» Application Story «

ETX® in Medical

Greater efficiency and security

Emergency and Critical Care Management with ETX-Modules from Kontron

In emergency medicine and the rescue services, every second counts. Getting the right information at the right time is vital. For the first time, UMTS technology offers digital data exchange options with performance high enough that the technology can be used by the emergency medical services. Penta's Hercules Mobile Medical system platform implements a patient monitoring application from the medical technology provider SCHILLER using UMTS and based on ETX Computer-On-Modules from Kontron.

Anyone who has used analog modems and ISDN knows that surfing the Internet is much more comfortable with ISDN. With UMTS, it is even faster and offers the advantage of wireless communication from any location, using the UMTS net, which . opens up whole new communication possibilities. Just as e-mail has radically changed the way many people do business, UMTS will revolutionize the way the "outdoor professionals" work; anywhere that employees are in the field, UMTS will find its way in sooner or later. The construction industry will benefit along with the power supply industry or forestry. The first products are available and pilot projects are running in emergency medical care. In September 2006, SCHILLER will launch its UMTS enabled intensive monitoring system for emergency patients - the ARGUS PRO. All of the patient data collected by the monitoring system can be viewed locally on the display, or made available anywhere in the world in real-time via UMTS. This broadband mobile telemetry data transfer from rescue helicopters and ambulances is particularly useful for relocation transports to special hospitals, where the clinic specialists can accompany the transport with "tele-ARGUS" eyes.

The current solution creates a diagnostic-quality resting ECG with automatic interpretation and sends the ECG from the monitoring application via FAX to a specified hospital for evaluation (a second opinion) or to a web server which can be accessed from anywhere in the world via Internet Explorer™ by authorized persons using two-factor authentification. Following the secure transmission, the web server automatically notifies the appropriate doctor via pager, SMS, or e-mail. Since only the raw ECG data and the vital parameter data – i.e. no statistical images – are sent, special analysis software is available to the user on the web server, allowing for limitless evaluation. A tele-application with individual vital functions, such as 12-channel ECG, is now possible. Remote monitoring of all vital functions including live video-stream sequences will be possible with UMTS in the full configuration (2 Mb/sec).
In addition to these time-critical data transfer features, the ARGUS PRO system has many other useful functions; for example, the emergency physician assignment form can be filled out (in accordance with the DIVI protocol) directly on

the monitoring display. All the relevant monitoring data is automatically transferred. Once the protocol is finished, it is ready for remote transmission, currently by modem, GPRS, or UMTS. The solution is based on a UMTS Vodafone Mobile Connect card and the drop, shock, and water-resistant Hercules Mobile Medical outdoor Tablet-PC from Penta with ETX modules as a scalable processor platform. "We use ETX as a platform so that we can scale our systems as required and do not have to start the design from scratch for every single processor," says Helmut Müller, CEO of Penta GmbH, based in Puchheim, Germany. The choice of Computer-On-Modules (COMs) from Kontron was simple for Penta: "As a company operating Europe-wide, intimately familiar with the embedded industry, we rely on the originator and undisputed market leader in the ETX field," says Müller. Moreover, the COMs and support packages are technically mature, and the support is optimal.


Smart battery support

One important criterion for mobile applications is smart battery support. Kontron supports this function and offers a wealth of experience with reference designs based on microcontroller solutions. In any event, it was a short step for Penta: the Puchheim-based company's development division is in Deggendorf, close to the Kontron Embedded Modules facility. Kontron ETX modules from 650 MHz or 800 MHz Intel Pentium Mobile III to the high-performance, energy-saving 1.1 GHz Intel Pentium M Performance are used. "This flexibility, which will continue to be extended in the future, makes performance upgrades significantly easier and more economical than is the case with monolithic motherboard solutions ", says Müller. possibilities on the baseboard.

