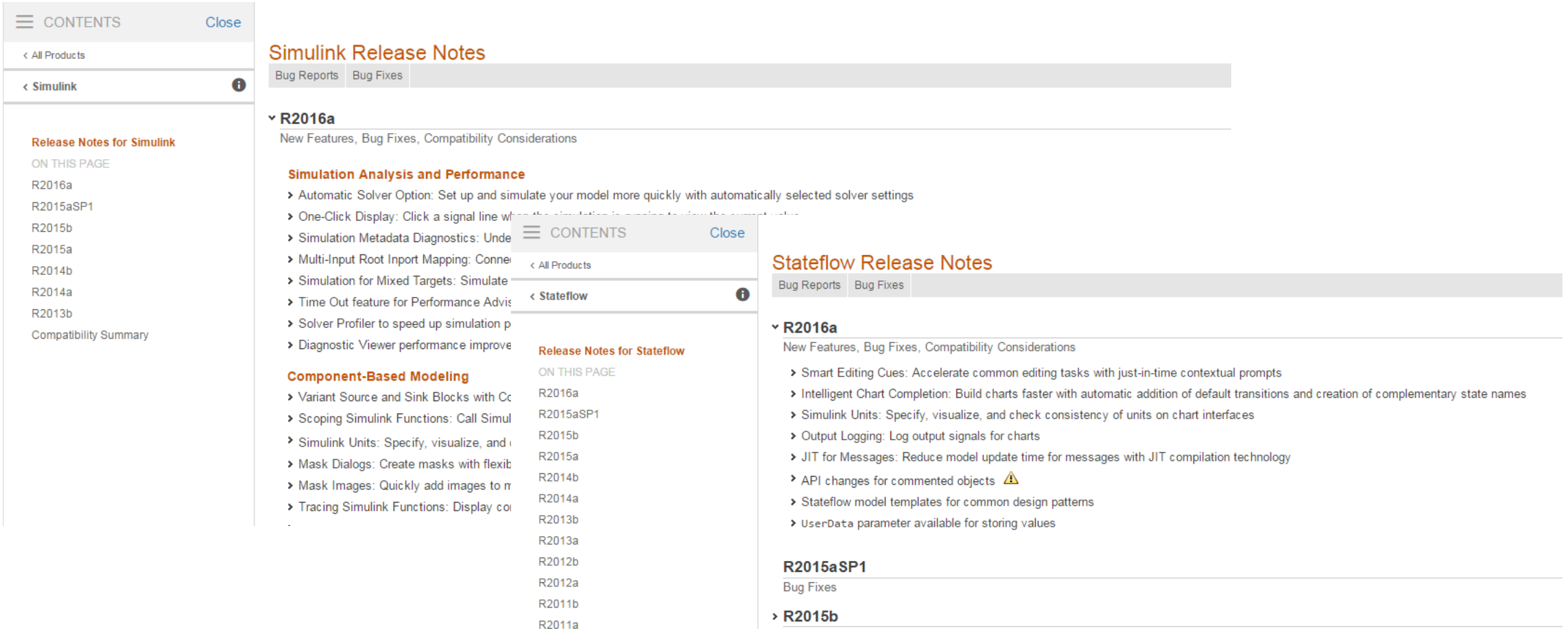
What's new in MATLAB and Simulink for Model-Based Design

Magnus Jung
Application Engineer

What's New?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Smart Editing Cues: Accelerate common editing tasks with just-in-time contextual prompts
Intelligent Chart Completion: Build charts faster with automatic addition of default transitions and creation of complementary state names
Simulink Units: Specify, visualize, and check consistency of units on chart interfaces
Output Logging: Log output signals for charts
JIT for Messages: Reduce model update time for messages with JIT compilation technology
API changes for commented objects
Stateflow model templates for common design patterns
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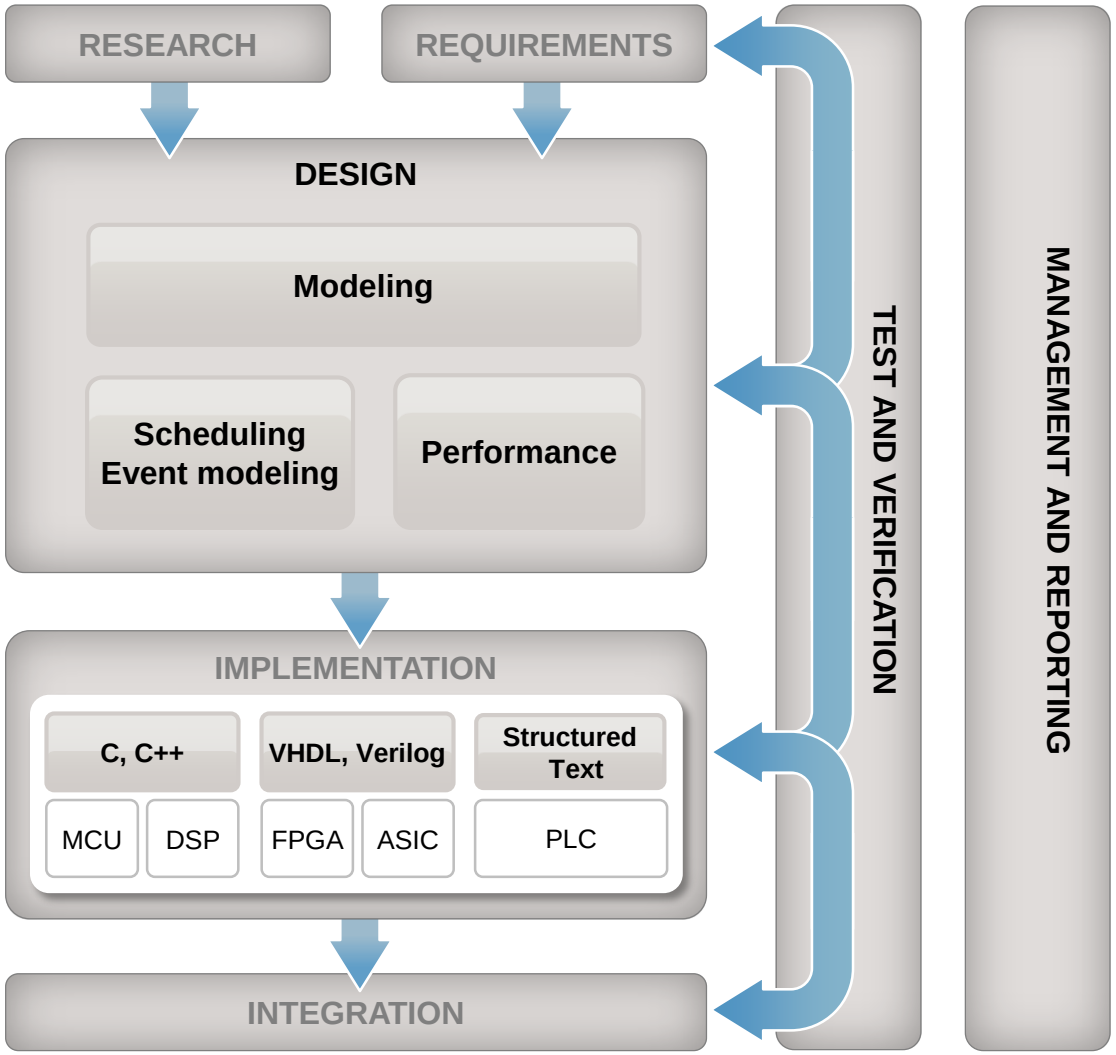
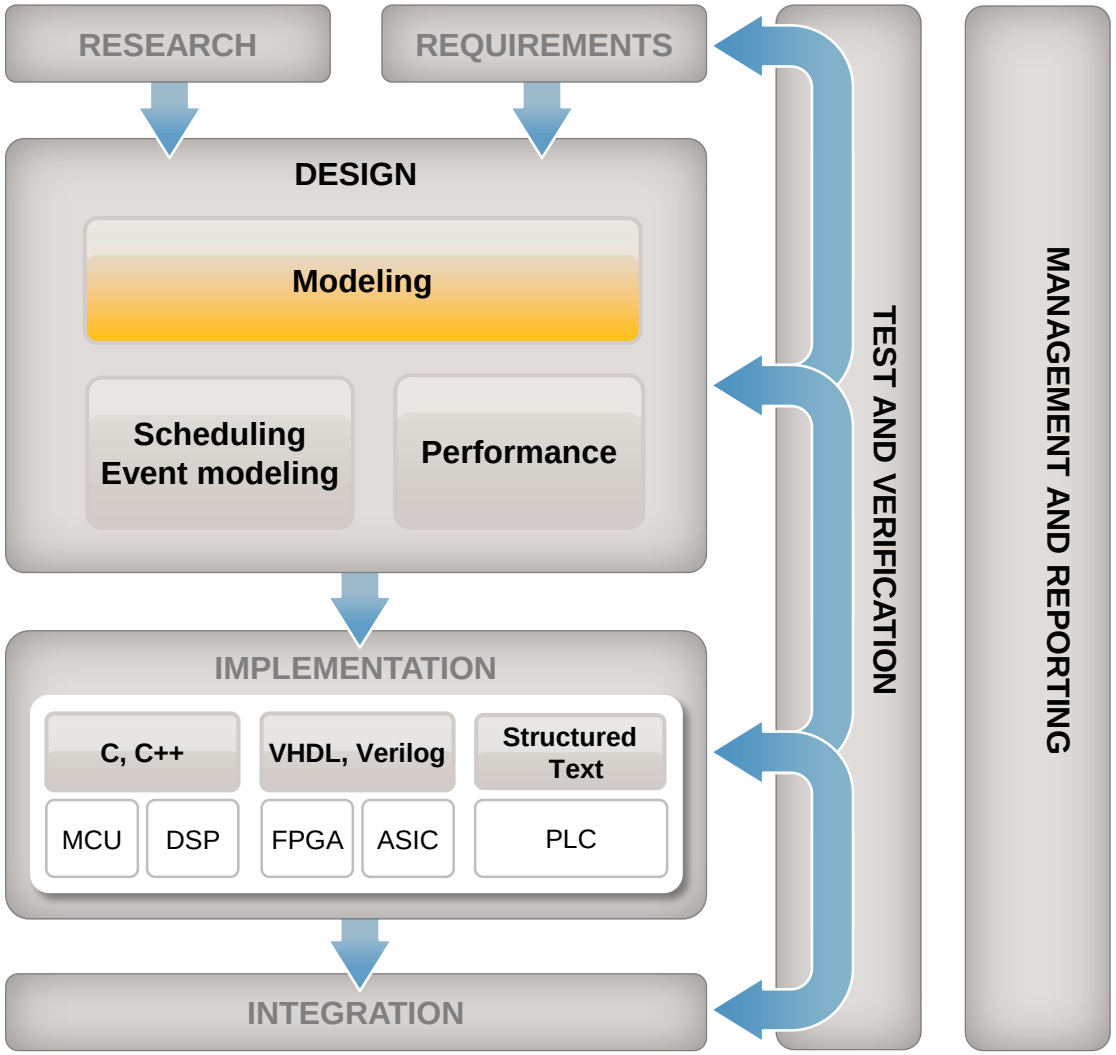
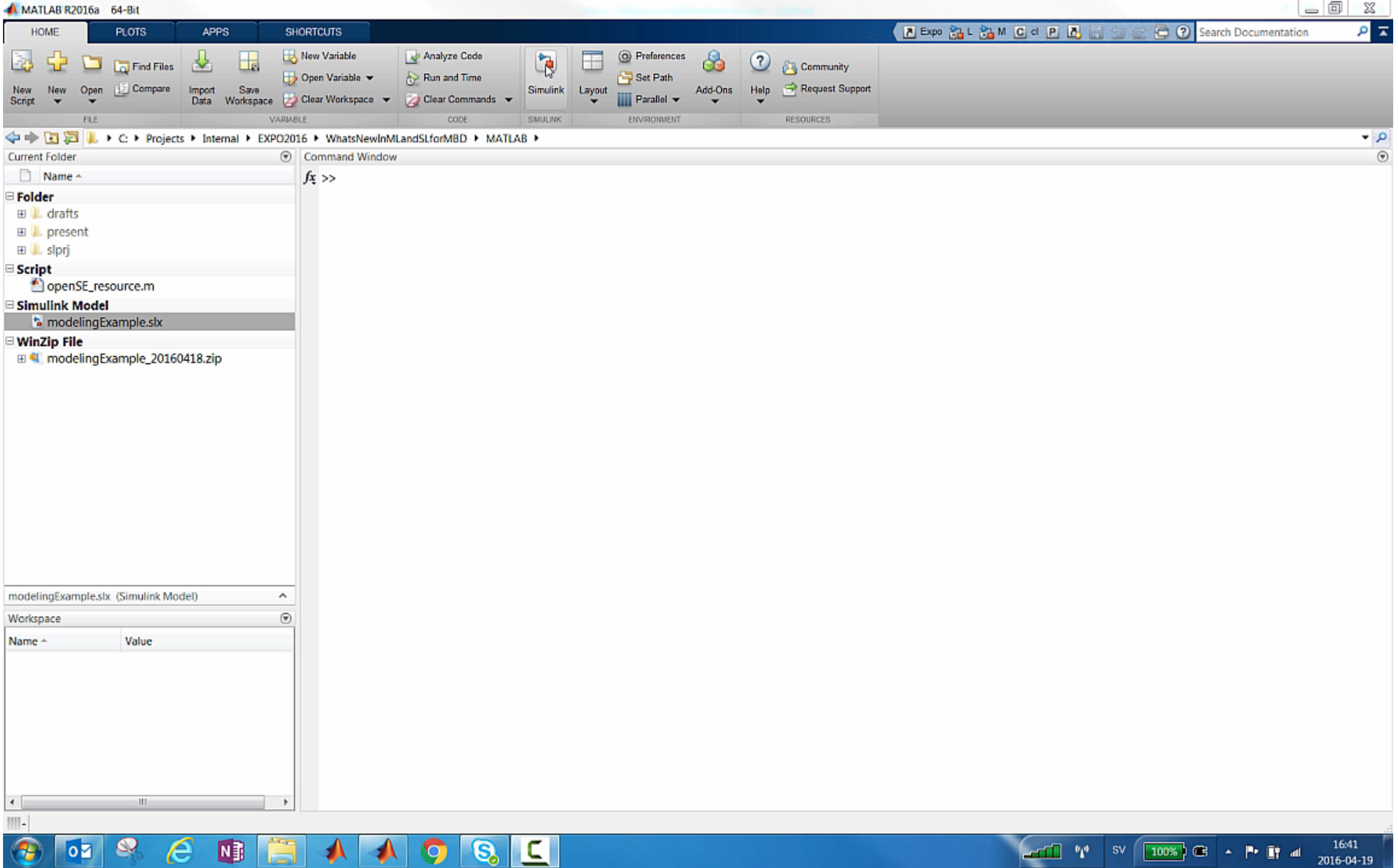
R2015aSP1
Bug Fixes
R2015b

