NEWS RELEASE

ADI APPLIED DYNAMICS INTERNATIONAL

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**Applied Dynamics International Introduces New PCI-RTA Line of
Real-Time Analog Sensor Emulation Boards**

Ann Arbor, MI… Applied Dynamics International, Inc. (ADI) today announced the release of the PCI-RTA line of I/O boards for real-time sensor emulation. The PCI-RTA is a line of intelligent, high-performance PCI-boards designed specifically for real-time simulation, development testing, and acceptance testing of electronic control modules (ECMs) for automotive, aerospace and defense applications. This line of sensor emulation boards includes the PCI-RTA-RATIO for emulating ratiometric analog output devices such as strain gauge sensors; the PCI-RTA-HVRATIO for emulating high voltage ratiometric devices; the PCI-RTA-THERMIST for emulating thermistor sensors; the PCI-RTA-LVDAC for emulating low-voltage analog sensors such as oxygen sensors; and the PCI-RTA-THERMO for emulating very-low-voltage sensors such as thermocouples.

Advanced real-time simulation uses integration step sizes in the 10s to 100s of microseconds. During this brief instant of time the real-time computer must calculate all equations, read and write PCI board signals, and update the user interface. Smaller integration steps result in higher fidelity real-time simulation and ultimately enable engineers to develop higher performance ECMs. For example, when developing engine control units, higher fidelity engine simulation enables engineers to more accurately model combustion and heat transfer behavior. By incorporating this detailed behavior, the resulting engine controller may be tuned to provide more power with lower emissions and higher fuel efficiency.

The PCI-RTA boards were designed specifically for high-performance real-time simulation. Each PCI-RTA board uses a Motorola MPC565 microcontroller to handle on-board computation and high-speed PCI bus communication. This architecture minimizes the computational load placed on the real-time simulator's main processor(s) and maximizes the simulator's ability to handle high-fidelity, small integration step simulation models, and large signal counts.

"The vast majority of commercially available DAC and ADC boards are designed for data acquisition tasks where sample rates rarely rise above 100 Hz. High performance real-time simulation often requires sample rates above 10000 Hz," said Scott James, Vice President of Business Development, Applied Dynamics International, Inc.

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"The lower-performance data acquisition boards employ a memory FIFO across which the PC's CPU communicates," James continued. "Under this architecture the CPU commands the PCI board to perform read and write operations and then must wait for these operations to complete. Upon completion, the results are read from the FIFO using numerous accesses to the PCI bus. This sequence of command/wait/read can add 10s and even 100s of microseconds to each integration step in the simulation. The PCI-RTA boards employ an on-board microprocessor to reduce PCI board read/write times to an absolute minimum. The CPU issues a single command across the PCI bus. The PCI-RTA board performs its read/write operations and returns results directly to the PCI bus without tying up the PC's CPU."

The PCI-RTA boards conform to the PCI standard and can be used with ADI's open architecture, PC-based real-time simulator, the rtX. ADI's technological philosophy emphasizes the use of an open architecture for real-time simulation.

"By embracing an open architecture, our customers are able to select the best available components for their real-time simulation tasks, avoid sole source lock-in, and reduce obsolescence," explained Melissa Wright, Chief Operating Officer, Applied Dynamics International, Inc. "When a particular real-time signal requirement is raised we look to commercially available PCI boards to meet the requirement. ADI will only develop a new PCI board when no suitable solution is available. In the case of the PCI-RTA line of boards, each of these boards provides functionality that would require a combination of commercially available boards cabled together with external signal conditioning and would offer low accuracy, reduced real-time performance, at a higher cost. These boards were designed specifically to emulate common automotive, aerospace and defense sensors and offer superior performance for these particular tasks."

The PCI-RTA boards also include crank synchronization with ADI's PCI-Engine board launched in 2004. A synchronization signal output from the PCI-Engine board may be used to drive crank synchronous signal emulation. These signals are used in advanced engine control strategies such as in-cylinder pressure-based engine control.

Demonstrations of the PCI-RTA boards can be seen in the ADI booth at this year's SAE International 2005 World Congress at Cobo Hall in Detroit, April 12th, 13th, and 14th, booth 1600, or by contacting Scott James at: 734-973-1300, ext 201.

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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