SIEMENS

DIGITAL INDUSTRIES SOFTWARE

Siemens EDA
empowers education

Empowering lifelong learners to create a more innovative and sustainable future

siemens.com/eda-academic

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Empowering Siemens lifelong learners to create a more innovative and sustainable future

Siemens Digital Industries Software provides colleges and universities with cutting-edge design tools for classroom instruction and academic research. The goal of our program is to empower learners to create a more innovative and sustainable future, with state-of-the-art tools and techniques. This brochure focuses on the software tools for semiconductor and printed circuit board design and verification. The tools span the categories of integrated circuit, electrical systems and wire-harness, automotive networking, board design and embedded software tools.

Siemens EDA is widely known for its best-in-class electronic design automation (EDA) tools such as the de facto standard Calibre® portfolio. It consists of physical verification tools, functional verification tools, very large-scale integration (VLSI) test tools, board design tools and other integrated circuit (IC) EDA categories. These solutions are part of the Xcelerator portfolio, the comprehensive and integrated portfolio of software and services from Siemens Digital Industries Software. They can be used throughout the development lifecycle from design entry to simulation and modeling, in-vehicle

software, manufacturing and industrial engineering functionality. We invite you to help your students prepare for a career in various industries by learning how to use the same tools as major vehicle makers and suppliers. Please review the following bundles of EDA tools offered by our Academic Partner Program. You can also gain more in-depth information below.

This brochure provides details on the EDA products available in our academic program. We organize our products in a series of design bundles you can choose based on your needs. You will receive licenses for all products in the bundle(s) that you choose upon admittance to the program.

Thank you for your interest. We hope you have a productive year as a member of Siemens Academic Partner Program!

EDA software bundles
EDA products available with the Academic Partner Program are divided into nine domains as shown in the table below. Support fees are irrespective of the number of licenses you require.

Description	Main product components
IC Nanometer Design	Tanner S-Edit, L-Edit, T-Spice, Eldo, Questa ADMS, Nitro-SoC, Oasys-RTL, Calibre
Design, verification and test	Catapult Ultra, Vista, ReqTracer, Questa , Oasys-RTL, Precision Synthesis, LeonardoSpectrum ASIC, Tessent Silicon Test
OneSpin 360	360 DV-Inspect, 360 DV-Verify, 360 EC-ASIC, 360 DV EC-RTL
Aprisa P&R	Aprisa P&R, APrisa P&R Hierarchy, Aprisa FinFet
PCB design and analysis PADS Professional with HyperLynx	PADS Professional, HyperLynx
PCB design and analysis PADS Standard Plus with HyperLynx	PADS Standard Plus, HyperLynx
PCB design and analysis Xpedition with HyperLynx	Xpedition, HyperLynx
Vehicle networking design	Volcano VNA, Volcano LNA, Volcano VSA, Volcano VSB, Virtual System Integrator, SystemVision
Embedded software	Sourcery Codebench Pro ARM Embedded, Virtual Codebench ARM Embedded, Vista Architect Station, Vista Virtual Prototype, Nucleus ReadyStart for ARM
Advanced AMS verification	Analog FastSPICE Platform, Symphony Mixed-Signal Platform

IC Nanometer Design

The IC Nanometer Design bundle provides a complete environment for the design, capture, layout and verification of analog, digital and mixed-signal integrated circuits. This bundle includes all products that incorporate the IC Nanometer Design platform.

The **Tanner™ software AMS IC** design flow is a complete end-to-end design flow for analog/mixed-signal (AMS) IC designs. The flow consists of highly integrated front and back-end tools, from schematic capture, mixed- signal simulation and waveform probing to physical layout and foundry-compatible physical verification.

The **Tanner MEMS** design flow delivers 3D micro-electro-mechanical systems (MEMS) design and fabrication support in one unified environment and makes it easy to integrate MEMS devices with analog/mixed-signal processing circuitry on the same IC.