Model-Based Design Workflow



Model-Based Design Workflow




MATLAB R2016a 64-Bit
HOME
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Search Documentation
New Script
New
Open
Find Files
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Import Data
Save Workspace
New Variable
Open Variable
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Analyze Code
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Clear Commands
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RESOURCES
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Current Folder
Name
Folder
drafts
present
slprj
Script
openSE_resource.m
Simulink Model
modelingExample.slx
WinZip File
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modelingExample.slx (Simulink Model)
Workspace
Name
Value
Command Window
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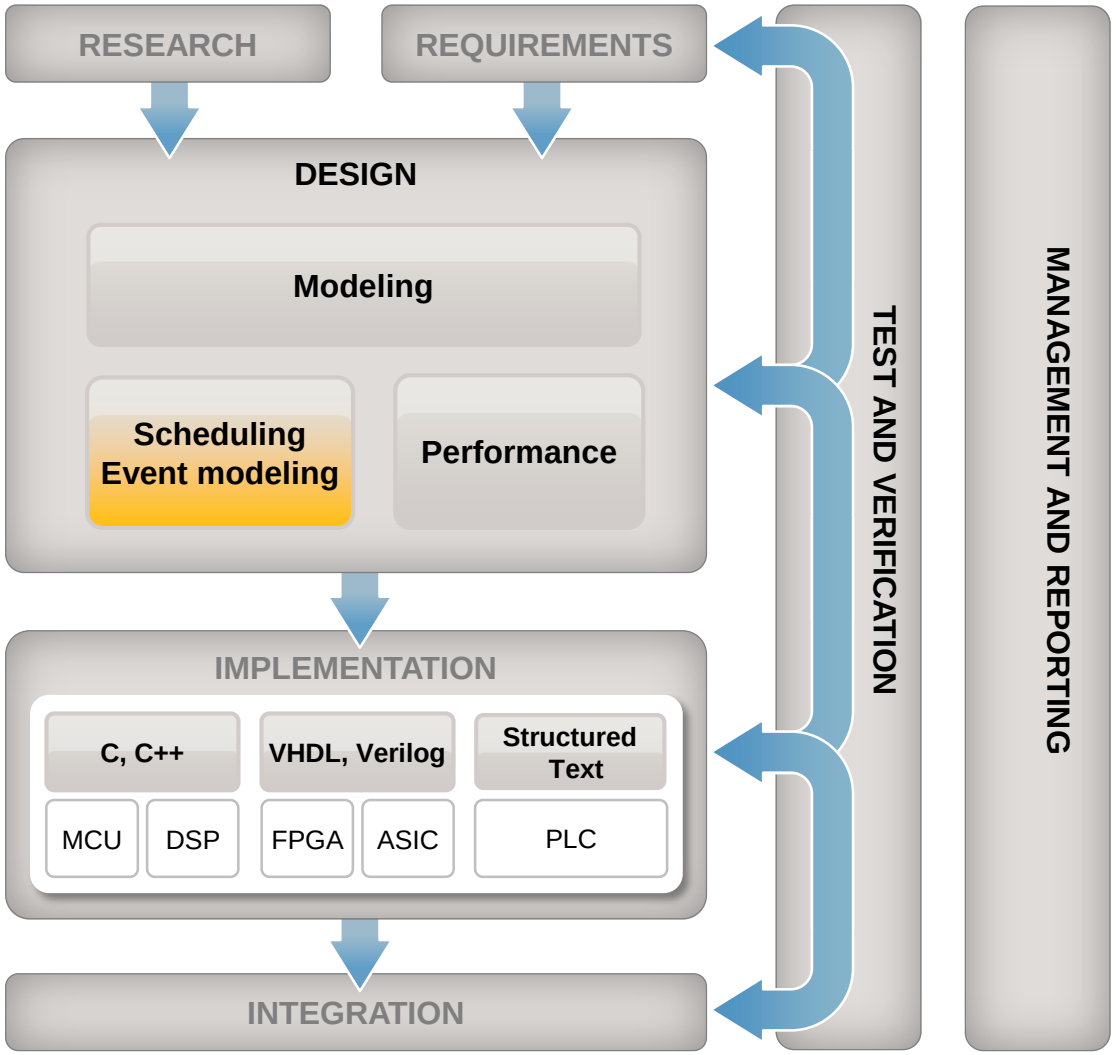
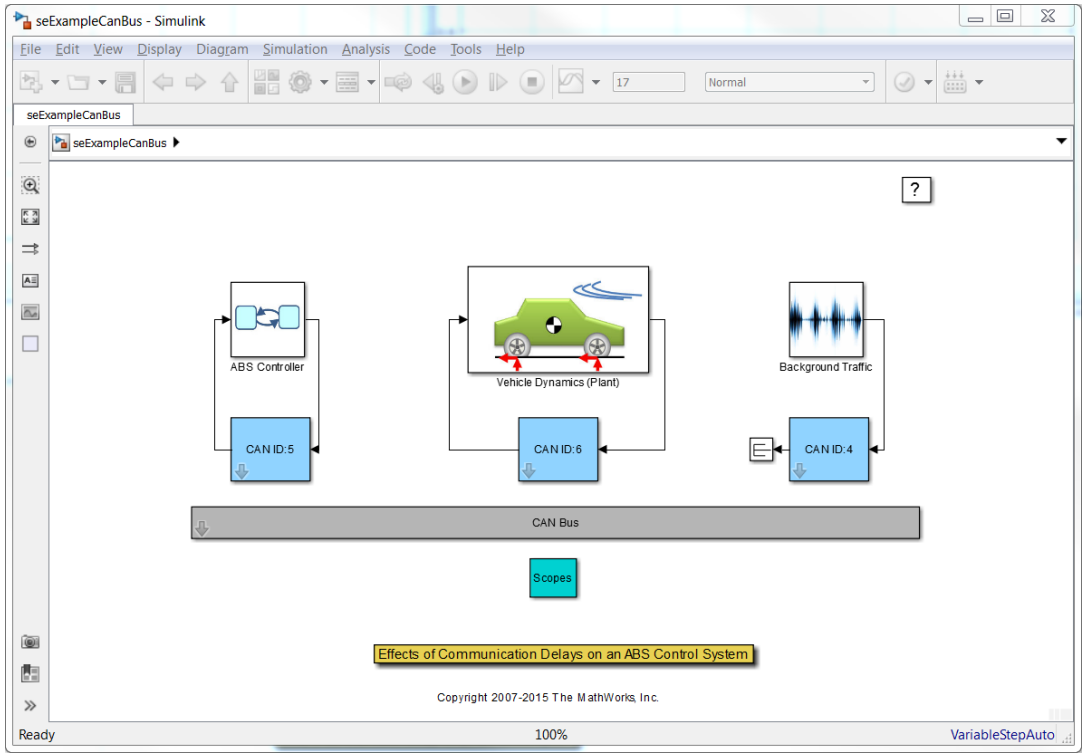
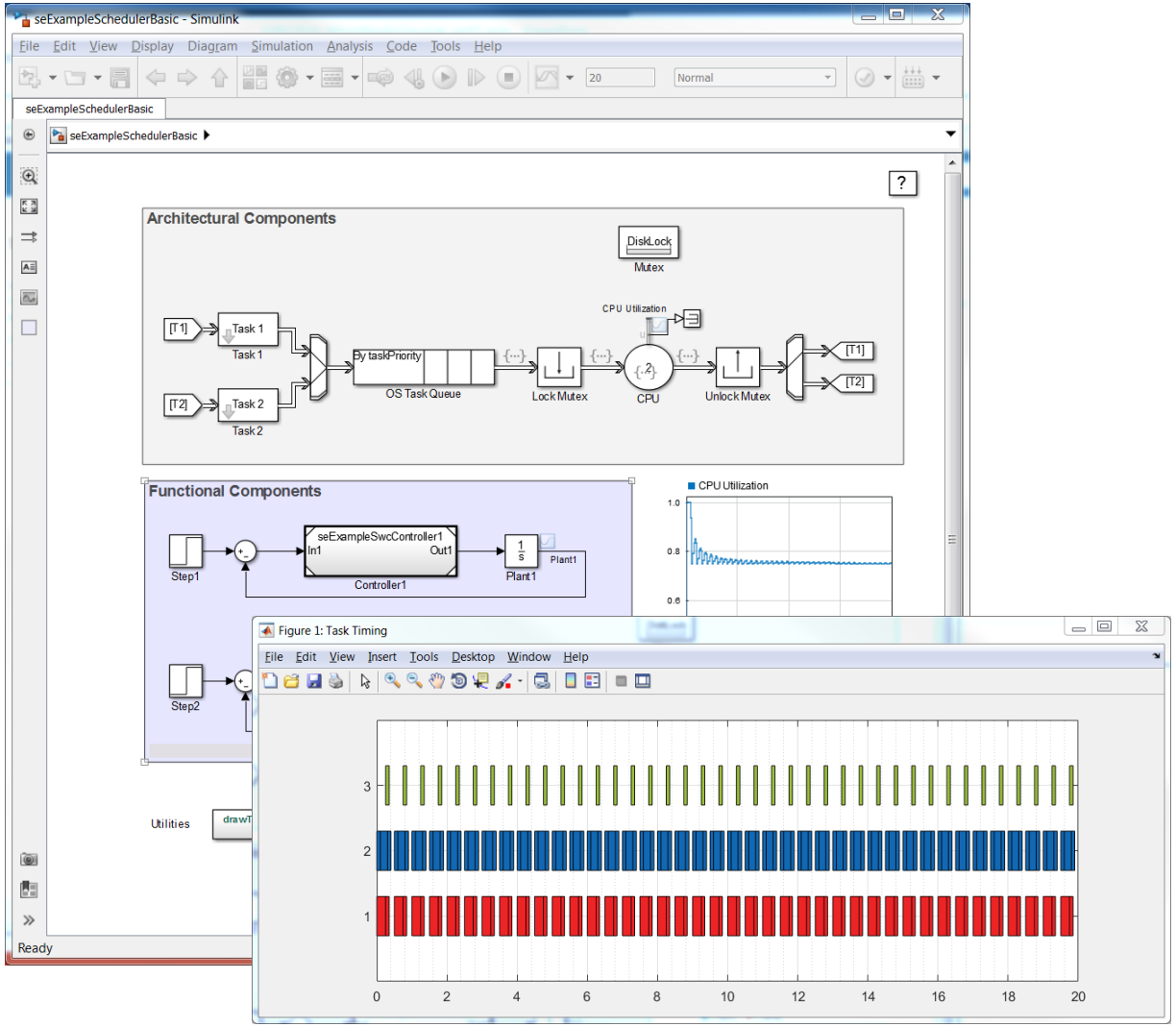
2016-04-19

Model-Based Design Workflow



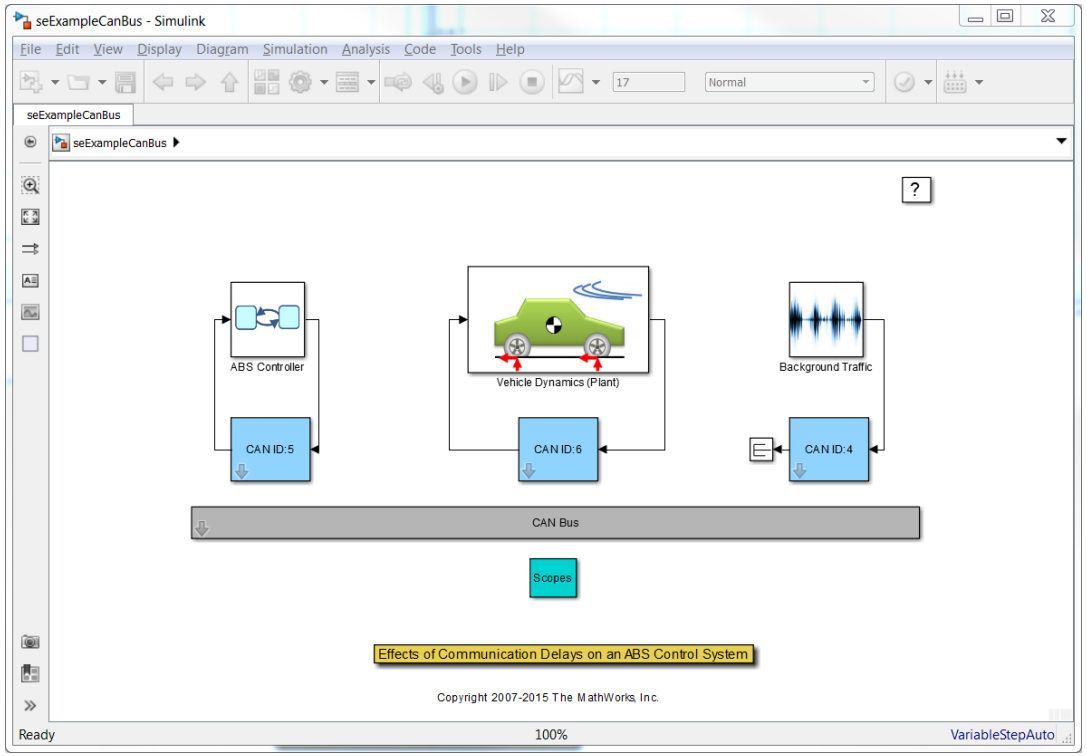
Messages, Functions and Scheduling

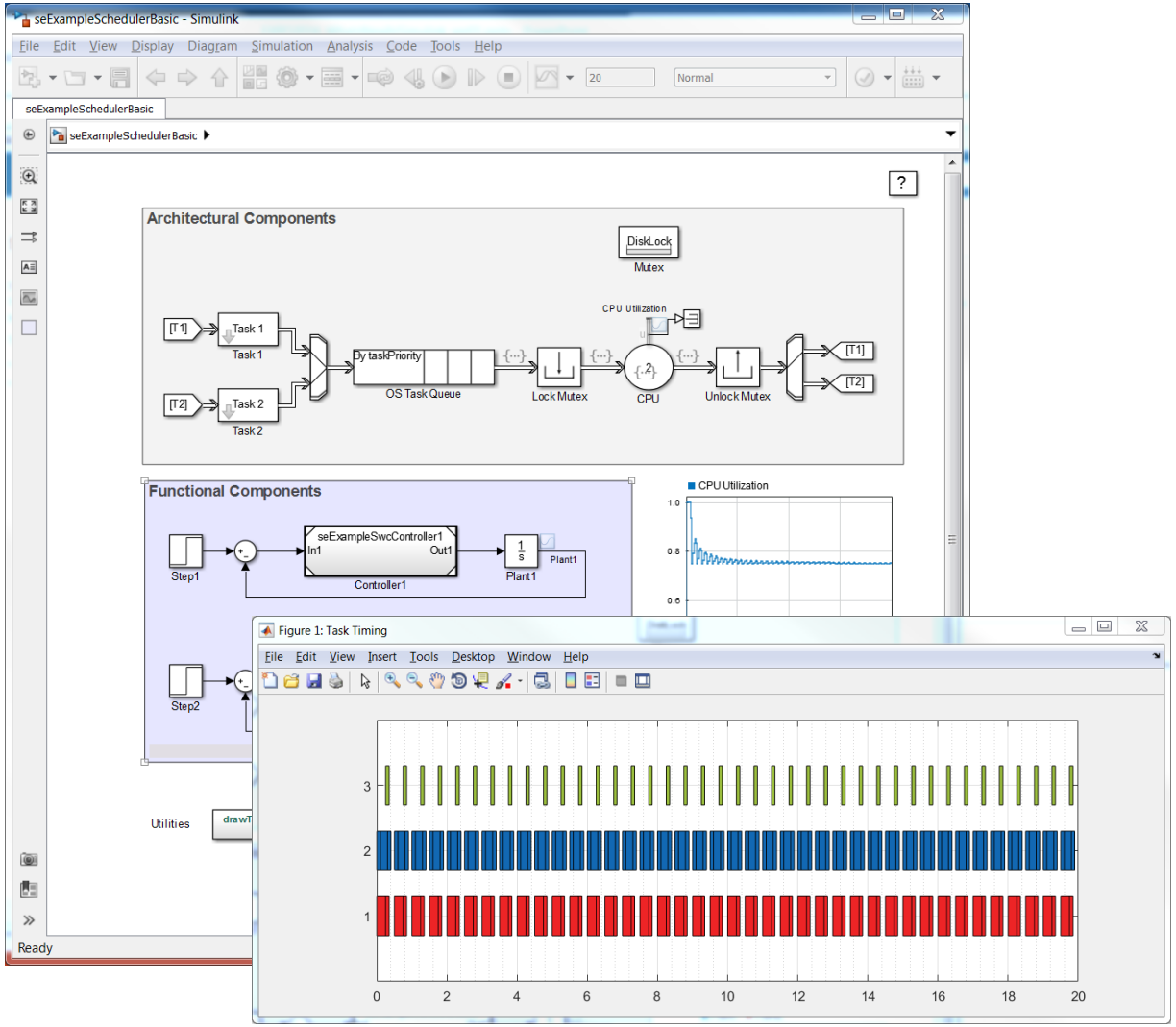




New SimEvents

Discrete-event simulation engine for multidomain system models





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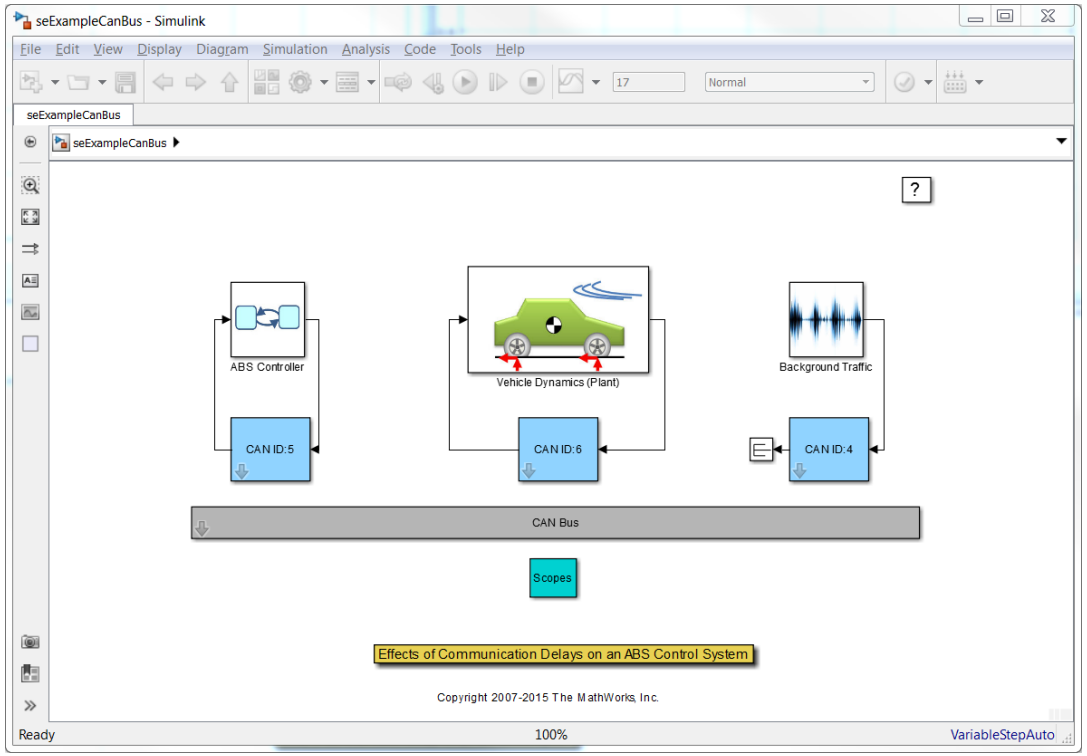

