

# CADSTAR

Powerful PCB Design



## If you want...

The most powerful price/performance solution for PCB design

Shorter time-to-market for product designs

A powerful on-line component library

Automatic 3D back annotation for any changes

A smooth product development flow without data loss or distortion

To take design, manufacturing, cost and environmental considerations into account right from the beginning

The latest open CAD Solution with easy integration with MRP, ERP or PDM systems

Advanced design rule checks for right-the-first-time design

A scalable design solution that integrates with most industry-leading EDA software for total flexibility to design simple or complex PCBs

...then let us introduce  
you to CADSTAR



Designed by GARMIN - nüvi 750



# CADSTAR - Introduction

CADSTAR is Zuken's powerful PCB design solution, incorporating all the technologies and tools necessary for a complete electronic development process in one environment. From schematics, board- and FPGA-level system design, PCB layout, high-speed and signal integrity analysis, 3D, to manufacturing output. This solution is complemented by data management capabilities and extensive internet-accessible libraries containing more than 250,000 components. Its price-performance, coupled with a scalable design environment, provides total flexibility to engineers of small- to mid-size EDA development teams.

## Intuitive work flow

Throughout CADSTAR's Schematic and PCB design editors, the menu items and options are all in the same location, giving an intuitive guide through the design process.

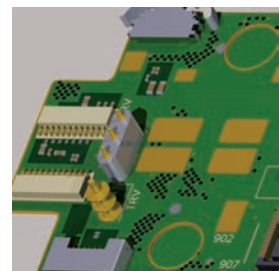
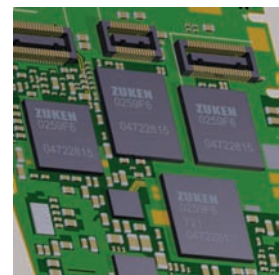
## Fast design cycle

Zuken's P.R.Editor XR HS (Place & Route High Speed) is at the heart of CADSTAR. With a 'right-first-time' approach, this powerful placement and routing tool is optimized for speed and accuracy, tackling today's dense PCB design challenges with creativity and intelligent automation.

CADSTAR's fully integrated 3D environment dramatically reduces the design time by using the proven technology from the verification and timing analysis engines in Zuken's high-end solutions.

## Migration preserves legacy data

Migrating from PADS or other tools to CADSTAR is simple. Users can move all the data over to CADSTAR from previous designs, reusing symbols, footprints and other supporting design data and benefit from the ability to re-work legacy designs.



# System Design

Control is crucial in today's electronic product development process. In the engineering phase of the design, CADSTAR helps to guarantee complex designs are right-first-time and meet tight delivery deadlines.

Schematic Design, Spice Simulation, Variant Management, FPGA, Design Re-use and Version Control modules combine with a Layout and Routing environment in an intuitive Windows interface where designers move easily between schematic entry and board layout.

## Spice Simulation

A range of Spice simulation engines enable simulation of a schematic exactly as it will be passed into the PCB layout.

## Schematic Design

CADSTAR's Schematic Editor dramatically increasing productivity, building in the information required in the PCB design from the beginning to create single-sided to complex double-sided, multilayer and SMT designs that are right-first-time.

## E<sup>3</sup>.logic

Used as a front-end solution for CADSTAR PCB Design it will allow support of multilingual diagrams, multilingual text and Unicode.

The use of the E<sup>3</sup>.logic database as a back-end solution for CADSTAR PCB Design easily with specific MRP, ERP or PDM systems and works with databases that comply with Microsoft's ODBC standard and MS Access, MS SQL-Server and Oracle. The CADSTAR - E<sup>3</sup>.logic integration directly integrate with other E<sup>3</sup>.series modules such as E<sup>3</sup>.cable for complete system level integrated electronics and electrical design.

## Design Reuse

Design Reuse allows engineers to reuse proven and tested logical circuits from earlier projects.

## Variant Management

CADSTAR manages all the variants of a design for multiple product and international requirements, storing all information in a single schematic and PCB design file, each with its own Bill of Materials.

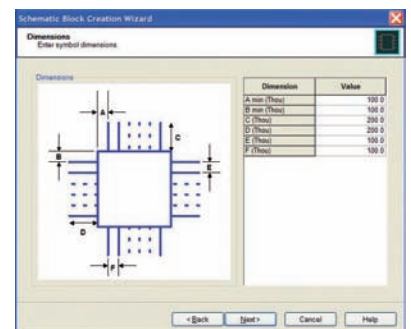
## FPGA

CADSTAR FPGA supports one universal project manager that controls all the design files for simulation, synthesis, place and route and pin assignment to the PCB board, as well as the I/O synchronization between the FPGA device and the PCB board.

