Using MATLAB® & Simulink® with AURIX™

A MultiCore Modelling Solution – First Presented at Embedded World 2018
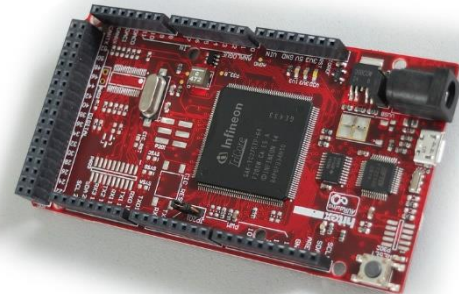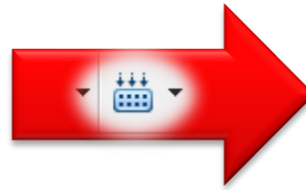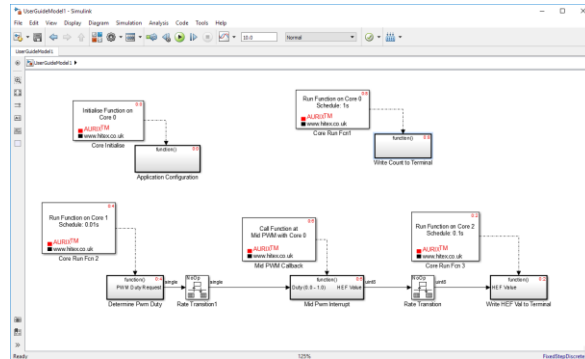
> David Nicholls, Hitex (UK) Ltd.

- Build your complete multicore application in Simulink®

- Use Embedded Coder® to produce application C code

- Compile C code and download application to Target

Re-use existing control algorithms

- Existing control algorithms built in MATLAB®/Simulink® may now be reused

- Conversion to AURIX™ simpler than ever before

- Targets such as ShieldBuddy supported "out of the box"

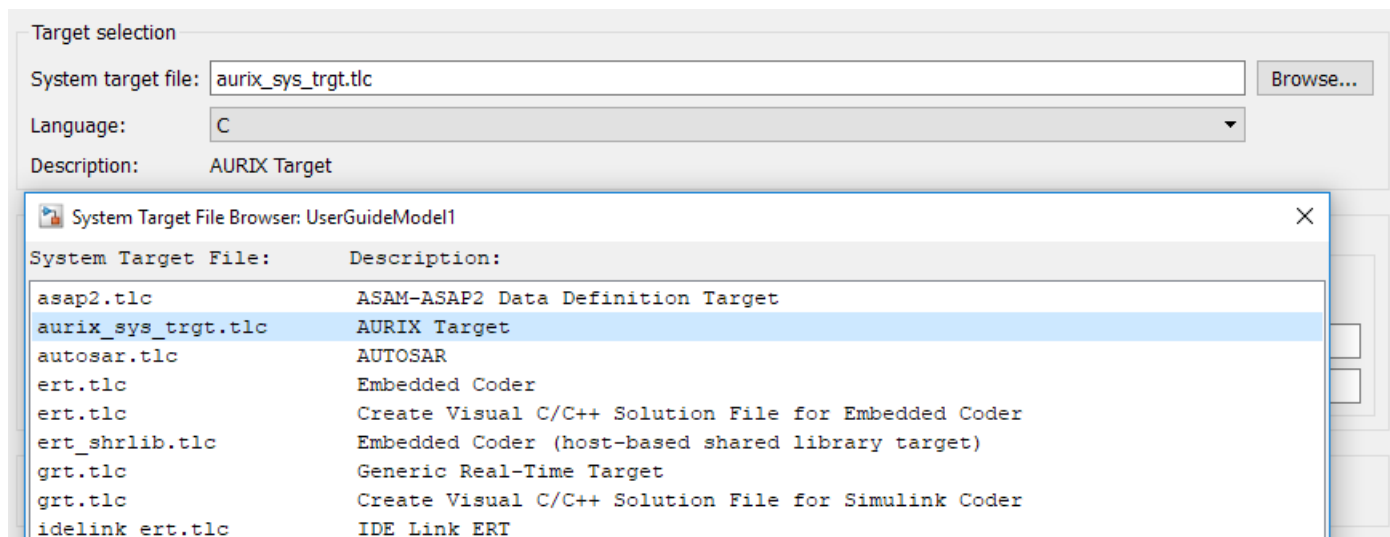- Adaption to customer Targets on demand
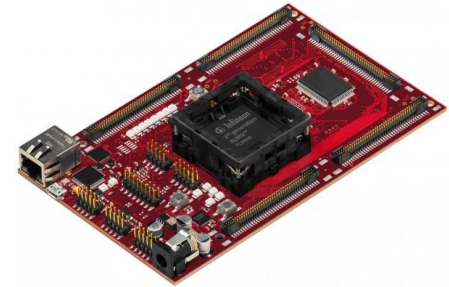
Setup the Simulink® Model

