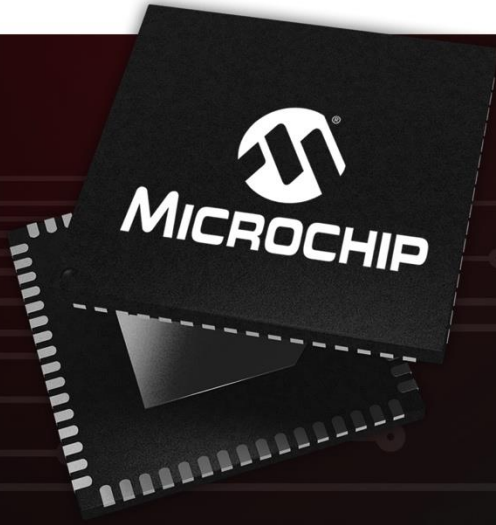


Second Thursdays

- Feb. 13 - Webinar 10: Introduction to the PolarFire® SoC Baremetal Library**
- Mar. 12 - Webinar 11: Handling Binaries**
- April 9 - Webinar 12: Two Baremetal Applications on PolarFire SoC**
- May 14 - Webinar 13: Linux on Renode**
- June 11 - Webinar 14: Building Applications for Linux on PolarFire SoC**
- July 9 - Webinar 15: Real-Time (AMP Mode) on PolarFire SoC**



A Leading Provider of Microcontroller, Security,
Mixed-Signal, Analog & Flash-IP Solutions



Getting Started with the RISC-V Based PolarFire® SoC FPGA Webinar Series
Session 10: Introduction to the PolarFire SoC Baremetal Library

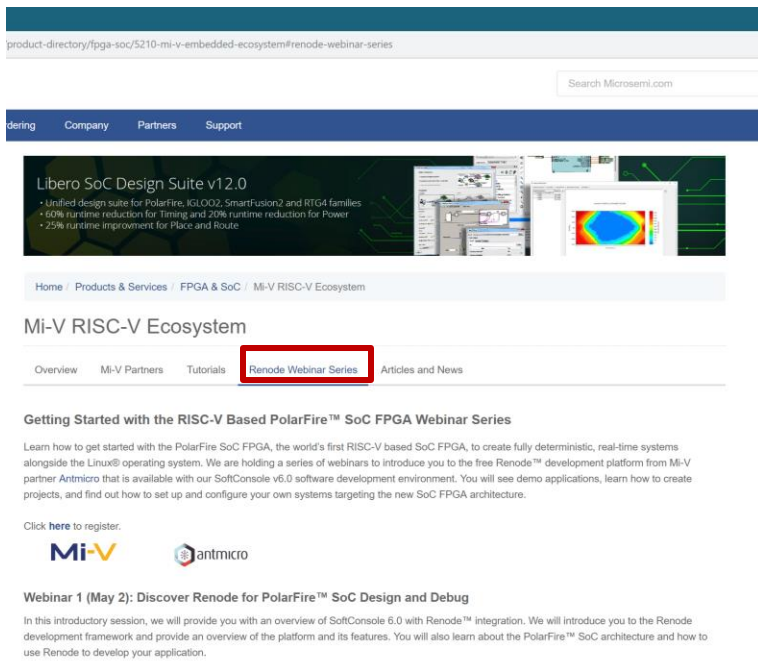
Hugh Breslin, Design Engineer
Thursday Feb. 13, 2019

Second Thursdays

- Feb. 13 - Webinar 10: Introduction to the PolarFire® SoC Baremetal Library**
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- July 9 - Webinar 15: Real-Time (AMP Mode) on PolarFire SoC**

Supporting Content

www.microsemi.com/Mi-V “Renode Webinar Series”



The screenshot shows the Microsemi website's navigation and content area. At the top, there's a search bar and a navigation menu with links for "Ordering", "Company", "Partners", and "Support". Below this, a banner for "Libero SoC Design Suite v12.0" is displayed, highlighting features like unified design suite for PolarFire, IGLOO2, SmartFusion2, and RIG4 families, 60% runtime reduction for Timing, and 25% runtime improvement for Place and Route. The main content area is titled "Mi-V RISC-V Ecosystem" and includes a sub-navigation menu with "Overview", "Mi-V Partners", "Tutorials", "Renode Webinar Series" (highlighted with a red box), and "Articles and News". Below this, the section "Getting Started with the RISC-V Based PolarFire™ SoC FPGA Webinar Series" is visible, followed by introductory text about the webinars and a link to register. At the bottom, logos for "Mi-V" and "antmicro" are shown, along with the title "Webinar 1 (May 2): Discover Renode for PolarFire™ SoC Design and Debug" and a brief description of the session.

Webinar 1: Discover Renode for PolarFire® SoC Design and Debug

Webinar 2: How to Get Started with Renode for PolarFire SoC

Webinar 3: Learn to Debug a Bare-Metal PolarFire SoC Application with Renode

Webinar 4: Tips and Tricks for Even Easier PolarFire SoC Debug with Renode

Webinar 5: Add and Debug PolarFire SoC models with Renode

Webinar 6: Add and Debug Pre-Existing model in PolarFire SoC

Webinar 7: How to Write Custom Models

Webinar 8: What's New in SoftConsole v6.2

Webinar 9: Getting Started with PolarFire SoC

Agenda

- **What is the PolarFire SoC Baremetal Library**
- **What's in the PolarFire SoC Baremetal Library**
- **How to use the PolarFire SoC Baremetal Library**
- **Running Example Projects From the PolarFire SoC Baremetal Library**
- **Updating an Existing Project using the PolarFire SoC Baremetal Library**
- **Current Status of the PolarFire SoC Baremetal Library**




What is the PolarFire SoC Baremetal Library



What is the PolarFire SoC Baremetal Library

<https://github.com/polarfire-soc>



PolarFire-SoC
PolarFire SoC Embedded Software
<http://www.microsemi.com/polarfiresoc>


Repositories 1

Packages

People

Projects

Pinned repositories



[polarfire-soc-bare-metal-library](#)

Bare metal embedded software drivers and examples for PolarFire SoC

● C ★ 2

Type: All ▾

Language: All ▾

[polarfire-soc-bare-metal-library](#)

Bare metal embedded software drivers and examples for PolarFire SoC

● C 🍴 0 ★ 2 ⓘ 0 Updated 5 days ago

Top languages

● C

People ▾

What is the PolarFire SoC Baremetal Library

- **The PolarFire SoC Baremetal Library contains the MPFS HAL, drivers and example projects**
- **It replaces the Firmware Catalog for PolarFire SoC drivers and HAL**
- **The Firmware Catalog will still be needed to generate drivers for any fabric peripherals used**

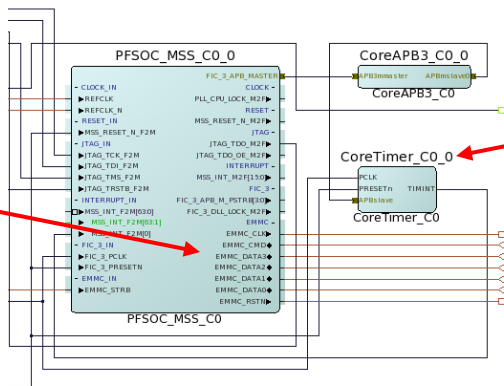
What is the PolarFire SoC Baremetal Library

Branch: master ▾ [polarfire-soc-bare-metal-library](#) / [src](#) / [platform](#) / [drivers](#) /

Cyril-Jean Added mss-rtc-src source code version 1.5.100.

..

mss_can	Added mss-can-src source code version 1.5.100.
mss_ethernet_mac	Added mss-ethernet-mac-src source code version 1.5.104.
mss_gpio	Added mss_gpio source code version 1.5.101
mss_i2c	Added mss_i2c source code version 1.5.101
mss_mmc	Added mss-emmc-src source code version 1.5.101.
mss_mmuart	Added mss_mmuart source code version 1.5.104
mss_pdma	Added mss-dma-src source code version 1.5.102.
mss_qspi	Added mss-qspi-src source code version 1.5.101.
mss_rtc	Added mss-rtc-src source code version 1.5.100.
mss_spi	Added mss_spi source code version 1.5.101
mss_sys_services	Added mss-sys-services-src source code version 1.5.101.
mss_timer	Added mss_timer source code version 1.5.102
mss_usb	Added mss-usb-src source code version 1.5.101.
pf_pcie	Renamed PCIe driver folder from mpf_pcie to pf_pcie to be



Firmware Catalog

File View Tools Help

View (53/167): Search by all fields (1/53):

All Vault Web repositories coretimer

display only the latest version of a core

Name	Version	Size (MB)	Status
CoreTimer Driver	2.4.100	1.22	

No core selected

Download Generate



What's in the PolarFire SoC Baremetal Library



What's in the PolarFire SoC Baremetal Library

Bare metal embedded software drivers and examples for PolarFire SoC

89 commits 1 branch 0 packages 0 releases 1 contributor 3.84 MB

Branch: master New pull request Create new file Upload files Find file Clone or download

Cyril-Jean Merge branch 'master' into mss-rtc-examples Latest commit a0966cf 21 days ago

examples	Added mss-rtc-examples source code version 1.5.100.	23 days ago
src/platform	Added mss-rtc-src source code version 1.5.100.	23 days ago
readme.md	Merging repo documentation from develop	2 months ago 3.36 KB

readme.md

PolarFire SoC Bare Metal Library

This folder contains the PolarFire SoC Bare Metal Library.

The PolarFire SoC Bare Metal Library includes:

- Source code for start-up code and Hardware Abstraction Layer (HAL) for the PolarFire SoC RISC-V processor complex
- Source code for the PolarFire SoC Microprocessor Subsystem (MSS) peripheral drivers
- Documentation for the HAL and peripheral drivers
- SoftConsole example projects demonstrating the use of the various PolarFire SoC peripherals

Source

If you're stuck, check the readme!