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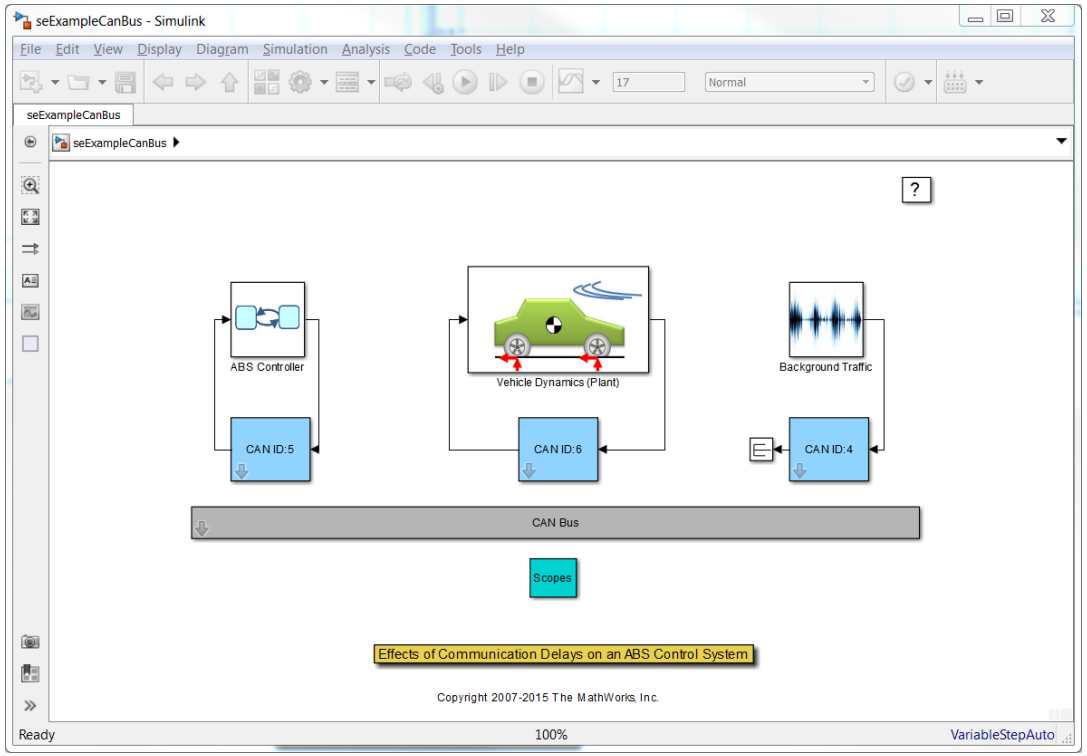
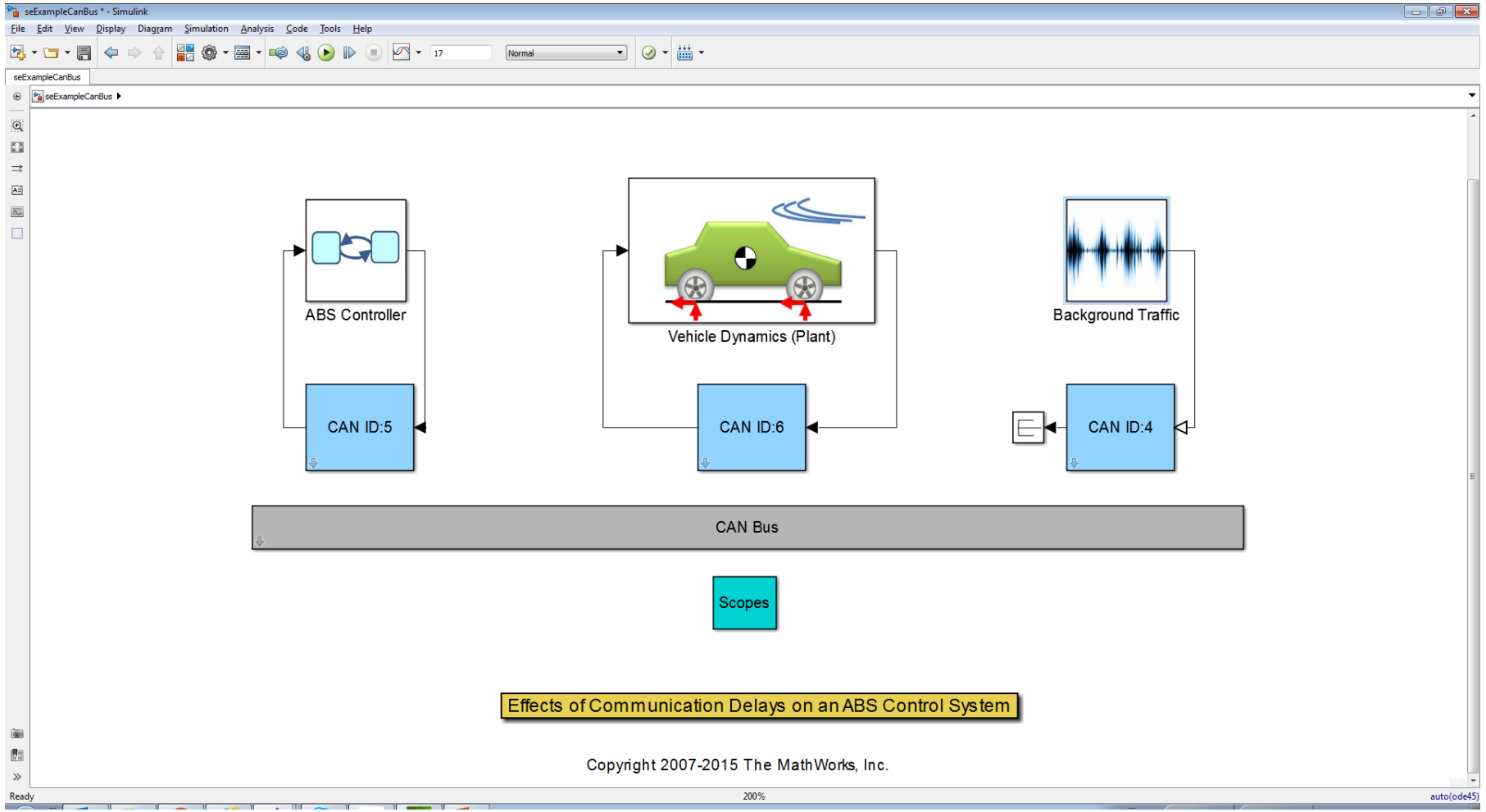
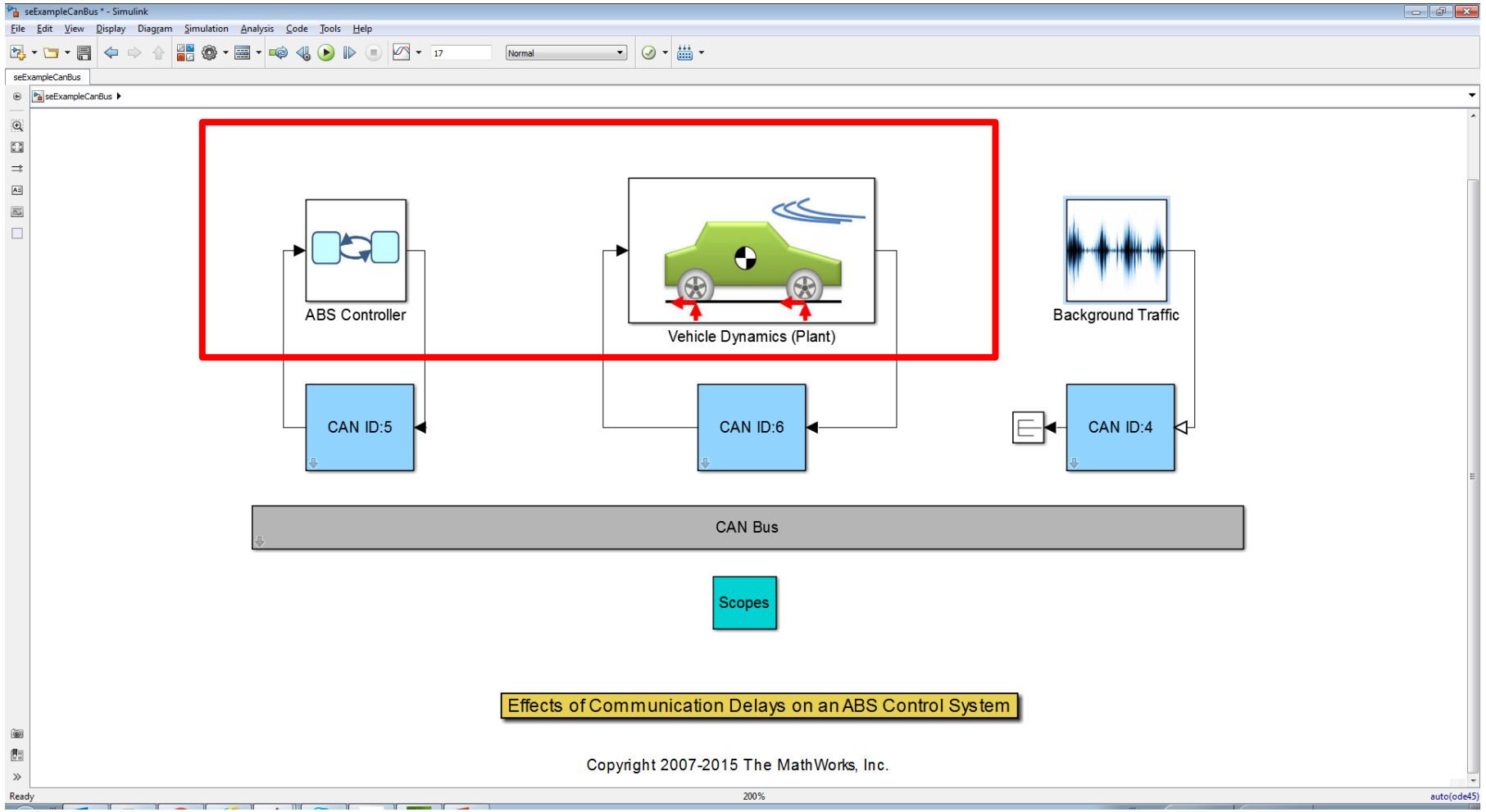


How does communication delays effect your system performance?

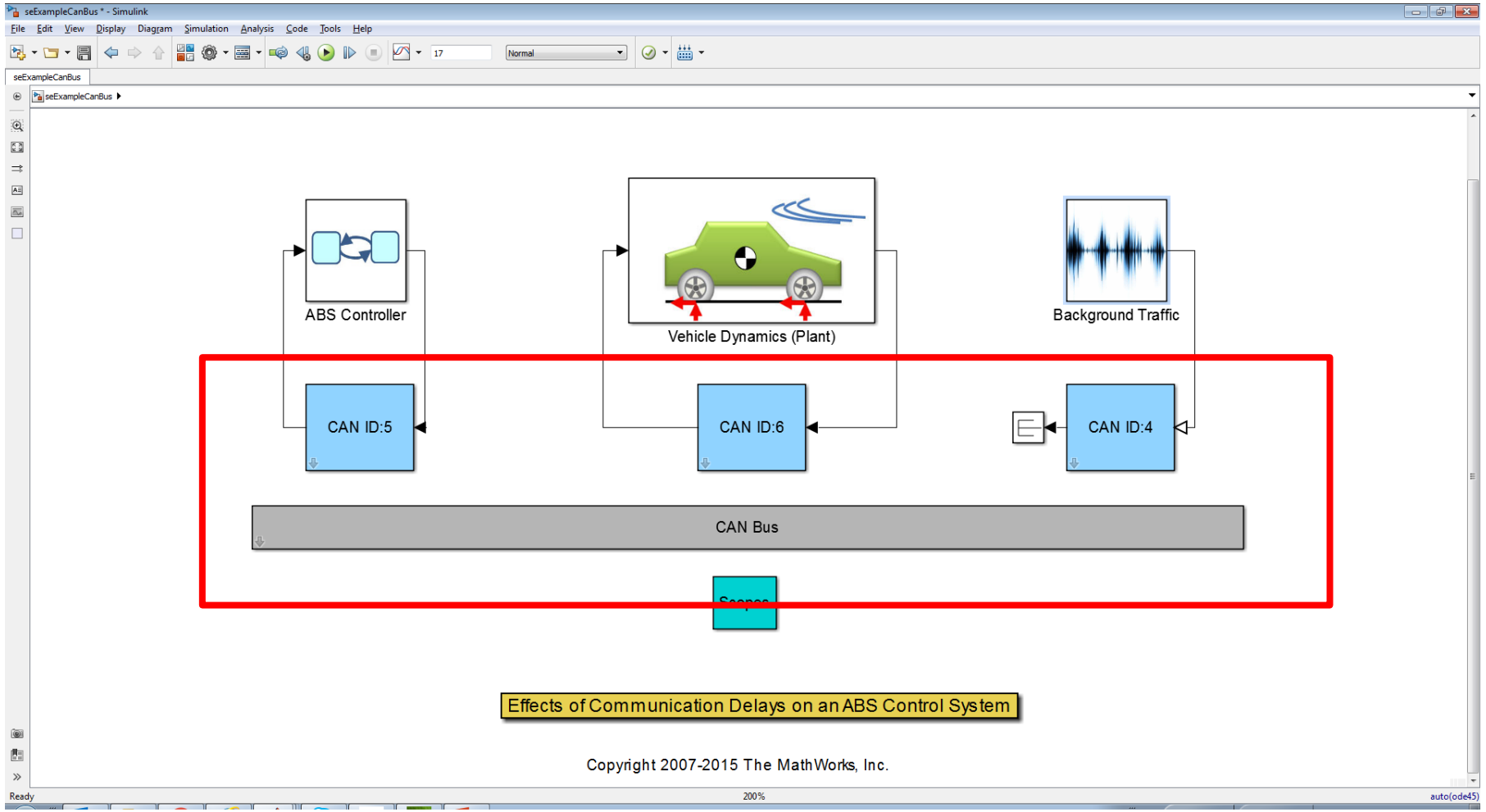
CAN simulation with Simulink and SimEvents



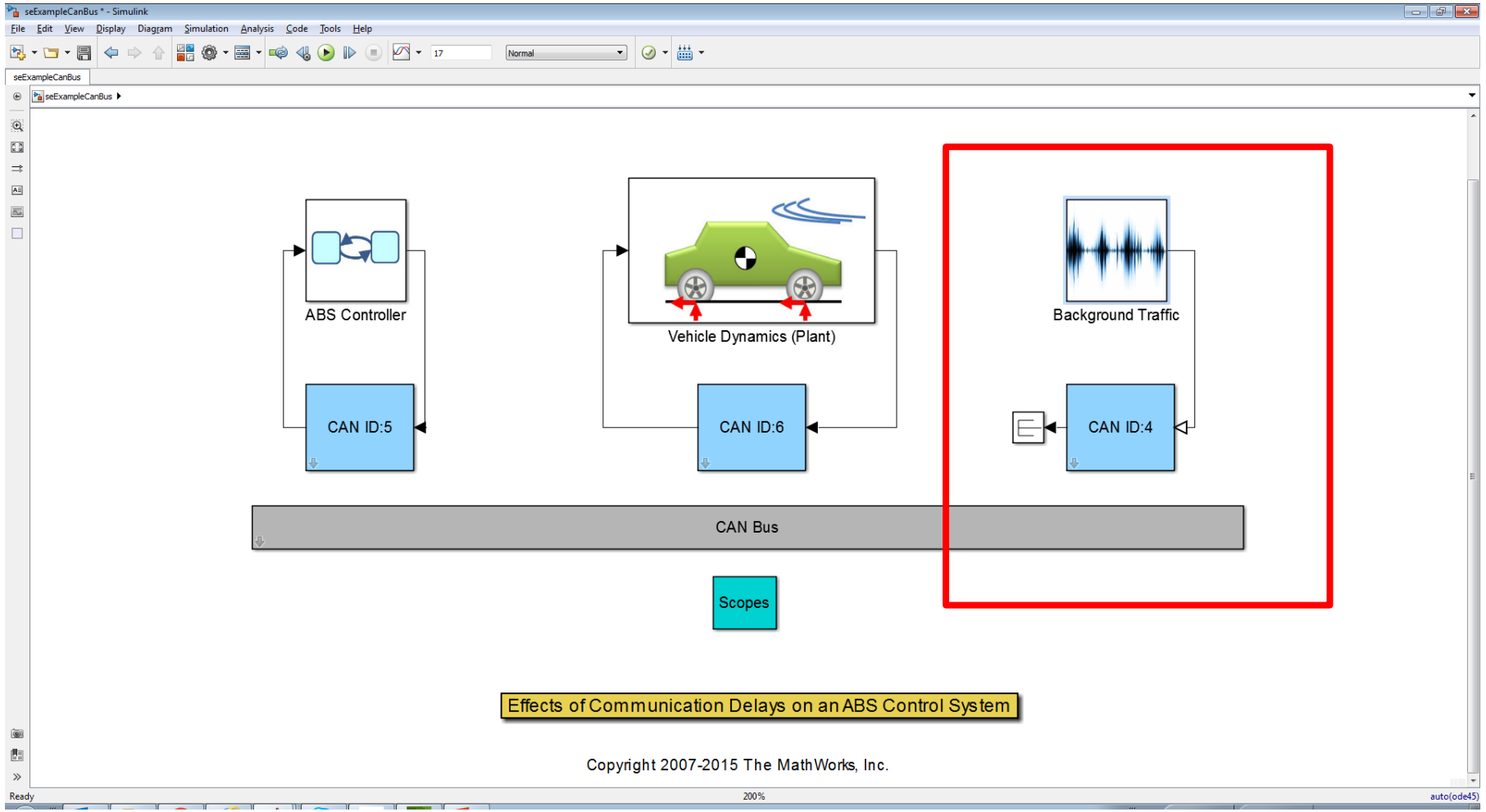
CAN simulation with Simulink and SimEvents



