62	98	48	PF19
ACH54	97	47	PF18
ACH61	96	46	PF16
ACH53	95	45	PF15
ACH60	94	44	PF15
ACH52	93	43	GPCTR1_OUT
ACH59	92	42	PF14
ACH51	91	41	PF12/CONVERT
ACH58	90	40	PF11/TRIG2
ACH50	89	39	PF10/TRIG1
ACH57	88	38	EXTROB
ACH49	87	37	SCANCLK
ACH56	86	36	+5V
ACH48	85	35	+5V
ACH47	84	34	+5V
ACH39	83	33	DGND
ACH46	82	32	DIO7
ACH38	81	31	DIO3
ACH45	80	30	DIO6
ACH37	79	29	DIO2
ACH44	78	28	DIO5
ACH36	77	27	DIO1
AIGND	76	26	DIO4
AISENSE2	75	25	DIO0
ACH43	74	24	DGND
ACH35	73	23	AOGND
ACH42	72	22	RESERVED
ACH34	71	21	DAC1OUT
ACH41	70	20	DAC0OUT
ACH33	69	19	AISENSE
ACH40	68	18	ACH15
ACH32	67	17	ACH7
ACH31	66	16	ACH14
ACH23	65	15	ACH6
ACH30	64	14	ACH13
ACH22	63	13	ACH5
ACH29	62	12	ACH12
ACH21	61	11	ACH4
ACH28	60	10	ACH11
ACH20	59	9	ACH3
ACH27	58	8	ACH10
ACH19	57	7	ACH2
ACH26	56	6	ACH9
ACH18	55	5	ACH1
ACH25	54	4	ACH8
ACH17	53	3	ACH0
ACH24	52	2	AIGND
ACH16	51	1	AIGND

PCI-703-32/32A/64/64A

*PCI-703-32/32A uses only the first 32 channels

Optional Accessories: PCI-703-16/16A

OPTION 1:

ADPT-6868SCD SCSI-II 68(F) Cent & SCSI-II 68(F) DSub to 69way Screw T. Adpt
SCSI-D68M/F 68 SCSI-II DSub (M) to (F) Screened Cable

OPTION 2:

ADPT-3740 DB37 (M) & IDC40 (M) to 41way Screw Terminal Adaptor
Y-Cable1 68way to (2x) 37way Screened Cable

Optional Accessories: PCI-703-32/32A/64/64A

OPTION 1:

ADPT-100SD SCSI-II 100 (F) DSub to 102way Screw Terminal Adaptor
SCSI-D100M/M 100 SCSI-II DSub (M) to (M) Screened Cable

OPTION 2:

ADPT-3740 DB37 (M) & IDC40 (M) to 41way Screw Terminal Adaptor
Y-Cable3 100 SCSI-II DSub (M) to (1x) DB37(F) & (1x) 80 SCSI-II DSub (M)

Ordering Information

Supplied with EDR Enhanced Software

All Boards have A/D Inputs, 8 Digital I/O lines + three 24 bit counters

PCI-703-16 400kHz 16 Channel 14-bit A/D

PCI-703-16A 400kHz 16 Channel 14-bit A/D + two 14 Bit DACs

PCI-703-32 400kHz 32 Channel 14-bit A/D

PCI-703-32A 400kHz 32 Channel 14-bit A/D + two 14 Bit DACs

PCI-703-64 400kHz 64 Channel 14-bit A/D

PCI-703-64A 400kHz 64 Channel 14-bit A/D + two 14 Bit DACs