What's in the PolarFire SoC Baremetal Library

- **At the moment there are 2 top level folders**
 - Src
 - Examples
- **There will be a third folder**
 - Docs

What's in the PolarFire SoC Baremetal Library

- **Src**
 - Contains a platform folder
 - The platform folder contains
 - Hal
 - Mpfs-hal
 - Drivers
 - Config

What's in the PolarFire SoC Baremetal Library

- This is the baremetal target for the app
- ▼ mpfs-blinky
 - > Binaries
 - > Includes
 - ▼ src
 - > application
 - > modules
 - ▼ platform
 - > config
 - > drivers
 - > hal
 - > mpfs_hal
 - > Debug
 - mpfs-blinky hw-emulation all-harts Debug.launch
 - mpfs-blinky Renode all-harts Debug.launch
 - mpfs-blinky Renode all-harts Start-platform-and-debug.launch
 - README.md

Branch: master ▼ [polarfire-soc-bare-metal-library](#) / [src](#) / [platform](#) /

Cyril-Jean Added mss-rtc-src source code version 1.5.100.	
..	
config	Added hal source code version 1.5.107
drivers	Added mss-rtc-src source code version 1.5.100.
hal	Added hal source code version 1.5.107
mpfs_hal	Added hal source code version 1.5.107

What's in the PolarFire SoC Baremetal Library

Branch: master ▾	polarfire-soc-bare-metal-library / src / platform / config /	Create new file	Upload files	Find file	History
Cyril Jean and Cyril Jean Added hal source code version 1.5.107 Latest commit e47ab63 on Oct 11, 2019					
..					
hardware	Added hal source code version 1.5.107	4 months ago			
linker	Added hal source code version 1.5.107	4 months ago			
software	Added hal source code version 1.5.107	4 months ago			

src/platform/config

The config folder contains configuration files applying to the hardware design, software configuration and linker scripts.

- **hardware** folder contains files describing the configuration of the PolarFire SoC specific to a Libero design/board.
- **linker** contains linker scripts
- **software** contains configuration parameters relevant to the Hardware Abstraction Layer (HAL) and drivers.

config/hardware

The content of this folder is expected to be generated from a Libero design. The content of this folder is not intended to be manually modified but instead should be regenerated from a Libero design meta-data description whenever required. The content of this folder may need to be updated when reprogramming PolarFire SoC hardware with a new design. If you need to modify a parameter coming from the Libero flow please follow the method described in any of the header files contained in <platform/config/hardware>.

What's in the PolarFire SoC Baremetal Library

Branch: master ▾


polarfire-soc-bare-metal-library / src / platform / drivers /

Create new file

Upload files

Find file


History



Cyril-Jean Added mss-rtc-src source code version 1.5.100.

Latest commit 3c4bd0e 23 days ago


..



mss_can

Added mss-can-src source code version 1.5.100.


last month



mss_ethernet_mac

Added mss-ethernet-mac-src source code version 1.5.104.


2 months ago



mss_gpio

Added mss_gpio source code version 1.5.101


4 months ago



mss_i2c

Added mss_i2c source code version 1.5.101


4 months ago



mss_mmc

Added mss-emmc-src source code version 1.5.101.


last month



mss_mmuart

Added mss_mmuart source code version 1.5.104


4 months ago



mss_pdma

Added mss-dma-src source code version 1.5.102.


last month



mss_qspi

Added mss-qspi-src source code version 1.5.101.

2 months ago



mss_rtc

Added mss-rtc-src source code version 1.5.100.

23 days ago

src/platform/drivers

The drivers folder contains the source code for the MSS peripherals and DirectCore soft IP. The content of this folder is not intended to be modified.

What's in the PolarFire SoC Baremetal Library

Branch: master ▾


polarfire-soc-bare-metal-library / src / platform / hal /

Create new file

Upload files


Find file

History

 Cyril Jean and Cyril Jean Added hal source code version 1.5.107


Latest commit 0efcfc8 on Oct 11, 2019

..

 [cpu_types.h](#)


Added hal source code version 1.5.107

4 months ago

 [hal.h](#)


Added hal source code version 1.5.107

4 months ago

 [hal_assert.h](#)


Added hal source code version 1.5.107

4 months ago

 [hal_irq.c](#)


Added hal source code version 1.5.107

4 months ago

 [hw_macros.h](#)


Added hal source code version 1.5.107

4 months ago

 [hw_reg_access.S](#)

Added hal source code version 1.5.107

4 months ago

 [hw_reg_access.h](#)

Added hal source code version 1.5.107

4 months ago

src/platform/hal

The hal folder contains the Hardware Abstraction Layer (HAL). This part of the HAL is intended to be generic across all SoC - FPGA devices. It is mainly used by DirectCore FPGA IP cores' drivers. The content of this folder is not intended to be modified.

What's in the PolarFire SoC Baremetal Library

Branch: master ▾


polarfire-soc-bare-metal-library / src / platform / mpfs_hal /

Create new file

Upload files


Find file

History

 Cyril Jean and Cyril Jean Added hal source code version 1.5.107


Latest commit ed104ca on Oct 11, 2019

..

 [atomic.h](#)


Added hal source code version 1.5.107

4 months ago

 [bits.h](#)


Added hal source code version 1.5.107

4 months ago

 [encoding.h](#)


Added hal source code version 1.5.107

4 months ago

 [entry.S](#)


Added hal source code version 1.5.107

4 months ago

 [mcall.h](#)


Added hal source code version 1.5.107

4 months ago

 [mss_clint.h](#)

Added hal source code version 1.5.107

4 months ago

 [mss_coreplex.h](#)

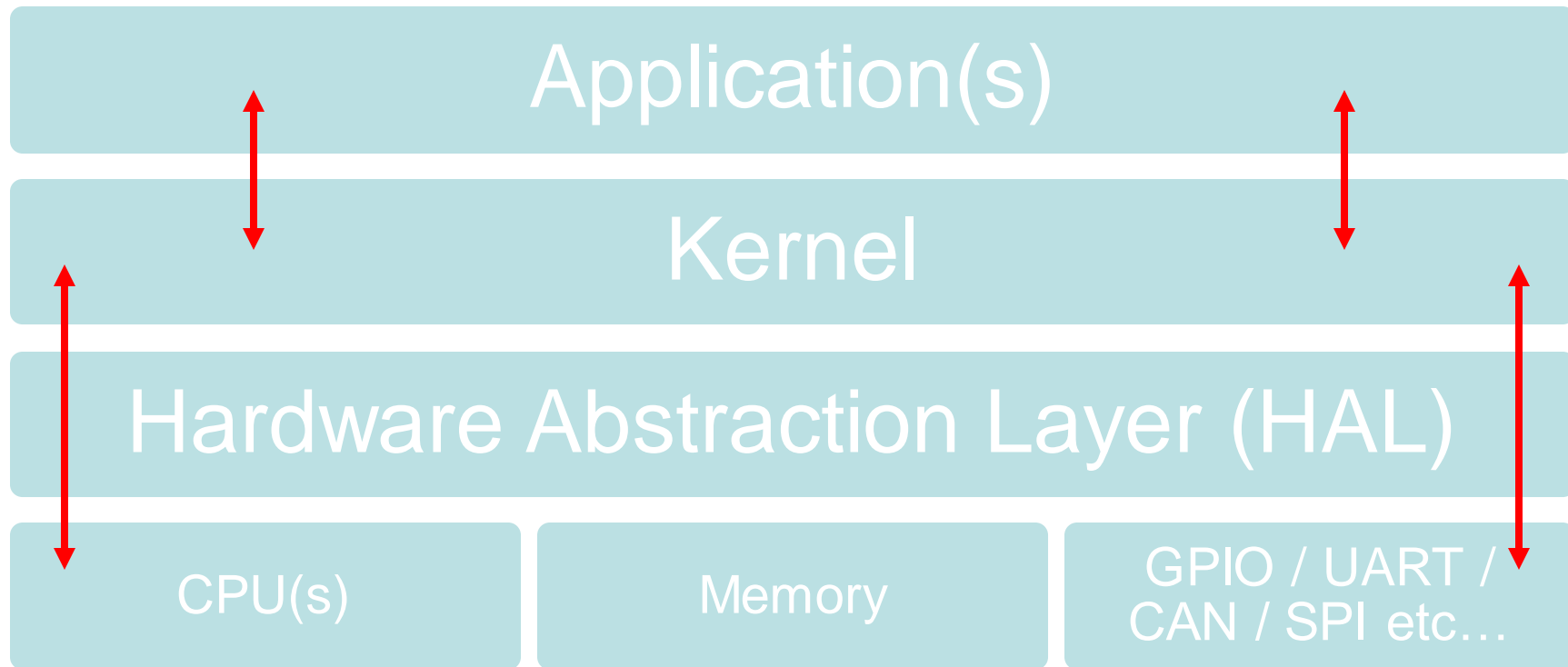
Added hal source code version 1.5.107

4 months ago

src/platform/mpfs_hal

The `src/platform/mpfs_hal` folder contains the part of the HAL specific to PolarFire SoC. It contains start-up code and MSS peripheral register descriptions. The content of this folder is not intended to be modified.

What's in the PolarFire SoC Baremetal Library




What's in the PolarFire SoC Baremetal Library

- **examples**


- The "examples" folder contains SoftConsole example projects demonstrating the use of the HAL and MSS peripheral drivers. Some of these examples include Renode development virtual platform debug configurations providing an execution platform for these examples in the absence of hardware.

Branch: master ▾ [polarfire-soc-bare-metal-library](#) / [examples](#) / Create new file Upload files Find file History


 Cyril-Jean

 Added mss-rtc-examples source code version 1.5.100. Latest commit 7b22f31 23 days ago


..

