

	SSE-300 MPS3 BSP Pack User Guide
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Introduction

This document is a general guide to use the SSE-300 MPS3 BSP pack. The CMSIS pack is to be used with the Corstone-300 platform MPS3 FVP model or AN547 FPGA (AN547: Arm Corstone™ SSE-300 with Ethos™-U55 Example Subsystem for MPS3). The pack contains necessary source files, a linker script file, and a specification document to kick start development for the Corstone-300 MPS3 platform and a reference secure-side Blinky example to enable a user to understand uVision project configuration. The pack also provides a System View Description (SVD) file for the platform to be used with the uVision debugger.

This document specifies system prerequisites and explains how to build and run the reference Blinky example on the SSE-300 MPS3 FVP model and on the AN547 FPGA.

Prerequisites

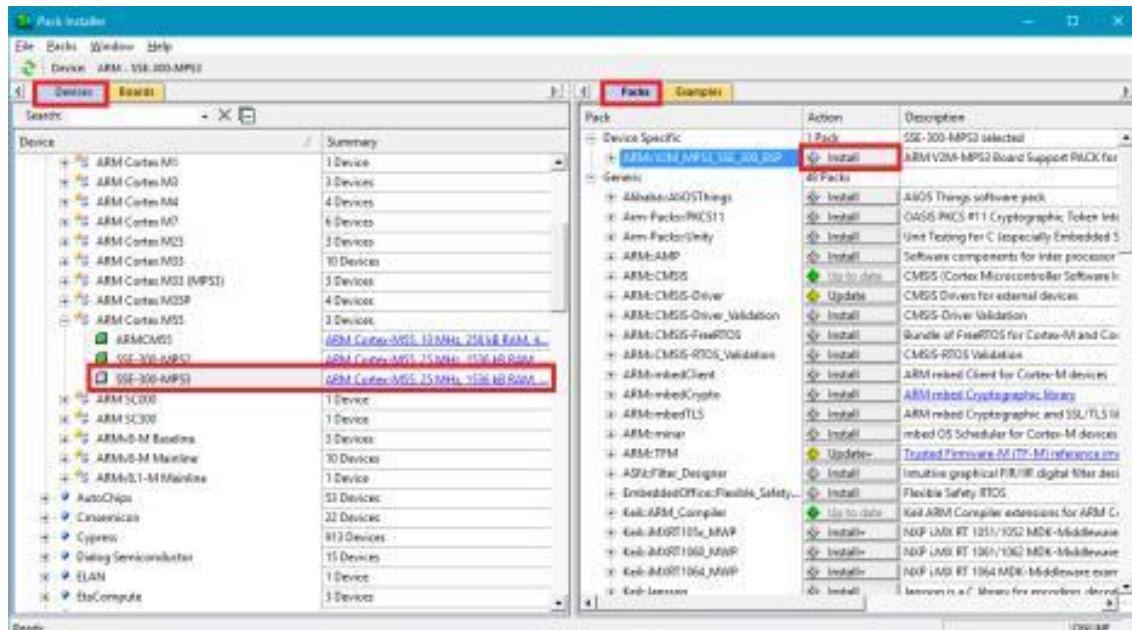
- Minimum [Keil MDK v5.30](#)
- Download and install [Corstone SSE-300 MPS3 FVP](#) model, if you want to run the examples on the FVP model.
- Download and install [AN547: Arm Corstone™ SSE-300 with Ethos™-U55 Example Subsystem for MPS3](#) FPGA files if you want to run the examples on the FPGA

Documents

1. Application Note AN547: AN547 is a Single Cortex-M55 FPGA implementation of the Arm Corstone SSE-300 with Ethos-U55 Example Subsystem that uses SIE-300, SIE-200 components. The application note states which components are included, the memory map of AN547, details about the FPGA peripherals.
2. Arm Corstone-300 Foundation IP Technical Overview: contains overview of the IP and its features.
3. Arm Corstone SSE-300 Subsystem Technical Reference Manual: contains the specification of the architecture of the subsystem, description of several interfaces (address, data width, clock/power/reset domain), functional description of the components.
4. The FVP installation contains FVP specific documents.