ETX, the market-leading Computer-On-Module standard

In order to be scalable, ETX modules – which are classified by independent analysts VDC as by far the market leader in the COM field – have a standardized, extremely compact form factor (95 cm x 114 cm) that offers the user identical mechanical dimensions, the same placement of mounting

holes, and a uniform thermal interface to the system housing; also, most importantly, all electrical signals are guided to the carrier board using the same socket layout and voltage levels. Another advantage that Penta gained by choosing COMs is the ability easily to adapt the base circuit board of the Tablet PC to suit any new requirements without having to commission a completely new board design. Thus, the system can be adapted for the latest requirements with minimal expense.
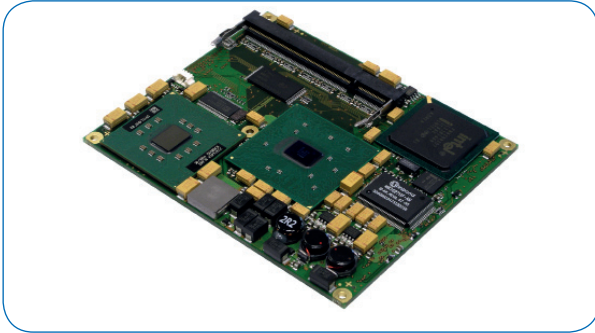
COMs reduce the pressure for electronics developers

Technologies are becoming more complex and demand more and more resources in the development and maintenance of hardware and software. It takes more time and manpower to release products to the market. The use of COMs allows users to employ proven systems with higher functionality as building blocks, and so concentrate fully on their core competences. COMs simplify product maintenance by reducing parts lists from several hundred individual components to just one item. The cancellation of nonessential components does not entail a redesign on the module, because Kontron guarantees a minimum of five years form-fit function on its COMs.

Shorter time-to-market, a lower design risk, always the most up-to-date computer technology, no additional expenses for hardware and software maintenance; more and more manufacturers of devices and systems are using these advantages for a wide variety of applications and industries, because the outsourcing advantage is instantly obvious with COMs.

Robust, fanless Tablet PC

The Hercules Mobile is fanless, has an IP65-protected housing, and offers handy dimensions (345 x 270 x 55 mm) for ergonomic work. The medical version of the Hercules Mobile is EN60601-1 and EN60601-1-2 certified, and thus can also be washed and disinfected with all standard OR products to meet the highest hygienic requirements. On the road, the handy, DIN A4-sized computer can be used like a classic clipboard: forms and papers which are essential for medical use appear digitized in the Tablet PC 1:1. The robust small computer can be used in all weathers – it is both water resistant and shock resistant and can even handle drops from a height of one meter.

About Schiller

SCHILLER AG is a leading international manufacturer and supplier of electrocardiographs, aeroplethysmographs, patient monitors, and external defibrillators. SCHILLER AG was founded in 1974 by the physicist Alfred E. Schiller. The company's leading position in the market is based on the strengths of its clearly defined core areas and its ability to combine them successfully. The resulting technical potential is implemented directly, which allows SCHILLER to achieve innovative and first-class customer solutions faster than average. With the acquisition of Bruker Médical SA in 2000, SCHILLER AG was able to enter the cardiotherapy market sector with the manufacture of defibrillators.

About PENTA

PENTA GmbH is headquartered in Puchheim, Germany and has subsidiaries in Haan near Duesseldorf, Deggendorf (both Germany), and Eschenbach (Switzerland), as well as numerous foreign sales offices and representatives. The company is a leading manufacturer of fanless PC systems for industry (metal, chemistry, food,...), logistics, and medical technology. The midsized company was founded in 1995 and its customers include MAN, Volkswagen, Nordex, Continental, Perrot, Magna-Decoma, Johnson Controls, and numerous regionally known companies.

About Kontron

Kontron is a global leader in embedded computing technology. With more than 40 % of its employees in research and development, Kontron creates many of the standards that drive the world's embedded computing platforms. Kontron's product longevity, local engineering and support, and value-added services, helps 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 custom solutions, enabling them to focus on their core competencies. The result is an accelerated time-to-market, reduced total-cost-of-ownership and an improved overall application with leading-edge, highly-reliable embedded technology.

Kontron is listed on the German TecDAX stock exchanges under the symbol "KBC". For more information, please visit: **www.kontron.com**

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