 [images](#)


 Merging repo documentation images from develop. 2 months ago

 [mss-can](#)


 Added mss-can-examples source code version 1.5.100. last month

 [mss-dma/MPFS_RV64_Platform...](#)


 Added mss-dma-examples source code version 1.5.102. last month

 [mss-emmc](#)

 Added mss-emmc-examples source code version 1.5.101. last month

 [mss-ethernet-mac](#)

 Added mss-ethernet-mac-examples source code version 1.5.104. 2 months ago

 [mss-gpio/gpio_interrupt](#)

 Added mss-gpio-examples source code version 1.5.101. 2 months ago



How to Use the PolarFire SoC Baremetal Library



How to Use the PolarFire SoC Baremetal Library

Two options for using the Baremetal Library:

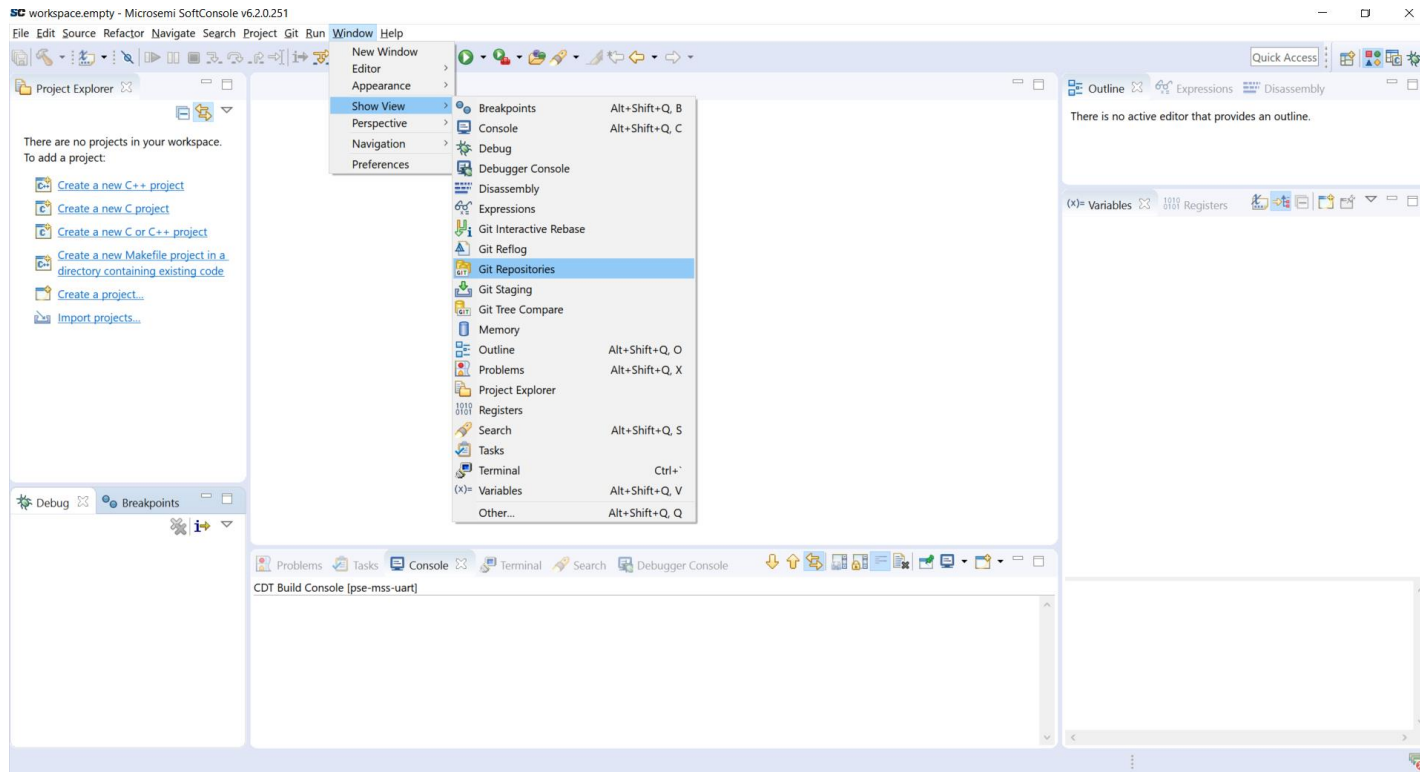
1. Clone a local copy of the library and manually import projects and files
2. Use SoftConsole to clone the repository and import the projects directly

How to Use the PolarFire SoC Baremetal Library

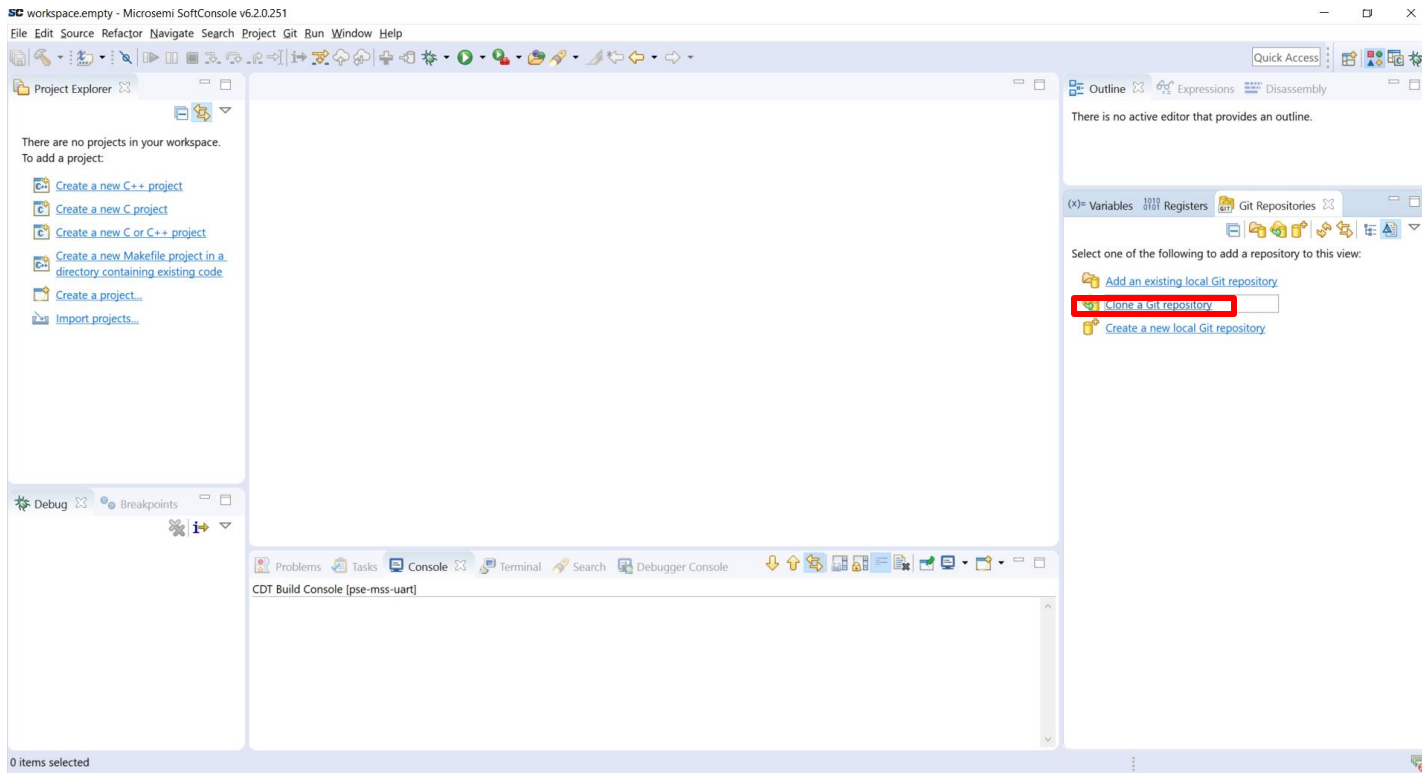


Make sure you're in the "Develop
and debug" perspective

How to Use the PolarFire SoC Baremetal Library



How to Use the PolarFire SoC Baremetal Library



How to Use the PolarFire SoC Baremetal Library

Bare metal embedded software drivers and examples for PolarFire SoC

89 commits 1 branch 0 packages 0 releases 1 contributor 3.84 MB

Branch: master New pull request Create new file Upload files Find file Clone or download

Cyril-Jean Merge branch 'master' into mss-rtc-examples

- examples Added mss-rtc-examples source code version 1.5.100.
- src/platform Added mss-rtc-src source code version 1.5.100.
- readme.md Merging repo documentation from develop

readme.md

PolarFire SoC Bare Metal Library

This folder contains the PolarFire SoC Bare Metal Library.

Clone with HTTPS ⓘ Use SSH

Use Git or checkout with SVN using the web URL.

<https://github.com/polarfire-soc/polarfi>

Open in Desktop Download ZIP

SC Clone Git Repository

Source Git Repository

Enter the location of the source repository.

Location

URI: Local File...

Host:

Repository path:

Connection

Protocol:

Port:

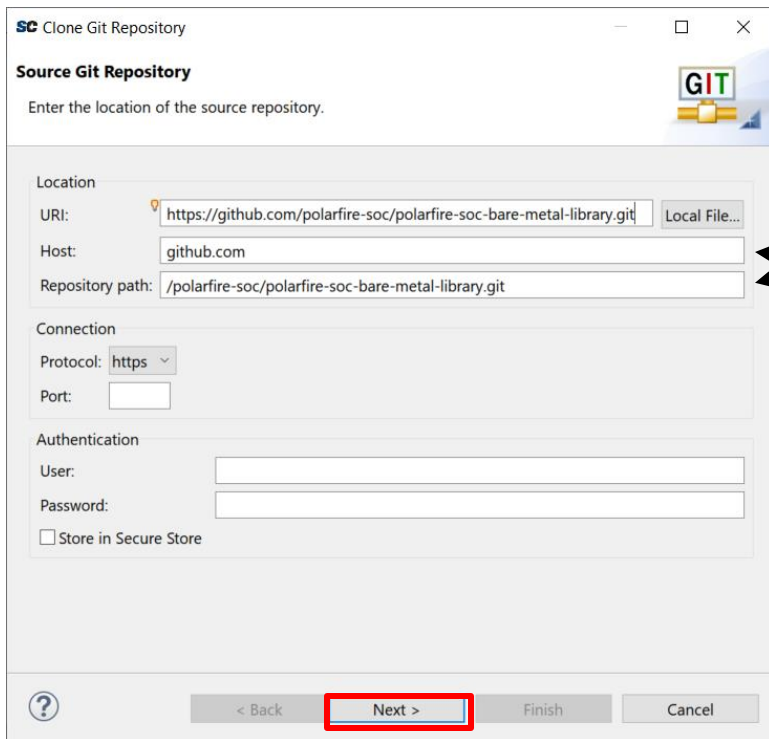
Authentication

User:

Password:

☐ Store in Secure Store

How to Use the PolarFire SoC Baremetal Library



SC Clone Git Repository

Source Git Repository
Enter the location of the source repository.

Location

URI: Local File...

