CANoe.FlexRay 7.2

The Universal Development Tool for FlexRay

Highlights

> Full AUTOSAR PDU support (including Update Bit)
> Ready for use under all official FIBEX versions
> Easy node simulations based on the database description
> Simulation and testing of FlexRay diagnostics

FlexRay is a scalable, flexible high-speed communication system that fulfills growing technical requirements in the automotive field. High-performance analysis tools are needed in this area of safety-critical applications with FlexRay. The tool CANoe.FlexRay from Vector gives you a universal tool for analyzing distributed real-time systems.

Application Areas

CANoe.FlexRay covers all applications from network analysis, complex simulations to comprehensive test scenarios. The multi-bus approach enables simultaneous operation of the CAN, LIN, MOST, Ethernet and FlexRay bus systems.

Simulation

CANoe.FlexRay provides you with an extensive set of functions for simulating a network or individual nodes:

> Automatically configure (fully or partially) the sending behavior of individual ECUs
> Execute protocols (TP, NM, IL)
> Run Matlab models and user-specific modules
> Use FlexRay panels to conveniently send FlexRay frames and PDUs for stimulating the network
> The CANoe RT platform lets you perform extensive simulations with very short latency times.

Analysis

CANoe.FlexRay offers you all of the analysis functions that are available in CANalyzer.FlexRay (see separate datasheet):

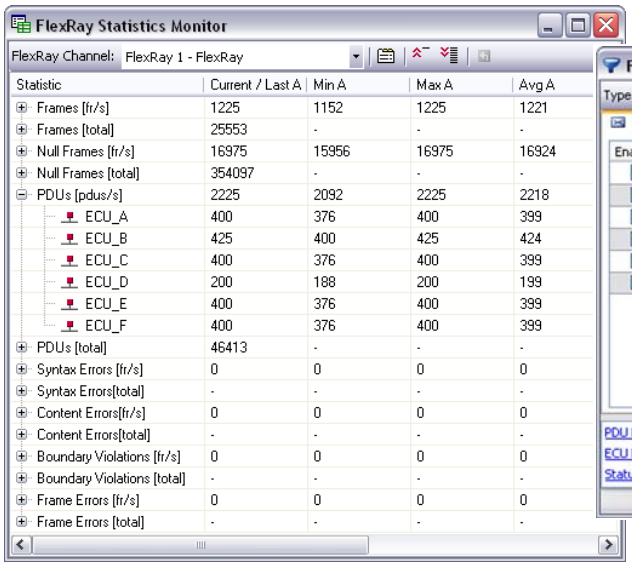
> Listing the bus data traffic (Tracing)
> Graphic and text displays of signal values
> Interactive sending of PDUs und frames
> Statistics on nodes and messages with the Cluster Monitor
> Logging PDUs and frames for later replay or offline evaluation
> Well-organized display of cycle multiplexing, in-cycle repetition and PDUs in the Analysis windows

Testing

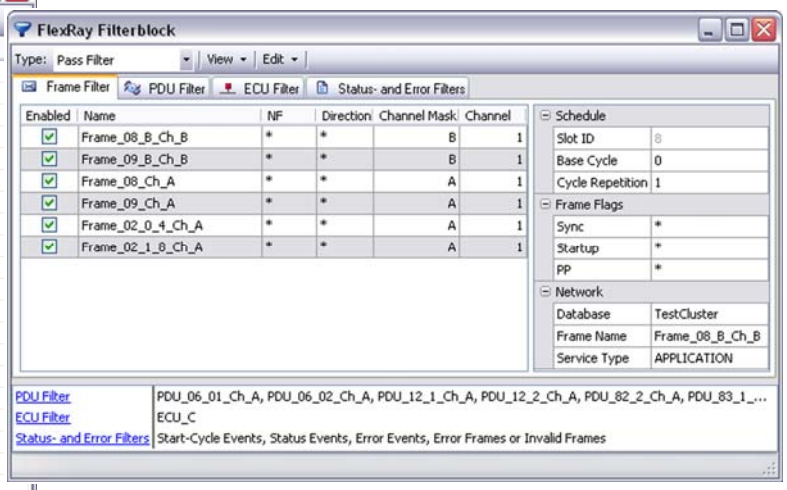
The Test Feature Set (TFS) for FlexRay gives you the tools you need to conveniently implement, execute and evaluate test sequences. It simplifies the execution of functional and integration tests for ECUs and networks by:

> XML checks for implementing typical application tests (e.g. monitoring transmission cycles)
> The CAPL script language offers the greatest possible freedom in creating complex test sequences.
> Implementation of disturbance scenarios on the bus level by integration of FRstress (see separate datasheet)

New FlexRay Statistics Monitor



New FlexRay Filterblock



V2.3 2009-10

Stress Module for FlexRay

FRstress is a special tool for error simulation and manipulation of FlexRay frames on the protocol and bit levels. Besides disturbing the bus physics, it is also possible to manipulate, delay or delete specific data.
For more information please refer to the 'FRstress' datasheet.

Hardware Interfaces

CANoe.FlexRay supports Vector's VN interface product line and the FlexCard. These high-performance and flexible PC interfaces for FlexRay give you optimal interfaces for your application. For detailed information please refer to the 'Hardware Interfaces for FlexRay and CAN' datasheet.

Diagnostics

With the Diagnostic Feature Set, CANoe.FlexRay gives you an easy and convenient way to test the diagnostic functionality in the ECU directly over the FlexRay bus:

- Supported transport protocols: AUTOSAR, ISO 10681-2, OEM-specific
- Use of diagnostic parameters from the CANdela database and ODX files
- Direct FlexRay support of the Diagnostic Feature Set including Fault Memory window and Diagnostic Console
- Support of test modules with diagnostics on the FlexRay bus
- Visualization of diagnostic requests in the Trace window via an integrated Observer

Database Support

CANoe.FlexRay supports system descriptions in FIBEX format. It assigns the databases directly to a network in the Simulation Setup, and it gives you flexible access to frame and signal information. The network descriptions of the databases are also used for automatic configuration of the hardware interfaces.

FIBEX Explorer pro

Convenient viewing, editing and extension of the FIBEX data in the supplied FIBEX Explorer pro tool give FlexRay developers a quick and detailed understanding of the data and its interrelationships.

CAPL Interface

The CAPL script language is used in all areas of CANoe usage, from analysis to simulation and testing. CAPL offers you functions tailored to the FlexRay protocol:

- Event Handler for bus events and controller states (e.g. error, symbols, synchronization status, etc.)
- CAPL objects for frames, PDUs, signals to be sent and for network configuration
- Specific functions for such tasks as sending and receiving the wake-up pattern and configuring the communication controller

New Functions of Version 7.2

FlexRay Filterblock

- Simple configuration of FlexRay-specific filters
- Filtering of PDUs, frames and nodes
- Filtering of FlexRay-specific fault and status events

FlexRay Statistics Monitor

- Display of statistics on the network and node levels
- Statistics for PDUs, frames and null frames
- Detailed evaluation of bus errors (e.g. syntax error)

Test Service Library extension for FlexRay

- PDU and frame oriented checks and patterns
- Monitoring of cycle times and bus traffic
- Consistency check of communication (e.g. node status)

Integration of FRstress in Test Modules

- New CAPL functions for flexible configuring trigger conditions and disturbances on the frame coding level
- Uniform definition of a disturbance scenario in one file
- Use of FRstress as a Tray Application (Silent Mode)

Extended PDU Support

- Convenient PDU selection from Symbol Explorer
- Symbolic representation of raw frames (name, PDU, signal)
- PDU qualification for frames and signals in CAPL