



By **HERMANN STRASS**

Award recognizes unique rugged camera control system

The 2007 Intel Communications Alliance Innovate and Ignite Technology Showcase (ICA) named MEN Micro Inc. the ICA Showcase winner on September 19, 2007 at the Embedded Systems Conference Boston. MEN Micro, a subsidiary of MEN, Germany, has developed a unique control system for a rugged digital movie camera.

Silicon Imaging, an innovator in IT-centric digital cinema cameras, required a rugged camera control system for its new SI-2K camera. The SI-2K (shown in Figure 1, courtesy of Silicon Imaging, United States) executes direct-to-disk raw recording at either 1920x1080 pixel high definition or at 2048x1152 pixel for cinema resolutions. Its 48-bit digital processing algorithms perform adaptive pixel-by-pixel calibration and color image enhancement. The SI-2K foregoes legacy fixed bit-rate DCT codec recording formats, such as DVCPRO HD and HDCAM-SR, for advanced wavelet compression technology. Current generation HD cameras destructively process and compress their imagery at the acquisition stage. The SI-2K streams images as raw *digital negatives* over a standard GbE connection. The Intel Core 2 Duo processor-based F17 system from MEN non-destructively processes the raw digital negatives in real time to the visually perfect CineForm RAW codec, which makes capturing up to four hours of continuous footage on a single 160 GB notebook drive possible.

MEN Micro developed a customized version of its Intel Core 2 Duo processor based F17 3U CompactPCI SBC, a unique side card for advanced audio and video capabilities as well as a rugged, compact enclosure. Already being used at independent film production studios for the making of full-length feature films, the digital camera employs technology that can be repackaged for surveillance, military, sports analytics, 3D video, and stereo applications. The camera can operate in environments ranging from desert to arctic.

The F17 SBC from MEN (Germany) controlling the camera includes an Intel Core 2 Duo processor T7600 running at 2.33 GHz. The SI-2K uses MEN's SBC for simultaneous encoding of data. An Intel Graphics Media Accelerator 950 (Intel GMA 950) performs image graphics processing, colorization, and visualization at full resolution. The F17 is equipped with 2 GB fast DDR2 DRAM, a hard disk on a removable slot, and two Intel GbE PHYs, which transfer data from the camera head to the camera control unit and to other standard IP hardware. The custom side card enables the connection of a High-Definition Multimedia Interface (HDMI), headphones and balanced analog input, and output ports for professional audio signals.

Specified for an extended temperature range in harsh shooting environments, the camera uses MEN Micro's F17 board equipped



Figure 1

with a massive tailored heat sink accompanied by a fan installed inside the camera's housing. The F17 is part of MEN's powerful family of intercompatible CompactPCI Express SBCs, including the newer and more powerful F18, which is completely compatible with the F17 and will also be incorporated into Silicon Imaging's new SI-2K camera.

European events

The 26th MOTTEK International Trade Fair and Exhibition, the world's largest event for assembly, handling, and automation support systems and devices, was held for the first time in the brand-new Neue Messe in Stuttgart, Germany, from September 26 to September 27, 2007. The exhibition space increased by 45 percent over last year's event due to the new venue. More than 1,100 exhibitors from 20 different countries drew around 40,000 visitors and filled all five new exhibition halls. Mechatronics was specifically featured as were robots and automation equipment. In 2008, about one million square feet of exhibition space will be available when four more halls are completed at Europe's most modern fair grounds near the Stuttgart Airport Terminal.

EMO 2007 (Hannover), the world's largest exhibition of metal-working equipment, closed its gates on September 22 after six days of exhibition with around 160,000 attendees visiting booths of 2,100 exhibitors from 42 countries. 1.8 million square feet was devoted to exhibition space. The organizers, German Association of Machine Tool Manufacturers (VDW), reported new business contracts at the rate of 4 billion EURO (almost \$6 billion). Exhibitors such as TRUMPF Laser, Germany (see my April 2007 column (www.compactpci-systems.com/columns/Technology_in_Europe/2007/04/)) reported full success at EMO 2007.

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