Passenger Information Systems

- 3U CompactPCI® SBC F14
- With I/O extension card F601
- Celeron® M 1GHz up to Pentium® M 2 GHz
- 3 Graphics outputs, audio
- FPGA UART board F206
- Up to 8 interfaces
- Custom I/O board
- Binary I/O
- Tacho interface
- GPS, GSM
- IBIS and CAN bus
- Windows® XP

Dynamic passenger information is an essential factor in public transport, be it on long-distance or regional trains, city light rails or busses. It is the goal of a modern information system to give the passengers orientation about stops, schedules and routes, to give hints for changing, short-term changes of the route, or delays. Entertainment makes the trip more attractive for the passenger, for instance by displaying news of the day or the weather forecast.

Infotainment systems are typically characterized by a relatively low volume of units that are tailored to the needs of each single operator. Despite the small quantities the I/O and communication requirements are quite different which tend to make the systems expensive. Different types of UARTs, fieldbus interfaces like CAN bus, Profibus, IBIS etc., different graphics and audio, GPS and GSM functions need to be combined. To solve this cost issue, in this infotainment application as well as in many others, FPGAs on board of the single-board computer are used to implement the necessary functions individually as IP cores.

The typical computing core of an infotainment platform are powerful Pentium®-based computers with high-performant graphics functionality. In this application a standard Celeron® M or Pentium® M board up to 2GHz supported by the new PCI Express® technology is used as the general communication platform and central control for all systems in the vehicle. The 3U CompactPCI® system is located in the drivers cabin. A separate FPGA board handles the required UART interfaces and a customized I/O board realizes binary I/O, tacho interface, CAN bus, IBIS bus, GPS and GSM.

All electronic components are screened for -40 to +85°C operating temperature and prepared for conformal coating depending on the application.

Passenger displays, audio announcement of stops and the video cameras in the stations are controlled by CANopen.

The complete infotainment system is based on the latest Internet technology. The programs and the data are stored on a centralized server. The software controls the display contents on the remote screens via Local Area Network, wired or wireless, individually and independent of each other. Independent of their location, the monitors can have different information content. The system can process and display all common digital and Internet data. Apart from displaying pictures, text or film, the system can also transmit audio data. TV, video, DVD or radio programs are also controlled by the system using streaming technology.