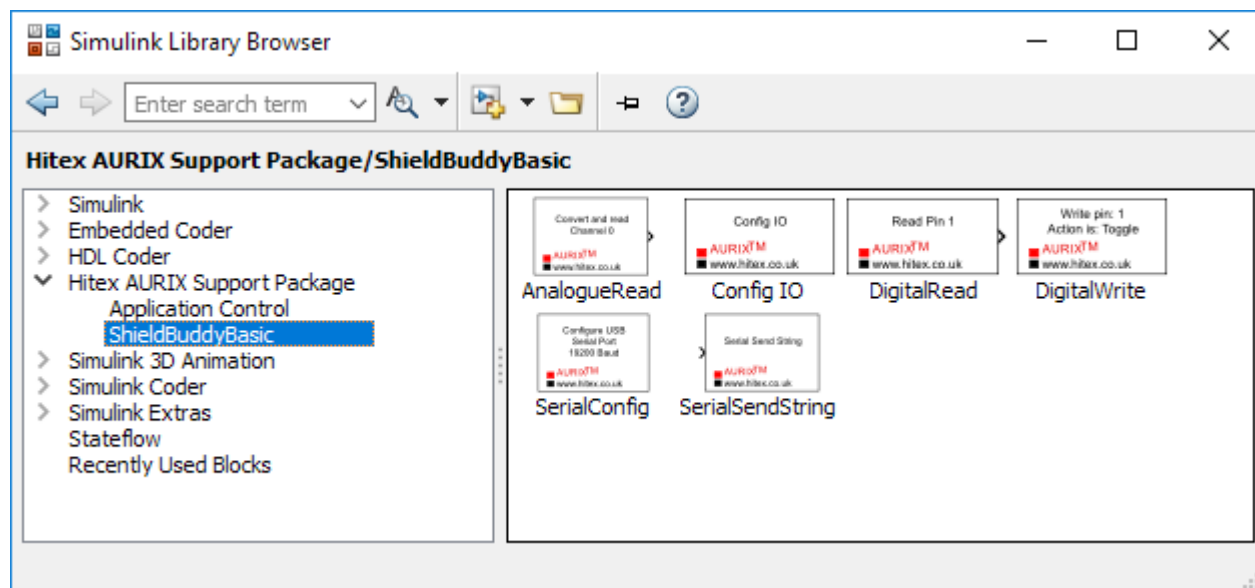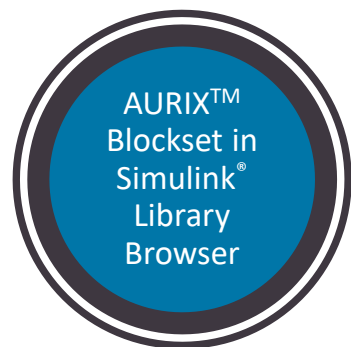Note: Not all the following blocks are available in the free version

