osCAN

Real Time Operating System based on the OSEK/VDX Standard

osCAN is a preemptive real-time multitasking operating system with optimized characteristics for use on microcontrollers. Vector's many years of experience with operating systems and drivers for microcontrollers resulted in a small and robust operating system kernel. It is certified in accordance with specification 2.2 of OSEK/VDX. This open standard of the automotive industry guarantees long-term availability.

Features and Advantages

Two outstanding characteristics of osCAN are the seamless integration of Vector CANbedded software and the large number of supported processors.

Since it is a static operating system, osCAN is small and fast. All operating system objects are specified before compile time using a graphical configuration tool. The configuration is stored in the standardized OIL format (OSEK implementation language) in order to ensure portability.

osCAN is based on an open standard and offers long-term availability and stability.

A range of different tools simplifies development with osCAN.

The Component Manager feature facilitates concurrent application development and allows the user(s) to easily integrate a component into the overall application. Thus, short development times and locally separated development processes can be achieved.

Functions

As a fully preemptive multitasking operating system, osCAN offers priority-controlled task management and various synchronization mechanisms. Both time-based and event-based architectures are supported.

A flexible interrupt concept makes it possible to use system services within interrupt service routines.

Special Functions/Features

- Stack monitoring at run time (disconnectable)
- Several stack optimization methods
- Internal trace (disconnectable)
- Template generator for generating a base structure of the application-inclusive exemplary service calls
- Component management to integrate subprojects
- Detailed configuration information available in .HTML and .LST formats
- Extended error codes

Application Areas

It can be beneficial to use osCAN when resources (such as memory and computing time) are scarce.

In situations where extremely short boot times are required, the use of osCAN is still possible.

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Training

As part of our training program, we offer a range of classes and workshops on osCAN in our classrooms and at customer sites.
For more information and the dates of our training courses, please visit our homepage on the Internet at: **www.vector-academy.com**

Supporting Tools

With the help of a CANoe osCAN library, an application can be compiled into a DLL and merged into a simulated network in the CANoe tool. This allows an application to be tested before the first hardware prototypes are available.
With OSEK Awareness, many emulators offer the possibility to observe the behavior of an application on the level of operating system services.
During field tests, where emulators usually can't be used, Vector offers an OSEK monitor as an addition to the measuring and application tool CANape.
Vector's StackAnalyzer determines the necessary stack sizes for each task and configures the operating system automatically.
Support by modeling tools (UML and SDL) from:

- Mathworks (Matlab/Simulink)
- iLogics
- Telelogic
- DSpace
- others on demand

osCAN Procedure Module

Reduction of stack consumption is important for many applications. The standard operating system can be extended to include a special operating mode (osCAN Procedure Module), resulting in clearly reduced stack consumption.

The Procedure Module saves essential parts of the stack using a well thought-out task structure. The range of functions and the flexibility of the operating system will not be affected by this additional functionality. The user can configure the task structure via the OIL configurator, which generates the necessary task frameworks.

Included with Delivery

The following components are included with delivery of osCAN:

- Operating system kernel as source code
- Graphical OIL configurator
- Documentation
- Sample programs

Additional Services

Vector offers world-wide support for OSEK/VDX:

- Training
- software services for design and/or implementation
- Hotline support

All services can be custom-fit to our customers' needs.

Related Vector Products:

- CANoe osCAN Library
- CANape Option OSEK-Monitor
- TimingAnalyzer
- High Resolution Timer

Kernel:

Type:

- Real-time multitasking operating system

Conformity:

- OSEK/VDX-OS 2.2 certified
- OSEK/VDX-OIL 2.3
- OSEK/VDX-COM 2.2.2
- AUTOSAR scalability class 1

Memory:

- 1 – 10 kB ROM, depending on platform and configuration

Conformance classes:

- All (BCC1, BCC2, ECC1, ECC2, CCCA, CCCB)

Scheduling strategy:

- All (preemptive / non-preemptive / mixed)

Special features:

- Stack check
- Internal trace

Configuration Tool

Features:

- Graphical user interface which can be easily handled
- Automatic check on completeness and consistency
- Simple system scaling
- Component management
- ORTI support available

Availability

The real-time operating system osCAN from Vector is available for a wide range of 8-, 16- and 32-bit microcontrollers.
For more information refer to our homepage:
www.realtime-os.info