## Library Tools

CADSTAR's extensive OnLine Libraries have more than 250,000 ready-made parts.

Custom versions can be generated through the symbol and component wizards.



Schematic Symbol Wizard

CADSTAR also supports Object Linking and Embedding (OLE) integration with links to ODBC databases such as MS SQL Server and Oracle.

## Version Control

Version Control allows the designer to verify that the parts, components and symbols used in the design are the latest version available from the component library.

## Datasheet Publisher

CADSTAR generates customized datasheets in HTML for every part in the library and these can be viewed and shared locally or online.



# Electronic Design

CADSTAR's high-speed editors provide a powerful suite of tools for the most complex designs using Zuken's advanced interactive technology.

## Design Editor

Design Editor provides intelligent and smooth development of schematics, allowing the designer to quickly and easily make, reuse or adapt designs.

## Placement & Routing

With P.R.Editor XR everyday tasks are made intuitive and automated for the most complex placement patterns, speeding up the most challenging implementations by using Zuken's advanced interactive placement tools, including component push-aside and spring back functions, and optimum and legal position indicators.

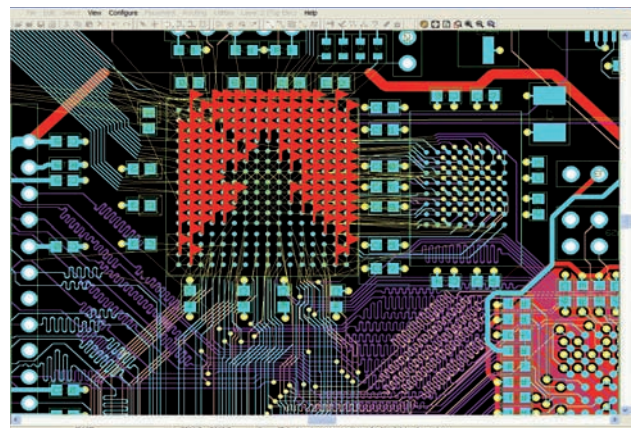
## High Speed

The P.R.Editor XR HS handles a wide range of circuit rules and routing constraints that can be set early in the design process to make sure the design is implemented correctly first time, every time. Some of the main features are pin and branch ordering; controlled stub-lengths; min and max length & delay constraints; skew constraints; differential pairs and much more.

For routing signal buses, the Trunk Routing tool handles different bus routes collectively as an entity and allows a collection of signals to be manipulated as one group, so a designer can quickly sketch out solutions for fast up-front planning.

## Dragon Autorouter

At the core of the Dragon Autorouter is the Routing Strategy Environment (RSE). The Dragon Autorouter includes a new tuned native 45-degree autorouter for single trace and an integrated new native 45 degree Differential Pair autorouter based on recent advances in network theory. This routes differential pairs in order to minimize skew and uncoupled length.



P.R.Editor XR

## RF Design

CADSTAR also provides a specialist interface tool that handles micro strip routing for radio frequency (RF) designs, allowing designers to simulate and create high-frequency conductor geometries in RF PCBs, saving space and cost.

# Migration & Translation

## PCB, Library and Schematic Translators

CADSTAR accepts designs and libraries from Cadence, Allegro and Orcad, Mentor Graphics PADS, Altium Protel and P-CAD.

# Analysis & Verification

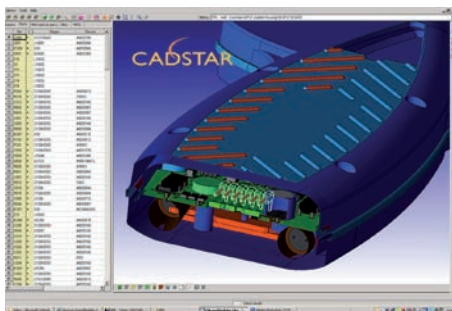
## SI Verify

CADSTAR provides a fully integrated, complete signal integrity simulation toolset that uses the Constraint Manager as the design navigation cockpit. This launches simulation for selected areas of the board, evaluating the electrical performance, analyzing reflection and crosstalk effects and calculating the relevant interconnect timing information. It also performs what-if analyses for changes to the layer stack, different track widths and track-to-track spacing.