Simulink® Model Setup

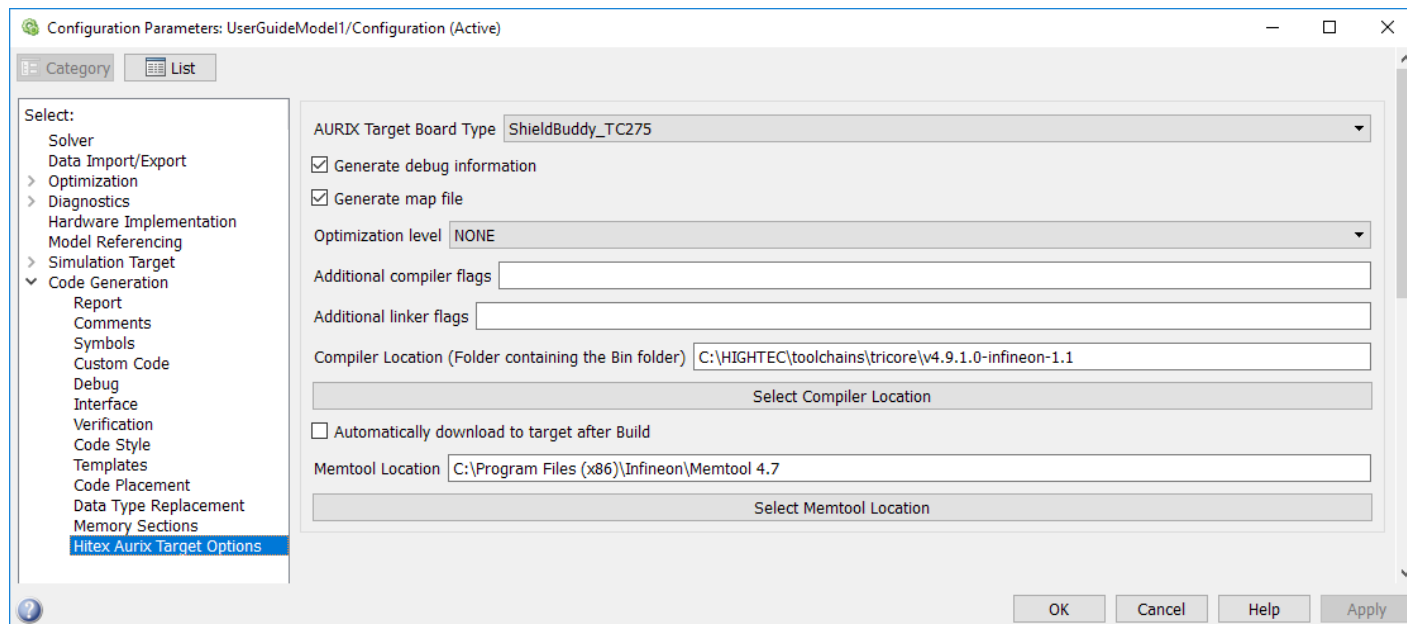Select the AURIX™ Target in Simulink®

Target selection

System target file: aurix_sys_trgt.tlc   [Browse...]

Language: C

Description: AURIX Target

System Target File Browser: UserGuideModel1

System Target File:	Description:
asap2.tlc	ASAM-ASAP2 Data Definition Target
aurix_sys_trgt.tlc	AURIX Target
autosar.tlc	AUTOSAR
ert.tlc	Embedded Coder
ert.tlc	Create Visual C/C++ Solution File for Embedded Coder
ert_shrlib.tlc	Embedded Coder (host-based shared library target)
grt.tlc	Generic Real-Time Target
grt.tlc	Create Visual C/C++ Solution File for Simulink Coder
idelink_ert.tlc	IDE Link ERT

Simulink® Model Setup

AURIX™ Blockset in Simulink® Library Browser

Simulink® Model Setup

Custom Target Options

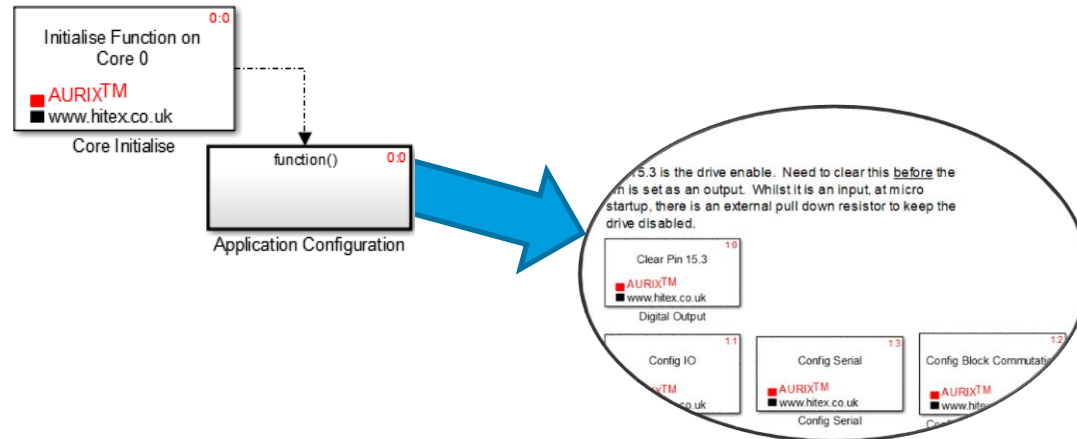# Build Application
Structural
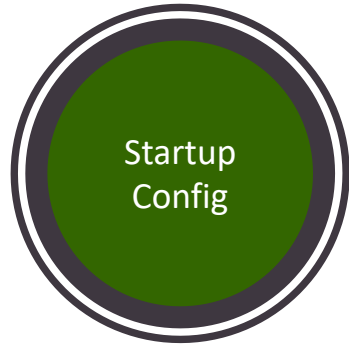
Build Startup Configuration and assign to the Required AURIX™ Core