Host:

Repository path:

Connection

Protocol:

Port:

Authentication

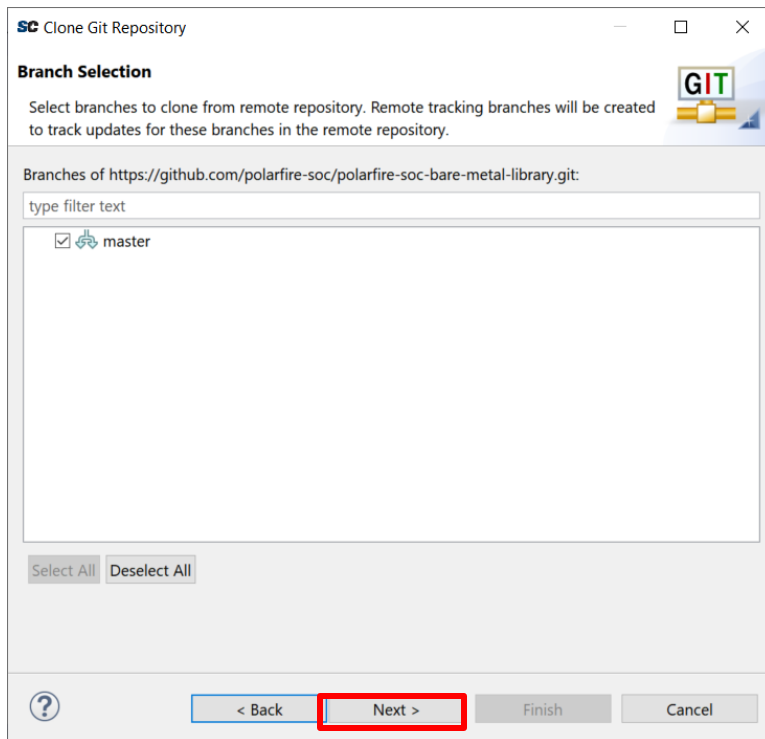
User:

Password:

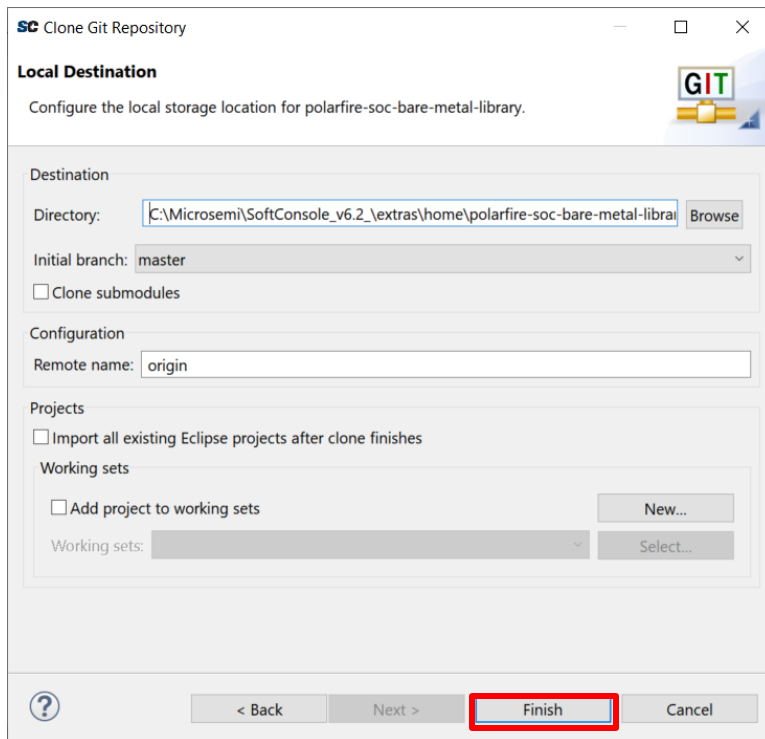
☐ Store in Secure Store

Auto filled

How to Use the PolarFire SoC Baremetal Library



How to Use the PolarFire SoC Baremetal Library



Clone Git Repository

Local Destination
Configure the local storage location for polarfire-soc-bare-metal-library.

Destination

Directory:

Initial branch:

☐ Clone submodules

Configuration

Remote name:

Projects

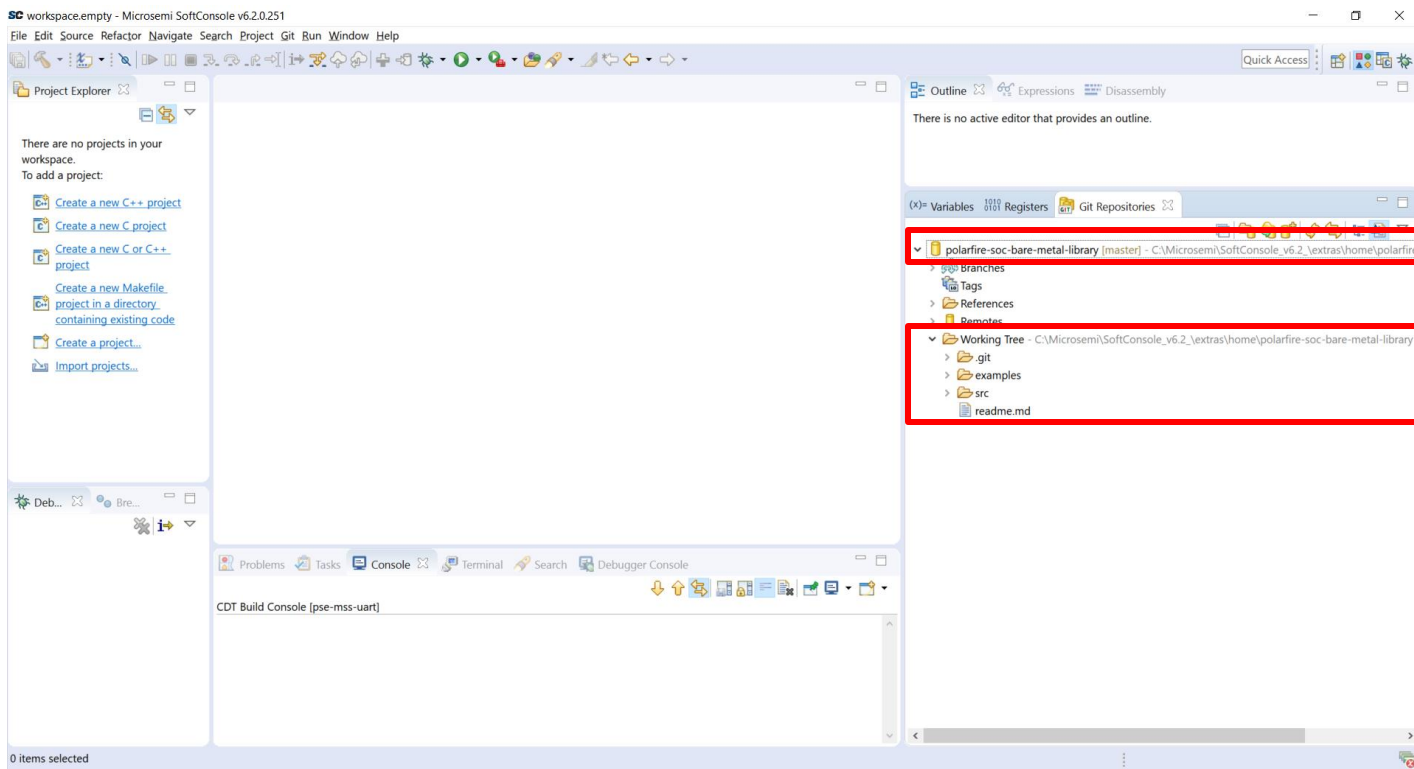
☐ Import all existing Eclipse projects after clone finishes

Working sets

☐ Add project to working sets

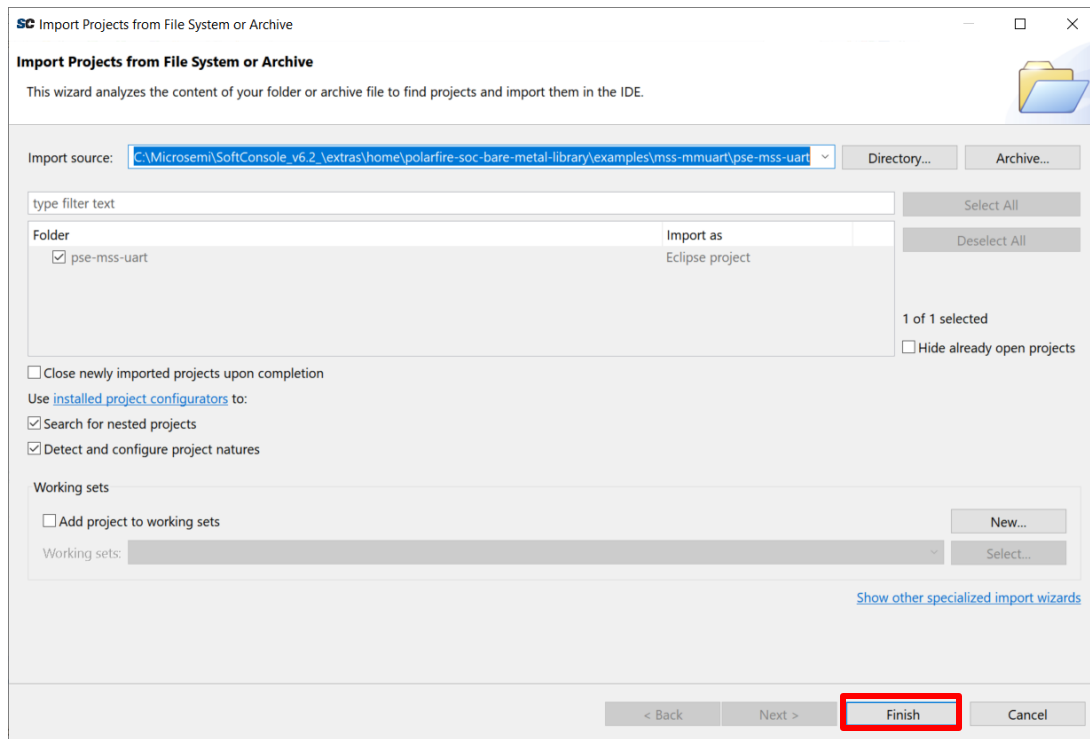
Working sets:

How to Use the PolarFire SoC Baremetal Library

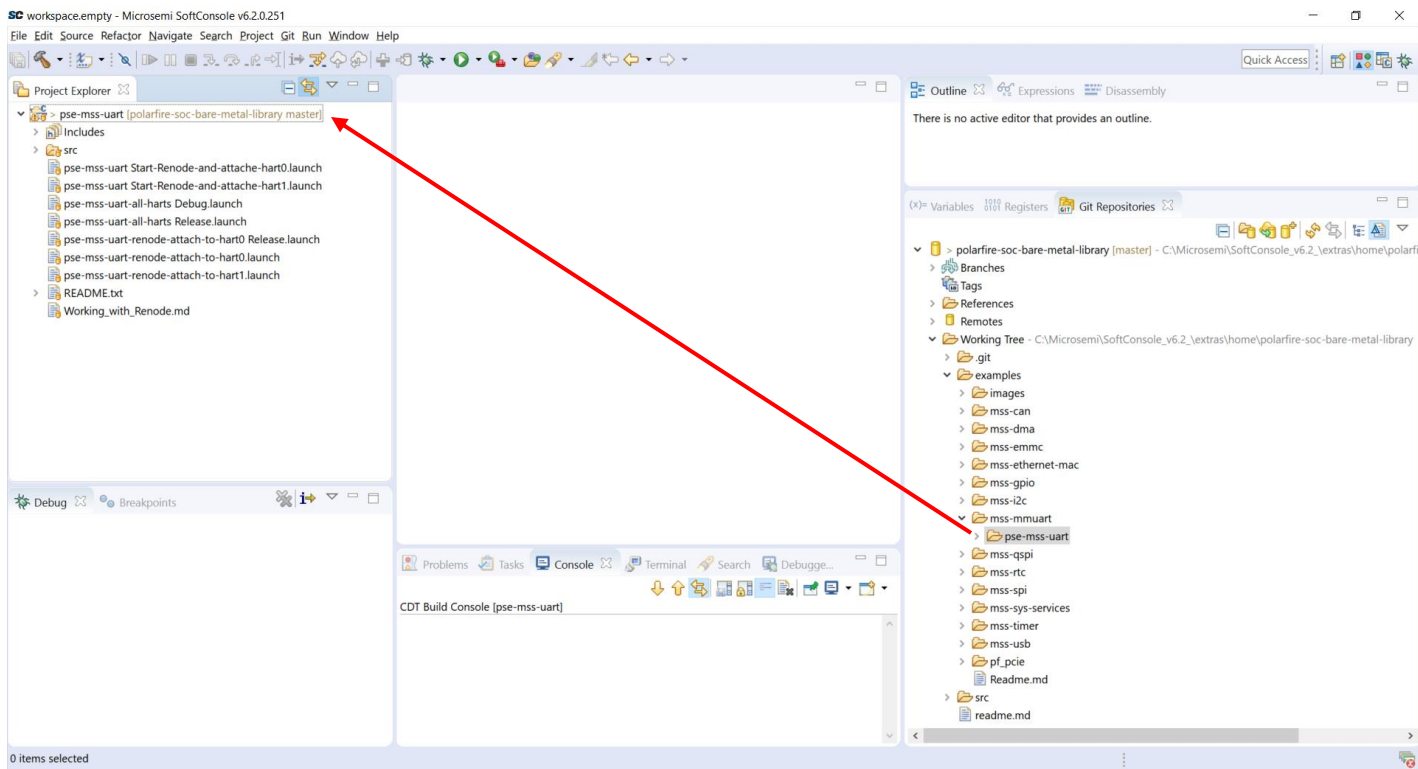




How to Use the PolarFire SoC Baremetal Library



How to Use the PolarFire SoC Baremetal Library





Project Explorer

There are no projects in your workspace.
To add a project:

- Create a new C++ project
- Create a new C project
- Create a new C or C++ project
- Create a new Makefile project in a directory containing existing code
- Create a project...
- Import projects...

Outline Expressions Disassembly

There is no active editor that provides an outline.

Variables Registers

Debug Breakpoints


Problems Tasks Console Terminal Search Debugger Console

No consoles to display at this time.

How to Use the PolarFire SoC Baremetal Library

SC Clone Git Repository

Local Destination

 C:\Microsemi\SoftConsole_v6.2_\extras\home\polarfire-soc-bare-metal-library is not an empty directory.

Destination

Directory:

Initial branch:

☐ Clone submodules

Configuration

Remote name:

Projects

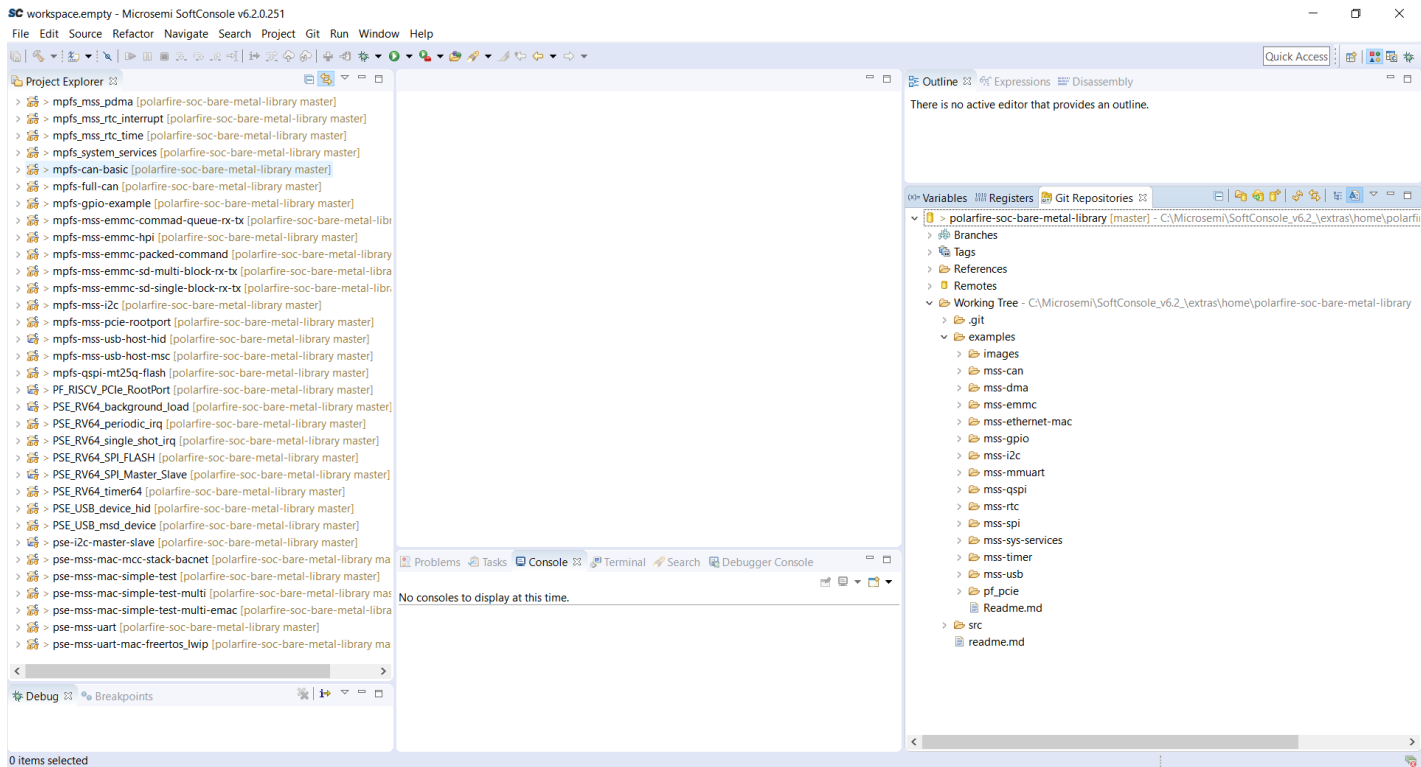
☒ Import all existing Eclipse projects after clone finishes

Working sets

☐ Add project to working sets

Working sets:

How to Use the PolarFire SoC Baremetal Library





Running Example Projects from the PolarFire SoC Baremetal Library





- Project Explorer
- ▼ > pse-mss-uart [polarfire-soc-bare-metal-library master]
 - > Includes
 - ▼ src
 - ▼ application
 - > hart0
 - > hart1
 - > hart2
 - > hart3
 - > hart4
 - > inc
 - > modules
 - > platform
 - pse-mss-uart Start-Renode-and-attache-hart0.launch
 - pse-mss-uart Start-Renode-and-attache-hart1.launch
 - pse-mss-uart-all-harts Debug.launch
 - pse-mss-uart-all-harts Release.launch
 - pse-mss-uart-renode-attach-to-hart0 Release.launch
 - pse-mss-uart-renode-attach-to-hart0.launch
 - pse-mss-uart-renode-attach-to-hart1.launch
 - > README.txt
 - Working_with_Renode.md

Debug Breakpoints

Problems Tasks Console Terminal Search Debugger Console

No consoles to display at this time.

