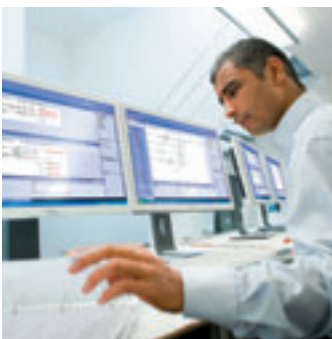**SIEMENS**

Faster to zero-error, trouble-free startup with virtual commissioning

**SIMIT: flexible, effective and easy simulation design
for automation project testing**

siemens.com/simit

Answers for industry.

Secured project quality, schedule and budget with SIMIT Simulation

Market competition is continually increasing pressure to shorten project schedules and achieve higher profitability in automation. Globalization and growing product diversity require shorter setup and startup times for new production lines or plant migrations. In addition, the need of qualified personnel in the last project phases, e.g. during commissioning is very challenging. The answer: SIMIT – a user-friendly, effective tool to easily set up the testing of your automation projects.

### Increased competitiveness through virtual commissioning

Extending the project engineering to simulation offers an efficient lever to keep up with such challenges. Simulation with SIMIT provides effective means to increase the overall project efficiency and profitability, and can lead to a competitive edge.

SIMIT enables the real-time simulation for extensive engineering checkout and virtual commissioning of equipment, machines and processes – from the office, even when these assets are not available.

New levers for more profitability

By steadily driving the future of production, Siemens has managed to consistently strengthen its industry software portfolio, with the defined goal to improve the profitability for its customers.

In this context, we steadily develop our Integrated Engineering portfolio covering the entire plant and project lifecycle: with planning, engineering, and operation tools, which we now rounded up with virtual commissioning and our SIMIT simulation framework.
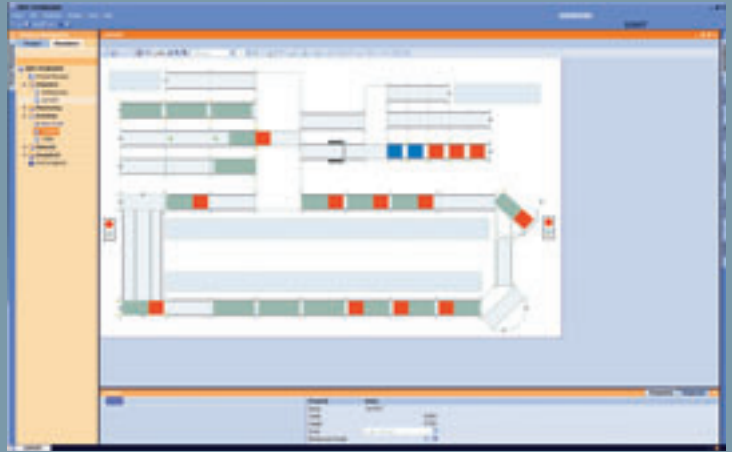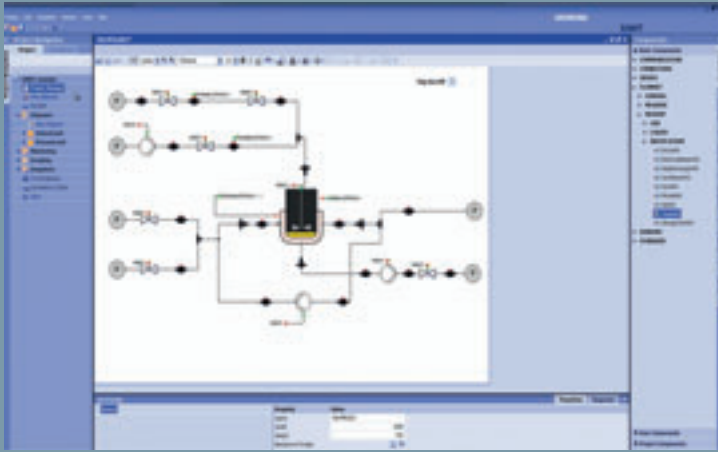
SIMIT covers all simulation requirements of both process and manufacturing industry automation. Application-specific SIMIT libraries optionally address various project environments, e.g. FLOWNET for process equipment (picture left) and CONTEC for conveying (picture right).

