

CoDeSys VxWorks Overview

CoDeSys V3 VxWorks Runtime Overview



CPUs for the CoDeSys VxWorks Runtime:

The processors X86, PPC, MIPS and ARM are supported.
Multicore systems are in development (alpha version available in V3.3)
Requirement is that multicore support is already implemented in the operating system.

Supported OS versions:

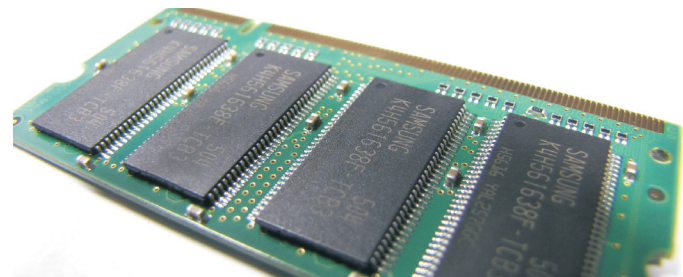
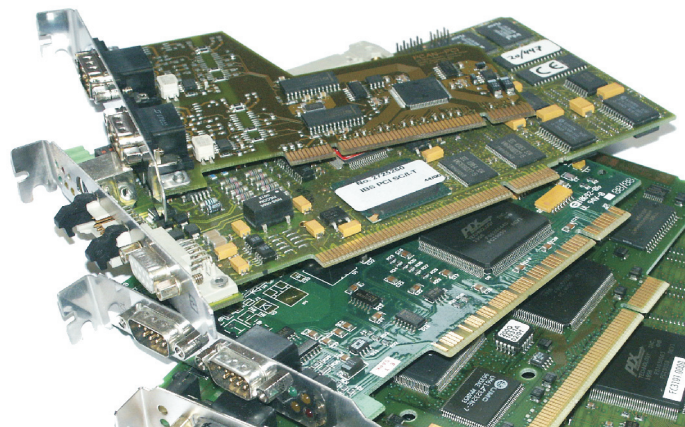
VxWorks 5.5: X86, PPC, MIPS
VxWorks 6.x: X86, PPC, ARM, X86/C++ (VxWorks 6.5 is not supported)
others on demand.
Target visualisation: (not yet implemented, on demand)

System requirements:

The VxWorks-BSP must be adapted to the hardware and should be tested. Additionally, the CoDeSys runtime system needs a file system which can be operated with the VxWorks-API. The Tornado- or Workbench-Debugger must be integrated in the BSP and must be executable. The target server settings are required for debugging. What is more, a target shell (serial or Telnet) should be available on the target hardware.

Supported Fieldbuses / Fieldbus Cards:

- Profibus Master (Hilscher EC1 or Hilscher netX) with CoDeSys configurator and Hilscher stack
- EtherCAT Master with CoDeSys configurator und CoDeSys stack
- Profinet Master (Hilscher netX) with CoDeSys configurator and Hilscher stack
- CANopen Master(Philips SJA1000, others need adaption) with CoDeSys configurator and CoDeSys stack
- others on demand



Memory Requirements:

Remanent Memory (Hard disk, Flash):

Minimal: 4 MB
Typical: 8 MB
for runtime *Code*: minimal 1MB
for boot project and/or IEC program *code*: rest

RAM:

Minimal: 6 MB (less on demand)
Typical: 32 MB
Target visualisation: ----- (not yet implemented)

Retain Memory (NVRAM, SRAM):

any desired kB
For IEC program *Data* type RETAIN and RETAIN PERSISTENT



Runtime delivery:

The VxWorks Runtime Toolkit contains the CoDeSys runtime for all supported (tested) VxWorks OS versions. The runtime is an object file and can, therefore, be directly loaded with the VxWorks target shell. Alternatively, this object file can also be linked against the kernel, but this solution is not tested by us.

Hardware for testing purposes:

In order to be able to test the runtime system, we advise our customers to provide us with a test hardware with a ready to compile Board Support Package. This can also be very useful when support is required in the start-up phase of the project.

Platform specific limitations:

- **PowerPC:**
The runtime is compiled without Longcalls. This could be a problem if the LOCAL_MEM_SIZE and the USER_RESERVED_MEM in the BSP are more than 32MB apart.
- **Timer:**
The "Auxiliary Timer" and the "System Timer" of VxWorks are supported. The timer can be selected via the configuration file of the CoDeSys runtime system.

Also recommended for development:

- vxbTimestampLib
- as many show-Routines: ISR, Mem, Net, ... as possible
- intArchLib with intDisable/intEnable (or intDisablePIC/intEnablePIC for x86)
- vxBoot with network support
- FTP file system support



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