Outline Expressions Disassembly

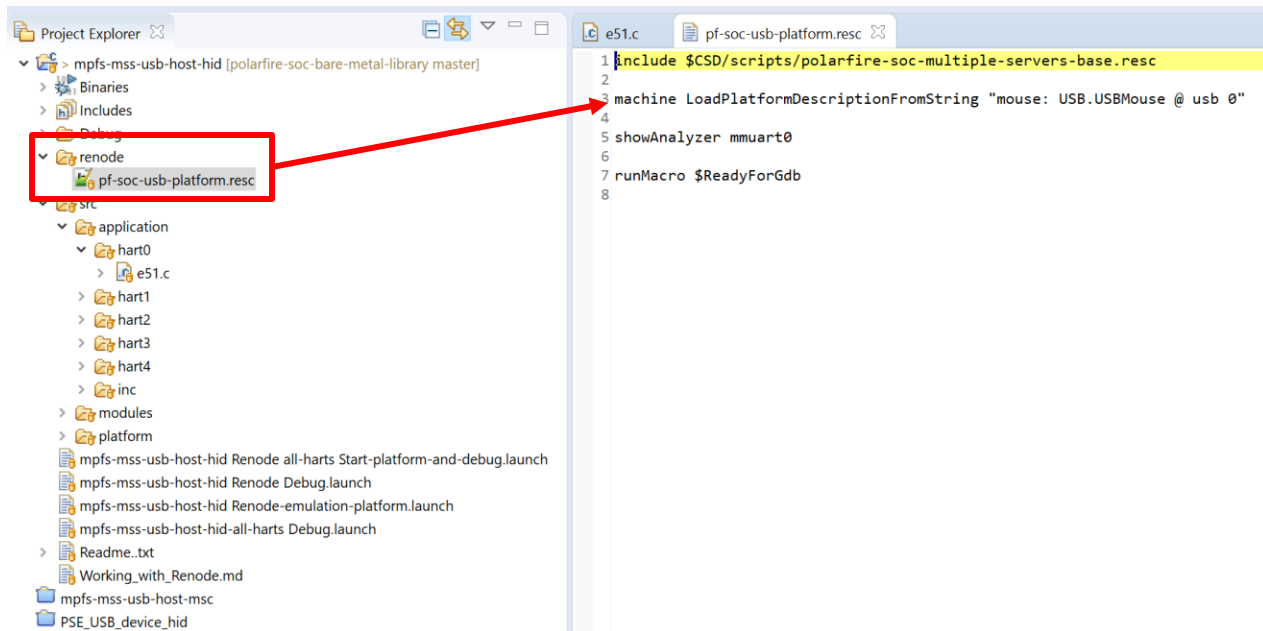
There is no active editor that provides an outline.

(x)= Variables Registers Git Repositories

- > polarfire-soc-bare-metal-library [master] - C:\Microsemi\SoftConsole_v6.2_\extras\home\polarfire-soc-bare-metal-library
- > Branches
 - > Tags
 - > References
 - > Remotes
 - ▼ Working Tree - C:\Microsemi\SoftConsole_v6.2_\extras\home\polarfire-soc-bare-metal-library
 - > .git
 - ▼ examples
 - > images
 - mss-can
 - mss-dma
 - mss-emmc
 - mss-ethernet-mac
 - mss-gpio
 - > mss-i2c
 - ▼ mss-mmuart
 - > pse-mss-uart
 - mss-qspi
 - mss-rtc
 - mss-spi
 - mss-sys-services
 - mss-timer
 - mss-usb
 - pf_pcie
 - Readme.md
 - > src
 - readme.md

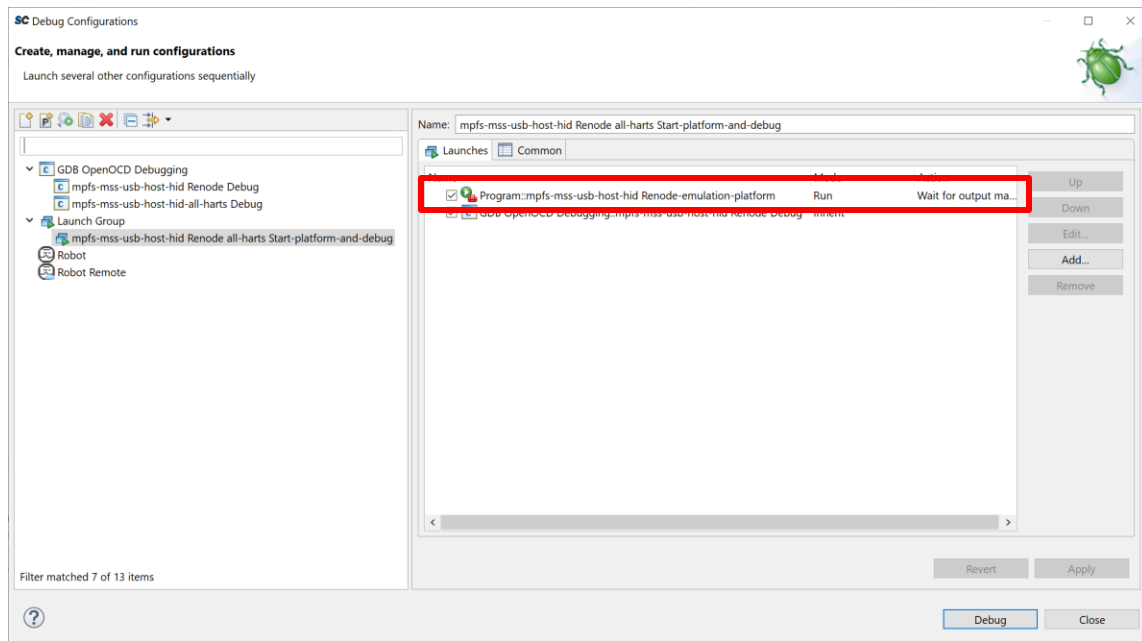
Running Example Projects from the PolarFire SoC Baremetal Library

- Some examples add peripherals to the Renode platform



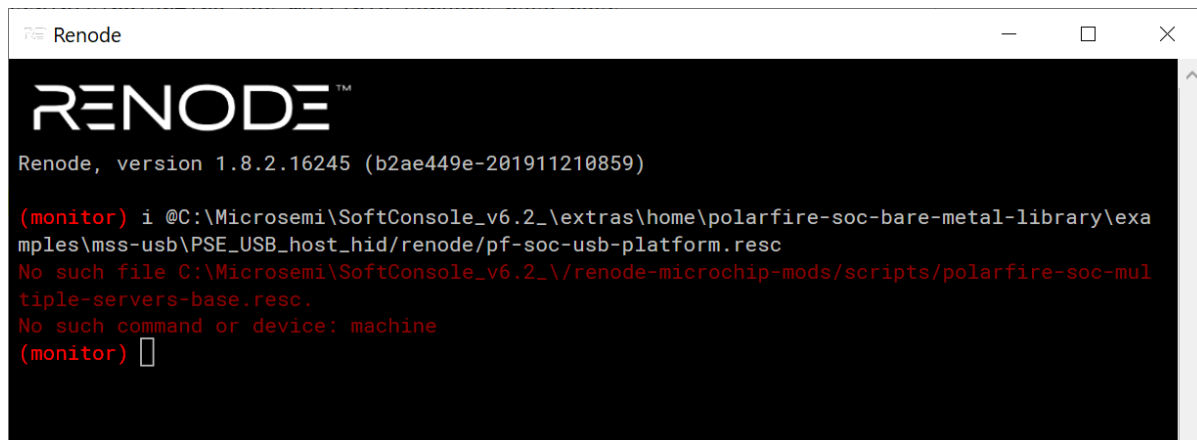
Running Example Projects from the PolarFire SoC Baremetal Library

For these projects the launch group usually contains its own Renode platform



Running Example Projects from the PolarFire SoC Baremetal Library

Running it for some projects can cause an error



```
Renode

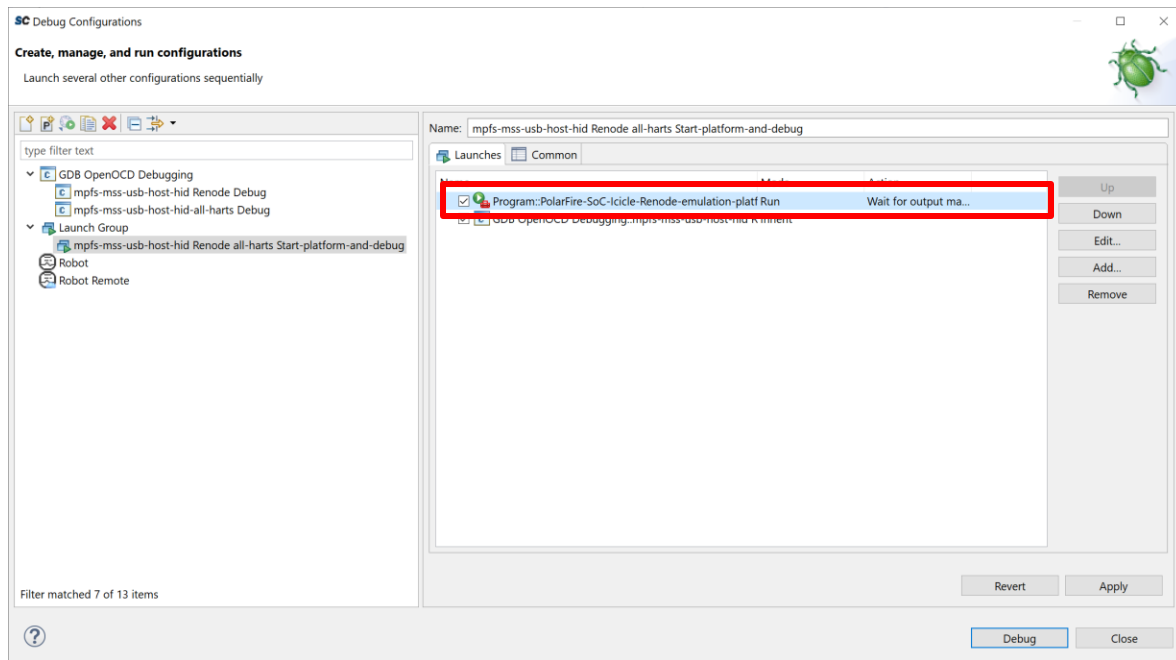
RENODE™

Renode, version 1.8.2.16245 (b2ae449e-201911210859)

(monitor) i @C:\Microsemi\SoftConsole_v6.2_\extras\home\polarfire-soc-bare-metal-library\examples\mss-usb\PSE_USB_host_hid\renode\pf-soc-usb-platform.resc
No such file C:\Microsemi\SoftConsole_v6.2_\renode-microchip-mods/scripts/polarfire-soc-multiple-servers-base.resc.
No such command or device: machine
(monitor) █
```