Create
Scheduled
Functions
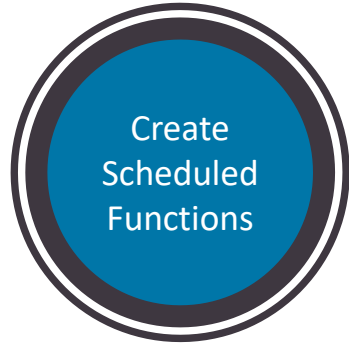
Assign an AURIX™ Core and Scheduling Period

Build Application
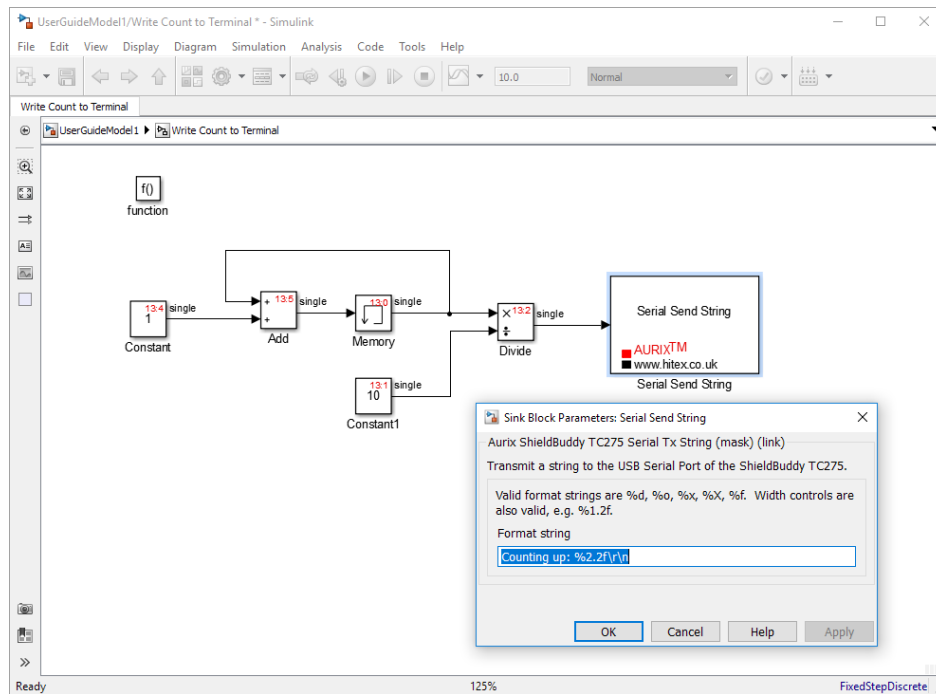## Functional Examples

Set, Clear, & Toggle Digital Output

Read and Write Digital IO
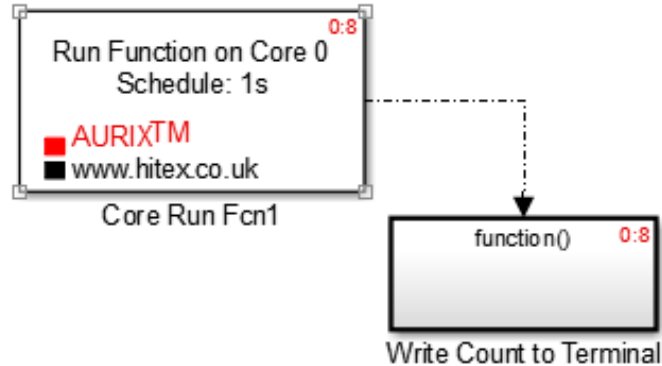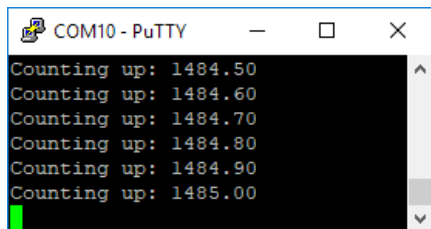
Read State of Digital Input