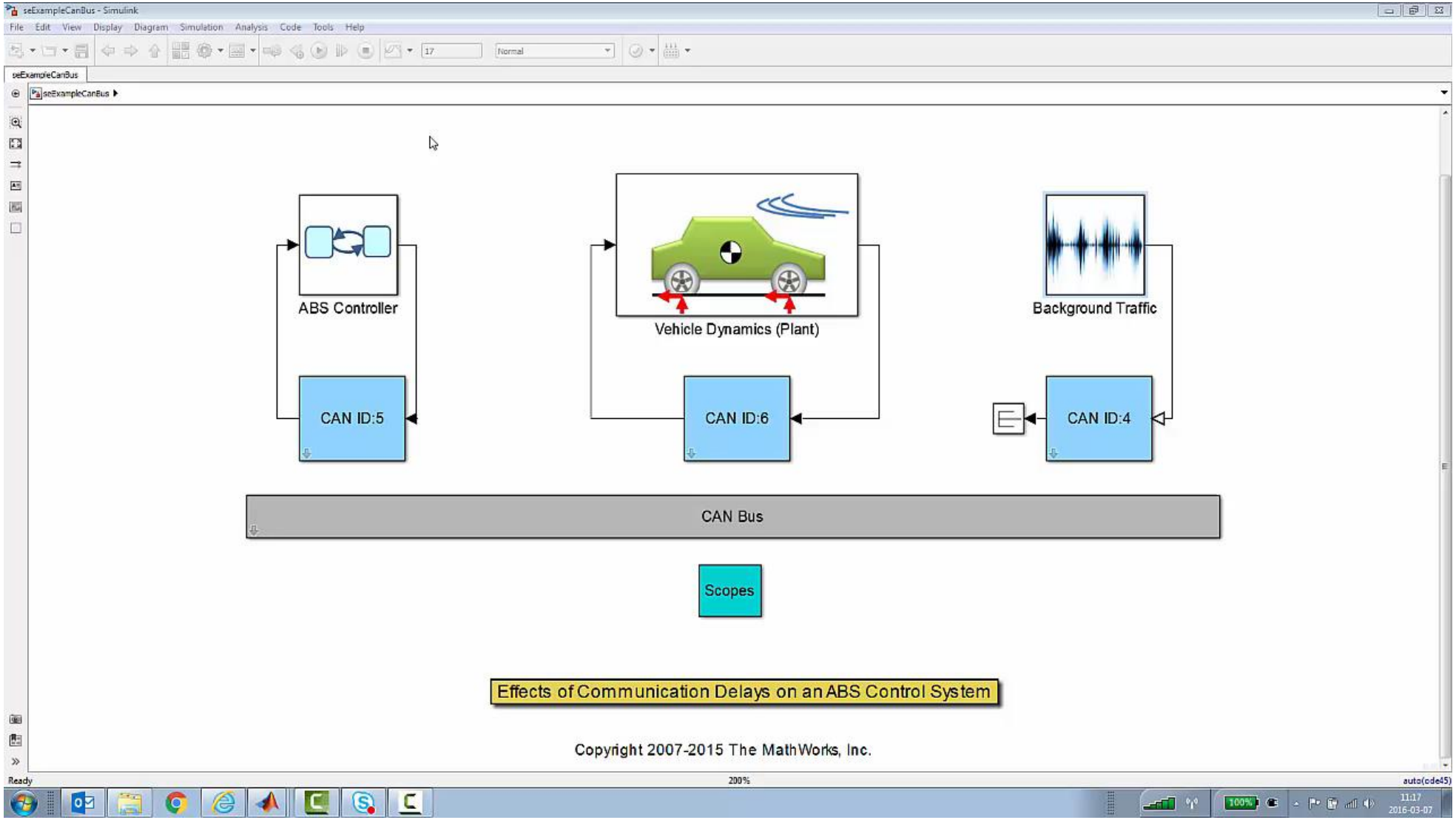
CAN simulation with Simulink and SimEvents



CAN simulation with Simulink and SimEvents

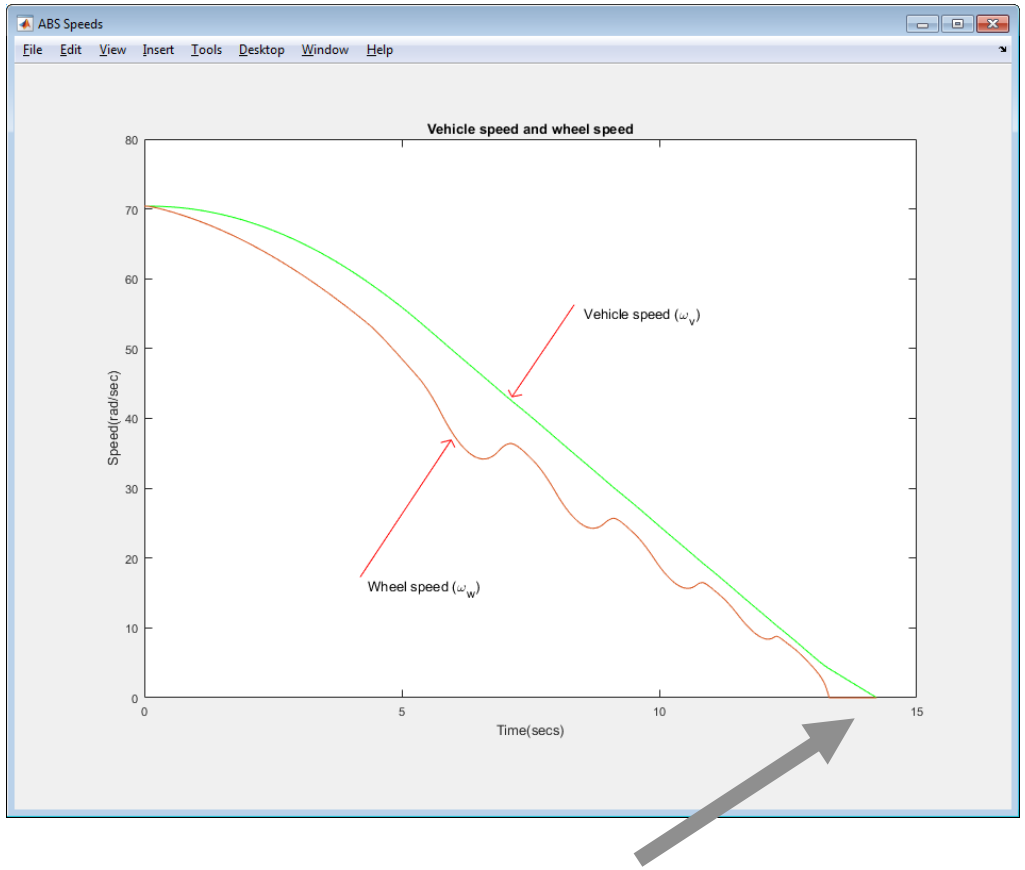


CAN simulation with Simulink and SimEvents



CAN simulation with Simulink and SimEvents

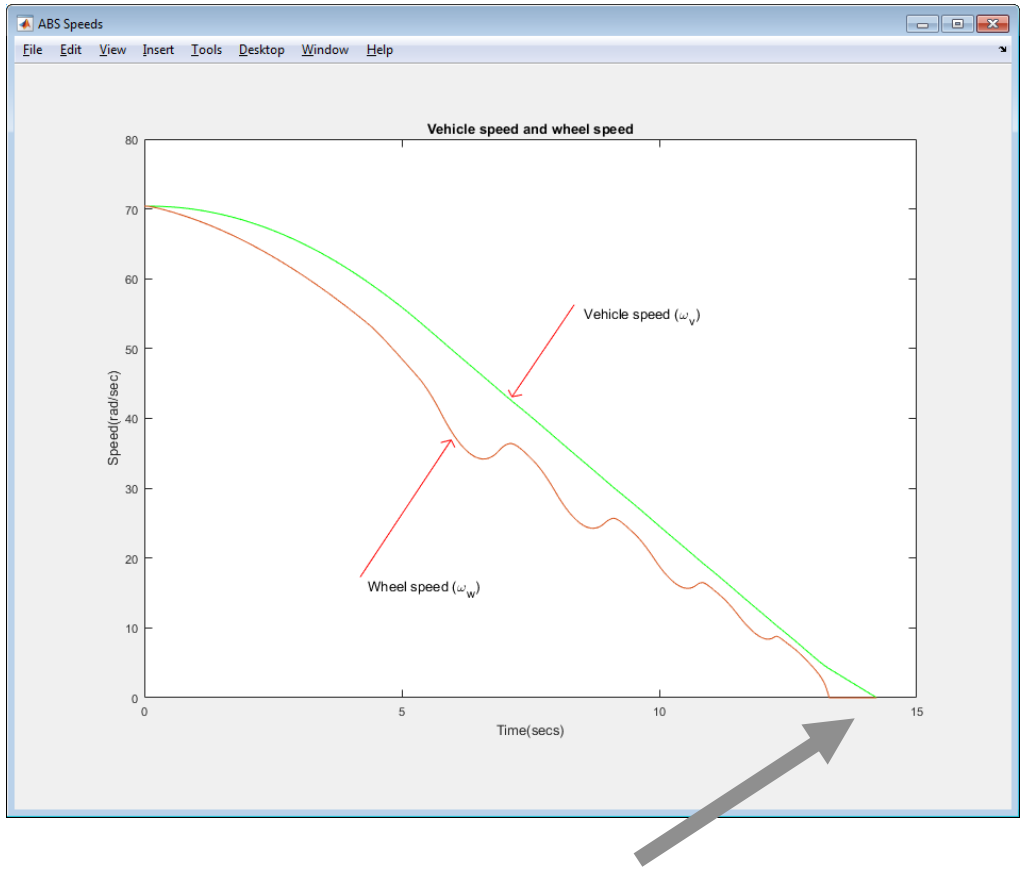
Without background noise



Vehicle stops after 14.2 seconds

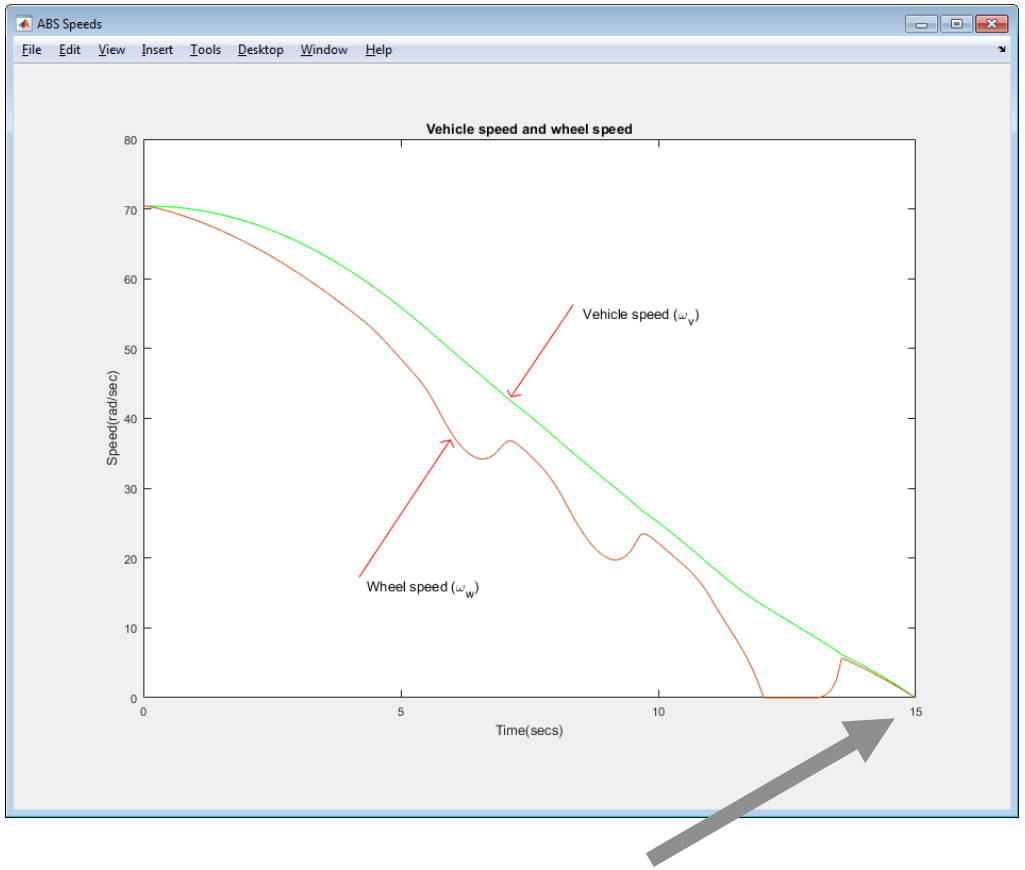
CAN simulation with Simulink and SimEvents