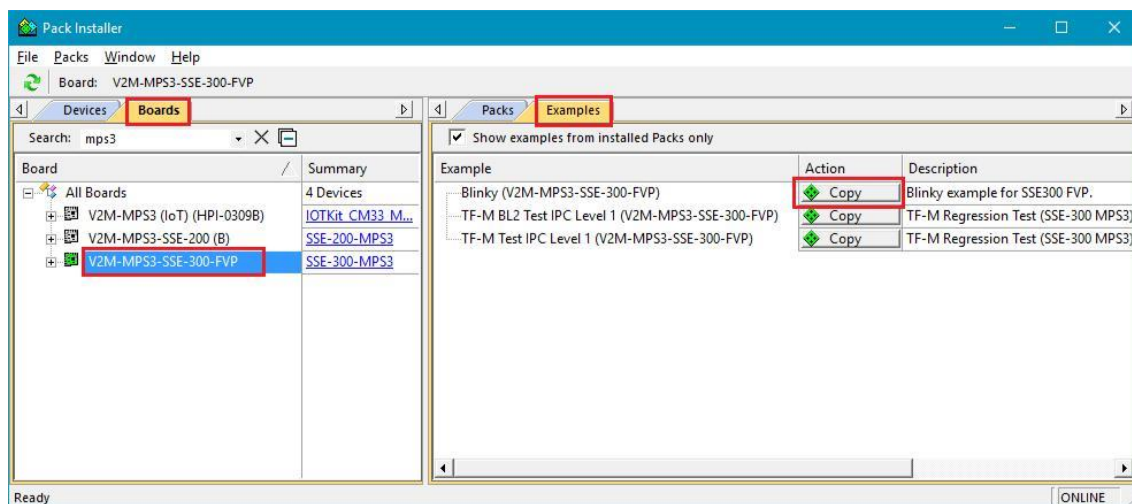
Pack Installation – Keil MDK

Install ARM::V2M_MPS3_SSE_300_BSP using the Pack Installer. The pack can be browsed by selecting SSE-300-MPS3 device under ARM Cortex M55 Devices.



Import and build the example Blinky project – Keil MDK

Copy the Blinky project using the Pack Installer. The example project can be found by searching and selecting V2M-MPS3-SSE-300-FVP Board under the Boards section.



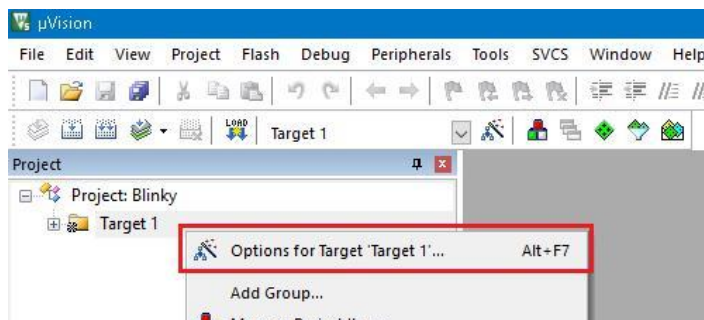
Once copied, open the Blinky project using the uVision and simply build the Target1 listed inside Project Explorer.

Run and debug Blinky example (FVP) – Keil MDK

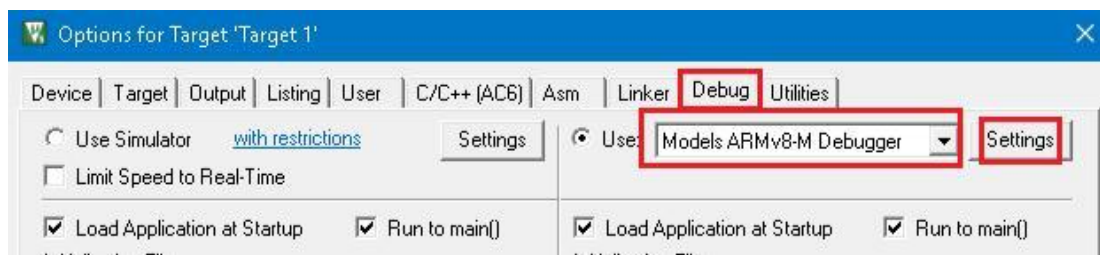
This section explains how to run the Blinky example on the Corstone SSE-300 FVP model. First, download and install the SSE-300 FVP from the link provided in the prerequisite section.

To run and debug the example using the FVP, follow the steps below inside the uVision software.

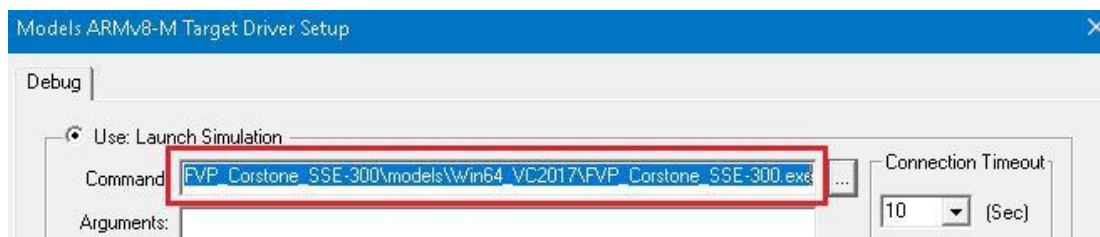
Right click on the Target1 and click on “Options for Target ...”.



Click the Debug tab to open the debug settings. In the drop-down selection for the debugger, select “Models ARMv8-M Debugger”, then click the Settings button next to it.



You should have the “Models ARMv8-M Target Driver Setup” box open. Browse to the SSE-300 FVP executable which is present inside the installation directory.



