## VxWin® Software Extends Wind River VxWorks® with Windows® XP

Hard Real-Time
Cost-Effective
High Reliability

Run any Windows Application with VxWorks

KUKA Controls' VxWin® extends the VxWorks® RTOS with Windows® XP, allowing them to run concurrently on a single x86 PC eliminating the need for a second computer running a dedicated Windows-based HMI. VxWin makes no proprietary modifications to either OS and maintains complete binary compatibility with standalone VxWorks and Windows XP.

- Use existing Windows and VxWorks applications and drivers
- Develop and debug using the familiar Wind River and Microsoft development tools
- VxWin technology is proven in over 70,000 installed applications
- Supported worldwide by KUKA Controls
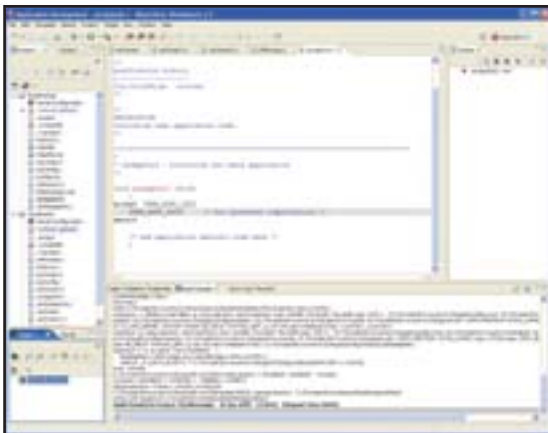
Workbench: The integrated development environment for VxWorks.

New Features
- Hyperthreading and multiprocessor support
- APIC support
- ACPI HAL support
- Components for Windows XP Embedded included
- KUKA Controls real-time device manager ~ select and assign real-time devices
- VxWorks 6.0 / Workbench support
- Diab compiler support
- Matlab® / Simulink® / Real-Time Workshop® support

Reduce Hardware Costs
- No need for separate dedicated system running a Windows-based user interface
- Drastically increases MTBF, due to fewer components
- Helps reduce size, weight and power requirements of total system

Reduce Software Costs
- Fast learning curve; known development tools (Visual Studio® / Tornado®)
- Re-use of existing Windows or VxWorks software and know-how
- Not a proprietary real-time extension, remote debugging is fully supported

Product Scalability
- Integrate Windows-based applications into a VxWorks environment without additional hardware costs
- Use of the same VxWorks application in an embedded system, i.e., with XScale architecture

Typical Applications
- PC-based industrial automation; including PLC, motion control, robotics, CNC
- Real-time test and measurement/data recording
- Medical devices and equipment
- Military and Aerospace
- VxWorks target simulation with real-time behavior and hardware access

VxWin®

VxWorks®   On a Single Processor   Windows®XP

Microsoft® Windows® Embedded Partner
GOLD LEVEL

WIND RIVER PLATFORM PARTNER

KUKA

Flexibility and Capability

- Full .NET support
- Java virtual machine
- High-end graphical Windows interfaces
- Hard real-time performance, response time within microseconds
- High-resolution real-time timer, granularity 0.8 microseconds
- Outstanding connectivity
- Access to the powerful Windows XP API
- Nonproprietary - built on COTS operating systems
- Availability of numerous hardware drivers
- Hardware access to ISA and PCI plug-in boards, no kernel driver to develop.
- Communication between Windows and VxWorks via TCP/IP (virtual network) or shared memory
- Optional products available, i.e., VxDCOM, OPC server
- Availability of many existing VxWorks drivers including fieldbus, measurement hardware and more
- Familiar Wind River development tools
- Powerful, graphical real-time analysis tools available (Wind River ScopeTools™ suite)
- Comprehensive documentation (HTML, newsgroup)
- VxWorks' real-time function is not affected by Windows occurrences
- Full support from a worldwide company

Working with VxWin

A VxWin development seat provides a VxWorks BSP in the form of a Tornado project. Edit and compile your VxWorks application in Tornado. VxWin supports task level debugging both over the shared memory network or remotely and system level debugging using the COM port. Windows development is performed using Visual Studio 6.0 or .NET. Develop either on the same PC or remotely. Start and stop VxWorks after booting Windows by using the Uploader Tool.

System Requirements

- x86 compatible uniprocessor system
- 128 MB RAM
- 16 MB available hard disk space
- Pentium 1 / 200 MHz or equivalent

Compatible Operating Systems

- Windows 2000 SP4
- Windows XP SP1 or SP2
- Windows XP Embedded SP1 or SP2
- VxWorks 5.4 / 5.5 / 6.0

Memory Allocation

Loading and starting of the RTOS

KUKA Controls' VxWin utilizes the x86 MMU to protect VxWorks memory from Windows XP.

State Machine
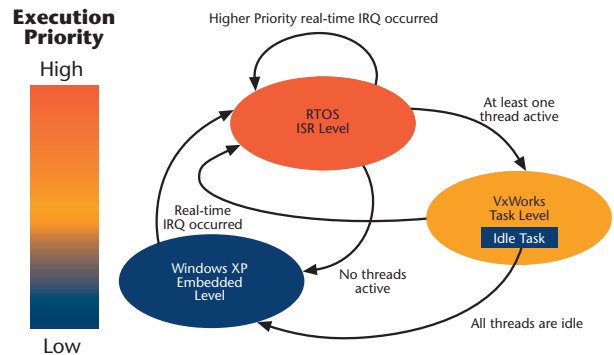
KUKA Controls' VxWin assures complete execution of all real-time tasks before switching back to Windows XP.

Supported Development Environments

- Microsoft Visual Studio 6.0 through .NET 2003
- Wind River Workbench 2.2 SP2
- Wind River Tornado 2.0.2 / 2.2.1
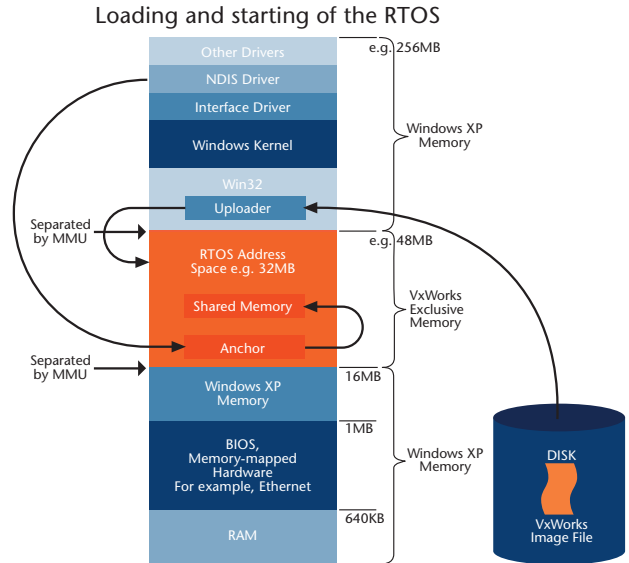
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Specifications subject to change without notice.