The **Questa ADMS** analog and mixed signal verification suite is a language-neutral, mixed-signal simulator that enables top-down design and bottom-up verification of multi-million gate analog/mixed-signal system-on-a-chip (SoC) designs. Using **Eldo and Eldo RF** provides an analog simulator offering numerous simulation and modeling options that deliver high-performance and high-speed simulation with the accuracy required by the user.

Using the **Nitro-SoC™ software and Oasys-RTL™ software** next-generation synthesis and place-and-route (P&R) system comprehensively addresses the time-to-market, performance, capacity, power, area and variability challenges encountered at the leading-edge process nodes. This advanced physical design implementation tool delivers best-in-class area, power and performance while significantly reducing design cycle time with a high design throughput.

The **Calibre** product line delivers a complete IC verification and DFM optimization platform that speeds designs from creation to manufacturing, addressing all sign-off requirements.
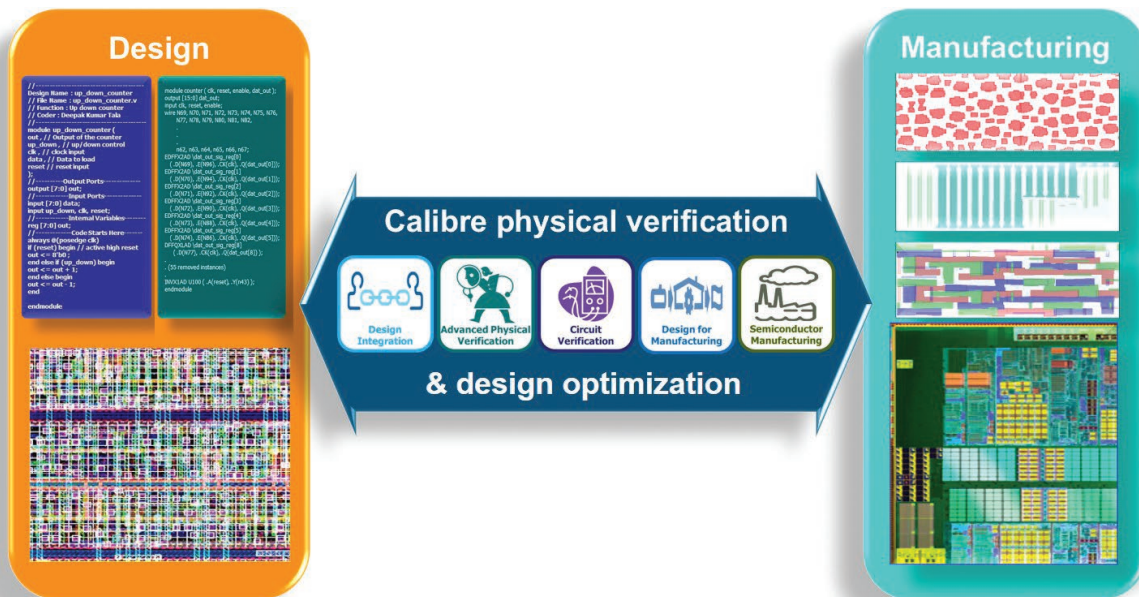
Design, verification and test

The design, verification and test bundle provides complete solutions for hardware description language (HDL) design, verification, synthesis and test of application-specific integrated circuits (ASICs) and field-programmable gate arrays (FPGAs):

- High-level design and verification – a comprehensive suite of tools for design creation and analysis using C and System C, including **Catapult™ C software** and **Vista™ software**

- **Questa** Advanced Functional Verification Platform – entirely standards based, **Questa** is the most advanced functional verification product in the industry, supporting assertion-based verification, coverage driven verification, test bench automation and formal analysis of clock domain crossing (CDC), supported by a comprehensive suite of Verification IP

- Physical register-transfer level (RTL) synthesis for advanced-node designs with **Oasys-RTL**

- FPGA design and verification – a complete solution comprising HDL design, simulation, hardware/software co-verification and leading FPGA logic and physical synthesis

- **Tessent** Silicon Test – a complete technology-leading solution for testability analysis, scan, boundary scan and memory test synthesis and automatic test pattern generation

