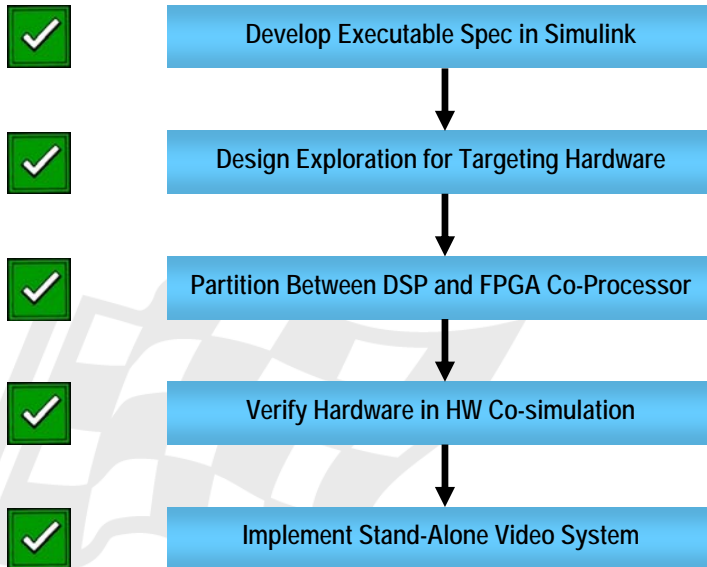


# Avnet Speedway Design Workshop™

Lecture 6: Summary



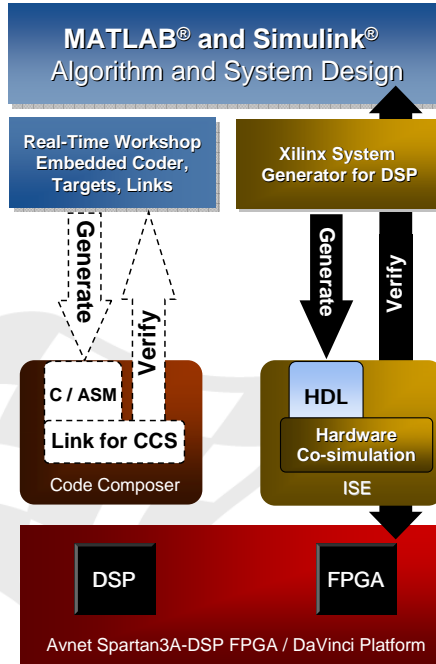
## Model-Based Design Flow



# Model-Based Design Tool Flow



- MathWorks
- TI
- Xilinx
- Avnet



Avnet SpeedWay Design Workshop™

## BAE Systems Achieves 80% Reduction in Software-Defined Radio Development Time with Model-Based Design and Xilinx System Generator

### Challenge

To develop a military standard SDR waveform for satellite communications

### Solution

Use Simulink® and Xilinx System Generator™ to rapidly design, debug, and automatically generate code for an SDR signal processing chain

### Results

- Project development time reduced by 80%
- Problems found and eliminated faster
- Clocking and interfacing simplified



Custom board used in the traditional design workflow.

“Using Simulink® and Xilinx System Generator™ we designed and developed the signal processing chain of the SDR and achieved a 10-to-1 reduction in development time.”

Dr. David Haessig  
BAE Systems

[Link to user story](#)

Avnet SpeedWay Design Workshop™

**Industry:** Aerospace and Defense, Communications

**Application:** Model-Based Design (MBD), Simulation, Signal Processing (SPC), Automatic Code Generation

**Products:** Simulink, Real-Time Workshop, Communications Blockset, Signal Processing Blockset

**Partner Products:** Xilinx System Generator, Xilinx ISE

## Doheny Eye Institute Develops Next-Generation of Retinal Prosthesis with MathWorks™ Tools and TI DSPs

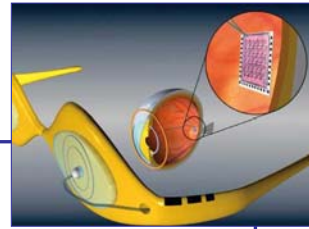


Illustration of a retinal prosthesis prototype.

