PC/104-*Plus* I/O Module with Quad Ethernet and Digital I/O
Mercator II I/O Module Reduces Stack Size and Lowers Cost

San Jose, California — February 26, 2013

Diamond Systems, a leading global supplier of compact, rugged, embedded computing solutions for real-world applications in a broad range of markets, today announced Mercator II, a rugged PC/104-*Plus* I/O module that integrates 4 PCI-based 10/100 Ethernet ports with 24 user-configurable digital I/O lines in the compact and rugged PC/104 form factor. This 2-in-1 combination of Ethernet and digital I/O can help lower the size and cost of embedded systems by eliminating one additional board from the PC/104 stack.

The four Ethernet ports on Mercator II utilize two 2-port Micrel KSZ8842 Mac + Phy PCI controller chips that are NE2000 compatible. The dual 2-port switch architecture of Mercator II enables the creation of distributed daisy-chain networks of systems, which are able to communicate up and down the chain independently. The 24 digital I/O lines are based on an 82C55 chip and feature programmable direction in 4- and 8-bit groups. All I/O lines contain user-configurable 10K ohm pull-up resistors for convenience. Digital I/O configuration and PCI slot selection for each Ethernet port are configurable.

Extended operating temperature range of -40ºC to +85ºC enables the board to operate in environments with extreme temperature swings, such as vehicles or outdoor installations. In addition, the board may be custom-configured with 0-ohm resistors in place of jumper blocks for increased ruggedness in high-vibration environments. Conformal coating is also available as an added cost option.

Mercator II's key features and functions are tabulated below.

Key Features and Functions

- Dual PCI 2-port switch architecture
- 4 PCI-based 10/100Mbps Ethernet ports
- 24 digital I/O using 82C55 on ISA bus
- Ethernet and DIO available on pin headers
- Stack through ISA and PCI buses
- +5VDC input power
- Support for Windows Embedded Standard 7 and Linux 2.6
- ISA and PCI stackable I/O expansion
- Rugged design: -40ºC to +85ºC operating temperature
- PC/104-*Plus* form-factor: (3.55 x 3.775 in. / 90 x 96mm)

 "Mercator II is the second generation PC/104-*Plus* Ethernet and DIO module from Diamond and demonstrates our continuing commitment and ability to provide high quality products and long term support to our customers." says Jonathan Miller, President of Diamond Systems. "It provides double the number of Ethernet ports at only a slightly higher price in an industry standard form factor, making Mercator II an attractive choice for add-on Ethernet and digital I/O."

Pricing and Availability

The Mercator II PC/104-*Plus* Ethernet and digital I/O module is shipping in Q1 2013. Single unit pricing starts at US$240. All necessary I/O cables are also available. 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

- [Mercator II webpage](#)
- [Mercator II datasheet](#) (pdf)
- [Mercator II photo](#) (jpg)

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