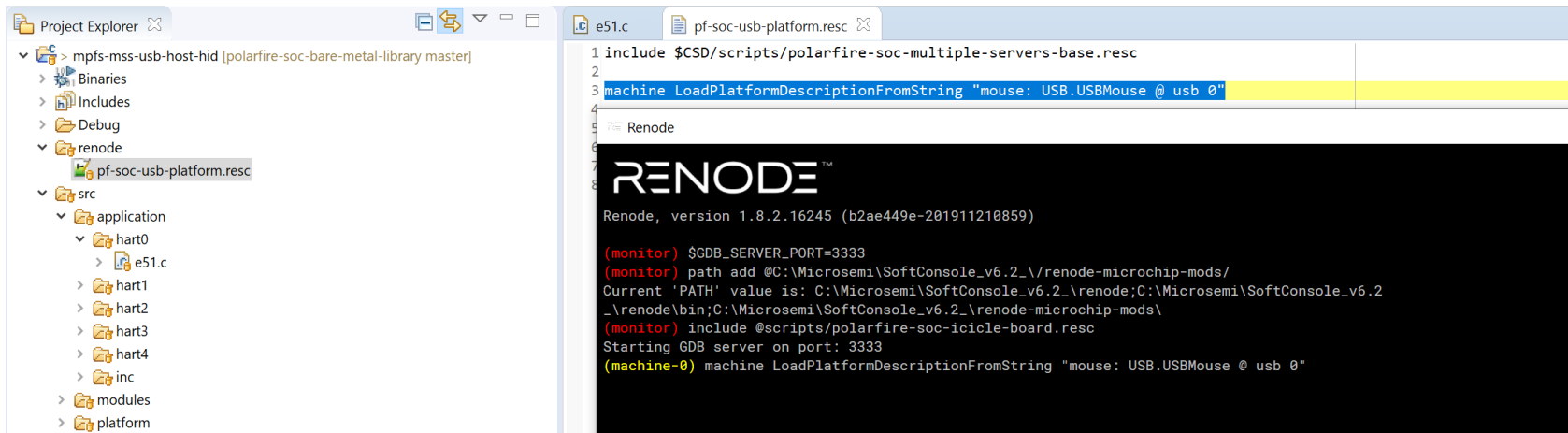
Running Example Projects from the PolarFire SoC Baremetal Library

Change to one of the included PF SoC Renode platforms



Running Example Projects from the PolarFire SoC Baremetal Library

When Renode launches paste the command from the command from the “renode” folder into the console



Running Example Projects from the PolarFire SoC Baremetal Library

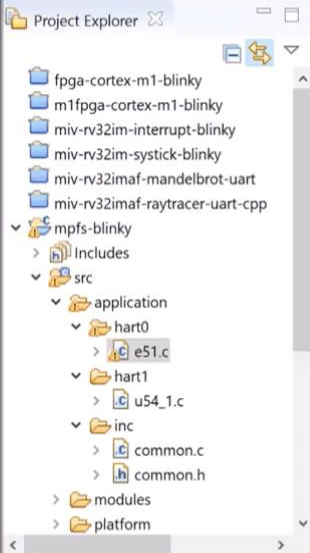
The extra peripheral needed for this example
has now been added

```
├─ usb (PSE_USB)
│   └─ <0x20201000, 0x20201FFF>
│       └─ mouse (USBMouse)
│           Address: 0
```



Updating an Existing Project Using the PolarFire SoC Baremetal Library





```
e51.c
20 uint8_t gpio0_bit0_or_gpio2_bit13_plic_0_IRQHandler(void)
21 {
22     MSS_UART_polled_tx_string(&g_mss_uart0_lo,
23         "\r\nSetting output 0 to high\r\n");
24
25     MSS_GPIO_set_output(GPIO1_LO, MSS_GPIO_0, 1);
26     MSS_GPIO_clear_irq(GPIO0_LO, MSS_GPIO_0);
27     return EXT_IRQ_KEEP_ENABLED;
28 }
29
30
31 uint8_t gpio0_bit1_or_gpio2_bit13_plic_1_IRQHandler(void)
32 {
33     MSS_UART_polled_tx_string(&g_mss_uart0_lo,
34         "\r\nSetting output 1 to high\r\n");
35
36     MSS_GPIO_set_output(GPIO1_LO, MSS_GPIO_1, 1);
37     MSS_GPIO_clear_irq(GPIO0_LO, MSS_GPIO_1);
38     return EXT_IRQ_KEEP_ENABLED;
39 }
40
41
42 uint8_t gpio0_bit2_or_gpio2_bit13_plic_2_IRQHandler(void)
43 {
44     MSS_UART_polled_tx_string(&g_mss_uart0_lo,
45         "\r\nSetting output 2 to high\r\n");
46
47     MSS_GPIO_set_output(GPIO1_LO, MSS_GPIO_2, 1);
48     MSS_GPIO_clear_irq(GPIO0_LO, MSS_GPIO_2);
49 }
```

Problems Tasks Console Terminal Search Debugger Console

CDT Build Console [mpfs-blinky]

Quick Access



- mpfs_hal/mss_hal.h
- drivers/mss_gpio/mss_gpio.h
- drivers/mss_uart/mss_uart.h
- inc/common.h
- uart_lock : uint64_t
- gpio0_bit0_or_gpio2_bit13_plic_0_IRQHandler(void) : uint8_t
- gpio0_bit1_or_gpio2_bit13_plic_1_IRQHandler(void) : uint8_t
- gpio0_bit2_or_gpio2_bit13_plic_2_IRQHandler(void) : uint8_t
- gpio0_non_direct_plic_IRQHandler(void) : uint8_t
- gpio1_non_direct_plic_IRQHandler(void) : uint8_t
- gpio2_non_direct_plic_IRQHandler(void) : uint8_t
- e51_setup(void) : void
- e51_application(void) : void
- e51(void) : void

(x) Variables Registers Git Repositories

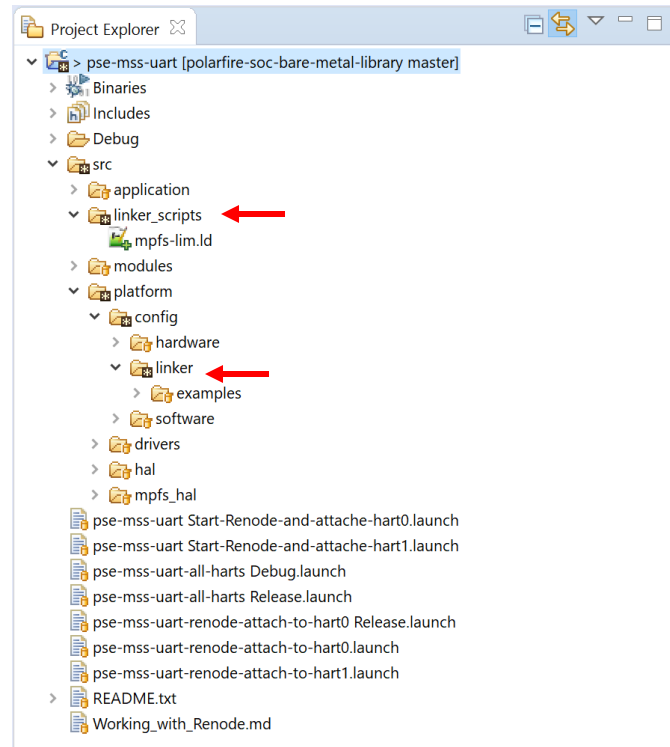
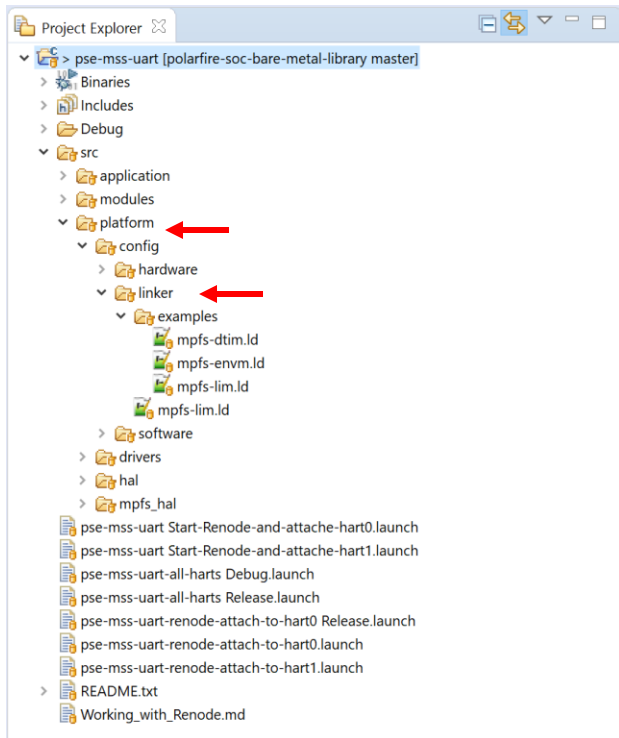
Select one of the following to add a repository to this view:

- Add an existing local Git repository
- Clone a Git repository
- Create a new local Git repository

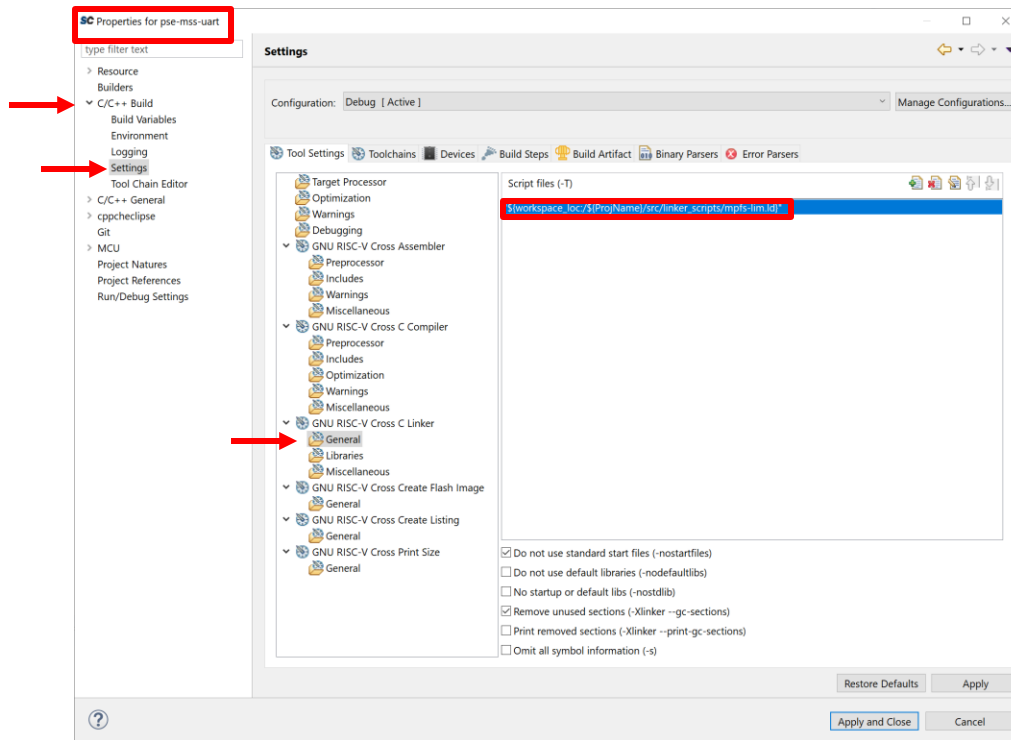
Updating an Existing Project Using the PolarFire SoC Baremetal Library