### Challenge

To develop next-generation, higher-resolution retinal prostheses

### Solution

Use MathWorks™ tools to develop, simulate, and automatically generate code for real-time image processing algorithms

### Results

- Development time reduced from months to weeks
- DSP deployment streamlined
- Patient testing improved

“With Video and Image Processing Blockset™ and Target Support Package™ TC6, we rapidly prototype our image and video processing algorithms on the DM642 board. This can save me days or weeks of time.”

Neha Parikh  
Doheny Eye Institute

[Link to user story](#)

Avnet SpeedWay Design Workshop™

**Industry:** Medical, Education, Academia

**Application:** Model-Based Design (MBD), Modeling and Simulation, Automatic Code Generation, Image Processing

**Products:** MATLAB, Simulink, Real-Time Workshop, Embedded IDE Link CC, Target Support Package TC6, Image Processing Toolbox

## Featured Xilinx Services



### Titanium Dedicated Engineering

*Dedicated FPGA Expertise*

Includes: On-site engineering resources to enhance design productivity



### Embedded Processing QuickStart!

*Onsite Customized Support*

Includes: 2 days training & 3 days design coaching

### Xilinx Education

*Targeted Embedded Courses*

- DSP Implementation Techniques
- DSP Design Using System Generator
- Introduction to AcceIDSP Synthesis Tool

*Delivering Real Business Results*

Avnet SpeedWay Design Workshop™

## Next Steps



- Contact your local Avnet FAE for information on
  - Avnet Spartan-3A DSP FPGA / DaVinci board
  - PS Video EXP Module
  - NEC LCD Panel
  - Xilinx ISE, System Generator, ChipScope and USB JTAG cable
  - TI Code Composer Studio
- Visit [www.mathworks.com/avnet\\_trial](http://www.mathworks.com/avnet_trial) for a free 30-day trial of MATLAB and Simulink
  - All required tools (including blocksets and libraries) are ~\$30K for individual licenses in North America
- Contact Ultimate Solutions for information on the Blackhawk USB510L JTAG Emulator
  - Toll Free (USA): 866.455.3383
  - Email: [info@ultsol.com](mailto:info@ultsol.com)
  - Web: [www.ultsol.com](http://www.ultsol.com)

## Next Steps



- Upgrade your workshop kit to include additional tools
- Must order within 30-days to receive credit for upgrade
- Don't forget the following
  - Xilinx USB JTAG Cable
  - Blackhawk emulator
  - PS Video EXP
  - NEC LCD Panel

### 1. Workshop Only

#### Includes:

-Attendance to Co-Processing SpeedWay Design Workshop

**Price \$595**

### 2. Workshop & Development Kit

#### Includes:

-Attendance to Co-Processing SpeedWay Design Workshop

-Xilinx® Spartan®-3A DSP / DaVinci™ Development Kit

**Price \$895 (regular price \$1390)**

### 3. Workshop & Development Kit with SysGen

#### Includes:

-Attendance to Co-Processing SpeedWay Design Workshop

-Xilinx® Spartan®-3A DSP / DaVinci™ Development Kit

-System Generator Software

**Price \$1375 (regular price \$2385)**

### 4. Workshop & Development Kit with Code Composer Studio

#### Includes:

-Attendance to Co-Processing SpeedWay Design Workshop

-Xilinx® Spartan®-3A DSP / DaVinci™ Development Kit

-Code Composer Studio Software

**Price \$1885 (regular price \$4985)**

### 5. Workshop, Development Kit, CCS & SysGen

#### Includes:

-Attendance to Co-Processing SpeedWay Design Workshop

-Xilinx® Spartan®-3A DSP / DaVinci™ Development Kit

-Code Composer Studio Software

-System Generator Software

**Price \$2375 (regular price \$5980)**

Avnet SpeedWay Design Workshop™



## Summary



- Avnet DSP-FPGA co-processing bring the best of both worlds...
- Model-Based Design enables you to
  - Perform algorithm exploration with real-world constraints
  - Enable simulation before hardware implementation
  - Generate code and implement algorithm on HW and SW
  - Perform Hardware-in-the-loop testing and modify algorithms until desirable results are achieved
- You have the tools to explore, design, and implement in days what otherwise would take months!