- System Modeling – a complete environment for creating and verification of mixed-signal and multilanguage systems, prevalent in aerospace and other industries
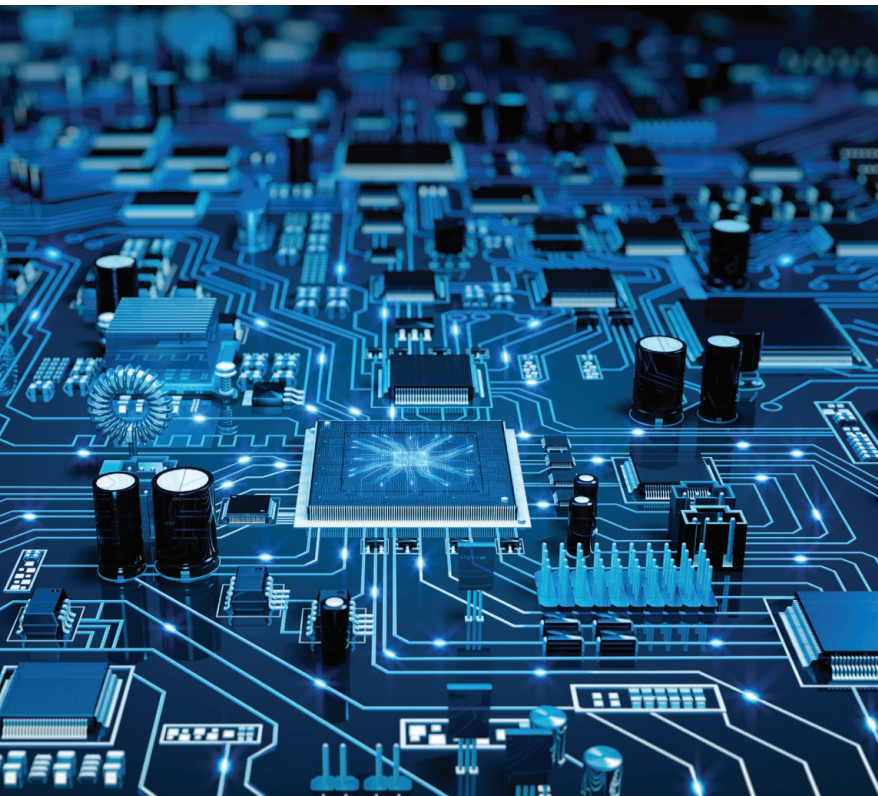
OneSpin 360

The OneSpin 360 bundle provides complete solutions for formal design, integration and implementation verification, as well as functional safety, trust and security verification. The main product components include Formal Autochecks, Formal Apps, Property Checking, Coverage, and Equivalence Checking for ASICs and FPGAs.

Aprisa P&R Platform

The detailed route-centric Aprisa automatic digital P&R system offers complete functionalities for top-level hierarchical design and block-level physical implementation for complex digital IC design projects. It includes cutting-edge technologies in prototyping, floor planning, chip assembly, placement, clock tree synthesis (CTS), routing, optimization and embedded analysis engines.

The core of this technology is the detailed-route-centric architecture and hierarchical database, specifically developed to address the design challenges with advanced fin field-effect transistor (FinFET) technology.

PCB system design and analysis

Siemens EDA provides students, designers and engineers a comprehensive integrated solution for printed circuit board (PCB) system design and analysis. Colleges and universities that engage with Siemens EDA receive the same cutting-edge solutions used by industry professionals.

Siemens EDA solutions include:

- A fully integrated, easy-to-use schematic capture environment that provides everything you need for simple and fast capture, circuit design and simulation, component selection, library management and signal integrity planning

- Industry-leading PCB layout tools combining ease-of-use with highly automated functionality to give engineers exceptional control over creating simple and complex designs including powerful 3D layout and mechanical computer-aided design (MCAD) collaboration

- Integrated constraint management for correct-by-construction design that eliminates the need for unnecessary PCB prototype and costly re-spins

- AMS circuit simulation

All bundles include **HyperLynx™ software**, which offers a complete suite of analysis and verification software equipping engineers to efficiently analyze, solve, and verify critical PCB requirements to avoid re-spins. HyperLynx supports signal and power integrity analysis, electrical rule checking, thermal analysis, full-wave and 3D solvers.