Without background noise



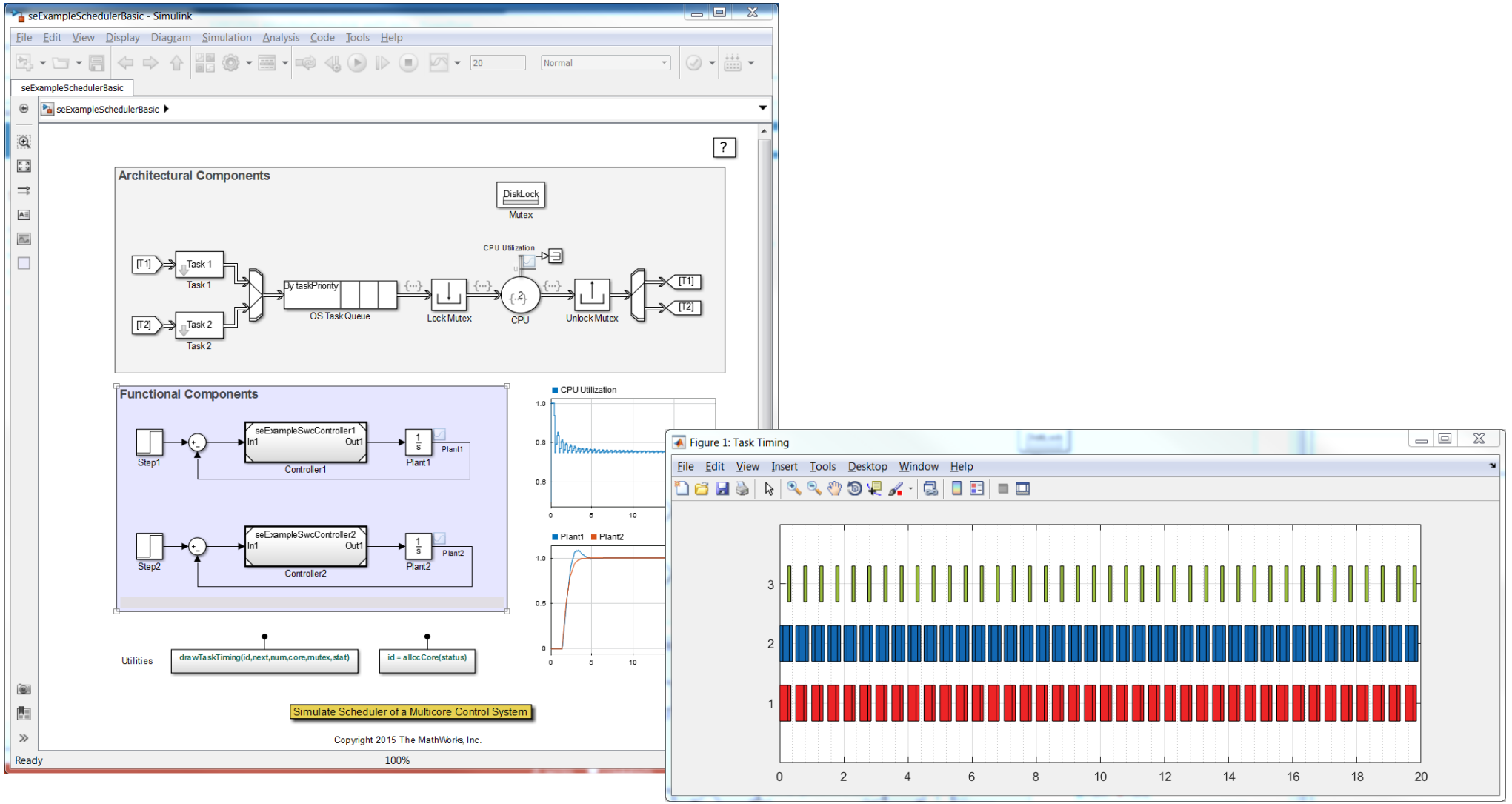
Vehicle stops after 14.2 seconds

With background noise

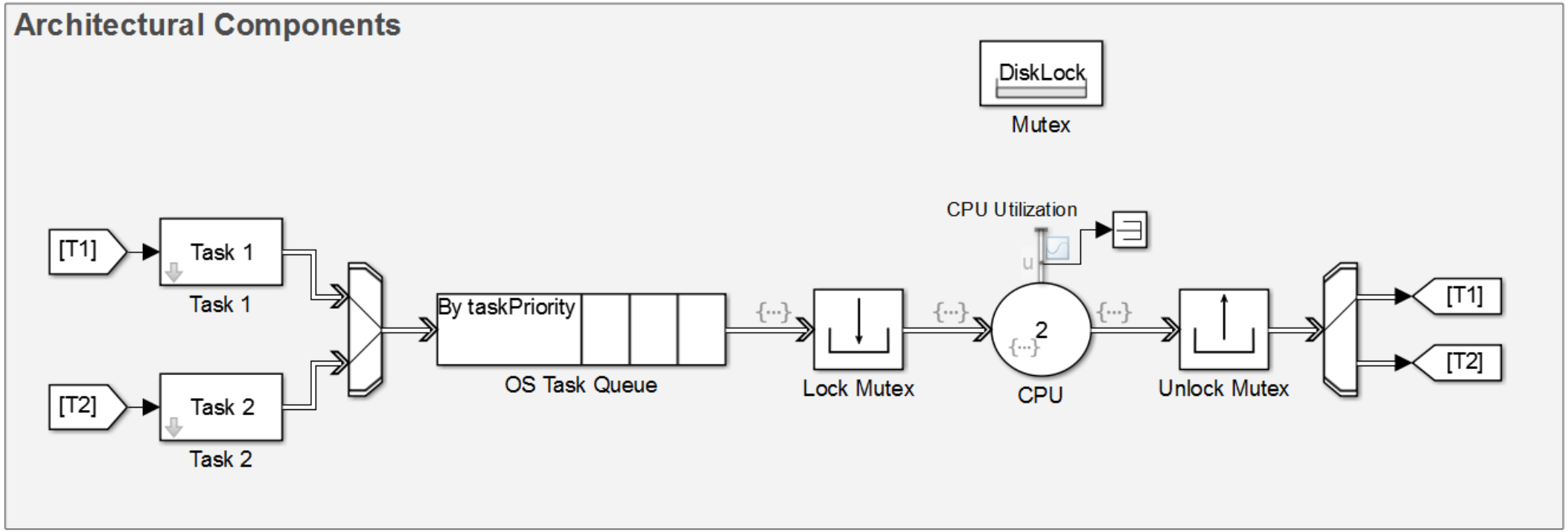


Vehicle stops after 15 seconds

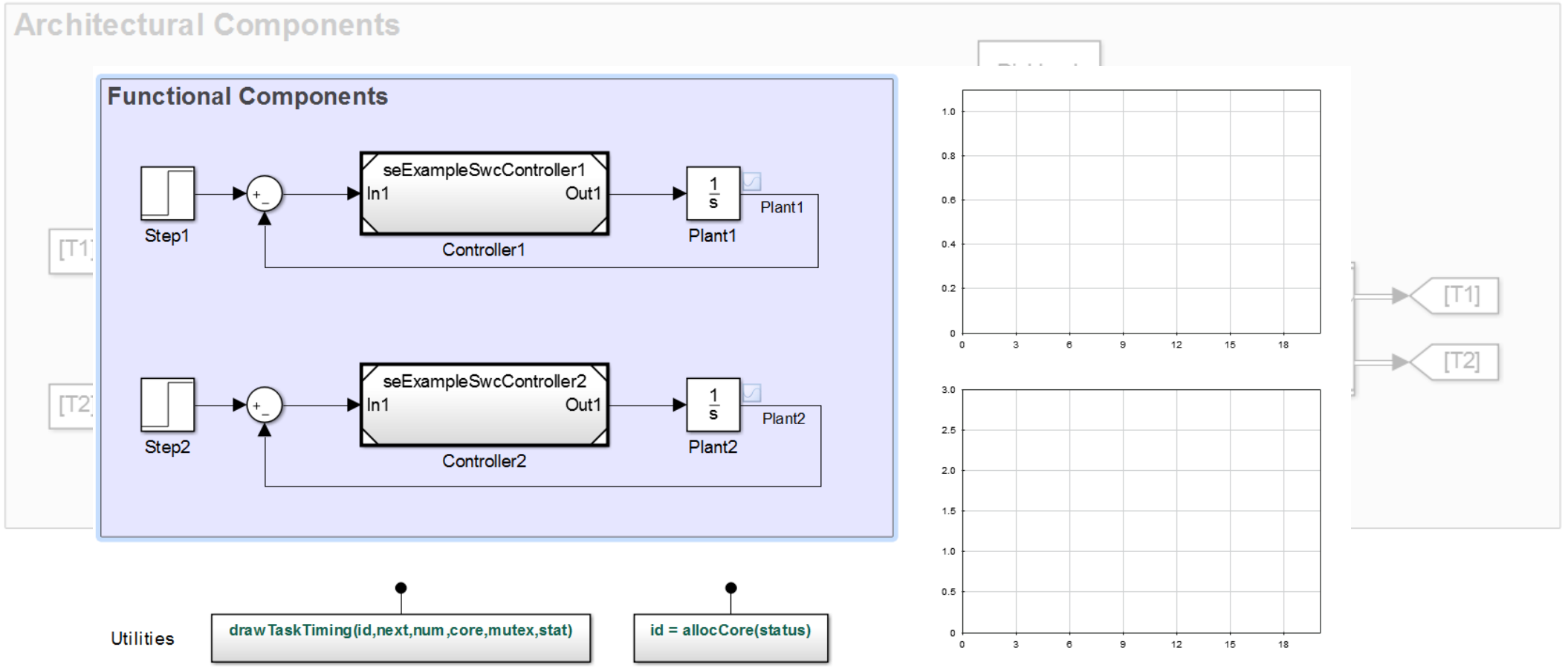
Scheduler Example



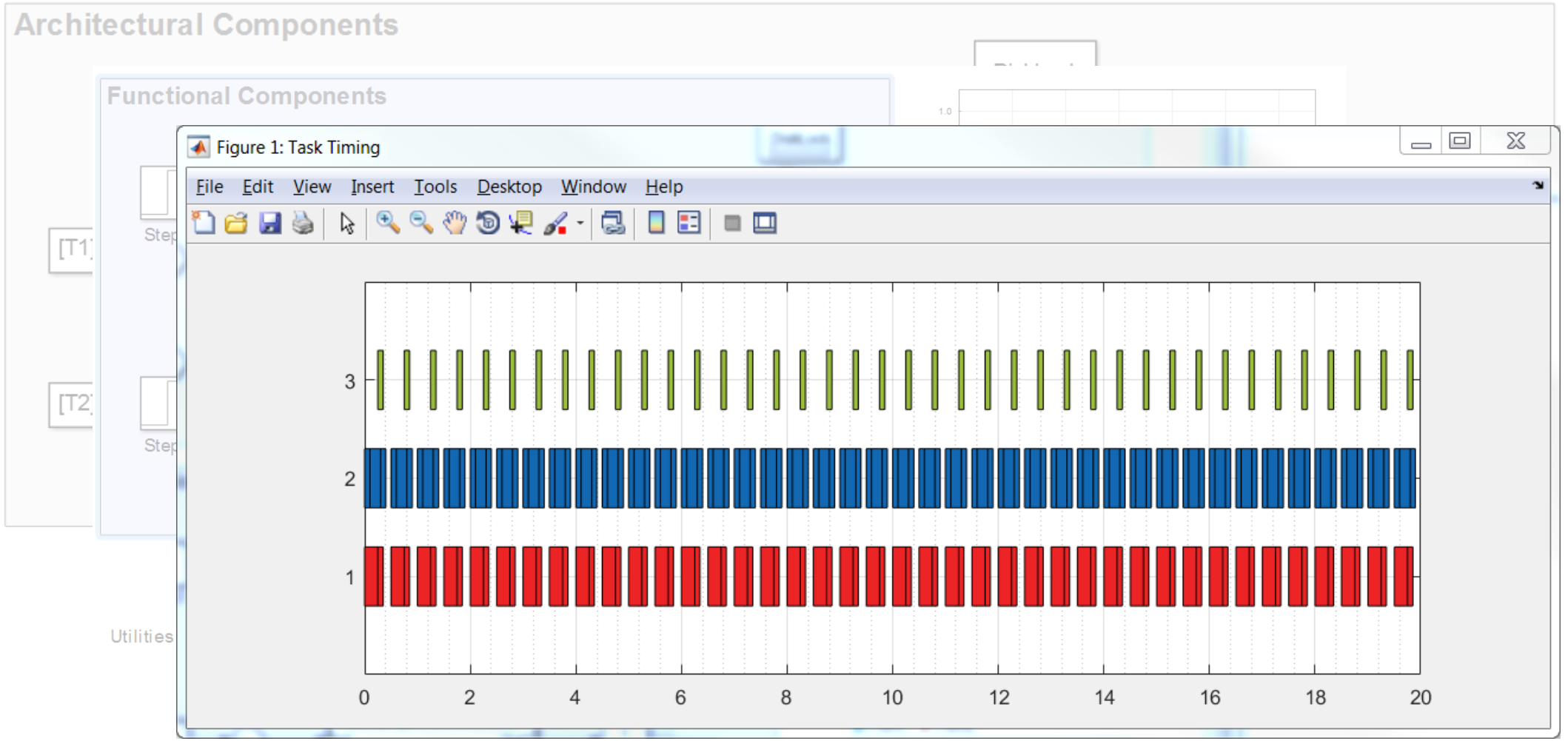
Scheduler Example



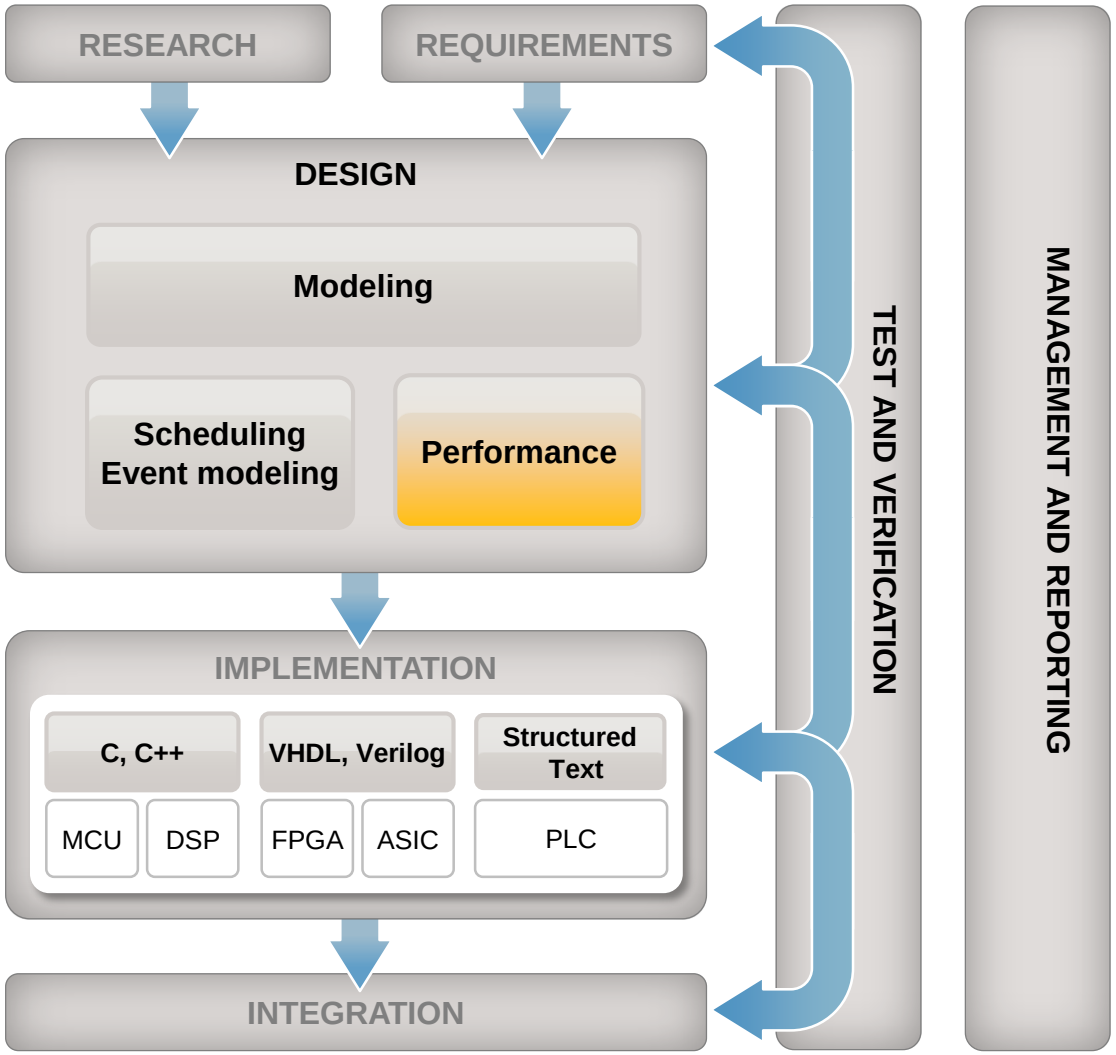
Scheduler Example



Scheduler Example

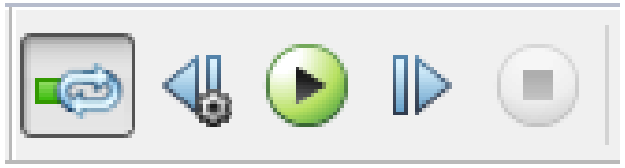


Model-Based Design Workflow



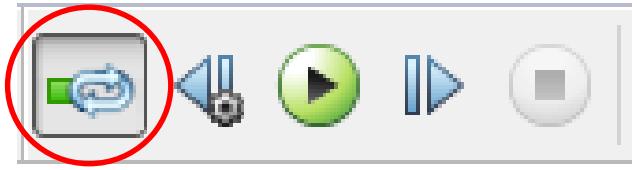
Fast Restart

Run consecutive simulations more quickly



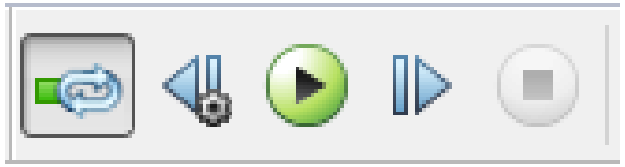
Fast Restart

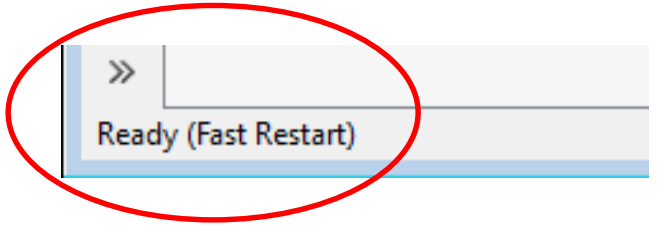
Run consecutive simulations more quickly



Fast Restart

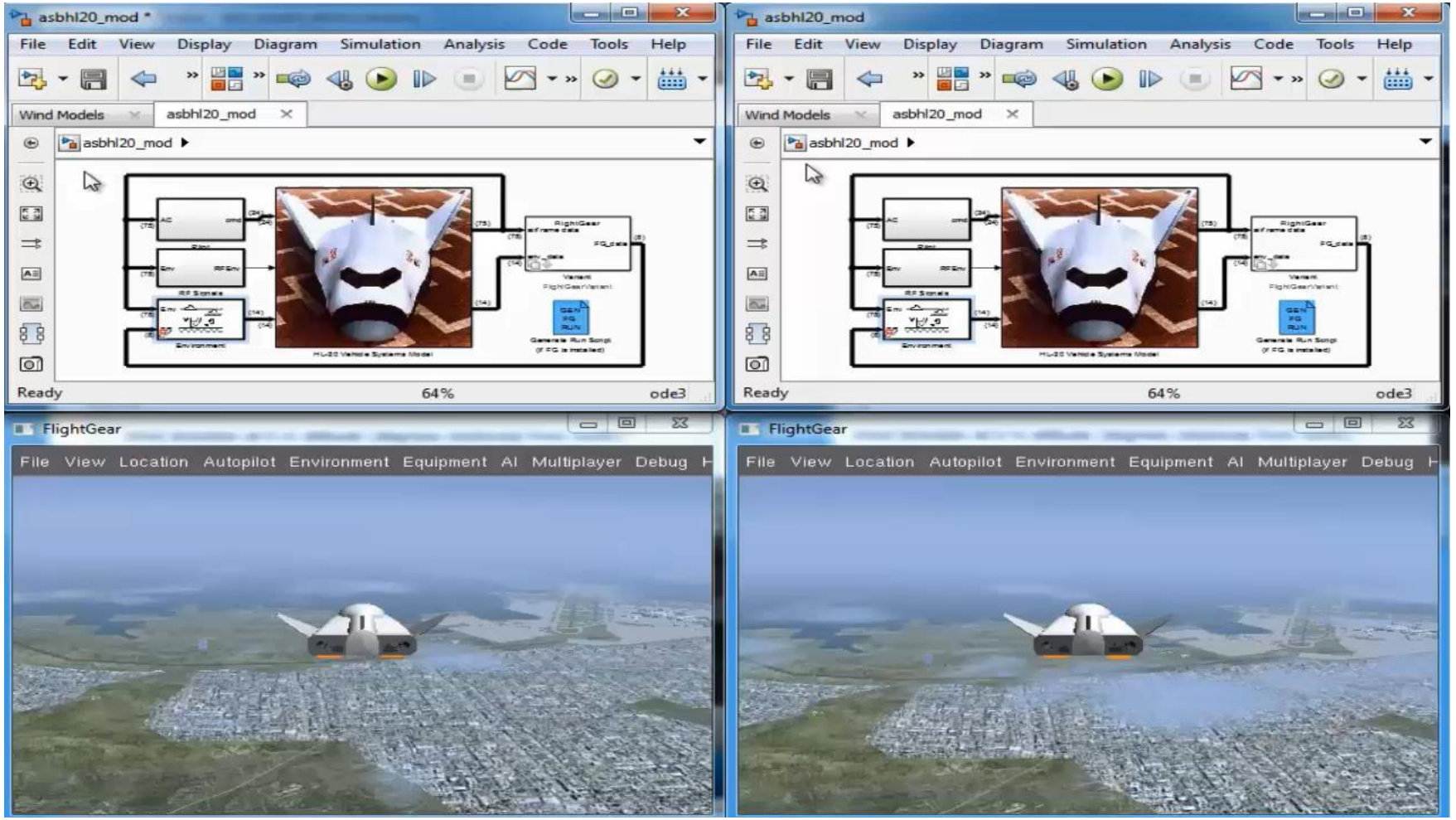
Run consecutive simulations more quickly



