

➤ Kontron Solutions@Work

We create digital brains for a more intelligent world

Flexible terminals create a relaxed shopping experience

➤ Kontron develops embedded solution for Colruyt Group's POS System



The food retail market is extremely competitive and budget-minded retailers must develop effective business processes and organizational structures that allow them to maintain low

prices while still offering customers the quality of service they expect. The Belgian Colruyt Group is an example of just such a business and its successes over the years can be traced to the use of innovative technologies such as new check-out systems developed by its IT department. The newest generation of Point-of-Sale (POS) terminals -i.e., touch-screen terminals - in Colruyt stores are now based on a customized carrier board and Kontron ETX® module.

A Belgian supermarket chain with more than 15,000 employees and a nationwide network of low-cost

stores, the Colruyt Group also has stores in France and Luxembourg in addition to its supermarkets in Belgium. Colruyt's key strength is that it offers the lowest product prices of any market in Belgium. The company promises to reduce prices for any product immediately if customers report they can buy it more cheaply somewhere else (after verification). The company's 400 employee IT department is responsible for ensuring efficient business processes within the company (i.e. e-commerce and direct marketing projects) and began developing new cashier terminals for Colruyt stores in 2006.

Bringing the cashier to the customer

The Colruyt payment system is different from those conventionally used in other stores. Instead of customers putting their purchases on the conveyor belt, the cashier takes the items from the shopping cart, scans the price and then puts them into a second, empty cart. Payment then takes place a few meters further on at a separate terminal.

This system significantly speeds up the check-out process by ensuring that products are handled only once. Wireless scanners also enable cashiers



to work more flexibly, reducing waiting times for customers. Since customers no longer have to handle the items themselves and no longer feel rushed by the next customer in line, this makes for a more

pleasant shopping experience for all involved. At the separate payment terminal, customers can pay either in cash, with their EC card or the supermarket's own store card.

The checkout terminal consists of a touch screen, a small scale, and a wireless scanner. Besides a beep from the scanner, the employee also receives a visual light signal that confirms the price of the item has been registered.

The goal: a stable and flexible terminal

The technology for the original POS system was developed 18 years ago, largely by Colruyt's own engineers, to secure a competitive advantage in the market. The new POS terminals were designed with the same goal in mind and incorporate the very latest, state-of-the-art technology. Colruyt chose Kontron as its partner for developing the new terminals, and Kontron designed the customized carrier board for the touch screens in close cooperation with Colruyt's IT department.

A key factor in Colruyt's decision to work with Kontron was the quality of professional, commercial and technical advice the company was able to provide. "The collaboration with Kontron on the new POS system was excellent right from the beginning,"

says Patrick Arijs, Project Development Engineer at Colruyt IT. "The members of our R&D team soon established close working relationships with the people from Kontron, and even though there were a few minor hitches at first, the Kontron team was open about the problems they experienced and managed to find solutions to them quickly."

Flexible use

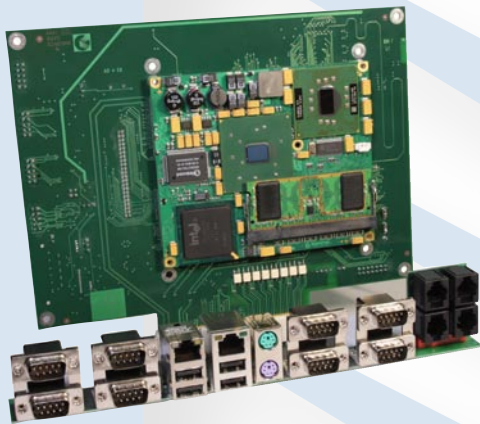
The carrier board for the new touch-screen terminals is paired with a 1.0 GHz Kontron ETX®-PM computer-on-module. A special feature of the POS system is the simple hardware configuration on the carrier board which enables TFT panels from three different manufacturers to be connected to the single terminal, providing Colruyt with great flexibility when choosing the panels. Switching is also easy. It can be done via a simple manual exchange of hardware rather than requiring the use of BIOS or software.



The individual terminals are not equipped with a memory of their own, but are controlled by the central processor through a constant connection via Ethernet and PXE boot.

One of the most important requirements for Colruyt was that the system could be easily adapted to different environments. Thus, the carrier boards are equipped with numerous COM interfaces for

connecting different devices in the various stores without the need for any retrofits. The system is also designed to accommodate future applications. In addition to a 10/100 Mbit Ethernet connection, the carrier board provides nine serial and four USB interfaces. "We don't use all of them at the moment," says Arijs. "However, we want to be prepared for many different environments. Depending on where in the store the terminal will be used, the system must be able to support different scanner models, scales, a customer display, different payment stations and a receipt printer. The numerous interfaces provide the kind of flexibility that enables us to do this." The USB interfaces, in particular, must be future-proof, because more and more devices are being converted to accommodate USB connections. Thus, the terminal was specifically designed for flexible use without the need for redesign.