The graphical Scenario Editor provides a 'what-if' scratchpad for experiments with different design strategies while a powerful parameter sweep feature helps to explore design limits and optimize termination networks. If nets are not routed, estimates on interconnect length and impedance are automatically considered during simulation to provide complete, realistic solutions.

## Board Modeler Lite

The intuitive operations allow right-first-time quality layouts to manufacturing, eliminating possible rework and production delays in product development time line and includes features like: Back-annotation of newly imported or modified board shape and component placement data into Design Editor; Import new board outlines to meet the CAD design, with automatic board layout changes; Filter option in the 3D screen to set new constraints or to import new components; batch collision checks between components, board and case and to view the individual collisions and make placement changes to resolve them.



Unique 3D technique to allow the PCB designer to meet the CAD Requirements of the product design

## EMC Adviser

Improved EMC compliance of PCBs helps specialists and non-specialists alike to predict, analyze and control design issues that may cause EMC/EMI problems. This very flexible and comprehensive rules-based EMC analysis system gives PCB designers full and easy control over various design constraints that effect overall EMC performance.

# Manufacturing

Design rule checks allow final checks on the constraints settings for easier, cost effective manufacturing of boards. Smoothing routines for via minimization and staircase removal optimize the routing for high-yield manufacturing while track necking and fattening automatically maximize copper widths on specified nets. Acid trap removal and corner mitering further improve manufacturability.

## Advanced Design Rule Checks

### Rules-by-Area

For designs that need localized design rules, this automatically routes using reduced track width for small complex dense components.

### Spacing Classes

This matrix format handles the spacing of high- and low-voltage nets on each layer, checking for the different spacing classes.

### Manufacturing output

CADSTAR provides manufacturing output formats such as extended Gerber (RS274X), extended NC Drill (Excellon), bill of materials, ODB++, IPC356-D and GENCAD.

### Bills of Material

Simple or complex Bills of Material can be created early in the process for the complete design or each variant.

### ODB++

CADSTAR also supports the ODB++ container to send bundled fabrication, assembly, placement data check and test data to those working with the design in an open ASCII format.



# About Zuken

## The Challenge

More quality, more functionality, in less time, with less cost; it's a common story in today's marketplace. Increased competition and requirements to operate on a global scale make these end-user demands ever more challenging. Companies need to be innovative and dynamic to stay one step ahead of the game – this is where Zuken helps.

## What We Do

Zuken is a global provider of leading-edge software and consulting services for electrical and electronic design and manufacturing. Founded in 1976, Zuken has the longest track record of technological innovation and financial stability in the electronic design automation (EDA) and ECAD software industry. The company's extensive experience, technological expertise and agility, combine to create world-class software solutions. Zuken's transparent working practices and integrity in all aspects of business produce long-lasting and successful customer partnerships that make Zuken a reliable long-term business partner.

## Security of Solid Foundations

Zuken is focused on being a long-term innovation and growth partner. The security of choosing Zuken is further reinforced by the company's people—the foundation of Zuken's success. Coming from a wide range of industry sectors, specializing in many different disciplines and advanced technologies, Zuken's people relate to and understand each company's unique requirements. For more information about the company and its products, visit [www.zuken.com](http://www.zuken.com).

## Partner Network

You can rely on a worldwide network of Zuken trained CADSTAR distributors and application engineers. They offer you the best 1st line support and training not only on CADSTAR but also on other Zuken products such as E<sup>3</sup>.logic.

## Consultancy and Training

Our CADSTAR trained world wide distributor network is in a prime position to support and advise you. Our distributors offer you advice, installation of the software, set-up of component libraries and full training both in general PCB design and in specific CADSTAR packages.

## 1st Line Support

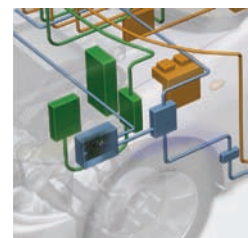
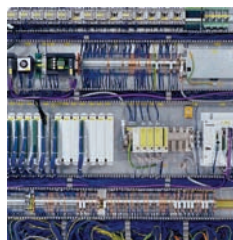
Our locally positioned distributors ensure short response times, locally arranged upgrade training sessions, seminars and much more.

