medini™ analyze
functional safety analysis for ISO 26262
product version 1.6 – April 2012

- safety analysis and design according to ISO 26262 for software controlled safety related functions
- integration of architectural-functional design with functional safety analysis methods
- support of driving situation analysis, hazard and risk analysis, Fault Tree Analysis (FTA), Failure Mode and Effects Analysis (FMEA), probabilistic analysis and hardware failure metrics
- traceability for all safety relevant information and decisions throughout the whole development process
- generation of ISO 26262 work products
- integration with DOORS, Rhapsody, EA, MATLAB/Simulink/Stateflow, MKS Integrity, MS Office, SVN, ClearCase, Rational Team Concert and more

item definition
- dedicated form for the item description
- customizable with user attributes
- definition of functions and malfunctions of an item and their relations,
- HAZOP analysis with predefined checklists
- initial item architecture with SysML
- inclusion of external documents and linking to external resources via URI

hazard analysis, risk assessment and ASIL determination
- table-based management of driving situations and hazardous events
- customizable with user attributes
- support for driving situation catalogues with drag & drop
- ISO 26262 compliant ASIL determination
- specification of driving situations and hazards based on predefined parameters
- comprehensive traceability to item definition and item functions as well as to safety goals and safety analysis artifacts
- derivation of safety goals
safety goal analysis and management

- graphical and table editors for safety goals and requirements
- customizable with user attributes
- capture and manage functional and technical (HW/SW) safety requirements
- support for structured requirements and for ASIL decomposition
- validation rules to check compliance with ISO 26262
- allocation of requirements to system architecture, HW and SW models and to function model
- import and export from/to requirements management systems (e.g. DOORS, MKS integrity)

system architecture modeling (SysML)

- graphical SysML editor for architecture models
- import and round-trip of SysML models from IBM Rational Rhapsody and Enterprise Architect
- specification of failure modes and failure rates for elements of the system architecture
- failure rate determination using catalogs and handbook data (e.g. SN 29500)
- single source for safety analysis such as FTA, FME(D)A and Hardware Metrics
- computation and visualization of the resulting ASIL for components considering argumentation of independence

function behavior modeling

- import, round-trip and visualization of MATLAB Simulink and Stateflow models
- associate elements of MATLAB model to elements of system architecture model
- traceability to requirements and to safety analysis such as FTA and FMEA
- validation of the HW/SW mapping
- automatic creation of FTA models from MATLAB Simulink models using structural path analysis
- consistent update of MATLAB models in case of design change
**Failure Mode and Effects Analysis (FMEA)**

- standard templates for FMEA/FMEDA
- customizable with user attributes
- automatic population of the table with components and functions from the system models
- automatic inclusion of all failure modes/rate data of the system model
- automatic computation of Risk Priority Numbers (RPN) to prioritize which items require additional quality planning or action
- FMEDA with Safe Failure Fraction (SFF) computation
- Excel import for legacy integration

**ISO 26262 Part 5 Hardware Metrics**

- calculation of Single Point Fault Metric and Latent Fault Metric
- evaluation of HW metrics based on safety goal and ASIL
- automatic synchronization of failure mode and failure rate data from architecture model
- extensible catalog of safety mechanisms according to part 5 of ISO 26262
- specification of properties for applied safety mechanisms
- rich validation and consistency checks
- traceability of safety mechanisms to requirements and SW/HW implementation

**Fault Tree Analysis (FTA)**

- graphical editor for quantitative and qualitative FTA
- automatic layout and support to handle large fault trees by multiple diagrams
- creation of events and subtrees by drag&drop of architecture elements or failure modes from architecture model
- determination and evaluation of minimal cut-sets to find out their probability
- importance measures such as Birnbaum, Fussell-Vesely, Criticality
- seamless navigation from cut-sets to elements of the system design
- automatic re-calculation of probabilities after design changes
sophisticated traceability

- definition of typed and untyped traces between information elements of any type within medini analyze
- definition of traces using trace-matrix or by quick-trace functionality
- follow-trace to navigate quickly to related elements in other models
- filters and hierarchies to support the usage even of large trace matrices
- customizable graphical visualization of traces to identify element relationships and for impact analysis

team work and integrated task management

- integration with configuration management systems (SVN, Clearcase, MKS Integrity etc.)
- management of model versions, support of team synchronization
- comprehensive consistency checks
- integration with issue tracking systems (Bugzilla, Trac, RTC, Outlook etc.)
- creation of tasks/comments for arbitrary model elements
- navigation from tasks to elements and vice versa
- context visualization for active tasks
- documentation of all decisions at the tasks
- scheduling, user assignment, e-mail notification and much more

licensing

- attractive product tailoring due to individually licensable components
- single user, dongle and network floating licenses available

system requirements

- supported platforms: Microsoft® Windows 2000/XP/Vista®/Windows 7
- required disc space: 250 MB
- recommended memory size: 2 GB

do you need more information?
do you have questions?
do you want a trial?

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