Software Solutions Group

(1) Designing Tools

(a) OrCAD P-Spice

OrCAD – PSpice complete suite from CADENCE - USA

A. OrCAD Capture: Is universally standard fast and easy to use schematic entry for designing a block diagram, complex PCB, FPGA or CPLD. It has 55,000 library parts including IEEE and IEC standard styles EDIF graphics and EDIF netlist interface.

B. OrCAD Capture CIS Option is the first and the only universally standard fast and easy to use schematic entry package with Internet enabled component information system. i.e. with CIS you can access component information in centralized part databases and the Internet without leaving your schematics.

C. OrCAD PSpice A/D: is a high-end sophisticated and natively mixed mode signal simulator. It simulates mixed signal designs of any size containing Analog & Digital Parts. Using PSpice AD such as DC Sweep, AC Sweep, Transient, Noise, Fourier, Temperature, Parametric, Monte Carlo and Sensitivity Analysis can perform various Analyses.

D. PSPICE MATLAB SLPS Interface: It is designers utilize PSpice simulation solutions for accurate analog and mixed-signal simulations supported by a wide range of board level models. MATLAB SIMULINK is a platform for multi-domain simulation and model-based design of dynamic systems. Together, designers now have the ability to perform system level simulations that include realistic electrical models of actual components. Design and integration problems can now be found much earlier in the design process.

E. PSpice Advanced Analysis Option: To help the valuable users of PSpice our principal have recently announced add on Option by name PSpice Advanced Analysis Option. The new PSpice STUDIO with Advanced Analysis Option brings together several features that can help engineers improve design performance, cost-effectiveness and reliability.

F. Allergo PCB Editor is the world’s Leading PCB Layout system and the part of the Allergo System interconnect design platform. It is the industry’s first true physical and electrical Allergo Constraint Manager PCB Layout Tool.

Spectra Autorouter is designed to handle high speed high density PCB Systems that require complex design rules. SPECCTRA employs powerful shape based algorithms to make the most efficient use of the routing area delivering increased productivity and shoetened design cycles.

G. OrCAD Signal Explorer: It provides high speed transmission line analysis with pre- and post routenet topology exploration, it allows conceptual, pre-design/schematic topology exploration and simulation of up to 3 coupled nets including differential pairs.

(b) Microwave & Antenna design

FEKO is a comprehensive electromagnetic (EM) analysis software suite,

FEKO is a comprehensive electromagnetic (EM) analysis software suite building on state of the art computational EM (CEM) techniques to provide users with software that can solve a wide range of electromagnetic problems.

μWAVE WIZARD

A fast, user-friendly mode-matching analysis, synthesis and optimization (EM) CAD tool for passive waveguide components and antennas.
µWave Wizard utilizes the most advanced field theory method for this class of application: The efficient Mode-Matching method, the fast hybrid MM/Boundary-Contour and the MM/Finite-Element method; providing it with high accuracy and enormous speed.

µWave Wizard excels at easy-to-use for space determination of arbitrary component structures with exact prediction of responses, coupled with flexibility and openness.

**QUICKFIELD - A new approach to field modeling**

Quick Field™ is a highly efficient Finite Element Analysis package for electromagnetic, thermal, and stress design simulation with coupled multi-field analysis. It combines a family of analysis modules using the latest solver technology with a very user-friendly model editor (preprocessor) and a powerful postprocessor.

With simple parametric modeling tool Label Mover included into the family of Utilities, converts complicated analysis problems to succession of simple steps, controlled by few mouse clicks.

It fully utilizes the advantages of a modern operational environment. It is very compact, yet powerful, and can be used for many design applications.

(c) CAD Tools
(d) Civil Engg. Design
(e) Teaching tools

**MULTIMEDIA BASED TEACHING SOFTWARE**

**Education & Research Wing of TECHNOSYS has brought Multimedia web based products with a focus on Subjects of Engineering in Various Branches**

Civil / Architecture Engineering
Electronics & Tele Communication
Industrial Electronics
Instrumentation Engineering
Mechanical/Production Engineering
Electrical Engineering
Information Technology / Computer Science Engineering

(f) CMOS design tools

**MICROWIND 3**

Microwind, France, develops and markets electronic design software for designers of mixed-signal and analog IC, ASIC.