Click OK and save the changes.

Build the target if it is not built, and then click the debug button at the top to start a debug session.



The FVP window should pop up with code stopped at the entry breakpoint. On starting code execution, the LEDs in the FVP display can be seen to blink cyclically. You can use the debugger to stop, step, and set breakpoints inside the code.

Run Blinky example (FVP) – Terminal

After building the target, you can launch the FVP from the terminal, using the command:

```
<path_to_fvp>/FVP_Corstone_SSE-300_Ethos-U55.exe -a  
<path_to_axf>/Blinky.axf
```

Run and debug Blinky example (FPGA) – Keil MDK

After building the Blinky example, locate the Blinky.axf in the project output folder. To create binary file for the FPGA, the fromelf utility can be used, which is by default, located in the Keil install directory (C:\Keil_v5\ARM\ARMCLANG\bin\fromelf.exe).

For the blinky example, use this command:

```
fromelf.exe --bincombined --output Blinky.bin Blinky.axf
```

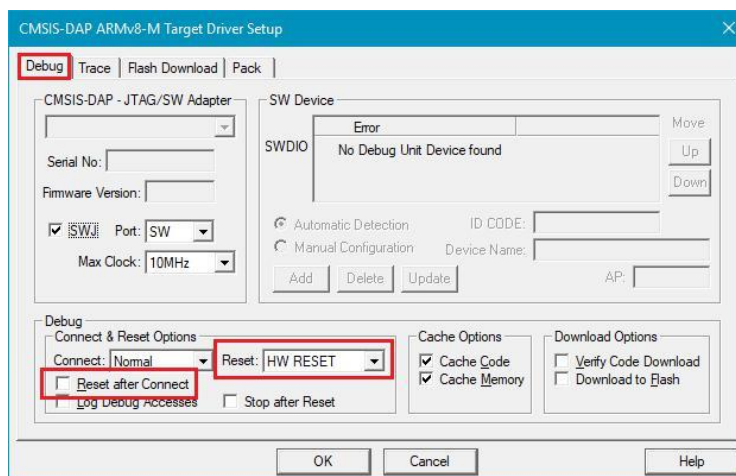
Copy the binary to the FPGA's SD card (x:\SOFTWARE) and set the address in images.txt (x:\MB\HBI0309C\AN547\images.txt) to 0x00000000, then restart the FPGA.

```
IMAGE0ADDRESS: 0x00000000      ;  
IMAGE0UPDATE:  AUTO           ;  
IMAGE0FILE:  \SOFTWARE\Blinky.bin  ;
```

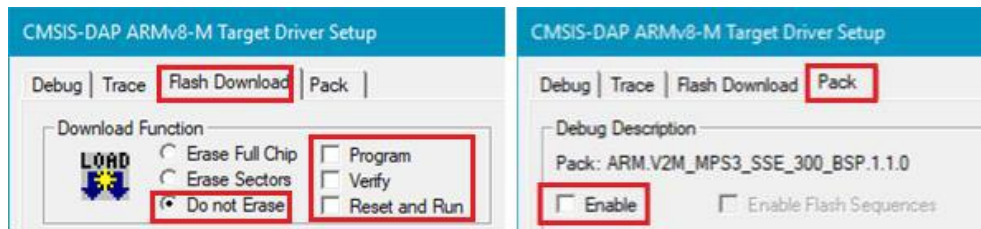
In the IDE, in the “Options for Target ...”, in the Debug tab, Use: “CMSIS-DAP ARMv8-M Debugger” is selected. Depending on your setup, you can also use “ULINK Pro ARMv8-M Debugger”.



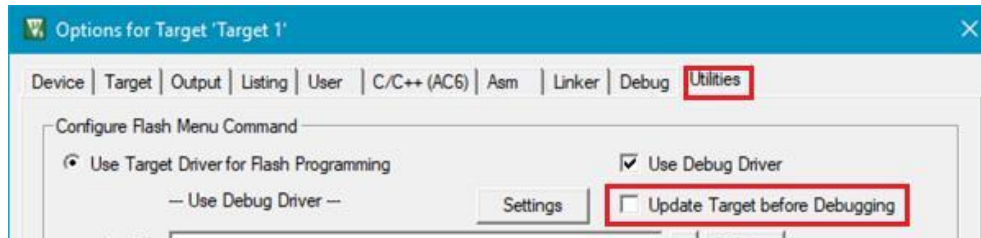
Click Settings. Make sure that on Debug tab, at Debug section, Reset after Connect is unchecked and Reset is set to HW RESET.



In Flash Download tab, Do not Erase is selected and none of the checkboxes are checked and on Pack tab, Enable is unchecked.



Click OK. At Utilities tab, make sure that Update Target before Debugging is unchecked.



Click the debug button at top to start a debug session.



After connection, Reset is only possible when the target is running. If you wish to Reset the target, make sure to Run the target before pressing Reset.

