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Applied Dynamics International's New PCI-Engine is an Engine Simulator on a Board

Ann Arbor, Mich., October 25th, 2004 – Applied Dynamics International today announced the release of the PCI-Engine. The PCI-Engine is an innovative tool for design, development testing, and acceptance testing of engine control units (ECUs). The PCI-Engine boardset may be placed in a standard PC and used to simulate all the electrical signals in a modern combustion engine. When placed in ADI's rtX PC-based real-time simulator, dynamic engine models may be used to provide a complete real-time engine simulation. Prototype or production ECUs are connected to the engine board providing a virtual engine interface for testing the controller.

"ADI has been using Motorola's microcontroller technology to help solve challenging embedded system testing problems for nearly a decade. The PCI-Engine board set takes these years of accumulated knowledge and applies them to solve a challenging problem: controller development for engines of today and tomorrow," said John McIntosh, CEO of ADI. "The PCI Engine makes high performance ECU testing affordable. It's been designed to act, from a signal point of view, like a high performance 8-cylinder engine. If your engine is smaller then you have signals to spare. If your engine is larger or more complex, you can add a second PCI-Engine board set"

The PCI-Engine is actually a two-board set comprised of a controller board and a signal conditioning and routing board. Both boards use a standard PCI interface and can be plugged into PCI slots in a standard PC. The centerpiece of the controller board is a Motorola MPC565 microcontroller. The MPC565 provides spark and fuel pulse measurement, dynamic cam output, stepper motor input, PWM output, PWM measurement, and two channels of CAN bus. The controller board also includes three IP-module daughter board sites. Daughter boards may be used to provide knock signal generation and crank output. Very high accuracy crank output is provided using digital direct synthesis (DDS) technology that may be configured as analog or digital signals.

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The second PCI board in the two-board set is a signal conditioning and routing (SCR) board. This board's signal conditioning circuitry enables standard and encoded signals to handle TTL or battery voltage levels (up to 42 volts). In addition, output drivers may be jumpered as high-side or low-side output. To handle a range of CAN bus configurations, the SCR board provides selectable transceivers. These selectable transceivers enable each CAN bus to be configured for high-speed (ISO 11898-2 / J1939 / J2284), fault-tolerant (ISO 11519-2 or ISO 11898-3), or single-wire (J2411).

"Real-time hardware-in-the-loop simulation is an important tool for the development of engine controllers." Said Scott James, Director of Business Development at ADI "However, the tools that existed previously for performing this work had been based on expensive, proprietary designs. When ADI launched the rtX real-time simulation platform based on common PC technology, the cost of real-time simulation dropped dramatically. ADI's subsequent launch of the PCI-Engine now makes the rtX platform an ideal tool for the development of engine controllers."

Demonstrations of the PCI-Engine can be seen in the ADI booth at this year's Automotive Testing Expo in Novi, October 27th, 28th, and 29th.

A pioneer in the development, manufacture, and use of simulation and control system technology for more than 40 years, Applied Dynamics International design engineering products are used in leading real-time simulation laboratories around the world. Applied Dynamics International is a supplier of advanced embedded hardware and software development tools for the aviation, aerospace, automotive, defense, electronics and other related industries. Headquartered in Ann Arbor, MI, Applied Dynamics International also has offices in the United Kingdom, installations in 23 countries and representatives throughout the world.

For more information, visit ADI's website at: www.adi.com .

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