

# EDWinXP/SIMWinXP

## Integrated EDA/Circuit Simulation Software Packages

**SIMWinXP** is a simulation package supporting various analyses of digital, analog and mixed circuits. User may choose between two different simulation engines – our own native mixed mode simulator or **XSPICE** as defined by Georgia Tech. Schematic diagram editor and library management utilities are included. **SIMWinXP** contains extensive library of simulation models defining functionality of commercially available electronic components.

**EDWinXP** is an industrial ECAD/ECAM package. All above mentioned simulation capabilities of **SIMWinXP** are integral part of **EDWinXP**. However, this package provides an engineer with all other tools necessary to design electronic circuits. It can be seen as a system of seamlessly integrated, task oriented modules, covering all stages of design process – from capturing the idea of a circuit in form of schematic diagram to generating full set of documentation for manufacturing and testing of PCBs.

### EDWinXP/SIMWinXP at a glance

One of main advantages of Visionics software is the concept of integrated project database. All data about hierarchical electronic design (which may consist of several circuits and sub-circuits) is stored in a single database, along with PCB layouts for every board in the design. In another words, the documentation of a complete electronic device may be stored in one disk file. All parts of the design project – schematics, PCB layout and PCB fabrication drawings and documents are simultaneously accessible by task oriented software modules of the system. Changes in the design, entered on diagrams are automatically and in real time annotated on PCB layout design and vice versa. **SIMWinXP** consists of simulation modules derived from **EDWinXP**. Project databases are freely transferable between both packages.

#### Schematic Diagram Editor (*EDWinXP, SIMWinXP*)

This editor supports creations of multi-page schematic diagrams of hierarchical circuits. Its functionality includes full set of manual and automated tools for placement of circuit elements on the diagram and for routing the connections. The editor functions as front end of simulation engines and therefore contains tools necessary to prepare circuit for simulation and for execution of analyses.

#### Library Element Browser (*EDWinXP, SIMWinXP*)

Element browser embedded in schematic diagram editor and PCB layout editor, consists of efficient library search engine combined with easily customized database allowing instant insertion of most frequently used parts.

#### EDSPICE Simulator (*EDWinXP, SIMWinXP*)

Original SPICE3F5 simulator seamlessly embedded in **SIMWinXP** package. This version allows analyzing even digital and mixed circuits. Extensive library of Code Models is included as well as library of sub-circuits, published by electronic component manufactures and adapted by Visionics for use with **EDSPICE**. Basic front end for this simulation engine is diagram editor, but there is also provision to edit, parse and analyze circuit files in SPICE netlist format. There is also a facility to build circuits and sub-circuits in **SIMWinXP** by importing such files.

#### Mixed Mode Simulator (*EDWinXP, SIMWinXP*)

Although **EDSPICE** supports digital circuit simulation, Visionics indigenous Mixed Mode Simulator is better suited for this task. This simulation system includes sophisticated models of various memory devices and microcontrollers. For example, model for 8051 family of microcontrollers is not just a simulation model but complete software development environment. Users may edit and compile 8051 programs written in C-language or assembler and debug them while simulation of the circuit is in progress.

#### VHDL Editor/Compiler and Model Generators (*EDWinXP, SIMWinXP*)

Users may enhance standard library of digital models for Mixed Mode and **EDSPICE** simulators. Visionics provides software kit necessary to create MM Simulator models in C-language. Code Models for **EDSPICE** may be created using **EDComX**, a separate Visionics product. The other way is to define function of a circuit element in VHDL and to turn it into model with help model generators.

#### FPGA/PLD design support (*EDWinXP, SIMWinXP*)

Export and import of circuit design in various formats (Altera EDIF, Xilinx EDIF, EDIF 2.0 (Netlist), CUPL, JEDEC)

#### PCB Layout Editor (*EDWinXP*)

This module contains full set of manual and automated tools supporting design of single, double and multilayer printed circuit boards with precision of .001 mm. Separate PCBs may be designed for each circuit in the project database. Apart from inbuilt auto-place and auto-router, it is possible to export projects and import results to/from third party auto-placers and routers. PCB layout editor is equipped with tools for checking completeness of the design and its quality – DRC, clearance and connectivity tests as well as 3D visualization.

#### Board Analyzers (*EDWinXP*)

Finished PCB layout design may be farther tested with help of thermal, EMC and signal integrity analyzers.

#### Fabrication Manager (*EDWinXP*)

CAM tools grouped in this module allow generating all necessary documents for manufacturing, testing and assembly of printed

circuit boards. Fabrication manager includes also reverse engineering tools for reconstructing circuit designs from available manufacturing data in graphical form (artworks in Gerber formats, DXF format drawings etc).