Build Application - Functional Examples

Use C Style Format String. Block adapts to number of required inputs.
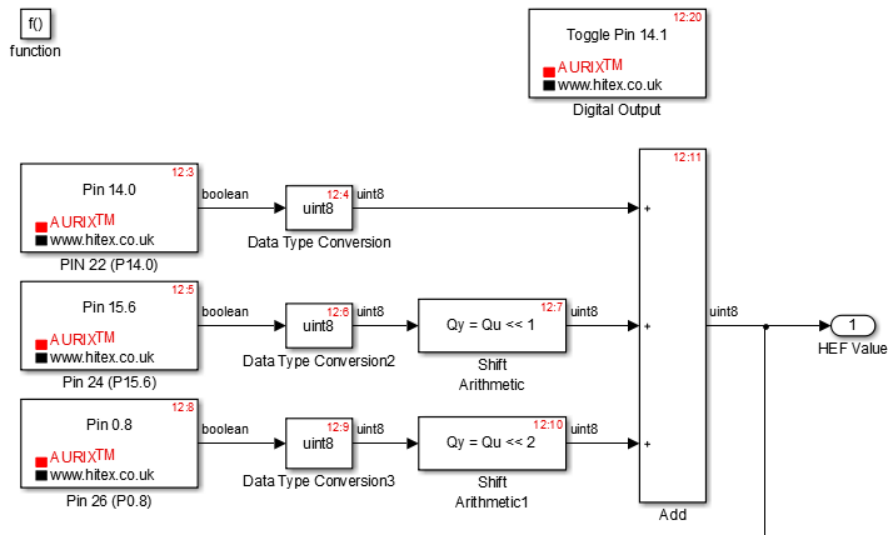
Write Data to Serial Terminal
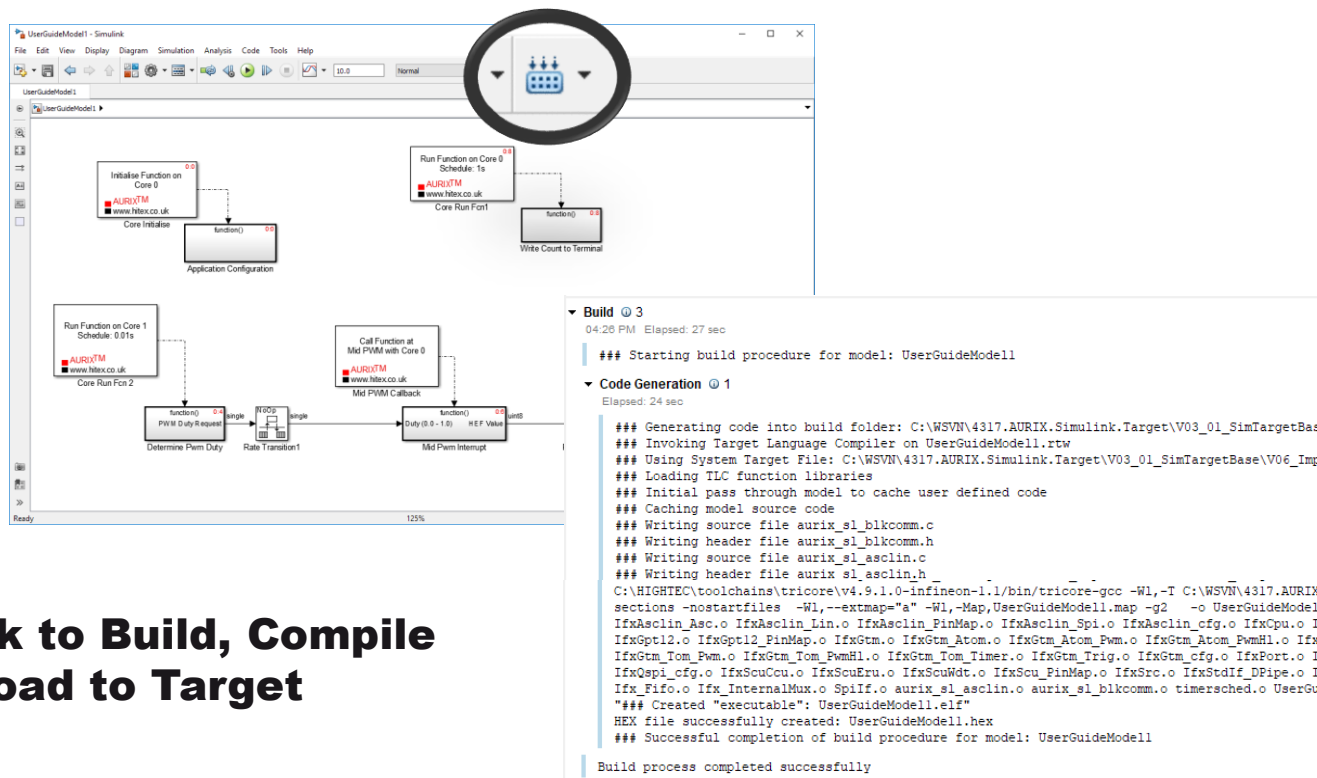