MICROWIND3 is user friendly layout and simulation tool for sub-micron CMOS design. The MICROWIND3 allows the designer to simulate and design an integrated circuit at physical description level. The package contains a library of common logic and analog ICs to design and simulate. MICROWIND3 includes all the commands for a mask editor as well as verification tools never gathered before in a single module.

MICROWIND3 is truly a complete and cost-effective design solution for your CMOS design.

nanoLambda
LAYTOOLS from Catena, Netherlands

LAYTOOLS are especially developed for electronic layout design.

With its powerful multi-window all-angle IC layout editor, the drawing of IC layouts is easy and quickly mastered, even in the case of very complex structures.

LAYTOOLS is available for PC-Windows, LINUX & UNIX. Furthermore our programme contains circuit and power-electronics simulators.

(g) 20 SIM

20-Sim has revolutionized the way engineers and scientists do modeling and simulation. You can model and simulate your designs ready for engineering, animation, analysis, prototyping, and manufacturing. With 20-Sim model any design you can imagine.

Mechatronics
Automation
Animation
Graphics Design
Neural Networks
Rapid Prototyping
Machine Dynamics
PID Controls
Control Engineering
Industrial Design
Industrial Measurement and Control

(h) System Crafter

System Crafter SC is software tool that synthesizes SystemC automatically to VHDL/Verilog description hardware. Engineers and programmers can design, debug and simulate hardware and systems using their existing C++ development environment. SystemCrafter SC facilitates to simulate hardware and software in same framework. Designers can synthesize SystemC to RTL for implementation using a standard VHDL/Verilog design flow. SystemCrafter SC also writes a structural SystemC description of the synthesized circuit for verification.

Using synthesis tool and Xilinx FPGA flow:
Simulate & verify generated RTL HDL using ModelSim.
Synthesize the generated VHDL/Verilog to working hardware.
Program the netlist to target FPGA.

(i) Optical fiber design and simulation

**Optiwave**

*Optiwave* headquartered in CANADA provides innovative design and simulation software in the field of photonics. It is emerging as the World leader in Photonic Design Automation. Optiwave products is becoming must and should s/w for the Photonics courses. Many universities are already using these S/W in their curriculum.

Optiwave offers the following products:

- **Opti System**: This S/W is an innovative rapidly evolving software which enables the users to plan, test, and simulate almost every type of optical link in the physical layer of a broad spectrum of optical networks from LAN., SN< MAN to ultra ling haul.

- **Opti Amplifier**: Opti Amplifier improves the designer’s skills productivity, reduce risk and lower overall costs related to designing of Opti Amplifier. It gives better ROI and break even point. S/W uses Industry respected Scientific algorithms.

- **Opti BPM**: CAD S/W tools is basically used for waveguide design and has guiding, coupling, switching, splitting, multiplexing features. This is based on the Beam Propogation Method of simulating light passage through any waveguide medium.

- **Opti FDTD**: OptiFDTD is a powerful, highly integrated and user friendly software that enables CAD and simulation of Advance Passive and non linera Photonic Components. The core program is based on Finit difference time domain Algorithm, with secod order numerical accuracy and most advanced boundary condition- Uniaxial perfectly matched layer boundayr condition.

- **OptiFiber**: Optifibre is a versatile and powerful tool that blends numerical mode solvers for fiber modes with calculation models for fiber deispersion, losses, and polarization Mode Dispersion.

- **OptiGrating**: Grating is a user friendly design software for modeling integrated and fiber optical devices that incorporate optical gratings. The S/W uses the Coupled Mode theory to model the light and analyse and synthesise the gratings.

(j) Network Simulators

**DEFT-NETZ – A COMPLETE NETWORKING SIMULATION TOOL**

DEFT NETZ is a network design and analysis environment to help the academia and the industry understand the various design aspects related to modern and legacy networks.

(k) Communication Simulators

**VisSim™ - Modeling, Simulation & Control Software**

VISSIM is a visual block diagram language for modeling and simulation of complex nonlinear dynamic systems. Its fast execution lets you run models in real-time. It is the core engine for the Communication and Embedded Development products.

**VisSim™/COMM - Communication System Design Software**

VISSIM/COMM is an award winning program for comprehensive modeling and simulation of end-to-end, physical layer data communication systems.