- **You should update the whole platform folder**
- **Make sure to save / move your linker script!**

Updating an Existing Project Using the PolarFire SoC Baremetal Library



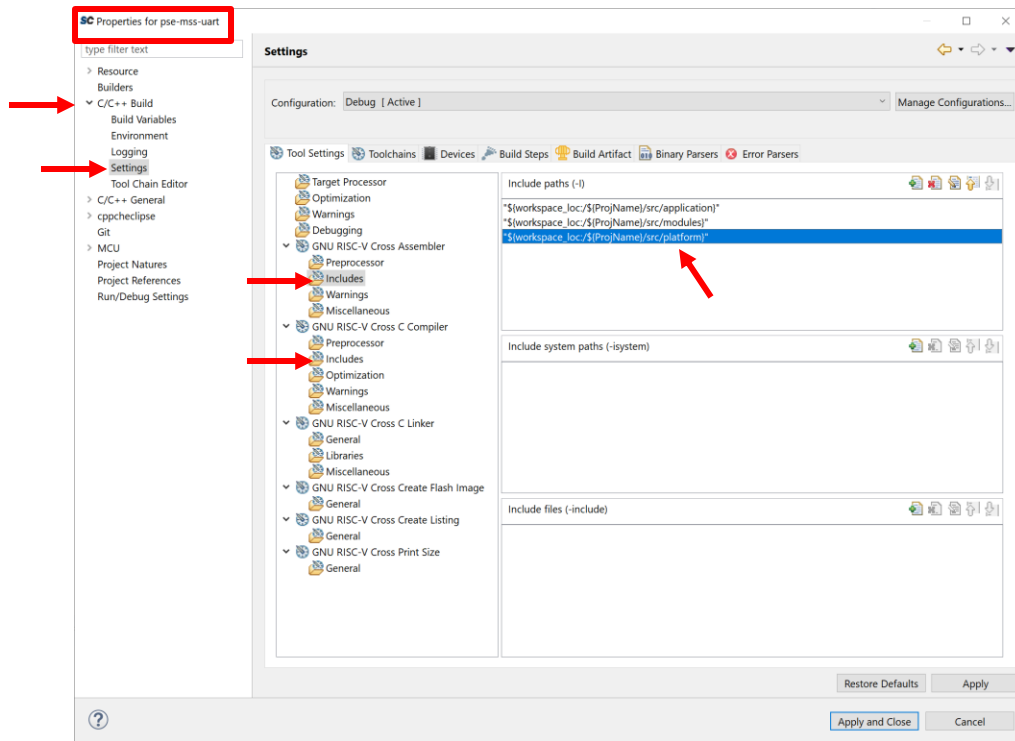
Updating an Existing Project Using the PolarFire SoC Baremetal Library



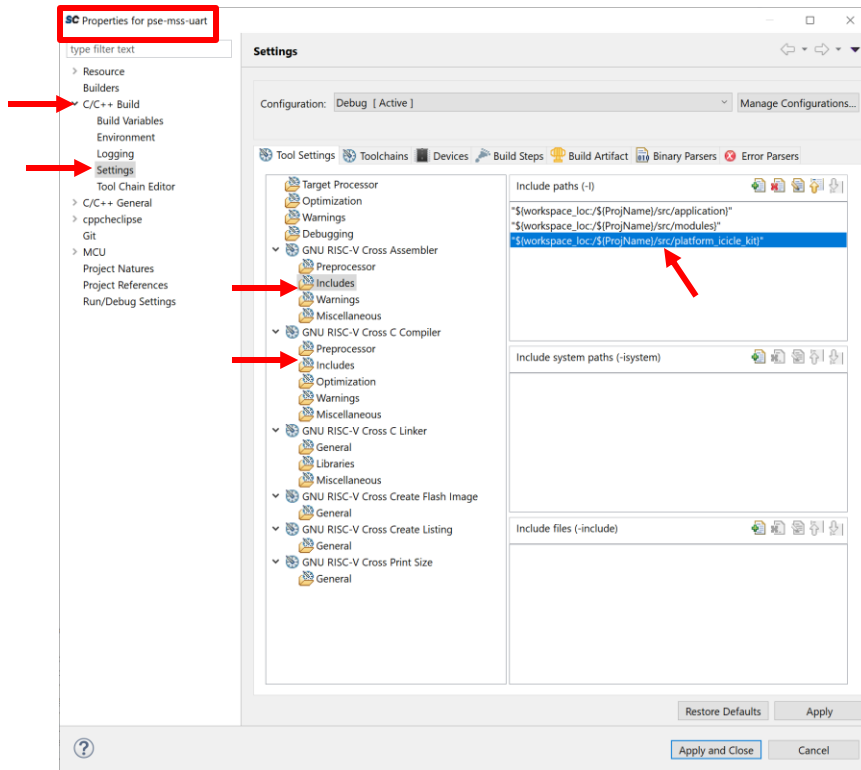
Updating an Existing Project Using the PolarFire SoC Baremetal Library

- You can also create custom hardware configuration folders
- For example an “Icicle” configuration

Updating an Existing Project Using the PolarFire SoC Baremetal Library

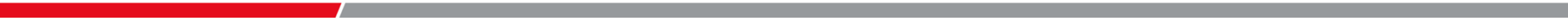


Updating an Existing Project Using the PolarFire SoC Baremetal Library





Current Status of the PolarFire[®] SoC Baremetal Library





Current Status of the PolarFire® SoC Baremetal Library

Driver	Example Project
mss_can	Mpfs-basic-can
	Mpfs-full-can
Mss_ethernet_mac	Pse-mss-mac-mcc-stack
	Pse-mss-mac-simple-test-multi-emac
	Pse-mss-mac-simple-test-multi
	Pse-mss-mac-simple-test
	Pse-mss-uart-mac-freertos_lwip
Mss_gpio	Gpio_interrupt
Mss_i2c	PSE_I2C_master_slave
	I2C_master_slave
Mss_mmc	Mpfs-mss-emmc-command-queue-rx-tx
	Mpfs-mss-emmc-hpi
	Mpfs-mss-emmc-packed-command
	Mpfs-mss-emmc-sd-multi-block-rx-tx
	Mpfs-mss-emmc-sd-single-block-rx-tx



Current Status of the PolarFire® SoC Baremetal Library

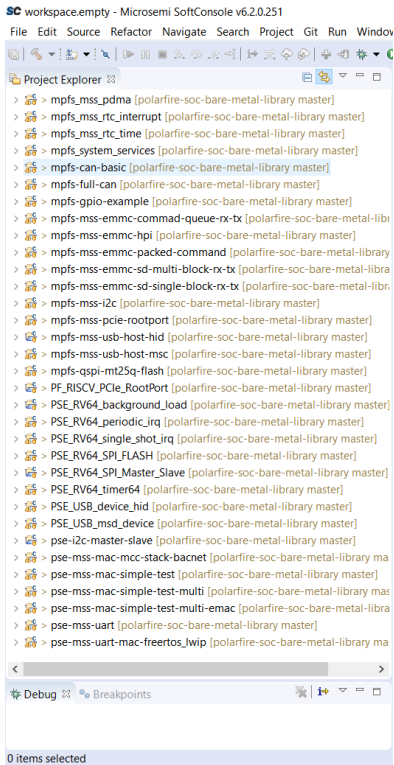
Driver	Example Project
Mss_mmuart	Pse-mss-uart
Mss_pdma	
Mss_qspi	Mpfs-qspi-mt25q-flash
Mss_rtc	MPFS_RV64_RTC_INTERRUPT
	MPFS_RV64_RTC_TIME
Mss_spi	PSE_RV64_SPI_FLASH
	PSE_RV64_SPI_Master_Slave
Mss_sys_services	Mpfs_system_services
Mss_timer	PSE_RV64_background_load
	PSE_RV64_periodic_irq
	PSE_RV64_single_shot_irq
	PSE_RV64_timer64



Current Status of the PolarFire[®] SoC Baremetal Library

Driver	Example Project
Mss_usb	PSE_USB_device_hid
	PSE_USB_host_hid
	PSE_USB_host_msc_controller
	PSE_USB_msd_drive
Pf_pcie	PF_RISCV_PCl_e_RootPort
	Mpfs-mss-pcie-rootport

Current Status of the PolarFire® SoC Baremetal Library



- Example project names are going to change!
- Pse_ / PF_ / Mss_ will become mpfs_

Agenda

- **What is the PolarFire® SoC Baremetal Library**
- **What's in the PolarFire SoC Baremetal Library**
- **How to Use the PolarFire SoC Baremetal Library**
- **Running Example Projects From the PolarFire SoC Baremetal Library**
- **Updating an Existing Project using the PolarFire SoC Baremetal Library**
- **Current Status of the PolarFire SoC Baremetal Library**

Second Thursdays

- Feb. 13 - Webinar 10: Introduction to the PolarFire® SoC Baremetal Library**
- Mar. 12 - Webinar 11: Handling Binaries**
- April 9 - Webinar 12: Two Baremetal Applications on PolarFire SoC**
- May 14 - Webinar 13: Linux on Renode**
- June 11 - Webinar 14: Building Applications for Linux on PolarFire SoC**
- July 9 - Webinar 15: Real-Time (AMP Mode) on PolarFire SoC**



Thank You

Any Questions?