#### Part Library (*EDWinXP, SIMWinXP*)

Extensive part library contains over 25,000 industry standard components. Description of a part includes its graphical representation - schematic symbols (diagram) and packages (PCB) – as well as pin-out, packaging layout and thermal parameters. 2D and 3D views of component packages are created according to IPC, JEDEC and EIA standards. Library supplied with **SIMWinXP** contains only simulated circuit elements and is a subset of the full library. Visionics constantly updates system libraries and makes them available to the users free of charge. **EDWinXP/SIMWinXP** includes modules allowing users to enhance and customize supplied part libraries.

### Main system features of EDWinXP/SIMWinXP

#### GENERAL

- ◆ Seamless integration between all modules
- ◆ Integrated project database
- ◆ Automatic front and back annotation
- ◆ Precision of 1 micron
- ◆ Maximum board and page size of 4m x 4m
- ◆ Metric and imperial units
- ◆ Angular rotation with 1° precision
- ◆ User definable text sizes
- ◆ True Type Fonts supported
- ◆ Context sensitive on-line help
- ◆ Practically unlimited number of objects in database
- ◆ Copy screen & block to clipboard features
- ◆ Screen hardcopy
- ◆ Print Manager
- ◆ Floating menus
- ◆ Lock/dock toolbars
- ◆ Shortcut & hot keys
- ◆ UNDO /REDO
- ◆ Customized settings
- ◆ Block Move/Copy/Repeat/Save/Load/Delete
- ◆ Bitmap logos
- ◆ Zooming, panning and scrolling

#### SCHEMATIC

- ◆ Top-down hierarchical circuits(99)
- ◆ Up to 100 pages
- ◆ Industry standard page sizes
- ◆ Definable wire and bus width
- ◆ Embedded library browser
- ◆ “Drag and drop” component insertion
- ◆ Intelligent automated wiring and bussing
- ◆ Auto-packaging
- ◆ Auto-placer
- ◆ Auto-router
- ◆ Circuit DR definition
- ◆ Design & Page Notes – graphics and text

#### PCB LAYOUT

- ◆ 32 layers (28 copper + 2 mask + 2 silk screen)
- ◆ Rectangular and circular board outline with internal cutouts

- ◆ Embedded library browser
- ◆ “Drag and drop” component insertion
- ◆ Component placement on both sides of the board
- ◆ Manual and automated routing of connection
- ◆ Curved traces
- ◆ Polygonal copper pour areas
- ◆ Solid and hatched copper planes
- ◆ Through and buried via holes
- ◆ “Tear drop” pads
- ◆ Test points on trace and pin insertion
- ◆ Polygonal auto-router and placer keep-off-zone
- ◆ Interactive and “full board” auto-placer
- ◆ Interactive and “full board” auto-router
- ◆ Design rules check
- ◆ Clearance check
- ◆ Electrical connectivity tests
- ◆ 3D visualization

#### SIMULATION

##### Circuit level simulators:

- ◆ Mixed Mode
- ◆ **EDSPICE** (based on SPICE 3F5 and XSPICE)

##### Board level simulators:

- ◆ Thermal Analyzer
- ◆ EMC Analyzer
- ◆ Signal Integrity & Field Analyzer

#### PCB FABRICATION

- ◆ Artwork preview
- ◆ Gerber outputs in RS274D or RS274X formats
- ◆ Automatically generated or user defined aperture tables
- ◆ Stepped artworks
- ◆ Panel definition with coupons, venting and thieving areas
- ◆ Dimensioned board drawings (for printing and photo plotting)
- ◆ Dimensioned drill templates (for printing and photo plotting)
- ◆ CNC Drill output in Excellon format
- ◆ PCB assembly output (generic/IPC-D-355)
- ◆ Bare Board Testing output (generic/IPC-D-356A)
- ◆ GenCAM output
- ◆ Gerber & DXF file viewers
- ◆ Reverse engineering (Gerber & DXF file import)

#### LIBRARY

- ◆ Over 25,000 parts
- ◆ ANSI & IEC standard schematic symbol library
- ◆ JEDEC /EIA & IPC standard package layout (2D/3D)
- ◆ Library Editor module included
- ◆ Symbol & package creation wizard
- ◆ Free of charge “part-on-request” service

#### INTERFACES

- | EXPORT                             | IMPORT                              |
|------------------------------------|-------------------------------------|
| ◆ EDIF version 2.0                 | ◆ Gerber ASCII (reverse engg.)      |
| ◆ OrCad PCB II wirelist            | ◆ DXF file import                   |
| ◆ Scicards wire list               | ◆ VHDL                              |
| ◆ DXF output                       | ◆ SPICE Netlist (SPICE3F5 & XSPICE) |
| ◆ CUPL Netlist                     | ◆ ORCAD PCB II wire list            |
| ◆ XILINX EDIF                      | ◆ JEDEC                             |
| ◆ ALTERA EDIF                      | ◆ ALTERA EDIF                       |
| ◆ Spectra and Maxroute autorouters |                                     |

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