Low Cost, Rugged Data Acquisition PCIe MiniCard
Advanced Analog Technology in an Ultra-Compact Form Factor

Mountain View, California — June 18, 2014

Diamond Systems, a leading global supplier of compact, rugged, embedded computing solutions for real-world applications in a broad range of markets, today introduced **DS-MPE-DAQ0804**, a rugged, low cost data acquisition PCIe MiniCard module that is ideal for adding analog I/O and digital I/O features to embedded applications requiring low cost, small size, and/or light weight.
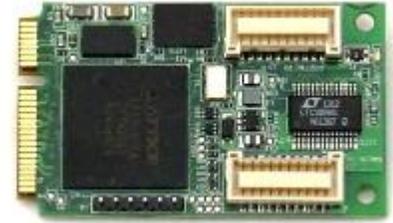
The DS-MPE-DAQ0804 offers 8 16-bit analog input channels, 4 16-bit analog output channels, and 21 configurable digital I/O lines in a PCIe MiniCard form factor with an extended operating temperature of -40°C to +85°C. The analog inputs offer single-ended and true differential capability, 4 programmable input ranges, and 100 KHz aggregate sample rate. Outstanding features of the DS-MPE-DAQ0804 analog input circuitry include an integrated programmable timer to control A/D sample rates automatically, resulting in precise timing plus significantly reduced processor overhead compared to software polling techniques. The 2048-sample data FIFO with programmable interrupt threshold further reduces processor overhead by reducing the interrupt rate required to transfer data from the board to the application. With these features DS-MPE-DAQ0804 can offer accurate, full-speed performance in any single-board computer regardless of processor speed.

The 16-bit analog outputs offer 2 programmable output voltage ranges. An integrated precision, low-drift voltage reference ensures a lifetime of accurate performance across the full operating temperature range. A built-in waveform generator with 2K sample buffer enables the board to be used in stimulus applications such as sonar, laser light control, and other applications.

The 21 buffered digital I/O lines feature programmable direction in groups of 4, 6, and 8 bits. The digital I/O lines can also be configured as either 24-bit pulse width modulators or 32-bit counter/timers, driven by the on-board 50 MHz clock.

All I/O signals are provided on two miniature connectors, one for the analog signals and one for the digital signals. The connectors feature positive locking for maximum reliability in high vibration environments.

Diamond's free Universal Driver software, included with the DS-MPE-DAQ0804, simplifies programming effort for all the board's I/O functions under both Windows and Linux operating systems. The DS-MPE-DAQ0804's key features and functions are tabulated below.

Key Features and Functions

- 8 single ended or 4 differential 16-bit analog inputs
- Maximum aggregate sample rate of 100 KHz
- Analog input ranges of +/-10V, +/-5V, 0-10V, 0-5V
- 4 16-bit analog outputs
- Analog output ranges of 0-5V and 0-2.5V
- 21 buffered digital I/O lines, individual direction control & protection
- Digital I/O lines optionally configurable as:
  - 4 24-bit pulse width modulators or
  - 8 32-bit programmable counter/timers
- Utilizes PCIe link on Minicard socket
- Support for Windows Embedded Standard 7, XP, CE and Linux 2.6.xx
- Diamond's Universal Driver software supports all functions
- Rugged design: -40°C to +85°C operating temperature
- PCIe MiniCard form-factor: (2 x 1.18 in. / 50.95 x 30mm)

The DS-MPE-DAQ0804 data acquisition PCIe MiniCard offers an exciting combination of features and ruggedization that make it a very attractive plug-in module for embedded system expansion needing analog and digital I/O. This is the newest module in Diamond's rapidly growing family of PCIe MiniCards.

Pricing and Availability

The DS-MPE-DAQ0804 data acquisition PCIe MiniCard module is available immediately. Single unit pricing starts at US$270. A lower cost version is available without the analog output functionality. Contact Diamond Systems for quantity pricing and special-order options.

About Diamond Systems

Founded in 1989 and based in Mountain View, California, Diamond Systems Corporation is a leading global provider of compact, rugged, board- and system-level real world embedded computing solutions to companies in a broad range of markets, including transportation, energy, aerospace, defense, manufacturing, medical, and research. The company is renowned as an innovator of embedded I/O standards and technologies; it originated the FeaturePak I/O modules standard, was an early adopter of PC/104 module technology, and holds a patent for a unique analog I/O autocalibration technique.

Diamond's extensive product line includes compact, highly integrated single-board computers (SBCs); an extensive line of expansion modules for analog and digital I/O, wired and wireless communications, GPS, solid-state disk, and power supply functions; and complete system-level solutions. In support of performance-critical embedded application requirements, these products are engineered to operate reliably over wide operating temperature ranges, such as –40°C to +85°C, and at high levels of shock and vibration. Additionally, the company offers a comprehensive hardware, software, and system integration and customization services.

For further information, please visit www.diamondsystems.com or call +1-800-367-2104.

MEDIA RESOURCES

- DS-MPE-DAQ0804 webpage
- DS-MPE-DAQ0804 datasheet (pdf)
- DS-MPE-DAQ0804 photo (jpg)

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