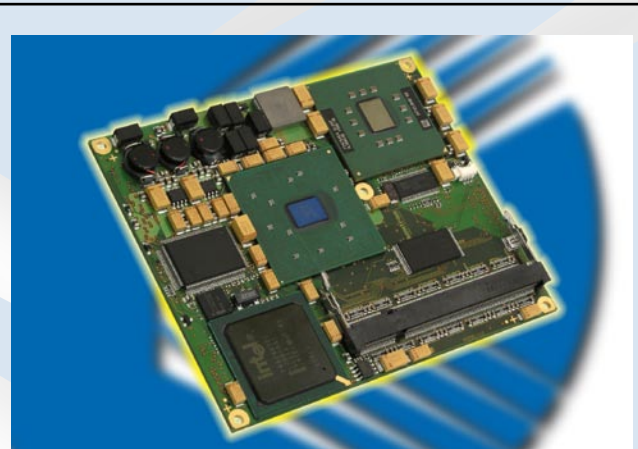


Rapid implementation

What particularly impressed the Colruyt team about working with Kontron was how fast the early project stages were completed. The specifications, circuit diagrams and layout for the project were all drawn up in only six weeks, and the subsequent prototype bring-up took just two more weeks. Serial production of the boards started in April 2006, and a total of 4,000 boards had been delivered to Colruyt by 2007. A further 4,000 boards are to be produced and installed in Colruyt stores by the spring of 2009.

"We are gradually replacing the terminals in all our stores, and we are very pleased with Kontron's production and logistic performance," says Arijs. "The new POS terminals have already been installed in about 70 percent of all Colruyt stores. So far, they have proven highly reliable and our overall experience with the new system has been excellent. We value the close cooperation with Kontron greatly and hope to continue it in the future."

Now Colruyt's customers are reaping the benefits of the new devices as they can enjoy a relaxed and pleasant shopping experience without long waits in line and feeling hurried at the cash register.



The touch-screen terminals for the Colruyt stores are produced in several versions, depending on their intended application. Terminals known internally as XTACs are used in the cashier area, whereas the newer TTAC terminals can also be used for management and administration, replacing the former Thin Client systems.

The terminals consist of a customized carrier board with a 1.0 GHz Kontron ETX®-PM module plus a touch-screen panel and outside casing. Designed to be flexible, the system can be used in different environments and different areas within the stores.

TFT panels from three different manufacturers can now be connected by a simple exchange of hardware; the interfaces have also been designed to be future-proof and provide maximum flexibility. The system includes nine serial interfaces, four USB interfaces, a PCI edge connector, mini-PCI and a 10/100 Mbit Ethernet connection for communicating with the central server.

The terminals boot from the central web application server via Ethernet and PXE boot. All applications were developed by Colruyt IT and run on the server. The XTAC terminals use a Linux operating system, while the new TTAC models use Windows XP Embedded.

At the checkout, wireless scanners register product barcodes and transfer them to the application on the server. Once the product has been registered on the server, the cashier receives confirmation via two different signals, a beep and a flashing light.

Colruyt generates most of the electricity for its stores itself, using solar panels on the supermarket roofs and wind energy. To save energy, the display illumination automatically switches off after a certain period of time of no use.

About the Colruyt Group

Colruyt is a Belgian family company; over the past decades, it has grown to become an important discounter in food and non-food products with more than 190 shops throughout Belgium. Distribution has been Colruyt's main activity right from the start. The concept chosen was a discount approach: stores with no frills that allow the customer to shop quickly and efficiently at the lowest prices. The range comprises some 7,000 top quality food products, mainly national brands. For more information, please visit: <http://www.colruyt.be>

About Kontron

Kontron designs and manufactures standard-based and custom embedded and communications solutions for OEMs, systems integrators, and application providers in a variety of markets. Kontron engineering and manufacturing facilities, located throughout Europe, North America, and Asia-Pacific, work together with streamlined global sales and support services to help customers reduce their time-to-market and gain a competitive advantage. Kontron's diverse product portfolio includes: boards and mezzanines, Computer-on-Modules, HMIs and displays, systems, and custom capabilities. Kontron is a Premier member of the Intel® Embedded and Communications Alliance. The company is a recent three-time VDC Platinum vendor for Embedded Computer Boards. Kontron is listed on the German TecDAX stock exchange under the symbol „KBC“. For more information, please visit: www.kontron.com.

► Corporate Offices

Europe, Middle East & Africa
Oskar-von-Miller-Strasse 1
85386 Eching/Munich Germany

Tel.: +49 (0)8165/ 77-777
Fax: +49 (0)8165/ 77-279

sales@kontron.com

North America
14118 Stowe Dr
Poway, CA 92064-7147

Tel.: +1 (888) 294-4558
Fax: +1 (858) 677-0898

sales@us.kontron.com

Asia Pacific
17 Building, Block #1, ABP.
188 Southern West 4th Ring Road
Beijing 100070, P.R.China
Tel.: + 86 10 63751188
Fax: + 86 10 83682438

kcn@kontron.cn

Kontron Embedded Modules GmbH
Osterhofstr. 14
87600 Kaufbeuren, Germany

Tel.: +49 (0)8341/ 95137-0
Fax: +49 (0)8341/ 95137-20

sales@kontron.com