Which tools to choose?

PADS Professional with HyperLynx

This is Siemens EDA's primary educational bundle. PADS Professional is used for institutions that want today's best desktop PCB system design and analysis tool in the market, powered by Xpedition and HyperLynx technology, the enterprise-class PCB suite. This bundle is perfect for students that have previously used a PCB design tool but want best-in-class horsepower and productivity.

PADS Standard Plus with HyperLynx

PADS Standard Plus is for institutions that want an easy-to-use desktop PCB system design tool. This bundle is based on our classic PADS Layout technology and leading-edge analysis tool in the market today. This bundle is more suitable for institutions that have already built a curriculum around the classic PADS flow.

Xpedition with HyperLynx

Xpedition is the market-leading, enterprise-class PCB design tool used by the biggest names in the industry. Its patented technologies focus on reducing design cycles, PCB resource efficiency and quality of results. This is an enterprise class solution and requires college/university CAD support to set up the environment. This bundle is best suited for programs and courses done in partnership with the industry.
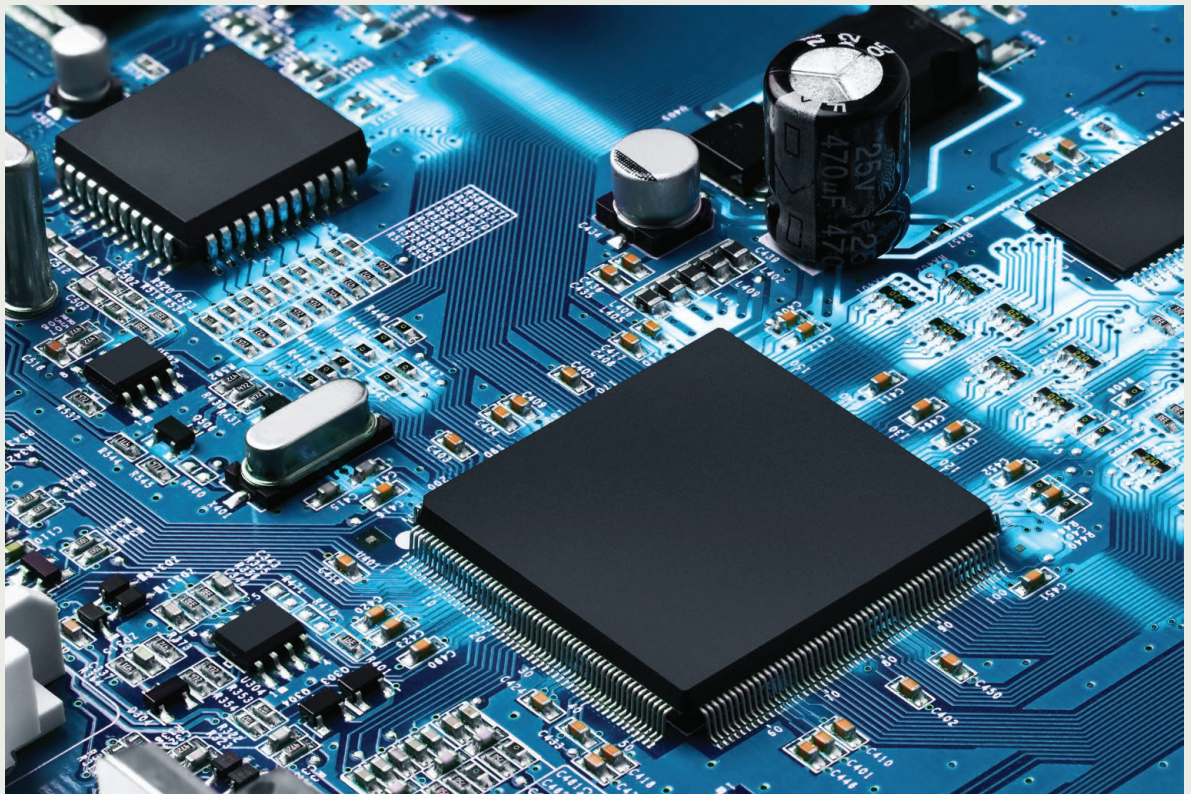
▍ Embedded software

