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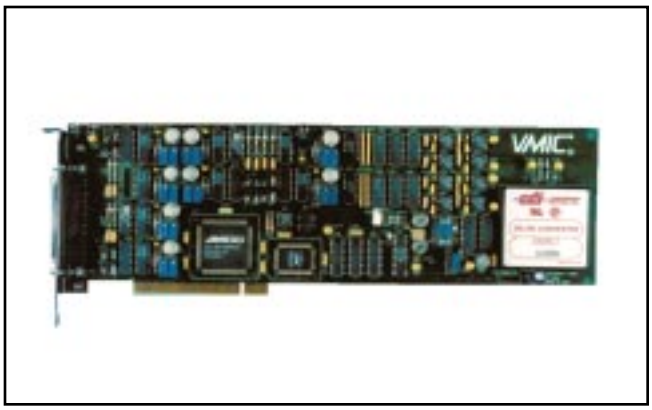
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VMIPCI-4320
8-Channel D/A Current or Voltage Output Board

- Eight analog output channels
- Jumper-selectable voltage or current outputs
- Current transmitter ranges (0 to 20 mA, 4 to 20 mA, and 5 to 25 mA)
- Output voltage ranges (0 to +5 V, 0 to +10 V, ±2.5 V, ±5 V, ±10 V)
- 12-bit resolution
- Back panel outputs (P1)
- On-board DC-to-DC converter
- Optional voltage-only outputs
- Compliant with PCI local bus specification
- External current loop supply optional
- VMISFT-9450 software driver available for:
  — Windows NT®
  — VxWorks
  — QNX
  — Linux

APPLICATIONS

- Industrial process control
- Current source reference for data acquisition
- Programmable current source for test equipment
- Automated manufacturing



INTRODUCTION — The VMIPCI-4320 analog output board provides eight high-quality analog output channels. These channels are jumper-selectable for voltage outputs, current loop outputs, or a combination of voltage and current loop outputs. Each output range is also jumper-selectable. A block diagram of the board is shown in Figure 1.

FUNCTIONAL CHARACTERISTICS

(Typical at +25 °C and rated power supplies unless otherwise stated.)

Compliance: PCI Local Bus Specification Revision 2.1, for active PCI clock frequencies from 10 to 33 MHz

Board Address: Per PCI specification, the board address is assigned by system BIOS.

Output Data Transfer: Data for each analog output channel is written directly into an on-board RAM location dedicated to a specific channel. The data is then periodically retrieved from the RAM, and converted to an analog voltage which is then transferred to one of eight output sample-and-hold output buffers.

Memory Test: This product is designed with dual-port on-board memory that may be tested by executing a memory diagnostic for operational verification.

System Reset: Application of the system reset signal via the PCI bus initializes the board into a state with all voltage outputs disconnected from the output connector (P1). Current outputs are set to the lowest value of the output range selected. For example, if 4 to 20 mA is the output range selected, then power up or system reset will set the current output to 4 mA.

Fail LED: The Fail LED is located at the top edge of the board and is useful during installation and initial verification. If an error condition occurs during diagnostics, a software-controlled LED may be illuminated to visually indicate a failure. The LED is illuminated by system reset at power up and is extinguished upon successful diagnostic execution.

VOLTAGE ANALOG OUTPUTS

Number of Output Channels: Eight, one Sample-and-Hold per channel

Full-Scale Analog Output (Jumper-Selectable):

Unipolar:	0 to +10 V	Bipolar:	±2.5 V
	0 to + 5 V		±5.0 V
			±10.0 V

Ordering Options								
Dec. 16, 1999 800-854320-000 B	A	B	C	–	D	E	F
VMIPCI-4320	–		0	0	–			

A = Output Option
0 = Current or Voltage Output
1 = Voltage Only Output
BC = 00 (Options reserved for future use)

P1 Connector Data

Compatible cable connector: DB-37 Plug AMP No. 205210-3 or equivalent.

For Ordering Information, Call:
1-800-322-3616 or 1-256-880-0444 • FAX (256) 882-0859
E-mail: info@vmic.com Web Address: www.vmic.com
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Analog Output Code: The 12-bit digital-to-analog converter (DAC) accepts digital codes in straight binary and offset binary.

Output Load Current: 10 mA, maximum at full accuracy

Resolution: 12 bits

Output Impedance: 0.8 Ω maximum

Total Error: ±0.05 percent of full-scale range plus (±2 mV)

Maximum Settling Time to 1 LSB: 792 µs

Refresh Update Rate: 1,262.6 Hz (default) (The 1,262.6 Hz rate provides settling to 0.01 percent for stepped outputs at each update.)