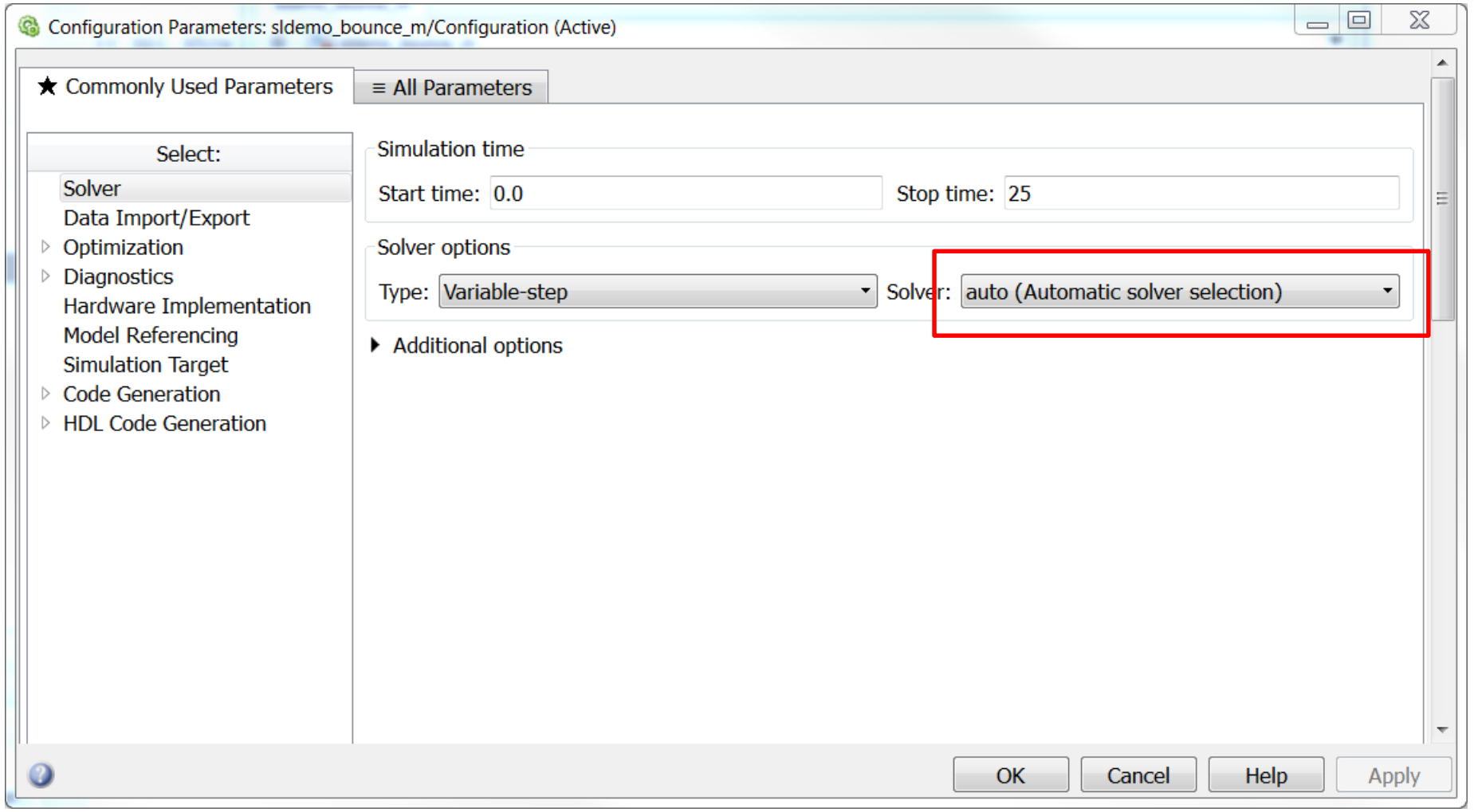


Simulink - Faster consecutive simulations

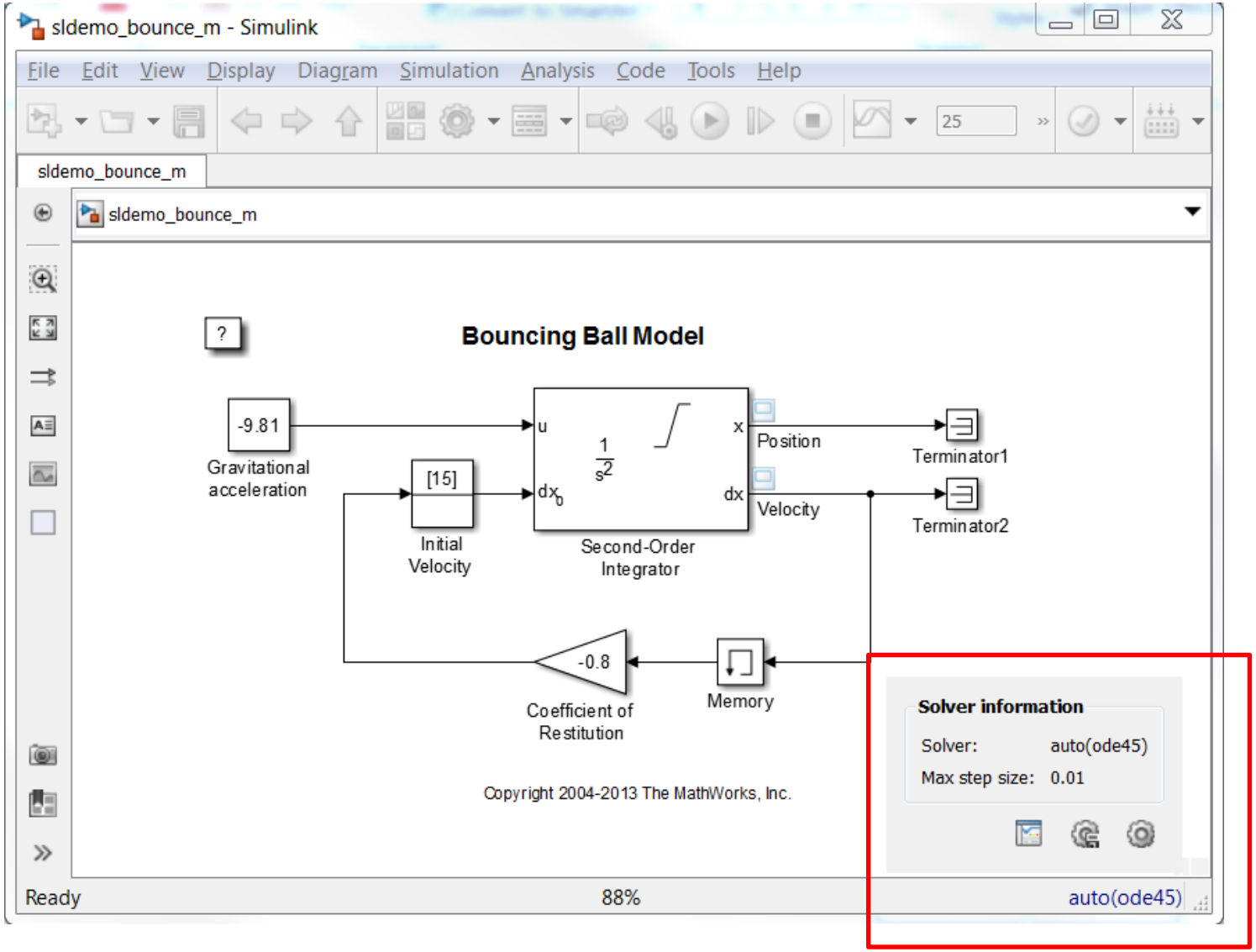
Fast Restart



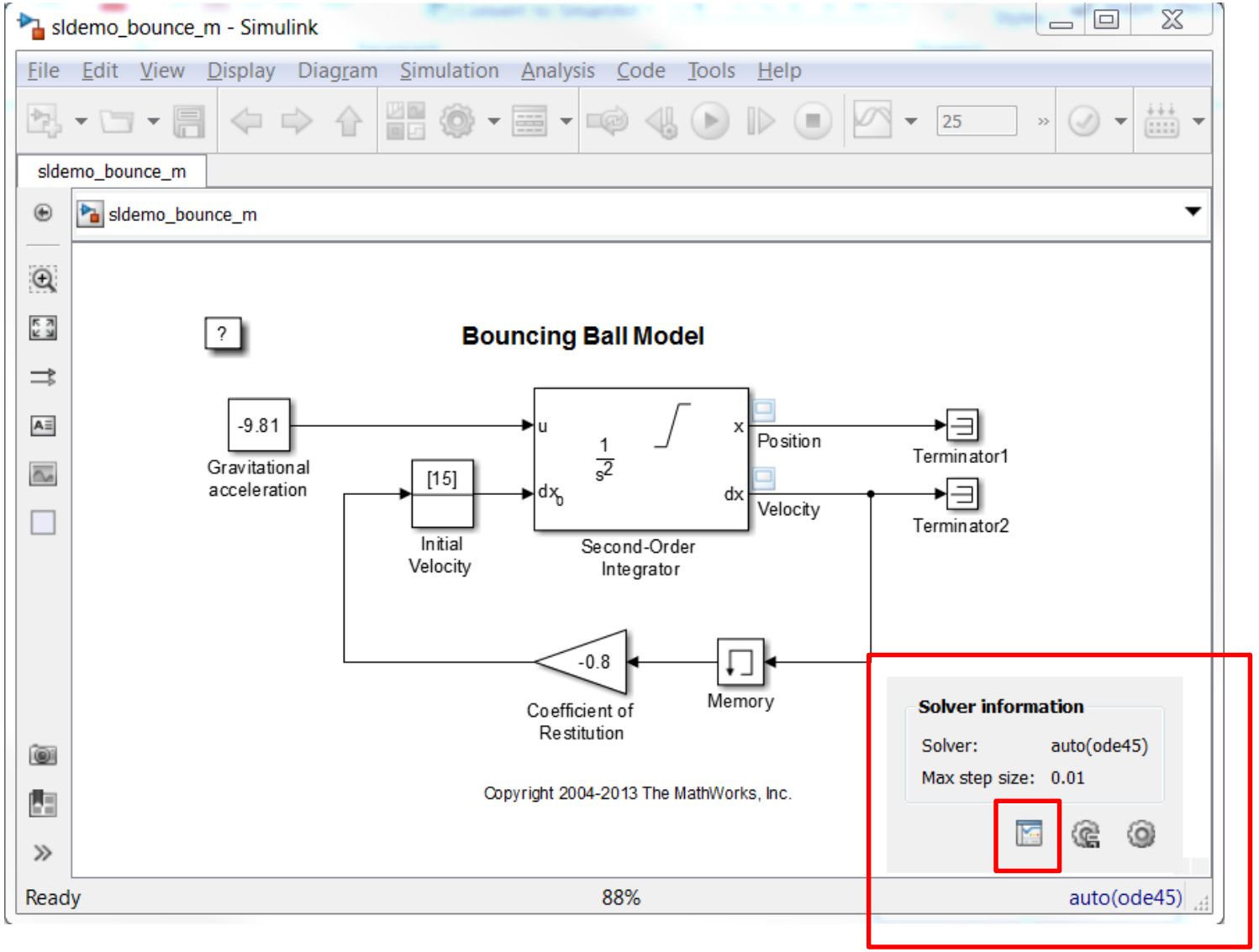
Automatic Solver Selection



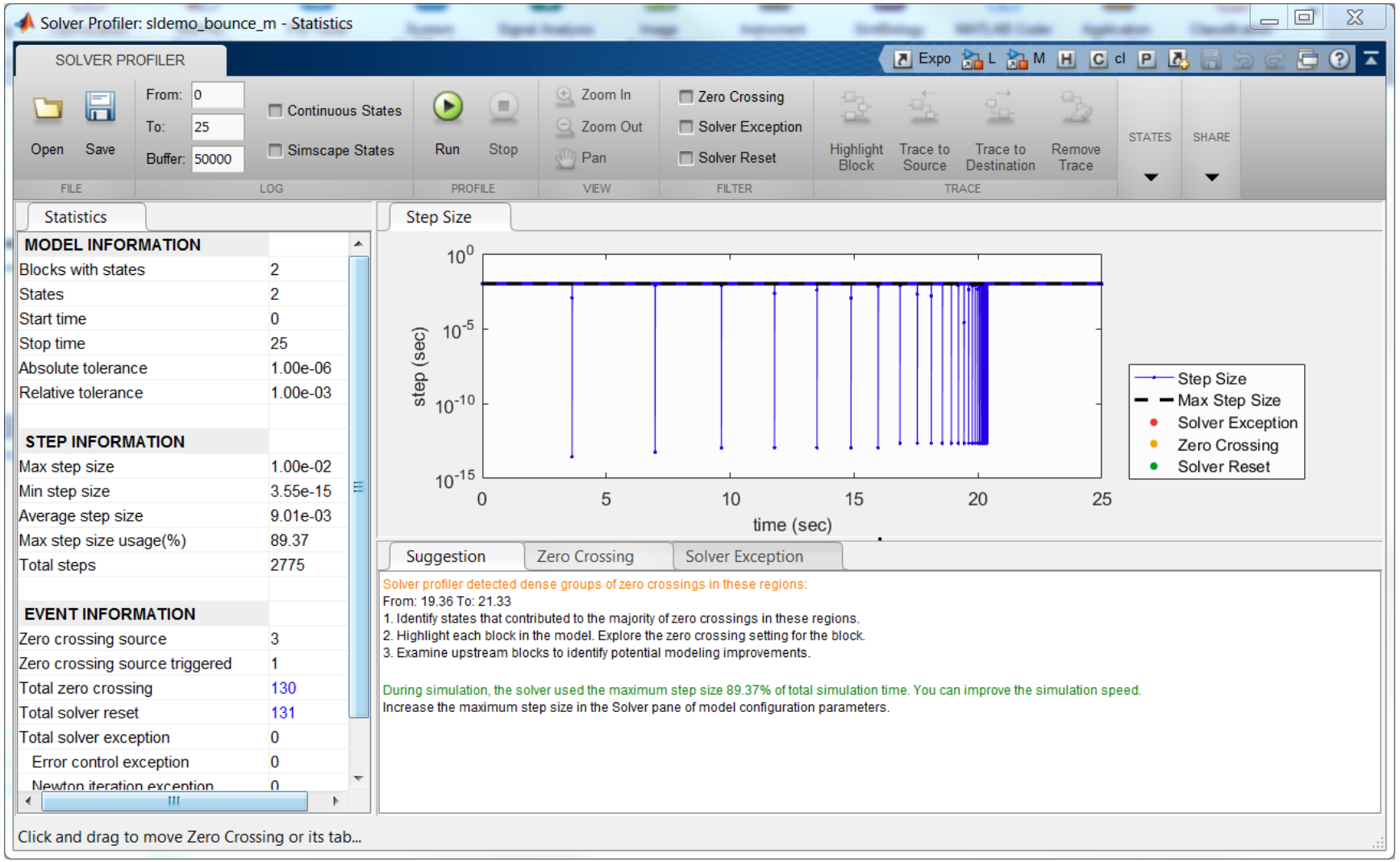
Understanding the selected solver



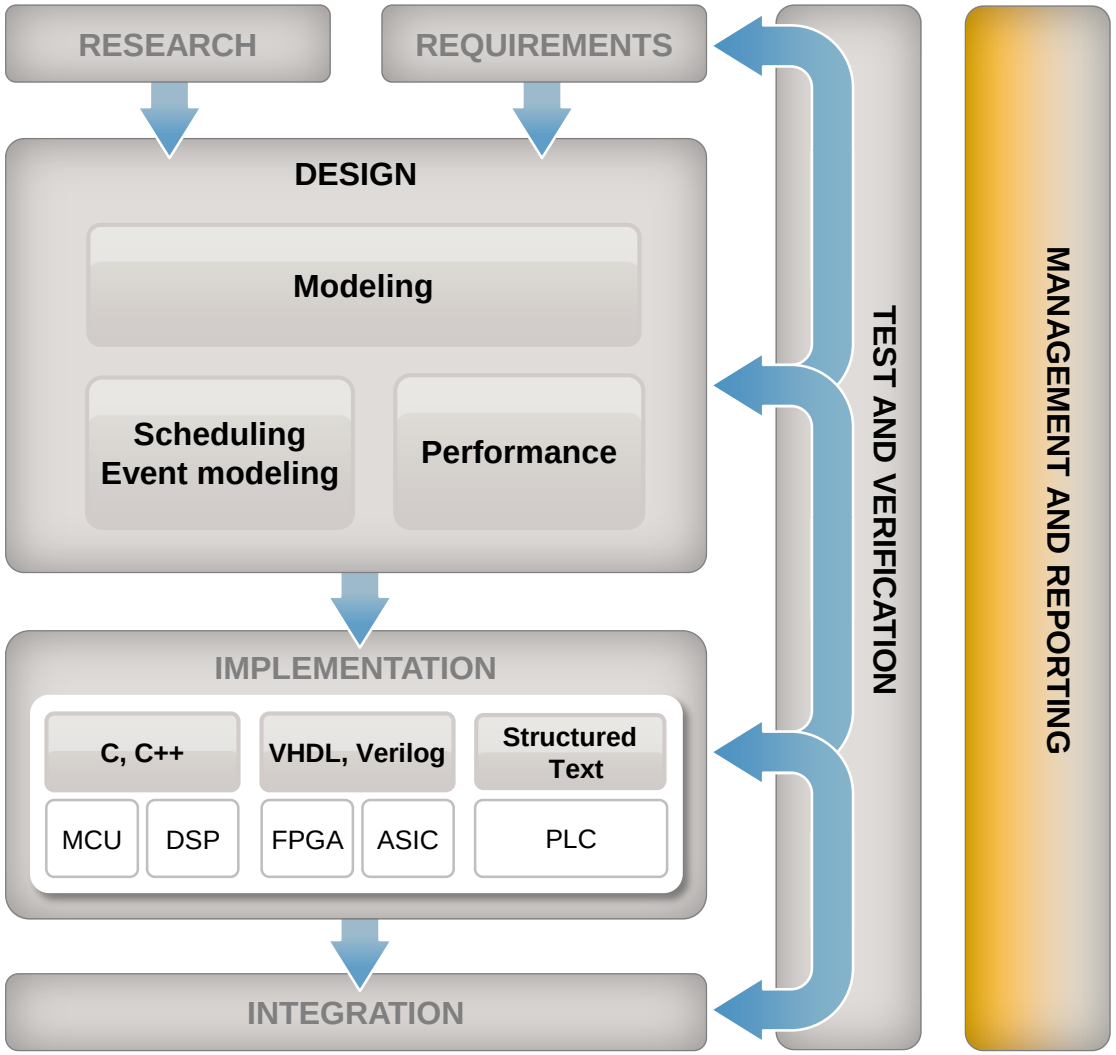
Understanding the selected solver



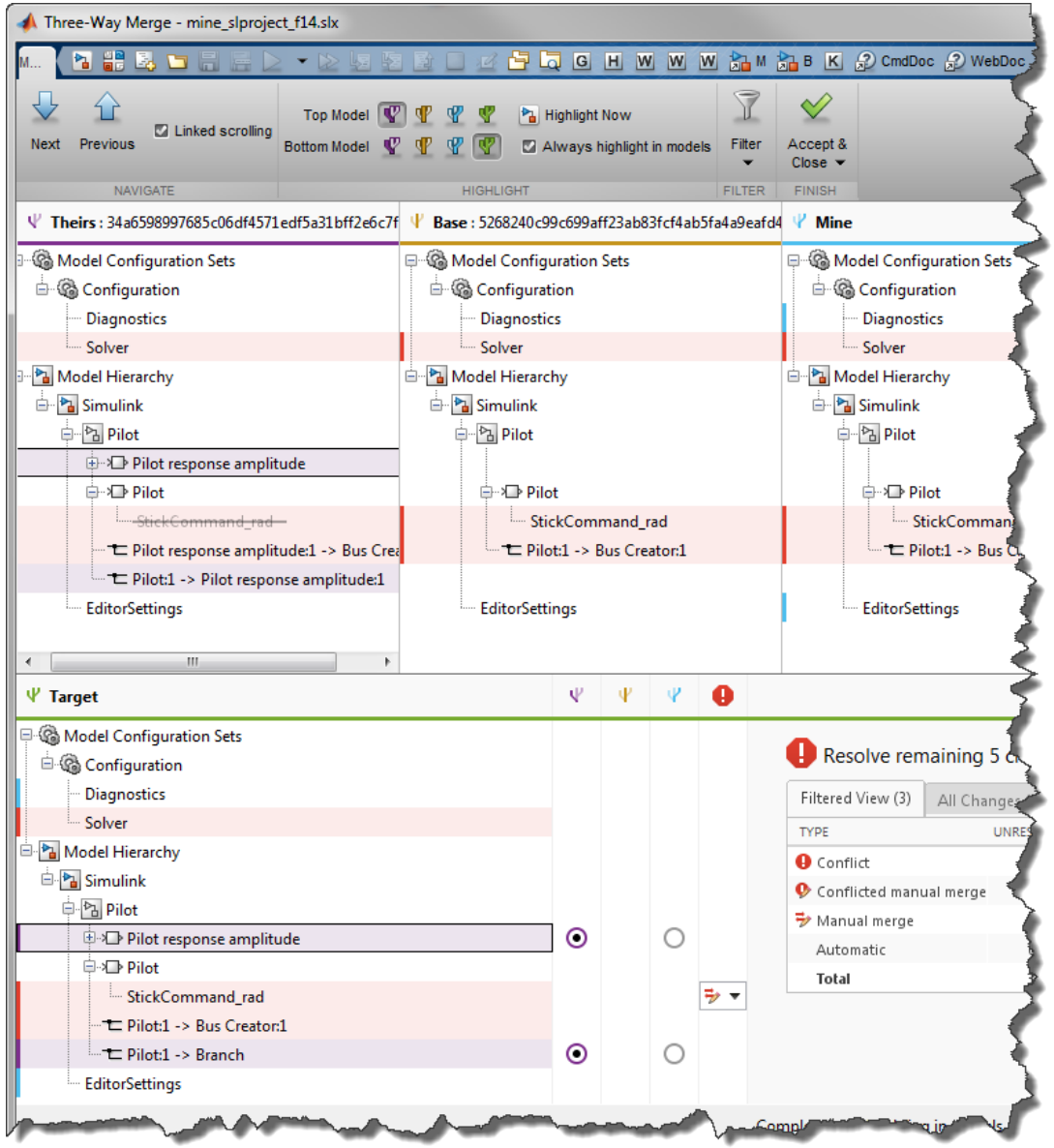
Understanding the selected solver - Solver Profiler