Trigger and Read VADC results
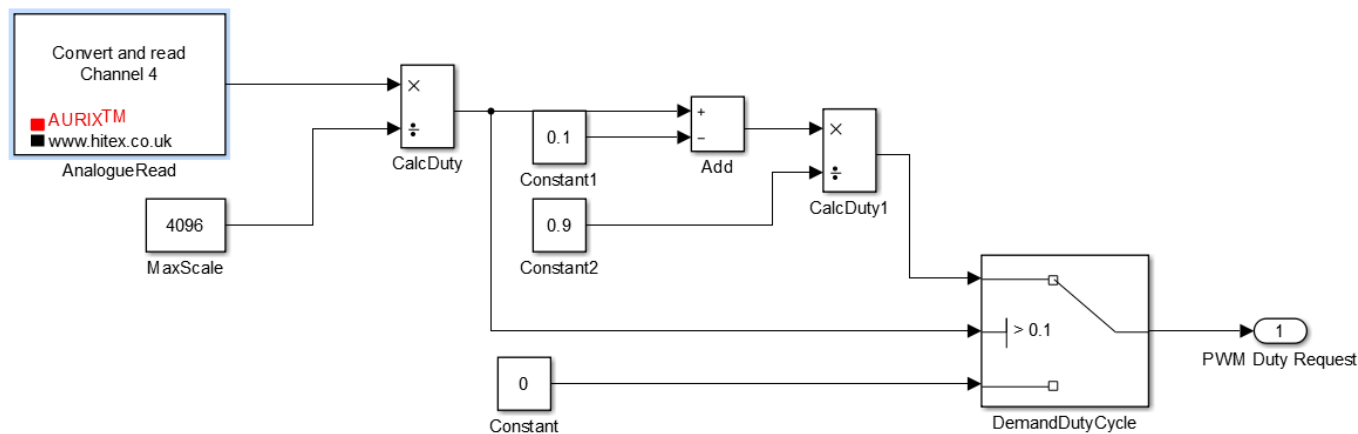
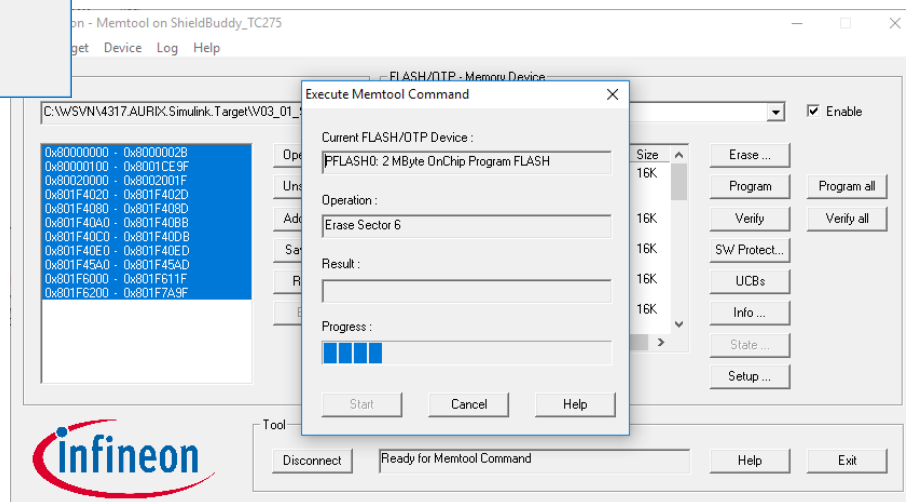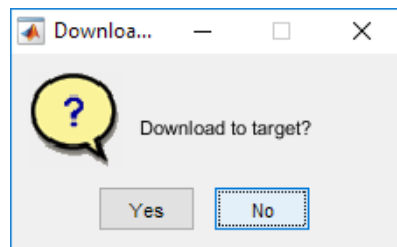# Build Application
Send to Target

