

Getting Started with the RISC-V Based PolarFire® SoC
FPGA Webinar Series
Session 16 Linux on PolarFire SoC



A Leading Provider of Smart, Connected and Secure Embedded Control Solutions



SMART | CONNECTED | SECURE

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Supporting Content

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

The screenshot shows the Microsemi website's product directory for the Renode Webinar Series. The URL in the address bar is `product-directory/fpga-soc/5210-mi-v-embedded-ecosystem#renode-webinar-series`. The navigation bar includes links for Learning, Company, Partners, and Support. A search bar is present with the text "Search Microsemi.com". The main content area features a banner for the "Libero SoC Design Suite v12.0" with bullet points: "Unified design suite for PolarFire, IGLOO2, Smartfusion2 and RTG4 families", "60% runtime reduction for Timing and 20% runtime reduction for Power", and "25% runtime improvement for Place and Route". Below the banner is a breadcrumb trail: "Home / Products & Services / FPGA & SoC / Mi-V RISC-V Ecosystem". The "Mi-V RISC-V Ecosystem" section has a sub-navigation bar with links for Overview, Mi-V Partners, Tutorials, Renode Webinar Series (highlighted with a red box), and Articles and News. The "Getting Started with the RISC-V Based PolarFire™ SoC FPGA Webinar Series" section includes a paragraph about the PolarFire SoC FPGA and a link to register. Logos for Mi-V and Antmicro are shown. The "Webinar 1 (May 2): Discover Renode for PolarFire™ SoC Design and Debug" section provides an overview of the introductory session.

product-directory/fpga-soc/5210-mi-v-embedded-ecosystem#renode-webinar-series

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Learning Company Partners Support

Libero SoC Design Suite v12.0

- Unified design suite for PolarFire, IGLOO2, Smartfusion2 and RTG4 families
- 60% runtime reduction for Timing and 20% runtime reduction for Power
- 25% runtime improvement for Place and Route

Home / Products & Services / FPGA & SoC / Mi-V RISC-V Ecosystem

Mi-V RISC-V Ecosystem

Overview Mi-V Partners Tutorials **Renode Webinar Series** Articles and News

Getting Started with the RISC-V Based PolarFire™ SoC FPGA Webinar Series

Learn how to get started with the PolarFire SoC FPGA, the world's first RISC-V based SoC FPGA, to create fully deterministic, real-time systems alongside the Linux® operating system. We are holding a series of webinars to introduce you to the free Renode™ development platform from Mi-V partner Antmicro that is available with our SoftConsole v6.0 software development environment. You will see demo applications, learn how to create projects, and find out how to set up and configure your own systems targeting the new SoC FPGA architecture.

Click [here](#) to register.

Mi-V antmicro

Webinar 1 (May 2): Discover Renode for PolarFire™ SoC Design and Debug

In this introductory session, we will provide you with an overview of SoftConsole 6.0 with Renode™ integration. We will introduce you to the Renode development framework and provide an overview of the platform and its features. You will also learn about the PolarFire™ SoC architecture and how to use Renode to develop your application.

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

Webinar 10: Introduction to the PolarFire SoC Bare-Metal Library

Webinar 11: Handling Binaries

Webinar 12: Simple Peripheral as Software Stimulus

Webinar 13: Two Baremetal Applications on PolarFire SoC

Webinar 14: Building and running Linux



Agenda

- **Linux on Renode**
- **Updating Renode with new images**

Linux on Renode

Linux on Renode

- Renode release 1.10.1 should be used for running Linux on PolarFire SoC
- It will be included in SoftConsole 6.4
- A standalone installer can be found at:

<https://github.com/renode/renode/releases/tag/v1.10.1>

▼ Assets 9

 renode-1.10.1-x86_64.pkg.tar.xz	4.06 MB
 renode-1.10.1-f23.x86_64.rpm	6.74 MB
 renode-1.10.1.linux-portable.tar.gz	21.4 MB
 renode_1.10.1.dmg	7.27 MB
 renode_1.10.1.msi	9.91 MB
 renode_1.10.1.zip	9.41 MB
 renode_1.10.1_amd64.deb	6.75 MB
 Source code (zip)	
 Source code (tar.gz)	

