

# HMI – Starter Package

## The Starter Package consists of :

CDs with 30 days evaluation software for

- IDS-5.5 for HMI design on PowerPC (Tilcon)
  - VxWorks-6.2 Real-time Operating System with Workbench (WindRiver)
- plus SK520 Starter Kit Hardware including manuals and boot loader (MicroSys)

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**Cost of the complete package (HMI-SK520): Euro 1400.-**

**The whole kit is fully tested and assembled.**

Support is available through MicroSys, with backup from Tilcon and Wind River.

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The Tilcon technology is a very new concept for customers who need to deploy, for example, many HMI versions of one system in a short timeframe. Like a company in the USA selling fire trucks. They need a special HMI per city or state to adopt the local emergency systems and city maps. The basic truck is always identical, but the HMI needs to be re-branded every time. With conventional tools you need about 9 months to design, test, verify, QA, etc. a new HMI because it's part of the embedded application. So you end up with hundreds of different truck controller versions you need to maintain and support over years.

That is not the case with Tilcon solutions:

→No graphics code is in the embedded application

- No graphic library is linked into the embedded application because a binary drawing engine is executed under the RTOS.
- The embedded developer does not do any drawing anymore. He knows the available objects on the screen and references these by name. The only thing the embedded application does is to pass parameters to objects.

→HMI layout is done like a skin file, as used also by mobile phones

- Screen objects are defined, together with their behaviour and colors, by a graphics designer who does not need to know about embedded systems, or have any C/C++ programming skills
- Several HMI files can be stored on the embedded device and optionally be dynamically switched on the fly.
- To release a skin file is a short QA process and the SOP release can be achieved in short timeframes.

→Drawing in real-time over a low performance network

- Multiple server / client connections are possible
- Graphics drawing can, for example, even be done via low performance 10BT WLAN connections. The network load is small because only object parameters are exchanged.

→Fast boot and Performance

- The Tilcon drawing engine is just 1,5MByte in size
- Fast boot times, within a second, are standard on RTOS's like VxWorks
- The drawing algorithms have been optimized over the past 18 years, and have become very fast and efficient. .

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## WIND RIVER

**The Wind River Workbench Development Suite** is an Eclipse based Integrated Development Suite, that supports multiple target operating systems like Linux ,VxWorks, and others. Workbench allows debugging these operating systems at process, task and thread level.

Workbench supports the complete development life cycle beginning from hardware bring-up (BDM/JTAG), to system development (VxWorks, Linux, others), to application development, and on up to QA and system testing, by providing specialized tools for each development cycle. Besides the powerful edit-compile-debug functionality, Workbench supports: Static software analysis, memory analysis, CPU profiling, data logging, function trace, software logic analysis, unit and integration testing, remote diagnostics, and more...



**VxWorks 6.x** is a deterministic, high-performance, scalable Real-Time Operating System with a small footprint. It is widely adopted and makes more than 300 million devices worldwide run faster and more reliably.

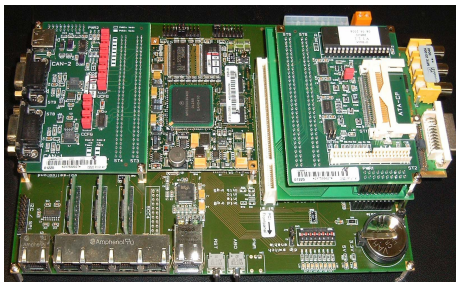
VxWorks supports MMU-based memory protection with the concept of Real-Time Processes. The communication over protected memory boundaries is done using message channels, which are connection-oriented and bidirectional. The error management framework supports customers in isolating, diagnosis, and correction of error conditions such as exceptions, stack over/underflow, null pointer, memory leakage, etc. A core file is generated at a system failure, so that a post mortem analysis can be performed with the Wind River Workbench.

**The Wind River Media Library for VxWorks (WindML)** is a scalable library, which offers a hardware abstraction layer for graphics, video, audio, and input devices. WindML supports window management, 2-D graphics, region management, text display, colour management, video overlay support, alpha blending, and JPEG image support. WindML is the foundation for the Tilcon graphics solution.

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## **MicroSys** Starter Kit *miriac*<sup>TM</sup> PM520

### **A Complete Embedded HW Platform for Graphics Development**



#### **Ready to run.**

The kit consists of 4 different boards:

- PM520 processor module
- CPU module carrier
- Carrier extension
- Graphic extension

Bootloader and all relevant documentation is included.

#### **PM520 Processor Module**

The PM520 is based on the Freescale MPC5200. This processor combines a powerful MPC603e PowerPC core with various integrated I/O functions like PCI, Ethernet, CAN, USB, IrDA, ATA and sound. With its small dimensions of only 65x87mm<sup>2</sup> it fits into any application. Extended temperature options are available.

#### **CPU Module Carrier**

Carrier board for PM520. The fastest way to evaluate the MPC5200 platform. It offers additional physical interfaces (10/100 MBit ethernet, 32-Bit/33MHz PCI slot, 3x serial port (RS232/422/485, general purpose IO (GPIO), local bus / PCI expansion, 12V power supply or ATX, 160 x 230mm)

#### **Carrier Extension**

for PM520 and carrier board with 2 x CAN, USB, ATA, CompactFlash slot and BootProm (mounted on the carrier for PM520 configuration)

#### **Graphic Extension**

Based on the Fujitsu Coral-P controller, up to 64 Mbyte SDRAM, embedded 2D/3D graphic accelerator, alpha blending, geometry engine, ITU656 video capture with scaling and filter functions, 6 layer display controller, DVI, VGA & TV (composite video), native TFT and I2C



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