Build Application – Send to Target

Build Model to .ELF/.HEX

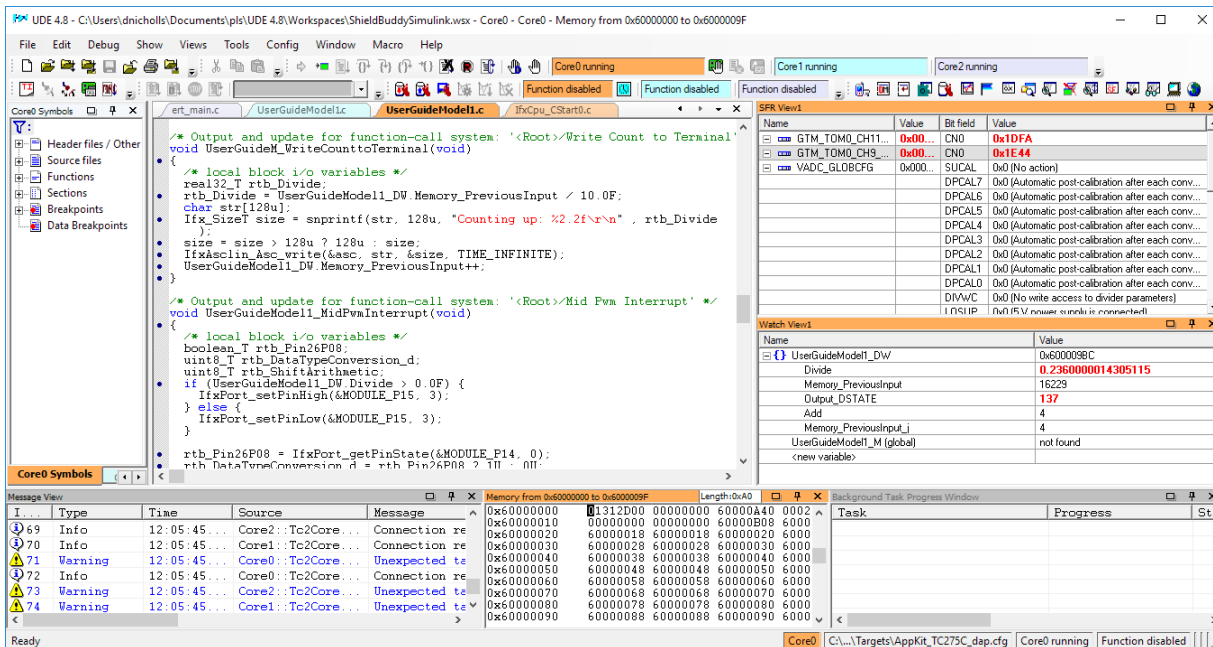**Single Click to Build, Compile and Download to Target**

Build Application – Send to Target

Download with Infineon MemTool

Build Application – Send to Target

Debug Application

Alternatively use fully featured Multicore Debugger to Download and Run

Further Information

For additional information about the free version, pricing and options, please contact Hitex (UK) Ltd.

sales@hitex.co.uk