

Dream display

ALL THE FEATURES A SOFTWARE DEVELOPER COULD DREAM ABOUT – ONE STANDALONE DISPLAY COMPUTER BRINGS PC-LEVEL FUNCTIONALITY TO THE MOST EXTREME OPERATING ENVIRONMENTS

RIGHT: Sharp and user-friendly graphical interfaces are made possible with CCpilot XM's powerful software support

BELOW RIGHT: CCpilot XM features a rich set of interfaces, facilitating easy integration and multipurpose use

▶ Designing robust and reliable control systems and graphical displays for industrial vehicle applications has always required moving away from the high-performing standard segment of computer devices. The embedded type of solutions available, offering the required robustness, have often had setbacks in the area of performance and graphical capabilities. With the new CCpilot XM, this is no longer the case.

This display computer enables any developer to design state-of-the-art control systems and user interfaces for industrial vehicle applications. The combination of high performance, top-of-the-line environmental tolerance, a full setup of integrated hardware interfaces and a totally open software-development platform makes its usability almost endless. The CCpilot XM meets the requirements of any type of industry application, from safety-certified real-time controller system to professional-looking user interfaces, or both at the same time.

Performance for user experience

Based on an Intel Atom processor core, and with a highly capable graphics solution, the CCpilot XM can tackle tough performance challenges. The Linux or Windows operating system support means that developers can use the most modern and effective development tools, along with the same powerful support that is offered for desktop PCs. Advanced applications and control systems can be designed with Visual Studio 2010 for Windows or CodeSourcery for Linux. Premium user interfaces can be developed with tools such as Expression Blend and Windows Presentation Foundation, or the Qt-development environment.

For controller tasks, the CCpilot XM can be pre-installed with a Soft PLC runtime that follows the IEC 61131 standard. With the Soft PLC installed, a master node can very easily be designed, making the display ready



for highly capable controller applications, ready to integrate into most available fieldbus standards.

This powerful software support makes it possible to create advanced functionality but it also saves considerable time and resources. With a market that requires ever-shorter cycles for new product releases, the ability to be fast and efficient in system development is becoming increasingly important. Furthermore, efficient development and maintenance of an advanced system has a visible effect on total system life cycle cost.

The CCpilot XM comes with a 10.4in, 12.1in or 15in high-resolution graphical display with LED backlight. Interaction is via touchscreen or push buttons on the rim

surrounding the display area. In some applications, it is more convenient to have the interaction through external buttons and controls, for example, in an armrest. Such external controls are easily implemented via CAN.

The CCpilot XM offers a full set of optional interfaces; with a capability to have CAN, Ethernet, serial, USB 2.0, WLAN, GPS, Bluetooth and camera input in the same device. Having all these interfaces available in a single controller makes it possible to design a well-integrated system with more functionality realised in software, saving both cabin space and system cost. The device supports a wide range of industry-standard fieldbus protocols, for example CANopen, J1939, Profibus and Ethernet-based protocols, such as EtherCAT and Profinet. In line with the CrossControl dedicated OEM product strategy, the display can be supplied with the interface sub-set required for a specific application.

Safety on board

In 2009, ISO 13849, the new standard for machine safety, came into force. Standards specific for certain segments, such as earthmoving (ISO 15998) and agriculture

(ISO/DIS 25119), are also evolving and will be established during the next years. For safety in electronics and software, the new standards refer to or inherit main parts of the IEC 61508 that specifies safety in different safety-integrity levels, SIL1-SIL4.

The safety version, CCpilot XMs, enables SIL2 compliance, which is equal to performance level d, according to ISO 13849-1. The architecture of the safety version also uses an Atom core as the main CPU but has an additional CPU for safety-related functions, an FPGA for highly parallel functions and a system supervisor for internal monitoring and supervision. This architecture makes it easy to implement the required safety functionality as well as advanced, non-safety-related functionality.

Tough in the rough

The CCpilot XM is a PC for tough industrial use, featuring a slim but robust aluminium casing that offers IP65 sealing. Together with the internal heat-transfer design, this reduces the temperature stress on components in

comparison with a plastic enclosure design, resulting in improved reliability. Combined with the low internal heat generation, this extends the CCpilot XM temperature range to 70°C ambient, well beyond what earlier PC-based displays have offered.

The device is tested for CE compliance and beyond. Burst withstand and EMC immunity/emissions meet the more stringent standards of the rail sector. With no moving parts, conformal coating and a careful internal design with respect to component support and fastening, the CCpilot XM is not sensitive to vibration and shock loads.

This top-of-the-line tolerance to critical environments, combined with the reliability improvements that a safety certification implies, results in an overall robustness never before seen in a PC for industrial vehicle service. The level of robustness saves OEMs considerable cost and effort in the field and strengthens their brand in the capacity as provider of advanced and thoroughly professional vehicle systems.



The CCpilot XM is being adopted by several leading vehicle OEMs. Field testing has started and dedicated OEM versions will go into serial production early 2011. **IVT**

CCpilot XM facilitates a premium-user interaction experience

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