

Product showcase

Device protection

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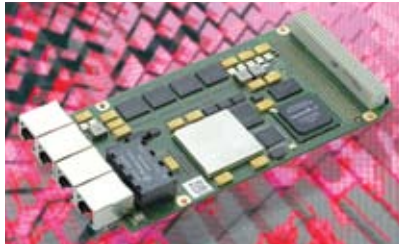
Computing Solutions' rugged electronic packaging services for commercial off-the-shelf products are designed to offer users the capability to outfit standard commercial products such as computers, servers, data



storage units, and mobile electronic equipment with a durable, rugged, and more protective enclosure. Applications include the military and aerospace industries, where harsh environments often require protection of embedded and applied computing devices. Engineered using durable, lightweight aluminum with welded seam construction, these enclosures meet military specifications and can be configured with a shock and vibration isolated sub-chassis and an advanced temperature control system to fully shield the internal device from extreme temperatures.

Embedded system modules

MEN Micro offers a new single-board computer as a part of its series of PowerPC-based embedded system modules. EM9 employs **Freescale's** latest MPC8548, providing up to 1.5 GHz of

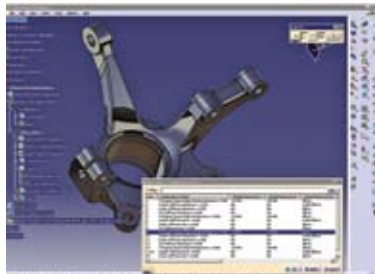


processing power. Also using **Altera's** Cyclone II field-programmable gate array, EM9 is a universal computer core for cost-critical embedded solutions in particularly harsh environments. It also provides individual I/O for each application through IP cores. Specific applications include control and safety of network systems as well as machine control, human-machine interfaces, or embedded terminals. The board's QUICC III processor consists of an integrated e500 core with floating point unit, memory management unit, and L2 cache. MEN Micro's EM9 can also use an MPC8543 processor.

Finite element analysis

Dassault Systèmes'

Abaqus for CATIA V5 Version 2.5 from **Simulia** offers advanced finite element analysis (FEA) in the CATIA V5 environment. The product leverages CATIA's knowledge-ware, which allows users



to capture design knowledge and reuse it as best practices to ensure compliance with established standards. The new automatic contact detection feature simplifies the modeling process and reduces potential errors by providing a wizard-based interface that guides users through setup options and automatically detects all likely contact pairs. Available on the latest 64-bit computing architecture as well as 32-bit systems, Abaqus provides tighter integration with CATIA V5 through support of CATIA knowledge-ware, publications, and sensors, as well as ease-of-use enhancements such as automatic contact detection.

Data loggers

Dickson Compliance-Max calibrations combined with a Buddy System sign-up in the Dickson Calibration Club enables aerospace engineers using data loggers or chart recorders to ensure that temperature, humidity, or pressure conditions remain in acceptable ranges. The combination validates instruments' original operating specifications and ensures standard operating procedures. The Calibration Club is an automatic calibration reminder service to keep data loggers and chart recorders operating at original specifications. Compliance-Max calibrations include both before and after data, and Buddy System enrollees can include a co-worker for backup calibration reminders in anticipation of changing job roles, off-site assignments, and vacations.



Attenuator/switch drivers

Agilent Technologies' 11713B and 11713C attenuator/switch drivers, designed for both bench-top and automated test equipment environments, provide an intuitive graphical user interface and various attenuation and switching options as well as front-panel and remote-control features for design validation and automated testing.

The 11713B drives a combination of two programmable attenuators and two SPDT (single pole, double throw) switches, or up to 10 SPDT switches concurrently. The 11713C controls a combination of four programmable attenuators and four SPDT switches, or up to 20 SPDT switches concurrently. With an integrated tri-voltage selection of 5, 15, and 24 V, along with an input port for user-defined voltage, the switch driver can drive more commercially available switches. A built-in counter helps to monitor the life cycles of attenuators and switches in the test system.



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Digital transceiver

The Model 7142-428 Digital Transceiver from **Pentek** features a multiband digital downconverter and interpolation filter. The system is a complete software radio system in a commercial off-the-shelf PMC/XMC module. It combines proven hardware and a new GateFlow IP core. The device employs four A/D converters and one D/A converter capable of bandwidths exceeding 40 MHz for connection to ports of communications or radar systems.



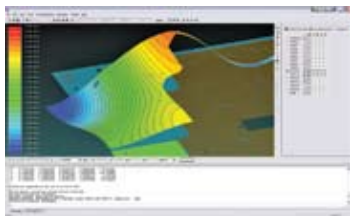
Injection presses

A new line of injection molding machines from **RTIP**, a partnership between **REP Corp.** and **Tung Yu**, are designed for the fabrication of rubber molding. The RTIP injection presses merge REP's injection technology—a V-head design that separates the plasticizing and injection functions—with the frame and controls of the Tung Yu machine. This line of presses also boasts a small footprint, with the largest of the five press sizes requiring 2100 x 2600 mm. Some available options include hydraulic ejectors, fixed or movable traverse, plate handling outside the press, and pre-arrangement for vacuum.



Electromagnetic field simulator

Slwave v3.5 from **Ansoft** is a full-wave electromagnetic field simulator designed for signal integrity, power integrity, and electromagnetic interference analysis of high-speed printed circuit boards (PCBs) and integrated circuit packages. This new version features a finite-element-based dc solver optimized for extraction of power rail geometry in low-voltage/high-current PCB package designs. Voltage and current distributions in all relevant geometry are viewable, including vias and bond wires. Voltage drop and current flow information is available in tabular format. Using Ansoft's adaptive mesh refinement technology, Slwave v3.5 is designed to alert users of bond wire and via electromigration damage prior to the fabrication of a prototype.



Rotary actuator

The new rotary version of **Inmoco's** three-in-one Exlar Tritex series of actuators is an all-electric solution for actuating and/or positioning mechanical devices in military and aerospace

applications. Using a compact design, the Tritex rotary actuators combine a brushless servo motor, servo amplifier, and position controller in a single enclosure. These units are designed to provide high response and precision control of the rotatable shafts found in most electric motors. The Tritex can also be programmed via PC to control the rotational speed and position of its output shaft in response to external commands.



Small-package cables

Custom-shaped flat silicone cables from **Cicoil** are designed for use in electronic components with limited space in the aerospace and avionics industries. The custom shaping allows for precise cable routing without folding, kinking, or pinching. The custom shaping is also intended to eliminate signal failure due to stress at the cable connector. Cicoil's proprietary extrusion process allows multiple wires to be placed in these flat cables, which enables control of the wire spacing, insulation thickness, and overall cable shape. The cables are available with wire gauges from 4 to 44 AWG and in a number of configurations. They can also withstand temperature extremes from -65 to 260°C.



Waste heat solution

Nextreme has developed a thin film thermoelectric generator (TEG) that converts heat directly into electricity. Suited for waste heat conversion applications in the aerospace industry, the solid state TEG delivers power generation densities in excess of those achieved using bulk materials. It is also optimized to provide power in a form factor that can be as much as 20 times thinner than bulk material alternatives. This opens up waste heat energy conversions and remote power applications. The TEG devices generate electricity via the Seebeck Effect, where electricity is produced from a temperature differential applied across the device.

