ACC-based interface products

ESD (Germany) offers the CAN/400 series of CAN interface units implementing the ACC (Advanced CAN Core). The product series comprises PCI, PCI-e, cPCI, PC/104, PMC, and AMC boards. CANopen support is provided optionally.

The ACC chip (SPARTAN 3E FPGA by XILINX) introduced in detail on the iCC (international CAN Conference) in 2012 is dedicated for CAN interfaces providing some unique features. This results in improved functionality, e.g. Tx/Rx FIFOs (first-in, first-out) message buffers for 8 to 64 CAN frames. Another feature is the time-stamp for received and transmitted messages with accuracy of less than 1 µs. The CAN interface units also support failure simulation by means of an error injection unit. The launched product series comes with two to four CAN ports. The CAN interfaces are galvanic isolated and complies with ISO 11898-2 (high-speed transmission up to 1 Mbit/s). Driver software for Windows, Linux, RTX, QNX, and VxWorks is available.

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The CPCI-CAN/400-4 board in 3U-format provides optionally an IRIG-B interface that offers inputs for analog or EIA-422 IRIG-B coded signals. Both are electrically isolated. IRIG-B evaluation is controlled by an additional micro-controller. IRIG-B is used for CAN time-stamps. The board supports optionally the Arinc 825 higher-layer protocol for aerospace applications and CANopen for general embedded networking. The optional PXI interface is also implemented in an FPGA featuring an optional 32-bit Microblaze micro-controller.

Additionally, the German company manufactures USB-to-CAN units as well as CAN-to-Ethernet gateways. Beginning of this year, ESD had given some of these units to the Hanover University for the Horsepower team participating the Formula international competition on the motor racing circuits in the student class. The team of 67 students designs a racing car with electric drive. The USB-to-CAN interface is used to control, record and test the car’s ECUs.

The cPCI board (left) provides up to four CAN interfaces and the ACC chip (left) used also on other CAN interface products by ESD

Robots for the outer space (read on)

Recently, the company introduced the CAN-Ethercat gateway. This module provides Ethercat slave functionality and on the CAN side it supports CiA 301 (CANopen). Configuration is done by means of the Ethercat master.

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The USB-to-CAN unit (left) has been given to the Hanover University; the CAN-to-Ethernet gateway (left) can be used to backbone or bridge CAN-based networks via the Internet.