Rand Model Designer

Product presentation
Rand Model Designer

- A HIGH-PERFORMANCE VISUAL ENVIRONMENT FOR THE MODELING AND SIMULATION OF MULTI-DOMAIN COMPONENT MODELS
- BASED ON SOLUTION OF ORDINARY DIFFERENTIAL AND ALGEBRAIC EQUATIONS
- CAN BE USED FOR LABOR INTENSIVE NUMERICAL COMPUTATIONAL EXPERIMENTS OR DEVELOPMENT OF NEW APPLICATIONS BASED ON MATHEMATICAL MODELS

RAND MODEL DESIGNER CAN BE USED ON INTEL®-COMPATIBLE COMPUTERS RUNNING MS WINDOWS XP, VISTA, WINDOWS 7 AND WINDOWS 8 OPERATING SYSTEMS

http://www.mvstudium.com/
Rand Model Designer Applications

- Scientific computational experiments that require high performance computing, including hardware-in-loop and real-time simulation
- Equation-based modeling of physical, technical, chemical, biological and macro-economic systems and processes
- Model-based design of technical systems, multi-domain and physical modeling
- Design of model-based computer simulators and visual models

http://www.mvstudium.com/
Type of Modeled Systems

- MULTI-COMPONENT:
  - CONTINUOUS
  - DISCRETE
  - HYBRID (MIXED CONTINUOUS AND DISCRETE)

TYPICAL SYSTEM EXAMPLES:
- MECHANICAL SYSTEMS
- ELECTRIC CIRCUITS
- SIMULATION
- LIQUID HYDRAULIC SYSTEMS
- GAS SYSTEMS
- CONTROL SYSTEMS
- MACROECONOMICS

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Model description in Rand Model Designer

- MULTI-COMPONENT CONTINUOUS SYSTEMS

{SYSTEMS OF DIFFERENTIAL-ALGEBRAIC EQUATIONS (DAE), WRITTEN IN SCALAR OR MATRIX FORMS}
Model description in Rand Model Designer

- DISCRETE SYSTEMS
- HYBRID SYSTEMS

{DESCRIBED BY BEHAVIOR CHARTS (B-CHARTS), WHICH ARE THE EXTENSION OF UML’S STATE MACHINES}
Advantages of Rand Model Designer

- NO REQUIREMENTS FOR PROGRAMMING SKILLS
Advantages of Rand Model Designer

- THE PRODUCT SUPPORTS VISUAL DEBUGGING, THE VISUALIZATION OF SIMULATION DATA, 2-DIMENSIONAL AND 3-DIMENSIONAL ANIMATION
Advantages of Rand Model Designer

- OBJECT-ORIENTED MODELING APPROACH
Advantages of Rand Model Designer

- BUILD IN OPTIMIZER FOR MODEL CALCULATION

EXAMPLE: INERT GAS SYSTEM MODEL – MORE THAN 100 DIFFERENTIAL AND 7500 ALGEBRAIC EQUATIONS IN REAL TIME

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Advantages of Rand Model Designer

- PHYSICAL MODELING CAN BE PERFORMED BASED ON THE ACTUAL TECHNOLOGICAL LAYOUT OF THE MODELED SYSTEM COMPONENTS

EXAMPLE: FIRE FIGHTING SYSTEM MODEL – ACTUAL AND IN PROJECT WORKSPACE OF RAND MODEL DESIGNER
Advantages of Rand Model Designer

- BUILT-IN TOOLS FOR INTERACTIVE USER INTERFACE USING INDICATORS AND CONTROLS

EXAMPLE: MODEL AND CONTROL PANEL FOR SHIP TO SHORE LIFTING CRANE
Advantages of Rand Model Designer

- POSSIBILITY TO CREATE EXECUTABLE CODE FOR BUILDING INDEPENDENT EXTERNAL APPLICATIONS, USING API
Users of Rand Model Designer

- ACCOUNTS CHAMBER OF RUSSIAN FEDERATION
- NOVOSIBIRSK STATE TECHNICAL UNIVERSITY
- SAINT PETERSBURG STATE UNIVERSITY
- SOUTH URAL STATE UNIVERSITY
- ST. PETERSBURG STATE POLYTECHNICS UNIVERSITY
- ST. PETERSBURG STATE TECHNOLOGICAL UNIVERSITY
- TRANSAS GROUP

AS WELL AS NUMBER OF COMMERCIAL ORGANIZATIONS AND PRIVATE USERS