Flexible and scalable simulation setup

SIMIT fulfills the complete scope of real-time simulation requirements for automation. For this, it covers three modeling and simulation levels:

- IOs / signals
- Sensors and actuators
- Plant equipment and process

Its comprehensive visualization features, including 3D, ensure the easy follow-up during the test. SIMIT enables to test various, comprehensive scenarios, for example:

- Simple I/O checks and loopbacks
- Interlocks and sequences
- Alarms and operator messages
- Equipment and process behavior

Thanks to a modular set of libraries, with generic and application-specific components, simulations can be optimally sized and modeled for each project – with a minimum of design effort, time and errors.

- SIMIT standard library with over hundred generic, sensors and actuators simulation components
- SIMIT FLOWNET library for process industry, including various typical process equipment
- SIMIT CONTEC for manufacturing industry, including for example conveying equipment and material identification
- SIMIT Component Type Editor for user-specific component design

Ease-of-use and comfort: faster to a running simulation

Based on years of our simulation projects experience, SIMIT has been shaped for easy, efficient and fast design of simulation. No specific simulation know-how is needed which best suits automation engineers.

- Modern, user-friendly graphical interface for both easy learning and fast handling (e.g. drag & drop)
- Clear tool structure with intuitive navigation and easy access to information

Open tool with flexible communication

SIMIT supports various communication interfaces and data exchange standards:

- PROFIBUS and PROFINET IO for fieldbus emulation
- PRODAVE for the communication with real controllers
- PLCSIM interface for the communication with emulated controllers
- Data exchange over OPC or Shared Memory, for example, when using third-party software or devices

Efficient, error-free design

SIMIT minimizes the design effort and time to set up a simulation: a simple simulation for I/O checks for example, can be ready within 10 minutes! For this, various functions enable the automatic generation of the simulation. Based on file import and templates, models and components can be generated, instantiated and parameterized automatically. This cuts significantly the design time and costs. Through import of spreadsheets, for example, for the initialization of parameters, and the provided consistency check, simulations can be designed fast and without errors.

Scalable investment with fast ROI

The modular and scalable SIMIT offer ensures you the best fit to your present automation configuration and simulation requirements with the lowest investment possible. Even when starting with the smallest package for simple I/O checks you retain the option for later enhancements with more demanding simulations and wider application scope. Therefore you can achieve the optimum return on investment when introducing SIMIT in your engineering.

Best-in-class support

With SIMIT, you benefit from our global, comprehensive support, wherever and whenever needed – whether online or on-site, and in over 190 countries. In addition to the standard documentation, we also provide a hotline support, standard or specific trainings as well as consulting which ensure the optimum project definition and ramp-up using SIMIT.

SIMIT conforms to our continuous software products improvement process and you can select our optional Software Update Service. Thanks to our SUS contracts you can profit from the latest software updates and SIMIT enhancements for fixed and planable costs.

SIMIT Highlights

▶ Versatile and comprehensive simulation

- Real-time, scalable simulation: from simple IOs and signal level, over sensor and actuator level, up to process level
- Simulation with real or emulated SIMATIC S7 and SIMATIC PCS 7 controllers
- Wide application scope: comprehensive libraries of generic and application-specific simulation components and templates
- Flexible visualization including 3D

▶ Usability and design comfort

- Intuitive and comfortable graphical user interface, "drag & drop" modeling
- Clear structure and navigation through editors
- No simulation expert know-how required

▶ Scalability and interoperability

- Flexible, progressive simulation rollout of various simulation levels, eventually re-using plant design and/or engineering data from other tools
- Scalable offer which avoids the investment oversizing and ensures the best efficiency right from the start, with the fastest ROI:
  – Standard, Professional and Ultimate packages
  – Optional application-specific libraries SIMIT CONTEC (manufacturing) and SIMIT FLOWNET (process)

