

Industrial Printing System Control

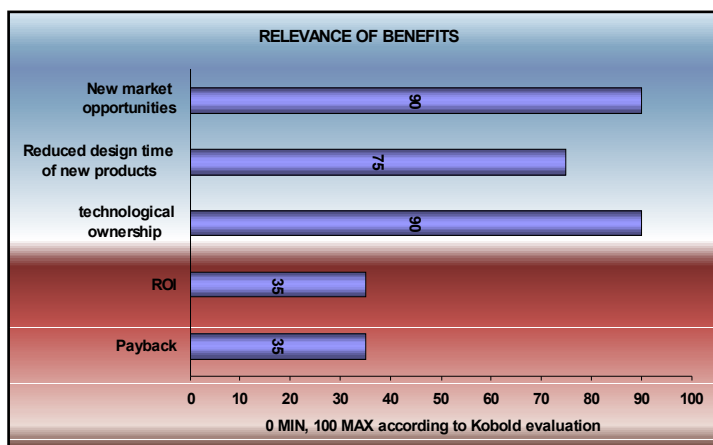
The adoption of Open Source Linux based Embedded Operating System and Ethernet TCP/IP connection enabled the company to improve product functionalities ensuring a complete technological ownership combined with a reduced time to market.

Kobold Sistemi was founded in 1988 as a spin off of Kobold Elettronica, enterprise established in Milan (Italy) in the early 1970s.

Kobold Sistemi is a producer of a wide range of industrial inkjet printers and currently ranks as a foremost world company in the areas of marking systems, measure, checkweighter and labeling systems. It is a leadership achieved thanks to the company philosophy assigning primacy to the customer and to the need for high quality standards and technological research. Evidence of this success is the wide assortment of Kobold Sistemi product offer encompassing specific customer requirements such as product design, internal production, testing and ongoing technical and commercial assistance.

Kobold Sistemi s.n.c.	
Employees	18
Turnover	2000K€(yr2003)
Industrial sector	marking, measure and labeling systems
Technology introduced	uC Linux-embedded networking

ECONOMIC BENEFITS



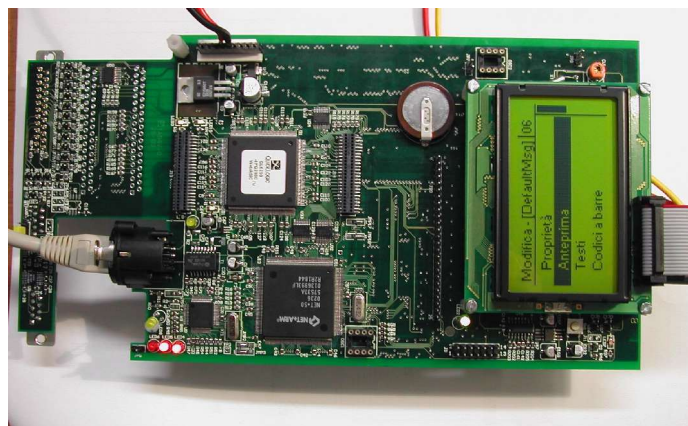
The new modular, flexible and powerful product will allow Kobold to consolidate and expand its presence in a market (industrial inkjet coding) where success chances for innovative SMEs are raising. The adopted approach ensured a complete technological ownership of the product combined with a reduced time to market.

- A payback period of enhanced product in about 20 months
- Return of investment of approx. 181% in 3 years
- Complete technological ownership
- Reduced time to market (design time) of new products
- New market opportunities

PRODUCT IMPROVEMENTS

Product improvements can be summarized as follows:

- piezoelectric heads up to 1024 pixels with full graphics capabilities;
- full graphics capabilities (Bar Code, Bitmap, TT Fonts);
- fast and standard connection with a server, for dynamic on line reconfiguration (local) of the image (text + bitmap) to be printed;
- embedded Dynamic WEB server for configuration and image preview;
- remote maintenance;
- Graphic LCD (128x64);
- True-type engine.



How to go about it

TECHNICAL CHOICE OPTIONS

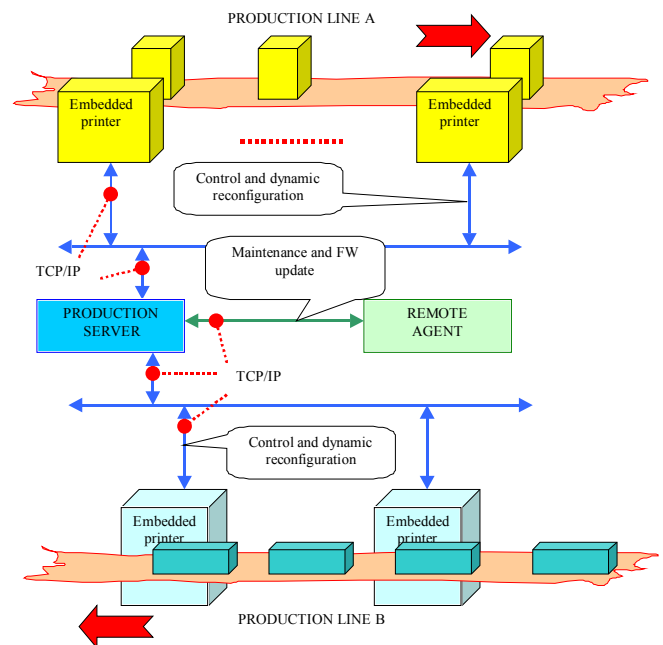
Selection of the embedded Linux approach is mainly due to: (1) it is a scalable multi-platform operating system; (2) it is supported by a wide range of processor (from the most powerful to RISC without MMU); (3) it is open source; (4) it reduces the design risks; (5) it is robust and suitable for no-break applications; (6) networking is native in Linux making easier the TCP/IP integration;

TCP/IP was chosen because this protocol is now supported world-wide (in terms of network resources, application SW and know-how). The Ethernet physical link was selected because it eases the definition and implementation of many type of network architectures using easily available off the shelf components (routers, switches, transducers and so on) with scalable target costs.

TECHNICAL IMPLEMENTATION

The improved product development was realised in 12 months with the assistance of Consorzio Roma Ricerche, acting as a subcontractor to supply technical assistance. The subcontractor support involved the provision of training, system specifications and design.

The whole unit can be remotely controlled by means of a control TCP socket server that can also be used to emulate remotely the local keyboard, as well as the graphical LCD; in addition, a preview is available with a dynamic web server that presents the whole bitmap as it is generated. The dynamic web server is based on THTTPD, an Open Source dynamic web server with CGI hooks for retrieval of dynamic data; the TrueType rendering engine is based on FreeType, an Open Source TrueType engine with support for many platforms.



BENEFITING FROM BEST PRACTICE

EC IST Programmes aim to improve the competitiveness of European enterprises by promoting the adoption of under deployed or emerging technologies. This will enable these enterprises to increase their competitiveness and enhance their economic growth. The demonstrator described here is one example of the many Best Practice projects undertaken. Further details of projects covering a wide span of applications, industry sectors and technologies can be found on www.euroines.com

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