

» Application Story «

Industrial PC in Transportation



Industrial PC in Train Control Center System

The train control center system is a key part of the whole CTCS (China Train Control System). Used as the total control system of various line-side track signal equipments, it need to be connected to existing systems, such as CTC / TDCS, computer interlocking / 6502 electric concentrate and microcomputer monitoring, it is also the control center of the line-side electronic units (LEU) and the intermittent balise devices. So the train control center is the core safety equipment, which is compliant with China train control system CTCS-2 standard.

The upper computer in the train control center is the monitoring equipment of the whole system, all states in the system should be displayed to operators via the upper computer in real time in order to discover and deal with various problems in time.

Passau60 is a 2U fanless industrial PC introduced by Kontron in early 2009. Its application in the Train Control Center system is shown above. The monitoring messages of the system are delivered by each set of double redundant main controllers via Ethernet to the upper PC, Passau60, while Passau60 pass necessary messages to the microcomputer monitoring equipments throughout the system. The reason why Passau60 can be used as the upper computer of the train control center perfectly attributes mainly to the following features:

1 Fanless Dust-tight Structure

Moisture and dust are the two killers for industrial PC, for industrial PCs with fan in the chassis or chassis with ventilation hole, how to operate under dusty or high humidity environment for a long time and stably is a more difficult problem. Such maintenance work as regular filter dusting and fan inspection and replacement cost a lot. Passau60 is a fanless and fully enclosed structure, cut off from the dust effectively and minimizing the entry of moist air, and this cooling method also avoids system failure caused by fan failure, all these features make Passau60 a maintenance-free equipment, which is the stable and reliable part of the whole system.

2 Comprehensive Communication Interfaces

Passau60 comes with 6 serial communication interfaces and 6 network ports, the application in the upper computer among the train control center needs up to 6 Ethernet ports, and common industrial PCs can generally provide only 3 Ethernet ports. To achieve the same function with common industrial PCs need to add more Ethernet cards, which not only increase costs, but also increase failure points, while the Passau60 integrated with 6 network ports itself meets this demand very easily.

The serial communication ports of Passau60 are designed in a modular manner, which can be replaced flexibly. What's more, any failure on one of the serial ports module will not affect the normal operation of the modules on other serial ports.

In addition, Passau60 provides 7 USB ports (including a built-in USB port), a VGA port, an AUDIO interface with the amplifier output and two PS2 ports, which can meet a wide range of users' needs in different situations.

3 High Quality Power Supply

Power supply is one of the key components of industrial PC. It is so important that it acts for the heart of industrial PC, and even a small problem could cause the entire machine does not work properly. The power of Passau60 works well

in all aspects, it can not only achieve a high MTBF, but also support for redundancy configures and can achieve automatic load balancing. All these features are particularly suitable for the demands of high reliability applications.

4 Excellent Anti-interference Performance of EMC

As for EMC, Passau60 has been designed in accordance with high standards, and passed a high-grade EMC test taken by China Electric Power Research Institute (EPRI). It meets the requirements of the rail transportation industry. Meanwhile, all of the serial ports and Ethernet ports have achieved complete independence, including power supply. Even if there are any ports failures caused by extreme EMC interference, it will not be transferred to other ports, which guarantee the system robustness to the maximum extent.

5 Good scalability

Passau60 offers 3 standard PCI /ISA expansion interfaces, if you need additional functionality, you can easily achieve various function expansions via these standard interfaces.

6 Flexibly configuration

Because Passau60 uses modular design, you can choose whether use the serial ports, power supply, PCI / ISA expansion backplanes and so on introduced above or not, or use how many of them as actually needed. In addition, Passau60 support a variety of processing cores, including Core, Pentium-M, ATOM, to adapt to the computing needs of different applications.

Modular design not only allows users to select the best configuration depending on the application circumstances, but also to control the cost within the most reasonable range.

Conclusion

With so many features, Passau60 is not only highly versatile, but also can run in a variety of harsh environments, which make Passau60 being widely used in the rail transportation industry.

About Kontron

Kontron is a global leader in embedded computing technology. With more than 30% of its employees in R&D, Kontron creates many of the standards that drive the world's embedded computing platforms. Kontron's product longevity, local engineering, support, and value-added services helps to create a sustainable and viable embedded solution for OEMs and system integrators.

Kontron works closely with its customers on their embedded application ready platforms and customer solutions, enabling them to focus on their core competencies. The result is an accelerated time-to-market, reduced total-cost-of-ownership and improved overall application with leading-edge, highly-reliable embedded technology.

Kontron is listed on the German TecDAX stock exchanges under the symbol "KBC".
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