The embedded software design bundle includes the following tools for embedded software development:

• **Sourcery™ Codebench Pro ARM Embedded software** which is an engineering tool for coding and debug targeting ARM™ core-based processors that are widely available from many suppliers

• **Virtual Codebench ARM Embedded**–works with simulated ARM processors enabling students to code without being tied to a hardware lab and boards

• **Vista Architect Station** is an integrated transaction level modeling (TLM) 2.0-based solution for architectural design exploration, verification and virtual prototyping

  – Vista enables system architects to make viable architecture decisions and allow software engineers to validate their hardware and software early in the design cycle or when target processor boards are scarce

• The Vista Architect station also includes:

  – **Vista virtual prototype** (VP) generator standard, for generating virtual prototypes for target processors

  – **Vista VP performance runtime** allows you to run a simulated ARM processor on your computer

  – **Vista VP software (SW) coverage** Virtual prototypes for I.MX6 Freescale (ARM core), Zynq platform, and ARRIA-V platform (ARM target processors inside an FPGA)

• **Nucleus™ ReadyStart™ for ARM** is Siemens EDA's compact, fast real-time operating system (RTOS). It brings together integrated software IP, tools and services in a single, ready-to-use solution ideal for applications where a small footprint, connectivity, power management and deterministic performance are essential. Nucleus ReadyStart includes demonstrations and configurations enabling immediate productivity for your next embedded application
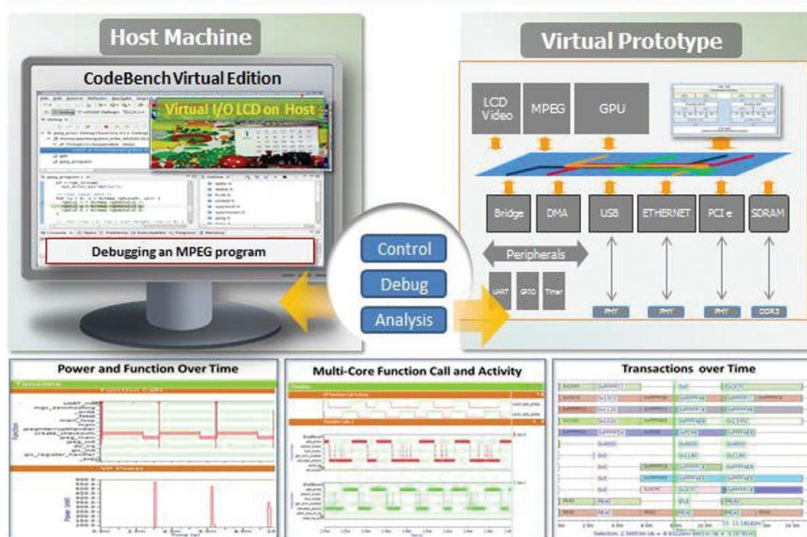
About Siemens Digital Industries Software

Siemens Digital Industries Software is driving transformation to enable a digital enterprise where engineering, manufacturing and electronics design meet tomorrow. Siemens Xcelerator, the comprehensive and integrated portfolio of software, hardware and services, helps companies of all sizes create and leverage a comprehensive digital twin that provides organizations with new insights, opportunities and levels of automation to drive innovation. For more information on Siemens Digital Industries Software products and services, visit siemens.com/software or follow us on LinkedIn, Twitter, Facebook and Instagram.

Americas: 1 800 498 5351

EMEA: 00 800 70002222

Asia-Pacific: 001 800 03061910

For additional numbers, click here.