KERRY LANZA

Smart thinking

THE SMART CLUSTER FEATURES MODERN INSTRUMENTATION INTEGRATED WITH ADVANCED DISPLAY TECHNOLOGY AND OTHER HMI FUNCTIONALITY, FOR EFFICIENT CONTROL OF OFF-HIGHWAY MACHINERY

In July 2012, Actuant Corporation announced its acquisition of CrossControl, a 220-employee Swedish company that specialises in advanced control solutions for industrial vehicles. A merger of this operation with Actuant's Maxima Technologies, a 440-employee provider of instrumentation solutions such as clusters and gauges, was then initiated and completed in January 2013.

The new company was launched under the name maximatecc. And now, the strengths of these two organisations have been combined in a brand new instrumentation platform.

Users of off-highway vehicles increasingly expect the same user experience in their work equipment as they get with their smartphone or in their car. It is partly a question of generation, but the trend is there and it will prompt equipment suppliers to react to keep their machines attractive. Safety is another challenge for equipment OEMs and smart integration of safety functions will be a key concern.

In response to these trends, maximatecc is now combining the traditional instrumentation solutions from Maxima Technologies with advanced display solutions from CrossControl, creating the Smart cluster. The main difference between the Smart cluster and a traditional instrumentation cluster is the high-performance computing core with fully fledged operating system support, making the Smart cluster a platform for an extensive range of value-adding applications. Applications may be customised for the equipment in question – perhaps embedded manuals, fault-tracing support and a graphical user interface for specific vehicle functions. Or they may be of a more generic nature, such as navigation, reversing camera monitoring or eco-driving. In essence, the Smart cluster is a platform that enables OEMs to implement the same infotainment and user support systems that are found in modern cars.

The Smart cluster concept is built around a low-power, high-performance ARM core running Linux.

Navigation is just one function that can be easily integrated into the Smart cluster, providing a fully customised product

The graphical colour display is optionally 4.3in or 7in with high brightness. The ECU controlling the instruments is implemented as a 'soft ECU' in the ARM core. The platform supports up to six traditional, stepper-motor controlled instruments. It features serial communication via CAN, USB and Ethernet for easy integration into modern system architectures. The platform also supports built-in wireless connectivity via GPRS and/or WLAN. To manage HMI-related I/O, the platform supports analogue and digital I/O interfaces for sensors, interaction panels/operator interfaces, etc.

The Smart cluster concept is formed with a platform approach, meaning that an all-encompassing product is developed and proved. Based on the platform, dedicated product instances are realised to fit the needs of a specific OEM application. Compared with traditional instrumentation solutions, this approach means heavily reduced non-recurring engineering and a shorter time-to-market for a dedicated OEM product.

The dedicated OEM product also leverages the supply chain scale benefits of the platform. Finally, having a solution based on a proven platform mitigates technical risk and the OEM can take advantage of continuous improvements on the platform, including performance upgrades and new software components.

This is a concept that combines the experience of Maxima Technologies in realising cost-efficient instrumentation products for high production volumes, with the advanced computing and software competence of CrossControl. The result is a platform that readily satisfies the needs of next-generation instrumentation and HMI solutions. **iVT**

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