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Specifications

PCIM-DDA06/16

MEASUREMENT COMPUTING™

Document Revision 4.1, July, 2006

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Specifications

Typical for 25 °C unless otherwise specified.

Specifications in *italic text* are guaranteed by design.

Analog output

Table 1. Analog output specifications

D/A converter type	AD660BR
Resolution	16 bits
Number of channels	6
Voltage ranges	±10 V, ±5, 0 to 10 V, 0 to 5 V. Ranges are switch selectable
D/A pacing	Software paced
Throughput	System-dependent. Using the Universal Library programmed output function (`cbAOut()`) in a loop, in Visual Basic, a typical update rate of 150 kHz (± 70 nS jitter) can be expected. The rate was measured on a 500 MHz Pentium III based PC.
Data transfer	Programmed I/O
Monotonicity	*15 bits guaranteed over temperature*
Slew rate	1.7 V/µs minimum, 2.4 V/µS typical.
Current drive	±5 mA min
Output short-circuit duration	*Indefinite*
Power-on reset voltage	0 V ±15 mV
Miscellaneous	Double buffered output latches Update DACs individually or simultaneously (jumper selectable)

Accuracy

Table 2. Analog output accuracy specifications

Absolute accuracy	±2.0 LSB max
Typical accuracy	±1.0 LSB max
Gain error	Trimmable by potentiometer to 0
Offset error	Trimmable by potentiometer to 0
Integral linearity error	±1.0 LSB max, ±0.5 LSB typ
Differential linearity error	*±1.0 LSB max, ±0.5 LSB typ*

Each PCIM-DDA06/16 is tested at the factory to assure the board's overall error does not exceed ±2.0 LSB.

Total board error is a combination of gain, offset, integral linearity and differential linearity error. The theoretical worst-case error of the board may be calculated by summing these component errors. Worst case error is realized only in the unlikely event that each of the component errors are at their maximum level, and causing error in the same direction.

Typical accuracy is derived directly from the various component typical errors. This typical, maximum error calculation for the PCIM-DDA06/16 yields ±1.0 LSB.

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Analog output drift

Table 3. Worst case analog output drift specifications

Range	Gain Drift (LSB/°C)	Offset Drift (LSB/°C)	Overall Drift (LSB/°C)
±10.0 V	1.0	0.3	1.3
±5.00 V	4.0	0.3	4.3
0 to 10.0 V	1.9	0.3	2.2
0 to 5.0 V	6.0	0.3	6.3

Digital input / output

Table 4. DIO specifications

Digital type	One 82C55
Number of I/O	24
Configuration	▪ 2 banks of 8 and 2 banks of 4 or ▪ 3 banks of 8 or ▪ 2 banks of 8 with handshake
Output high	*3.0 volts min @ -2.5mA*
Output low	*0.4 volts max @ 2.5mA*
Input high	*2.0 volts min, 5.5 volts absolute max*
Input low	*0.8 volts max, -0.5 volts absolute min*
Power-up / reset state	Input mode (high impedance)

Power consumption

Table 5. Power Consumption specifications

+5V supply	965mA typical, 1206mA maximum

Environmental

Table 6. Environmental specifications

Operating temperature range	*0 to 70 °C*
Storage temperature range	*-40 to 100 °C*
Humidity	*0 to 95% non-condensing*

Mechanical

Table 7. Mechanical specifications

Card dimensions	PCI half card: 174.4 mm (L) x 100.6 mm (W) x 11.65 mm (H)

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Main connector and pin out

Table 8. Main connector specifications

Connector type	37-pin male D connector
Compatibility	Pinout identical to CIO-DDA06/16
Compatible cables	▪ C37FF-x ▪ C37FFS-x DFCON-37 (D-connector, D-shell, and termination pins to construct your own cable)
Compatible accessory products with the C37FF-x cable or C37FFS-x cable	CIO-MINI37 CIO-TERMINAL SCB-37 SSR-RACK24 ENC-MINI37

Table 9. Main connector pin out

Pin	Signal Name	Pin	Signal Name
1	D/A Out 5	20	LLGND
2	D/A Out 4	21	LLGND
3	FIRSTPORTB Bit 7	22	FIRSTPORTC Bit 7
4	FIRSTPORTB Bit 6	23	FIRSTPORTC Bit 6
5	FIRSTPORTB Bit 5	24	FIRSTPORTC Bit 5
6	FIRSTPORTB Bit 4	25	FIRSTPORTC Bit 4
7	FIRSTPORTB Bit 3	26	FIRSTPORTC Bit 3
8	FIRSTPORTB Bit 2	27	FIRSTPORTC Bit 2
9	FIRSTPORTB Bit 1	28	FIRSTPORTC Bit 1
10	FIRSTPORTB Bit 0	29	FIRSTPORTC Bit 0
11	DGND	30	FIRSTPORTA Bit 7
12	D/A Out 3	31	FIRSTPORTA Bit 6
13	LLGND	32	FIRSTPORTA Bit 5
14	D/A Out 2	33	FIRSTPORTA Bit 4
15	LLGND	34	FIRSTPORTA Bit 3
16	D/A Out 1	35	FIRSTPORTA Bit 2
17	LLGND	36	FIRSTPORTA Bit 1
18	D/A Out 0	37	FIRSTPORTA Bit 0
19	LLGND		

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