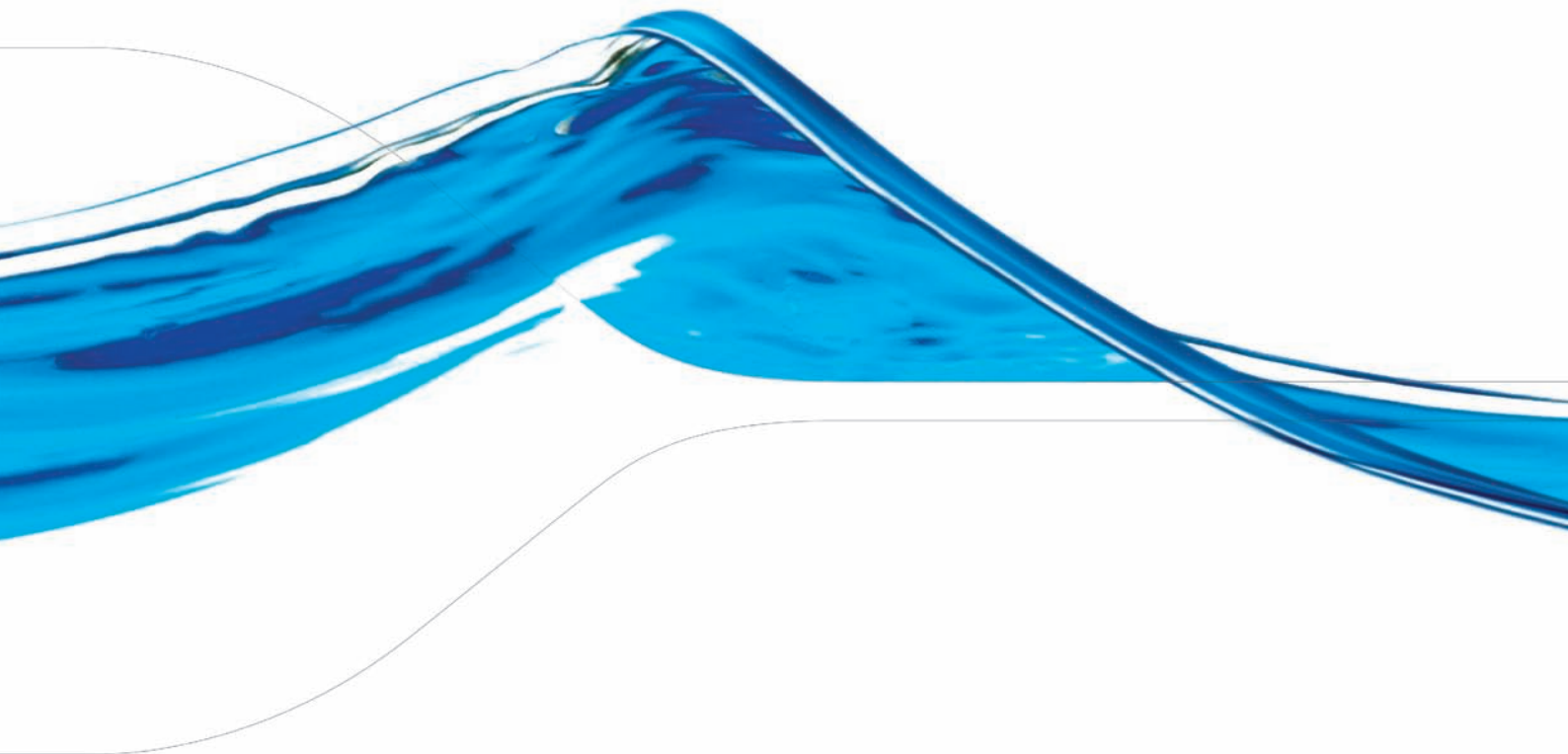
## Online Support

Zuken's Global Support System offers you instant access to 24-hour services.

As CADSTAR user, Zuken's Global Support System offers you online call logging, technical information, product updates, training, access to the OnLine Libraries and user community information all tailored to suit your personal preferences.

Software Solutions for  
Electrical & Electronic Engineering  
*Our Focus, Your Benefit*





### **CADSTAR Express**

A free download of CADSTAR's Express provides a quick and easy way for you to experience the basic features of CADSTAR. It includes all the functionality, limited to 300 pins and 50 components, plus the opportunity to experience Zuken's advanced P.R.Editor XR. In addition you are also able to view samples of CADSTAR Exchange, a 250,000 component OnLine Library.

### **CADSTAR Design Viewer**

A free download of CADSTAR's design viewer gives easy viewing and sharing of schematic and PCB design data. This allows management, project leaders, design partners and customers to plan or discuss projects and track and review progress.