Output Short Circuit Protection: Indefinite short to common; momentary short to ±25 V

Monotonicity: Monotonic over the full temperature range

Reset: All outputs are disconnected from the output connector at power up or reset

CURRENT ANALOG OUTPUTS

Number of Output Channels: Eight

Output Ranges (Jumper-Selectable): 4 to 20 mA, 0 to 20 mA, 5 to 25 mA (4 to 12 mA, 0 to 10 mA, and 5 to 15 mA also available)

Nonlinearity: 0.01 percent of span

Initial Offset Error: 7 µA

Offset Versus Temperature: 0.0005 percent of span/°C

Initial Span Error: 0.05 percent of span

Span Error Versus Temperature: 0.0025 percent of span/°C

Maximum Settling Time to 1 LSB: 792 µs

Load Resistance (Internal Loop Supply Voltage): 600 Ω maximum at 20 mA
480 Ω maximum at 25 mA

Reset: Current outputs are set to the lowest value of the output range selected

Optional External Current Loop Supply:
Voltage Range: 0 to +30 V
Compliance: Loop supply voltage minus 3.0 V

PHYSICAL/ENVIRONMENTAL

Temperature: Operating: 0 to +65 °C
Storage: -20 to +80 °C

Humidity: 20 to 80 percent relative, noncondensing

Altitude: Operation to 10,000 feet (3,048 m)

Cooling: 50 LFM, minimum

Dimensions: Full-size PCI board; 4.2-in. x 12.28-in.

Output Connector: P1 (37-pin subminiature) rear panel connector (refer to the connector data in the Ordering Options)

Power Requirements: 2.0 A (typical)
2.5 A (maximum)

MTBF: 238,679 hours (217F)

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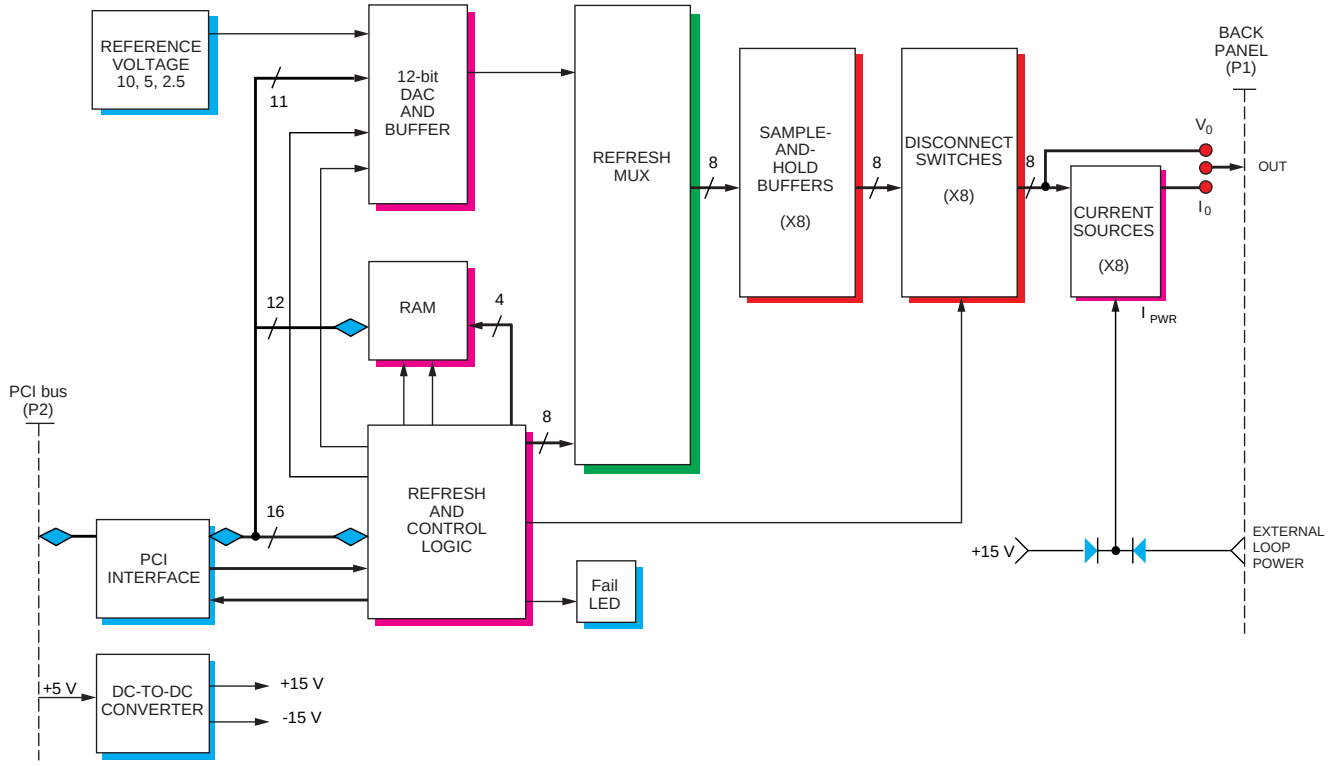


Figure 1. VMIPCI-4320 Functional Block Diagram

TRADEMARKS

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APPLICATION AND CONFIGURATION GUIDES — The following Application and Configuration Guides are available from VMIC to assist the user in the selection, specification, and implementation of systems based on VMIC's products.

Title	Document No.
Digital Input Board Application Guide	825-000000-000
Change-of-State Board Application Guide	825-000000-002
Digital I/O (with Built-in-Test) Product Line Description	825-000000-003
Synchro/Resolver (Built-in-Test) Subsystem Configuration Guide	825-000000-004
Analog I/O Products (with Built-in-Test) Configuration Guide	825-000000-005
Connector and I/O Cable Application Guide	825-000000-006

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