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Reference # AIT-A-2010

New Graphics System Uses Single Core for High Performance Video Processing

Demo at AEE will showcase video latency as low as two frames

Chatsworth, Calif. April 2016 – At Aviation Electronics Europe (AEE) this month, Aitech Defense Systems Inc. and CoreAVI will be exhibiting a demo of a high performance graphics system that captures images with an extremely low latency of two frames. All video throughput runs under VxWorks on a single core of a 12-core T4240 processor, keeping the remaining 11 cores free for other processing tasks.

The system uses two high performance Aitech boards. The M596 graphics and video XMC is based on AMD's flagship Radeon E8860 (Adelaar) GPU, with six independent graphics heads and UVD support for hardware-accelerated H.264/MPEG2/VC-1 video decoding. This XMC sits on the C112, a single-slot 6U VPX SBC that uses NXP's 12-core T4240 QorIQ processor.

Graphics and video are generated using CoreAVI's safety-critical OpenGL SC software, then rendered by the M596's GPU. The 4th gen UVD within the GPU uses CoreAVI's E8860 H.264 video decode drivers to decode the H.264 video, a task typically handled by the CPU. The GPU incorporates the decoded H.264 video and displays it through CoreAVI's video capture API. This allows for easy integration with 2D or 3D graphics-video overlays, while using a single or even multiple independent graphics display heads.

ANSYS SCADE Suite works with CoreAVI's OpenGL SC platform to provide a convenient, easy-to-use interface that greatly simplifies the application development process.

Designed to be flexible as well as handle intense video demands, the new system can easily serve as the heart of modern mission and display computers in virtually any aircraft.

The M596 can simultaneously process up to four different types of analog and digital video inputs and outputs over a wide range of resolutions. The C112's large memory arrays and broad I/O range allows it to meet many mission requirements right out of the box. The inherent Secure Boot and Trust Architecture, encryption capabilities and internal AltiVec vector processing engines of the T4240 processor provides added security needed in defense and aerospace applications.

Technical Highlights:

- High performance Aitech SBC and XMC
- Safety critical CoreAVI OpenGL libraries and H.264 video decode drivers
- Only one core out of 12 used for graphics and video processing
- Very low latency of only two frames

For more information please call 888-Aitech-8 (888-248-3248), visit <http://rugged.com/military-aerospace> or <http://www.coreavi.com/products/opengl-graphics>; e-mail: sales@rugged.com.

Get our updates: <https://www.linkedin.com/company/Aitech>

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UPCOMING TRADESHOWS: Aviation Electronics Europe, Stand #D5; April 20-21, 2016; Munich, Germany

About Aitech:

Established in 1983, [Aitech](#) offers military and space-qualified, commercial off-the-shelf (COTS) embedded computing products for rugged defense, aerospace and astronautics (space) applications as well as provides radiation tolerant and full MIL-SPEC solutions.

The company provides industry-standard, open architecture VMEbus, CompactPCI and high speed serial fabric-based boards, power subsystems, mass memory, enclosures and hardware [subsystem integration](#) along with logistics, configuration control, component obsolescence and earned-value management services.

Having pioneered the development of true military VMEbus products for use in mainstream defense and aerospace applications, Aitech utilizes its broad base of off-the-shelf products and technologies to also develop customer-specific solutions, deliver superior cost-performance and reliability, and expedite time to market.

Applications for its products range from mission processors, fire control, mission control and autonomous robotic subsystems for ground vehicles as well as surface and subsurface naval platforms to tactical and strategic fixed- and rotary-wing aircraft, and low- to high-earth orbit and deep space vehicles.

About Core Avionics & Industrial Inc.

Core Avionics & Industrial Inc. ("CoreAVI"), a Channel One company, provides "program ready" embedded graphics and video processors and advanced graphics solutions to mil-aero and high reliability embedded systems manufacturers.

CoreAVI's products include 20+ year component supply management, temperature-screened versions of the AMD Radeon graphics processors, and embedded graphics and video driver support for real-time operating systems and safety critical platforms. CoreAVI's program support includes complete RTCA DO-178C/EUROCAE ED-12C Level A safety critical certification evidence for safety critical environments.

www.coreavi.com