▶ Configuration flexibility and openness

- Communication: PROFIBUS, PROFINET IO, PRODAVE
- PLCSIM interface: simulation with emulated controller
- Data exchange: OPC, Shared Memory
- Standard office PC, Windows 7 (32/64 bits) and XP

▶ Design efficiency

- Automatic modeling and instantiation by spreadsheet and template file import: XML, CSV, XLS and SIMATIC PCS 7 IEA format
- Automatic parameter initialization by spreadsheet import
- User-specific component editor
- Error-free design throught comprehensive delivered simulation libraries
- Consistency check
- Strict separation between simulation and automation: no risk of forgotten simulation programming

▶ Global and comprehensive support

- 365/24/7 hotline support
- Online documentation, FAQs, application examples, etc.
- Software Update Services
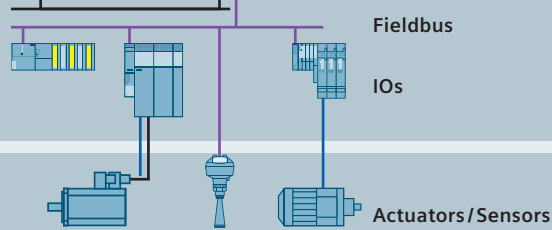- Standard and customer-specific trainings, consulting

Real Plant		Virtual Plant Setup with SIMIT

SIMATIC PCS 7 / WinCC

SIMATIC S7 / PCS 7 Controllers

Plant automation setup	Simulation levels	SIMIT setup
Fieldbus	**Signals** • Symbols • I/O Addresses	**SIMIT Communication Interfaces** • PROFIBUS / PROFINET IO • Interface modules • PRODAVE • PLCSIM (with emulated controllers) • OPC and Shared Memory
IOs		
Actuators / Sensors	**Devices** • Actuators • Sensors	**SIMIT Standard Library** • Drives library • Sensors library
Equipment, machines, process and manufacturing plant units	**Technical Behavior** • Equipment • Machines • Process and manufacturing behavior	**SIMIT Libraries** • Standard • Optional, application-specific: – SIMIT FLOWNET (process) – SIMIT CONTEC (conveying)

The four-fold benefits of virtual commissioning with SIMIT Simulation Framework

Save up to 50% in commissioning time with SIMIT!

▶ Faster commissioning

With virtual commissioning, engineering can be tested earlier from the office. Nearly all design and functional errors can be detected prior to on-site commissioning which often reduces commissioning time up to 50% and allows a just-in-time or even earlier start-up.

▶ Higher engineering quality

Thanks to SIMIT easy handling, it is possible to extend the usual scope of testing. Simulation can be performed simultaneously to engineering, which leads to higher engineering quality. Virtual commissioning is an efficient support for the definition and clarifying of specifications with operators and partners. This avoids re-engineering and conflict issues and leads to higher customer satisfaction.

▶ Lower costs

Less re-engineering and shorter commissioning time reduce the personal costs. The simultaneous and modular testing leads to "right-first-time" engineering and impacts the project bottom line positively. In addition virtual commissioning saves the space and mounting time and effort usually required to test with real hardware.

▶ Reduced risks

Virtual commissioning enables testing without machines or equipment available or plant personnel involved, therefore eliminating the inherent risks of on-site commissioning. Possible malfunctions don't lead to severe consequences which avoids expensive damage to assets and injuries to individuals. The comprehensive testing from the office minimizes project delays and secures just-in-time plant startup and production ramp-up.

There's more to it:
siemens.com/simit

Get more information about SIMIT!

› **Learn more about the four-fold benefits:**
  – Faster commissioning
  – Higher engineering quality
  – Lower costs
  – Reduced risks

› **Watch our new video "SIMIT Simulation Framework: virtual commissioning"**

SIMIT – at a glance!

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