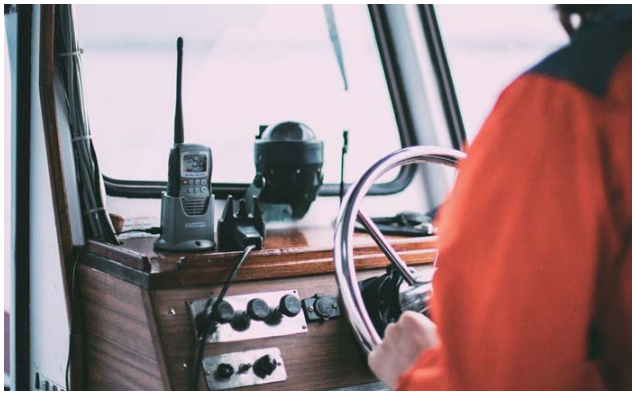
APPLICATION STORY

LOW-COST ESTABLISHMENT OF A HIGH-SPEED DATA NETWORK

KONTRON'S EMBEDDED BOARD ENABLES DATA TRANSMISSION TO VHF/UHF NETWORKS

POSSIBILITIES START HERE kontron

IP OVER RADIO USES THE EXISTING FREQUENCIES AND INFRASTRUCTURE ON THE VHF OR UHF BAND. IT ENABLES A LOW-COST ESTABLISHMENT OF A HIGH SPEED DATA COMMUNICATION NETWORK.



// IP OVER RADIO TECHNOLOGY ENABLES DATA TRANSMISSION OVER VHF / UHF RADIO NETWORKS

PMR (Private Mobile Radio) systems are widely used in point to multi-point communications within a closed user group over a large coverage area in either VHF (Very High Frequency) or UHF (Ultra High Frequency) bands. The typical applications include the radio systems used by police forces, fire brigade, or public transportation. However, most PMR systems are designed to optimize voice service without enough capacity reserved for data transmission which has become indispensable in every field today. IP over Radio / Radio over IP technology is therefore developed to enhance or add data transmission function to VHF / UHF radio communications networks by using an existing IP infrastructure.

A Finland-based digital radio solution provider developed an IP over Radio base station and terminals to enable a low-cost establishment of a high speed data communication network under the existing frequencies and infrastructure on the VHF or UHF band. What's more, their devices can open up more application opportunities to the fields more than typical emergency and transportation services, for example, SCADA systems, vehicle tracking, video surveillance, remote vehicle offices, sensor networks and etc.

First of all, they sought a reliable and stable Bay Trail-based ECX form factor industrial motherboard to be embedded into a small housing for possible harsh conditions such as 24/7 operation, vibration or outdoor environments. In addition, programmable DIO / GPIO support is required for flexible pin function definition in order to receive reading input from various environmental sensors and to send writing output to various alarm devices such as LEDs or buzzers.

SYSTEM REQUIREMENTS

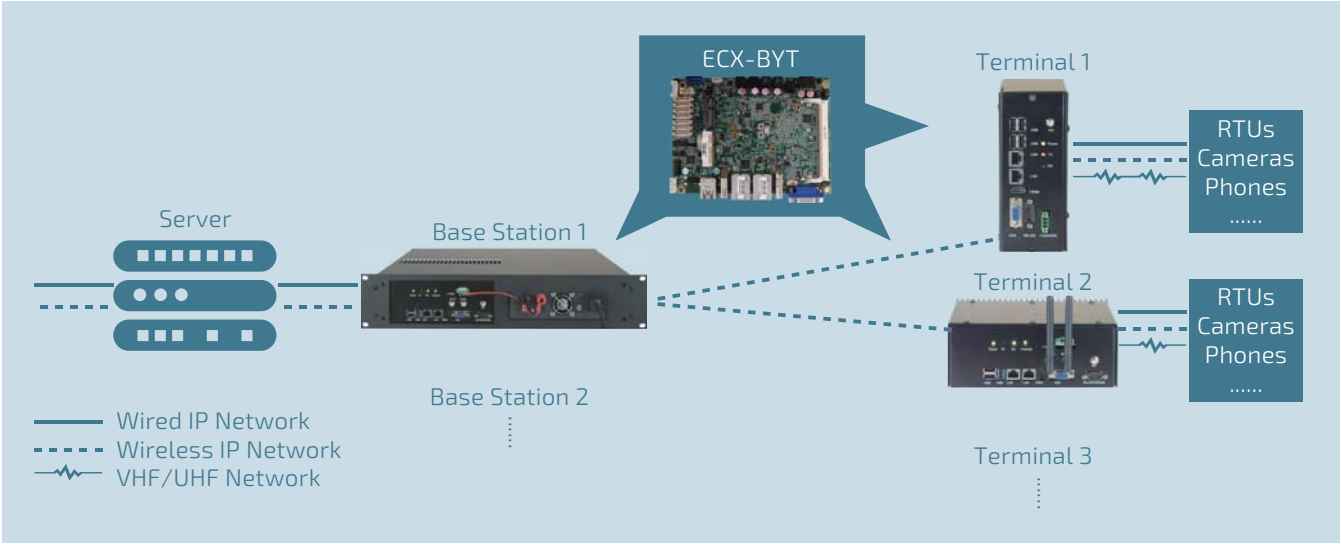
- Intel® Bay Trail-based ECX form factor industrial motherboard
- Reliability and stability
- Resistance to rugged conditions
- Flexible DIO / GPIO design with programmability design

SOLUTION

Kontron's ECX-BYT, an ECX motherboard based on Intel® Celeron® Bay Trail Quad Core J1900 Processor, features energy-efficient performance, fanless design, small form factor, excellent resistance to vibration and high reliability under continuously operation. Thus, it was selected by the client to build their rugged base station and terminals that are often installed outdoors or in moving vehicles.

One mPCIe wireless expansion slot allows users to create a wireless IP / VHF / UHF network between base stations and terminals or terminals and RTUs. Two LAN ports connect the base stations to the server for storage, backup or other central management purposes.

With one USB3.0, five USB2.0 and six COM ports, ECX-BYT can offer enough support for possible peripheral applications. An 8-bit programmable DIO connector allows flexible assignment for environmental input and alarm output signals to enable some specific peripheral functionality.



// SYSTEM DIAGRAM

About Kontron

Kontron, a global leader in embedded computing technology and trusted advisor in IoT, works closely with its customers, allowing them to focus on their core competencies by offering a complete and integrated portfolio of hardware, software and services designed to help them make the most of their applications.

With a significant percentage of employees in research and development, Kontron creates many of the standards that drive the world's embedded computing platforms; bringing to life numerous technologies and applications that touch millions of lives. The result is an accelerated time-to-market, reduced total-cost-of-ownership, product longevity and the best possible overall application with leading-edge, highest reliability embedded technology.

Kontron is a listed company. Its shares are traded in the Prime Standard segment of the Frankfurt Stock Exchange and on other exchanges under the symbol "KBC". For more information, please visit: **www.kontron.com**

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