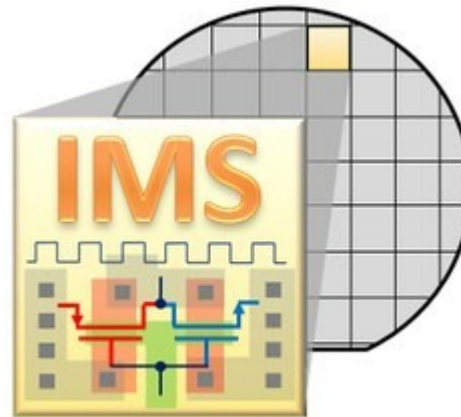


# Bachelorarbeit

## Themen

### EIT4



# 1. Inbetriebnahme Zedboard (FPGA-Board)

The screenshot shows the homepage of ZedBoard.org. At the top, there are logos for ZedBoard.org, MicroZed, and PicoZed. Below these is a navigation menu with links for Home, Products, Buy, Support, Projects, and Partners, along with a search bar. The main banner features the Avnet and Xilinx logos, with the text "Unrivalled technical training for FPGA, SoC, DSP and embedded system designers" and a large "Xfest" logo. A "Register Now" button is prominently displayed. Below the banner are three columns of content: "Getting Started" with links to Documentation, Reference Designs/Tutorials, and Training and Videos; "Community Projects" with links to View Projects, Share Project, and Join the Community; and "Support" with links to Forums, Contacts, and ZynqGeek Blog. A "Welcome" section follows, explaining the site's purpose in helping users jump-start their design with Xilinx Zynq-7000 All Programmable SoC. To the right of the welcome text is a featured product card for the ZedBoard, showing an image of the board and a link to its Overview page.

<http://zedboard.org/>

## 2. Simulationen in Cadence Spectre

[http://http://www.cadence.com/products/rf/spectre\\_rf\\_simulation/](http://http://www.cadence.com/products/rf/spectre_rf_simulation/)

**cadence**®

Tools IP Solutions Services Support and Training Alliances Community Company

Home > Tools > RF Design > Cadence Spectre RF Simulation

Email Share Subscribe Contact Print

### Spectre RF Simulation

Fast and accurate RF analyses

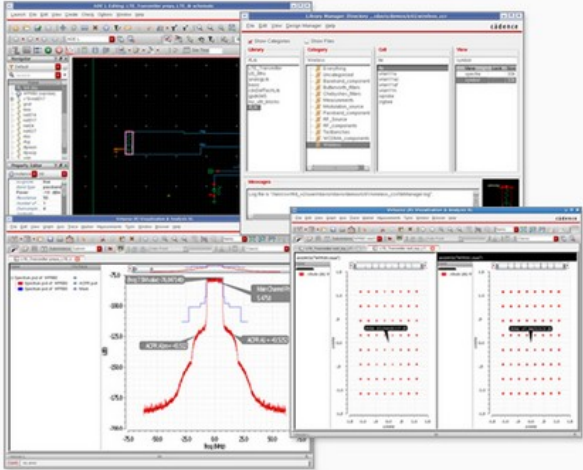
The Spectre RF Simulation solution provides a comprehensive set of analyses and high-performance verification of highly complex RF integrated circuits.

[Spectre RF Simulation Solution Datasheet »](#)  
[Faster, More Accurate Approach for System-Level Performance Verification White Paper »](#)

**Overview** Resource Library Support & Training

The Cadence® Spectre® RF Simulation solution provides numerous analyses built on silicon-proven simulation engines in both the time and frequency domain. The choice of engines with automated set-up gives you the flexibility to tackle verification of linear and non-linear RF circuits. The wide range of analyses enables verification of broad RF-IC types, including mixers, transceivers, power amplifiers, dividers, switched capacitors, filters, and phase-locked loops (PLLs).

The Spectre RF solution supports extensive noise and distortion analysis capabilities. It also provides application-centric analysis, such as wireless analysis for system-level performance evaluation using standard-compliant signal sources. The tight integration into the Virtuoso® Analog Design Environment enables exhaustive simulation with set-up of multiple tests for multiple conditions.



**Figure 1: Wireless System-Level Performance Verification**

**Features/Benefits**

- Harmonic balance and Shooting Newton engines for high-performance simulation of linear and non-linear RF circuits
- Enables robust RF circuit verification with a comprehensive set of analyses
- Wireless analysis with a powerful fast envelope modeling technology, standard-compliant sources, and automated set-up and post-processing
- RF transmission line library allows verification of the RF design in context of on- and off-chip passive circuitry
- Advanced S-parameter simulation with Broadband SPICE® technology

**RF Design**

#### Highlights

- A Faster, More Accurate Approach for System-Level Performance Verification of a Wireless RFIC Design White Paper
- New Cadence Custom/Analog Flow Delivers Holistic Approach to 20nm Silicon Realization
- Taming the Challenges of 20nm Custom/Analog Design White Paper

**Recent Blog Posts**

- Virtuosity: 12 Things I Learned In February by Browsing Cadence Online Support
- Virtuosity: 13 Things I Learned in January 2015 by Browsing Cadence Online Support
- Virtuosity: 26 Things I Learned in November and December 2014 by Browsing Cadence Online Support

[Visit the Community »](#)

#### Related Info

- Cadence Services
- Support & Training
- Software Downloads
- Cadence Designer network Community

## 2. Simulationen in Cadence Spectre

[http://http://www.cadence.com/products/rf/spectre\\_rf\\_simulation/](http://http://www.cadence.com/products/rf/spectre_rf_simulation/)

Choosing Analyses -- Virtuoso® Analog Design E X

Analysis  tran  dc  ac  noise  
 xf  sens  dcmatch  stb  
 pz  sp  envlp  pss  
 pac  pstb  pnoise  pxf  
 psp  qpss  qpac  qpnoise  
 qpxf  qpasp  hb  hbac  
 hbnoise  hbasp

Periodic Steady State Analysis

Engine  Shooting  Harmonic Balance

Fundamental Tones

#	Name	Expr	Value	Signal	SrcId
1		1/(5u-0)	200K	Large	V0

Large

Beat Frequency   Auto Calculate  
 Beat Period

Output harmonics

Number of harmonics

Accuracy Defaults (errpreset)  
 conservative  moderate  liberal

Additional Time for Stabilization (tstab)

Save Initial Transient Results (saveinit)  no  yes

Oscillator

Sweep

New Initial Value For Each Point (restart)  no  yes

Loadpull

Enabled

# Design Themen

- Einfache Blöcke
  - Operationsverstärker
  - Low Noise Verstärker
  - Spannungsgesteuerte Oszillatoren
  - Mischer
  - Komparatoren

# *Design Themen Design Flow*

- Einarbeitung Cadence Tools (1 Woche)
- Schematic Design (4 Wochen)
- Optimierung (1 Wochen)
- Layout (1-2 Wochen)
- LVS, DRC, Extracted View (1 Woche)
- Dokumentation (2-3 Wochen)