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International CAN Conference 2006

In September 2006, Redarc's Engineering and Technology Manager attended the latest International CAN Conference which was held in Stockholm, Sweden. These conferences have been held annually for the last 11 years, and bring together a wide variety of participants. These include representatives from industry, academia, logistics, suppliers and those involved with maintaining and developing the growing number of CAN related standards. It is organised and run by *CAN in Automation (CiA)* which is based in Germany, and its prime intention is to provide a forum for all participants to share knowledge.

As per previous conferences, various "flavours" of CAN were touched on and the most relevant are described below:

CANopen

Taken directly from the *CiA* web site, "CANopen is a CAN-based higher layer protocol". In simplistic terms, it is to industrial modules like Microsoft Windows is to PCs. It is a software protocol that can be used to network modules such as transducers, pumps, valves, analog input modules, etc to form a "process". Software tools that are CANopen compliant can be used to configure, calibrate and monitor these modules. The relevant standards have been written to help ensure that any "off-the-shelf" CANopen modules can be connected to a CANopen network and integrated into the "process". This makes the protocol particularly ideal for industrial applications that can use modules available from a "shopping list", but way too resource expensive for simpler "embedded" applications. The type of applications suited to CANopen are factory automation, building automation, industrial machine control and instrumentation.

Software tools

As with any form of design, there can be a significant amount of time required for validation before implementation. A number of Computer Aided Design software tools were presented to provide a system designer with the ability to more easily design, simulate and validate prior to the implementation phase.

CAN bus analysis tools were again in abundance from simple handheld modules to high end products such as those sold by Vector. Other options for diagnostics were high end digital oscilloscopes that provided excellent feedback on timing issues and bus contention.

Gateways

Interconnection between CAN and other networks seems to be a growing issue as the capability of these networks are tested. There were numerous methods described, but the major focus was on performance. Even within a CAN only network, there can be multiple CAN busses which need to communicate with each other, and the number of nodes and hence data on each bus is rapidly growing. It seems that even at 1Mb/sec bus congestion in many applications is becoming a significant threat, which is requiring more applications to resort to multiple busses.

Data complexity

Many speakers described the problems arising from the rapidly growing amount of data being transmitted on the CAN busses. In-vehicle congestion was particularly relevant to Redarc customers as most new European vehicles in particular are becoming heavily reliant on CAN communications. This will force manufacturers to use faster protocols, more bus

lines with the corresponding issue of more gateways, or to change their thinking of how much data needs to be sent.

For more information on the above or to discuss how REDARC can assist you with your CAN application please contact Jason Turner at Redarc Electronics on (08) 8186 5633 or power@redarc.com.au.