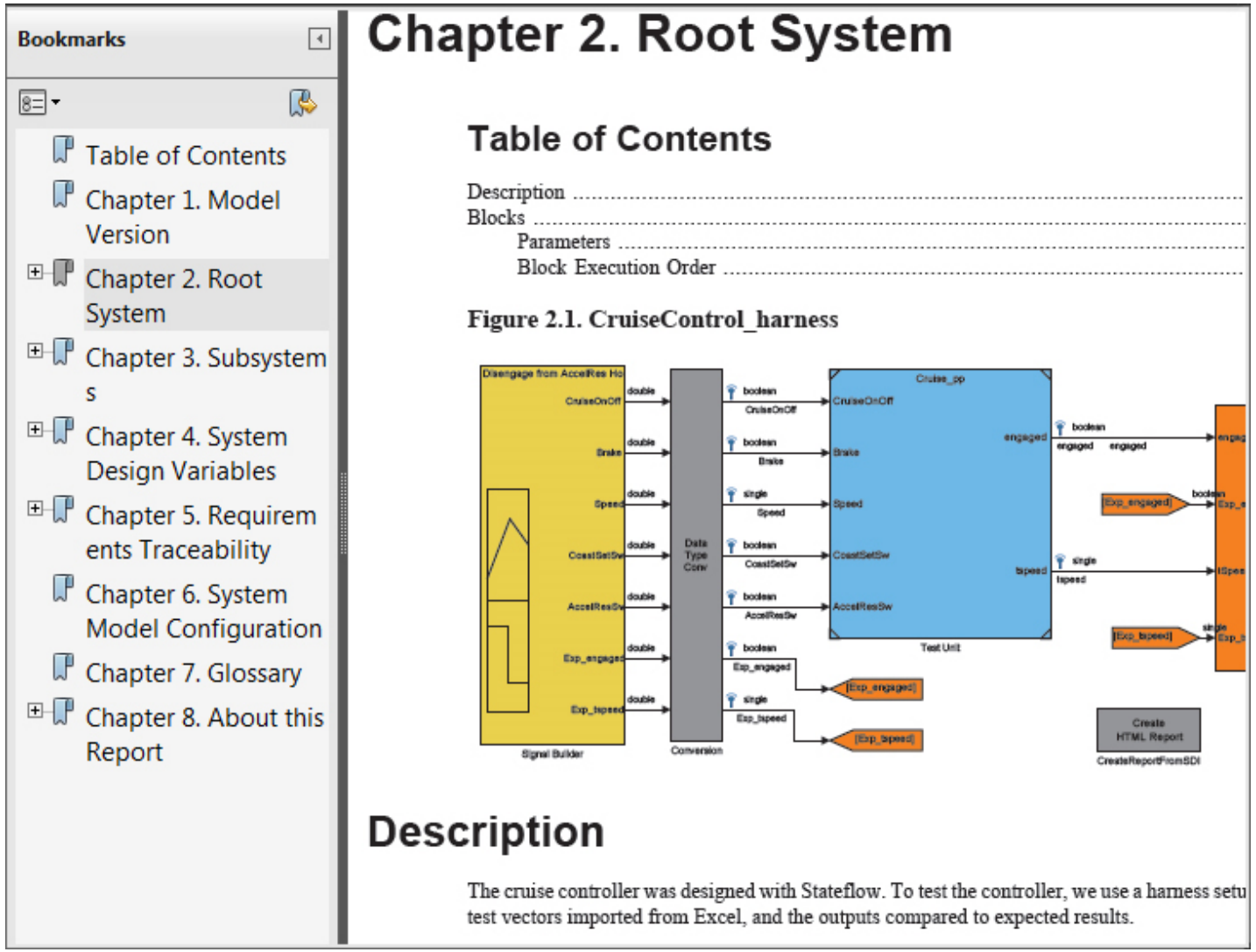
Model-Based Design Workflow



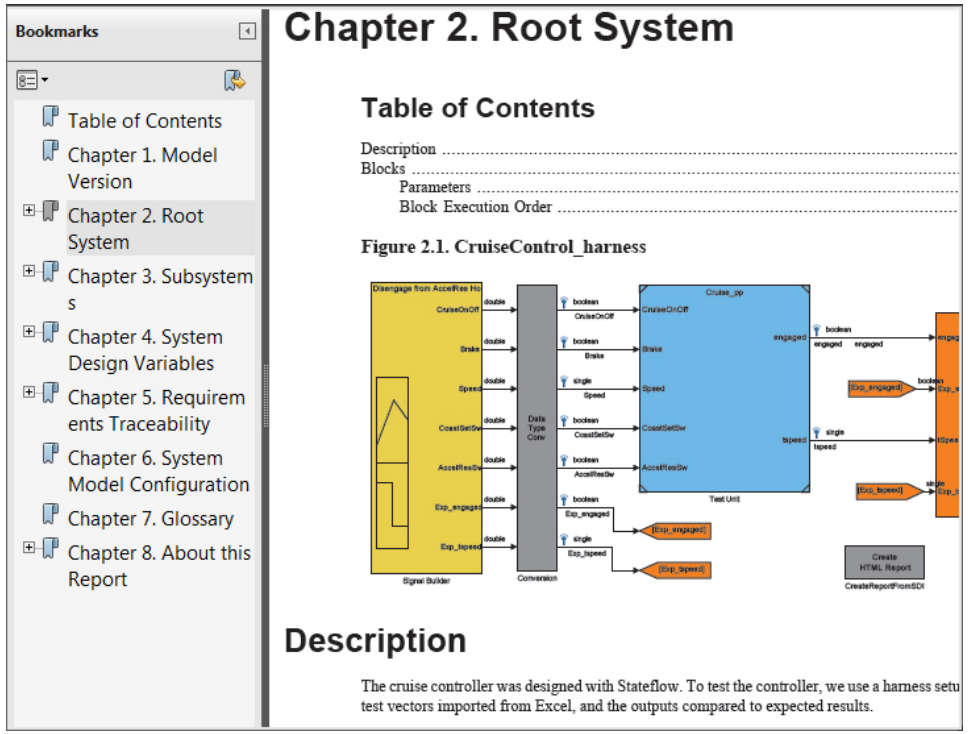
Three-Way Model Merge

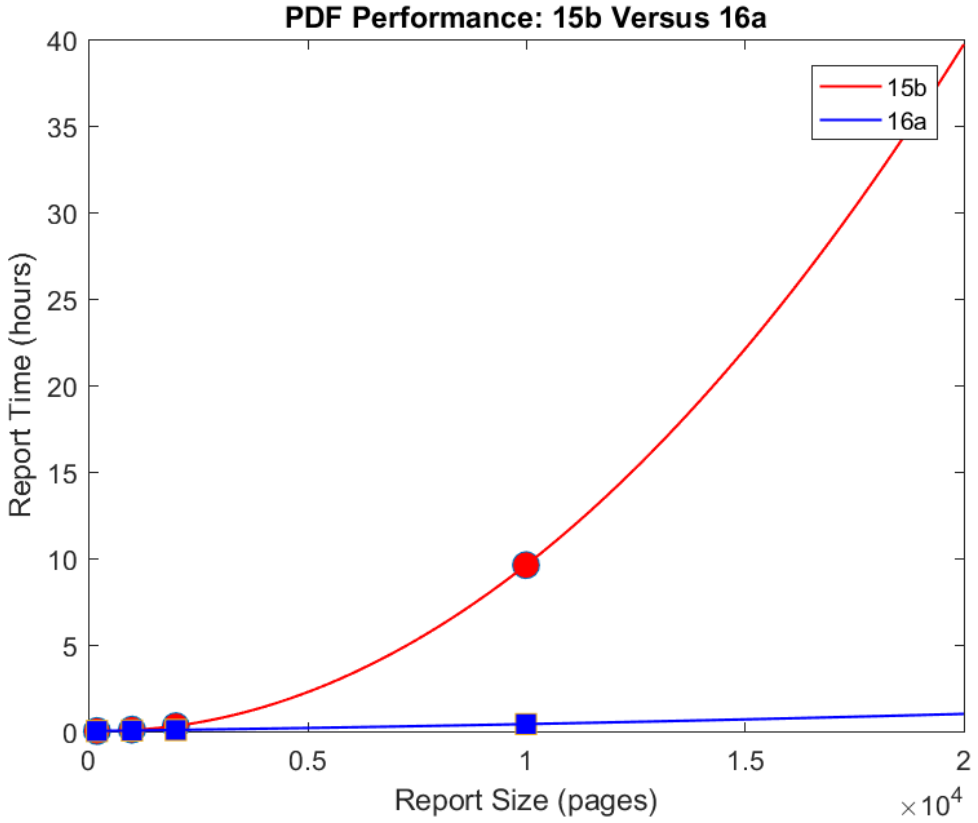


Report Generation

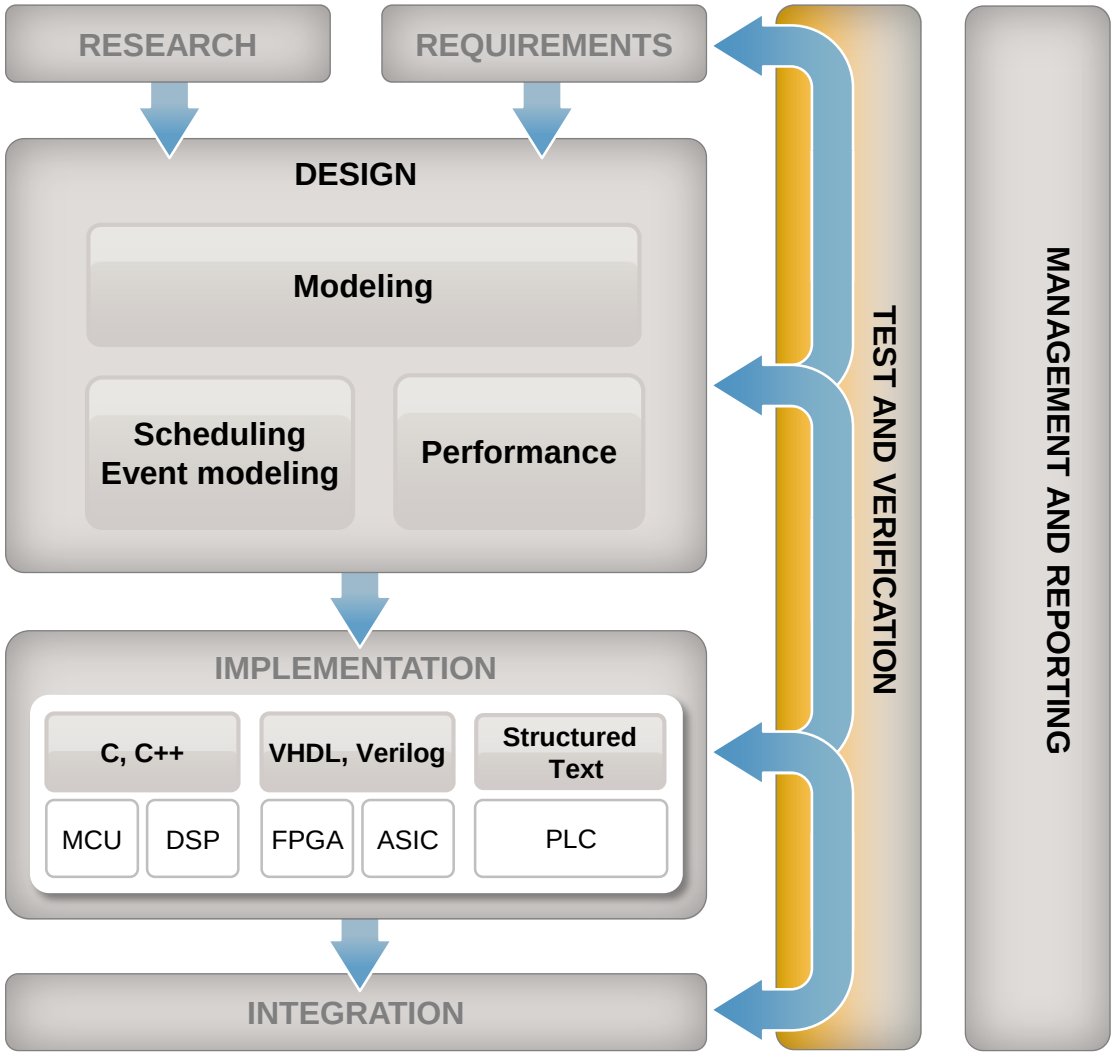


Report Generation



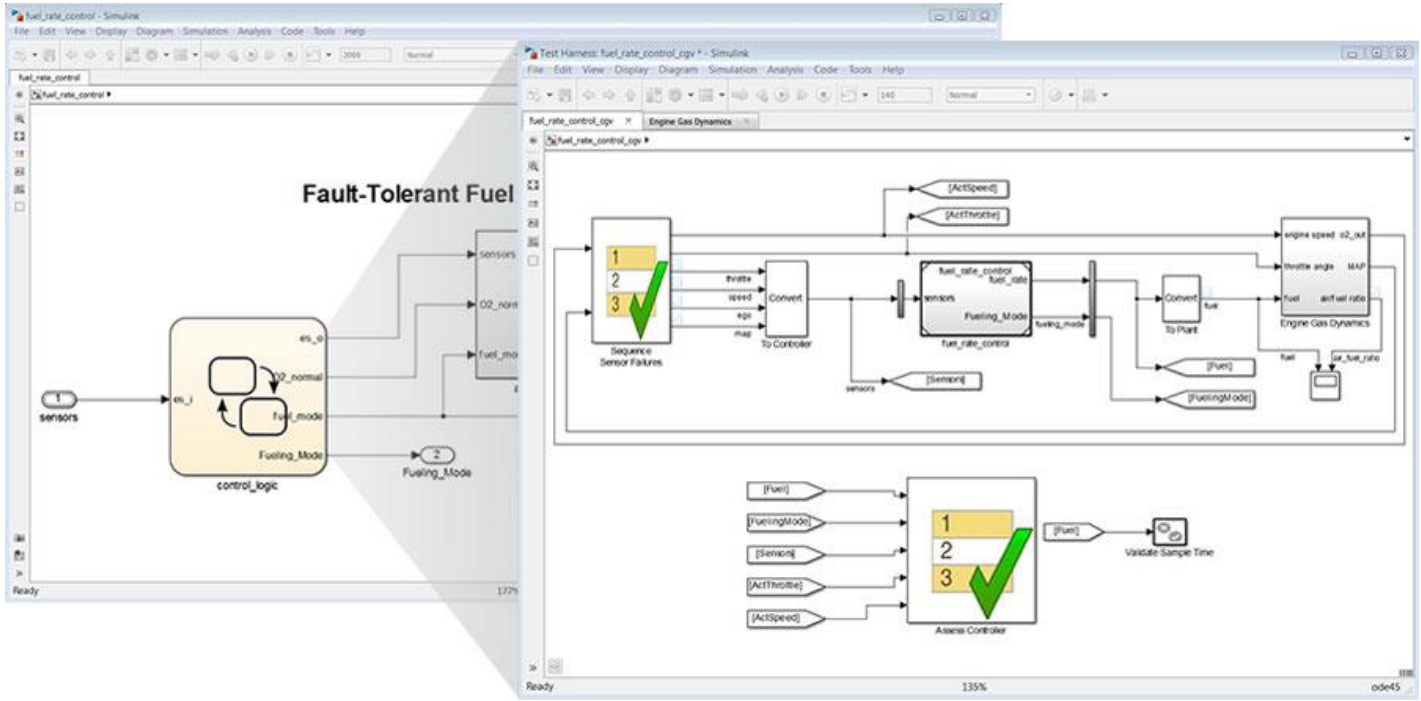


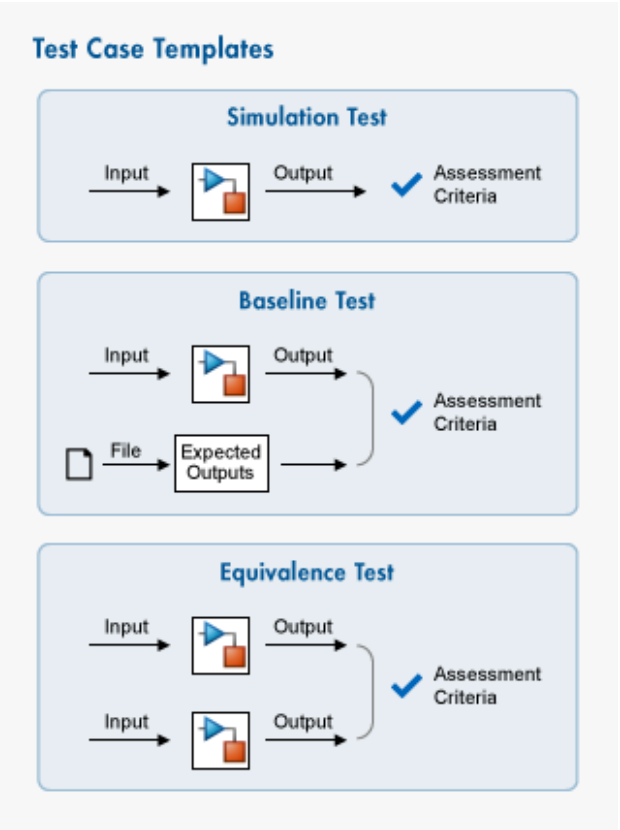
Model-Based Design Workflow



New Product! Simulink Test

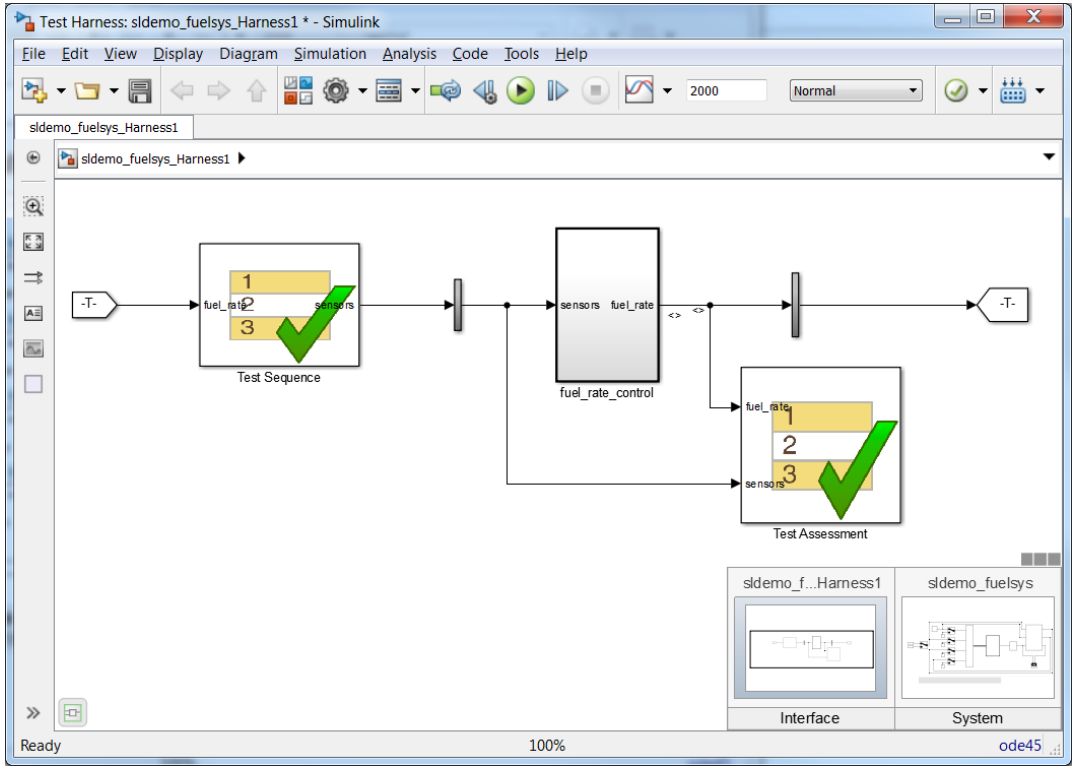
Develop, Manage, and execute simulation-based tests





New Product! Simulink Test

- Automatically generate Test Harness



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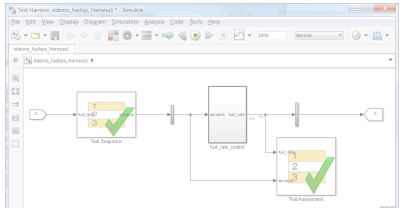
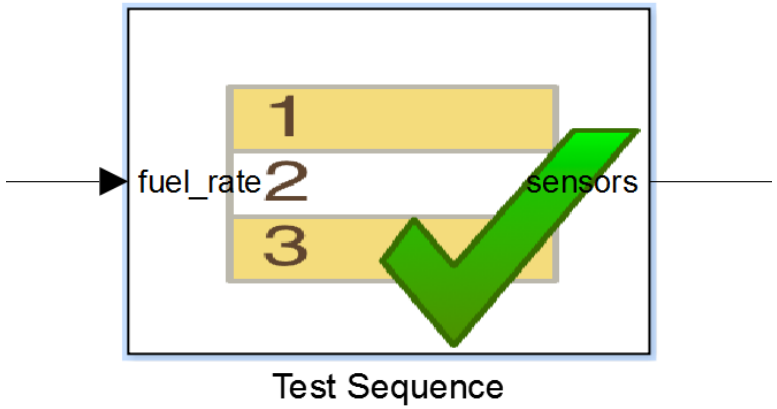


- Test Sequence block

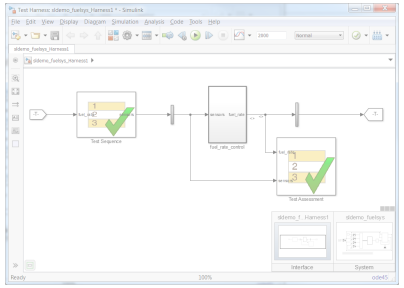


Step	Transition	Next Step
initialize on_off = false; Tproj = single(0);	1. true	Normal_on_off
Normal_on_off end_test = 0;		
On on_off = true;	1. FanOn == true	Wait
Wait on_off = false; verify(FanOn == true,... 'Simulink:verify_scenario1',... 'Fan should be active');	1. after(20,sec)	Off
Off on_off = true;	1. FanOn == false	End

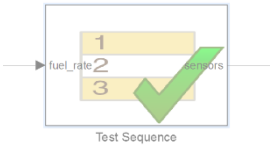
End
on_off = false;
end_test = 1;		

New Product! Simulink Test

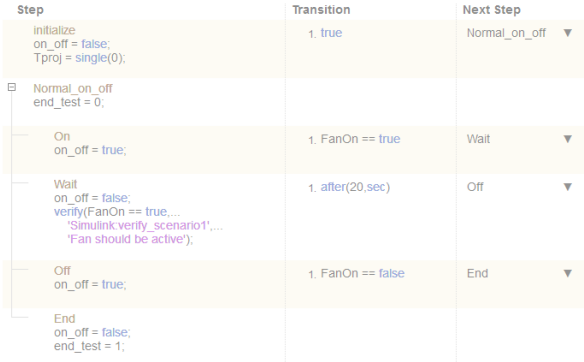
- Automatically generate Test Harness



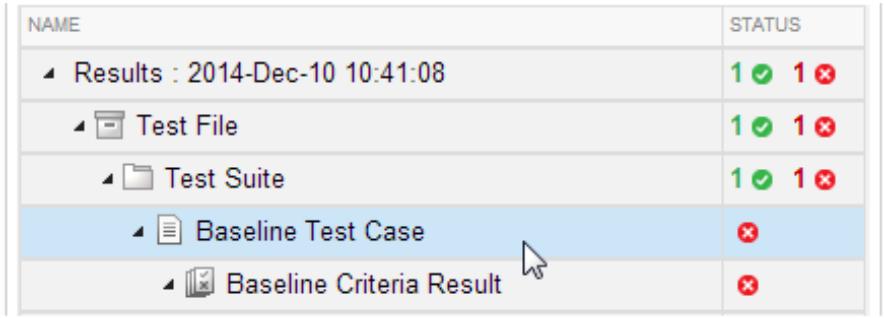
- Create Test Sequences



Test Sequence

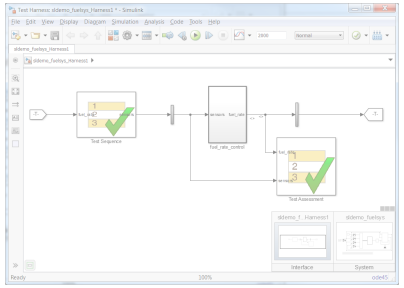


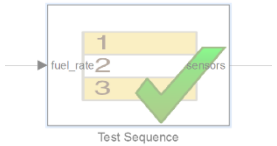
- Manage and Reporting



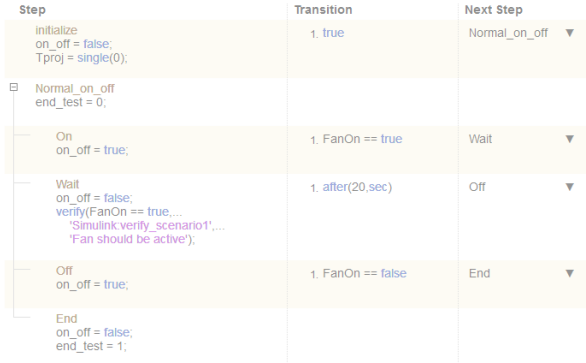
New Product! Simulink Test

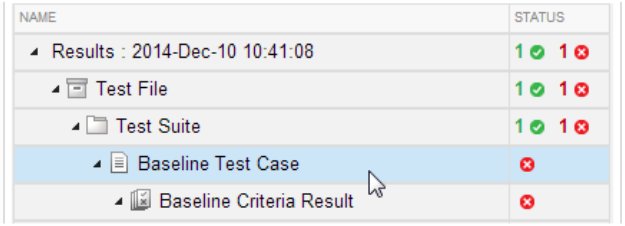
- Automatically generate Test Harness
- Create Test Sequences
- Manage and Reporting





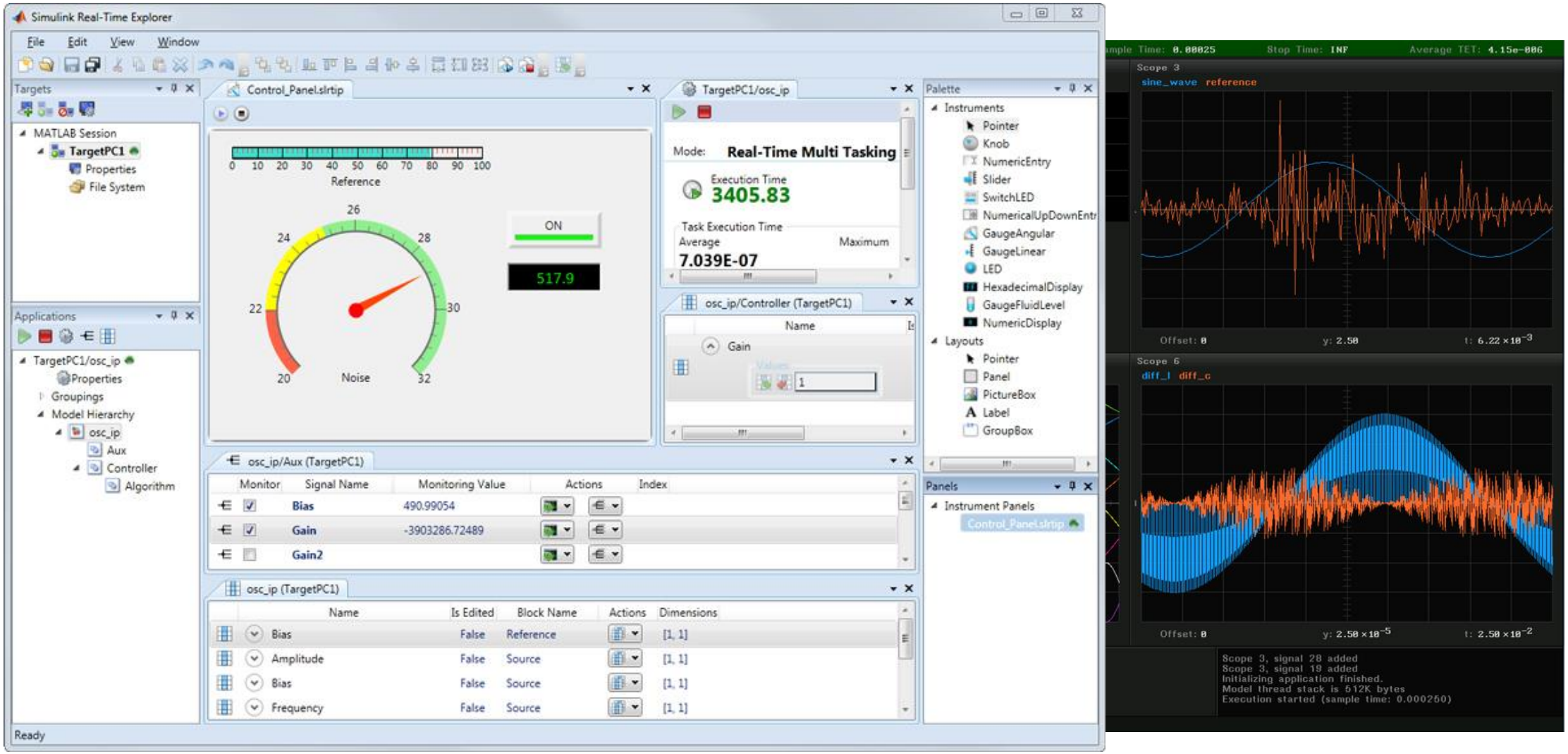
Test Sequence



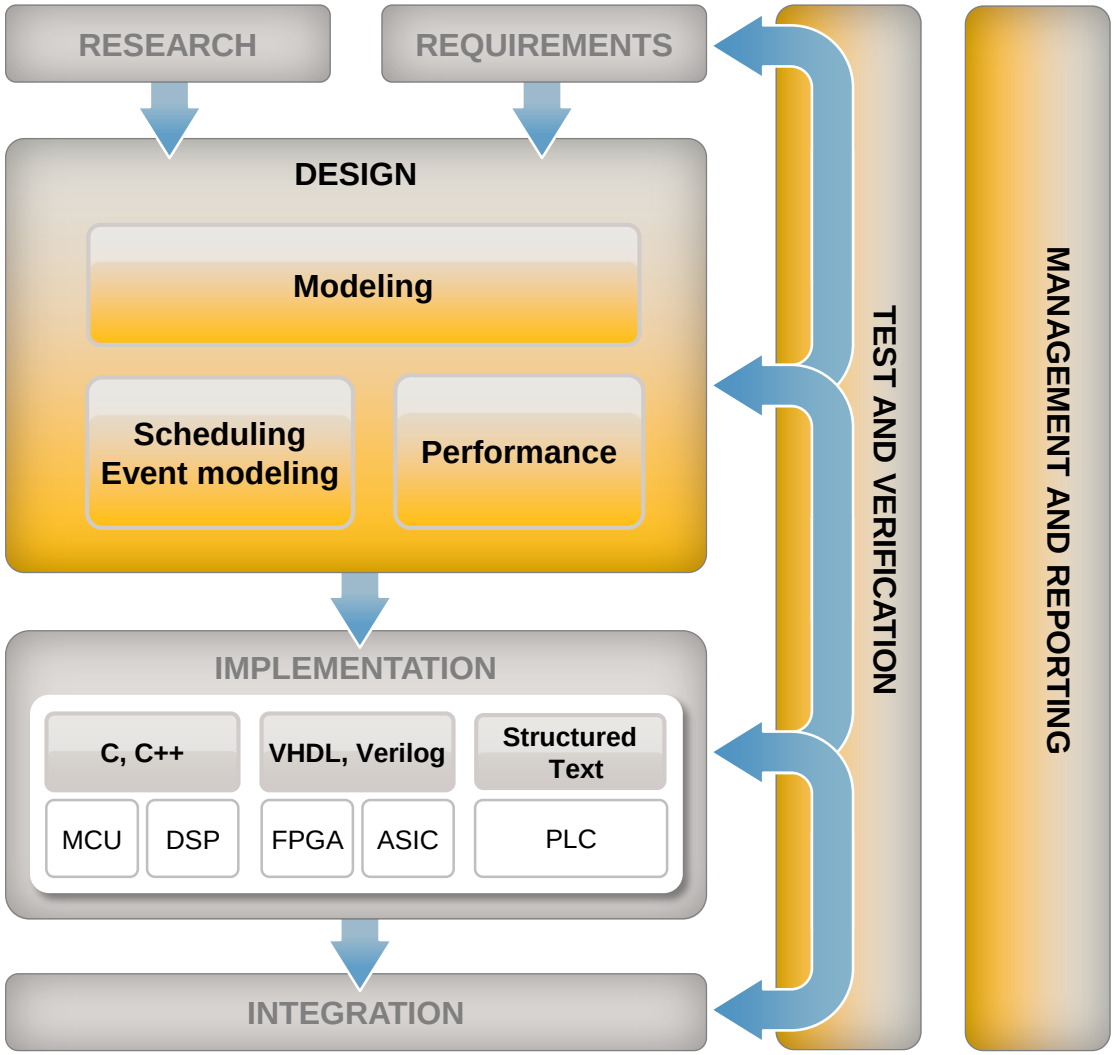


Real-Time testing with Simulink Real-Time

Real-Time testing with Simulink Real-Time



Model-Based Design Workflow



Questions!

Thanks!