Linux on Renode

- A script is included to run the PolarFire SoC Linux demo
[Renode install]/scripts/single-node/icicle-kit.resc

```
:name: Icicle Kit
:description: This is a sample script running HSS, U-Boot and Linux on Icicle Kit with PolarFire SoC

$bin?=@https://dl.antmicro.com/projects/renode/icicle--hss.elf-s_3297936-bcb7ef60abc78a878995554160eaac1dea962e95
$uboot?=@https://dl.antmicro.com/projects/renode/icicle--u-boot-s_5132448-194bf14572a9bc4b26727567065ede2ffd7f1201
$vmlinux?=@https://dl.antmicro.com/projects/renode/icicle--vmlinux-s_8563992-fa2aad1e61ec38b411f6afb543503cb26601b1e2
$fit?=@https://dl.antmicro.com/projects/renode/icicle--fitImage.fit-s_16976563-1d0e86ed4cc7c24e167ca899fd929d954956b478
$emmc?=@https://dl.antmicro.com/projects/renode/icicle--emmc.img-s_26746880-3a6ef871bc8eb6fcfbda344e8c23fb534ef89961

i @scripts/single-node/polarfire-soc.resc

showAnalyzer mmuart1
machine SdhcCardFromFile $emmc mmc

macro reset
"""
    sysbus LoadBinary $fit 0x88300000
    sysbus LoadSymbolsFrom $vmlinux
    sysbus LoadSymbolsFrom $uboot
"""
runMacro $reset
```

Linux on Renode

- Section below downloads image source files to a local cache

```
:name: Icicle Kit
:description: This is a sample script running HSS, U-Boot and Linux on Icicle Kit with PolarFire SoC

$bin?=@https://dl.antmicro.com/projects/renode/icicle--hss.elf-s_3297936-bcb7ef60abc78a878995554160eaac1dea962e95
$uboot?=@https://dl.antmicro.com/projects/renode/icicle--u-boot-s_5132448-194bf14572a9bc4b26727567065ede2ffd7f1201
$vmlinux?=@https://dl.antmicro.com/projects/renode/icicle--vmlinux-s_8563992-fa2aad1e61ec38b411f6afb543503cb26601b1e2
$fit?=@https://dl.antmicro.com/projects/renode/icicle--fitImage.fit-s_16976563-1d0e86ed4cc7c24e167ca899fd929d954956b478
$emmc?=@https://dl.antmicro.com/projects/renode/icicle--emmc.img-s_26746880-3a6ef871bc8eb6fcfbda344e8c23fb534ef89961
```

➤ If you just want to see Linux boot without having to build this will allow you to do it

- Then load the PolarFire SoC platform and show UART1

```
i @scripts/single-node/polarfire-soc.resc
showAnalyzer mmuart1
```

Linux on Renode

- Then load the downloaded emmc image into the mmc
- Create a reset macro to load the fit image into memory and load symbols from the other images
- Run the macro

```
machine SdhcCardFromFile $emmc mmc  
  
macro reset  
""  
    sysbus LoadBinary $fit 0x88300000  
    sysbus LoadSymbolsFrom $vmlinux  
    sysbus LoadSymbolsFrom $uboot  
""  
runMacro $reset
```


Linux on Renode

1. Download images
2. Load the platform
3. Load the images

```
:name: Icicle Kit
:description: This is a sample script running HSS, U-Boot and Linux on Icicle Kit with PolarFire SoC

$bin?=@https://dl.antmicro.com/projects/renode/icicle--hss.elf-s_3297936-bcb7ef60abc78a878995554160eaac1dea962e95
$subboot?=@https://dl.antmicro.com/projects/renode/icicle--u-boot-s_5132448-194bf14572a9bc4b26727567065ede2ffd7f1201
$vmlinux?=@https://dl.antmicro.com/projects/renode/icicle--vmlinux-s_8563992-fa2aad1e61ec38b411f6afb543503cb26601b1e2
$fit?=@https://dl.antmicro.com/projects/renode/icicle--fitImage.fit-s_16976563-1d0e86ed4cc7c24e167ca899fd929d954956b478
$emmc?=@https://dl.antmicro.com/projects/renode/icicle--emmc.img-s_26746880-3a6ef871bc8eb6fcfbda344e8c23fb534ef89961

i @scripts/single-node/polarfire-soc.resc

showAnalyzer mmuart1
machine SdhcCardFromFile $emmc mmc

macro reset
"""
    sysbus LoadBinary $fit 0x88300000
    sysbus LoadSymbolsFrom $vmlinux
    sysbus LoadSymbolsFrom $subboot
"""
runMacro $reset
```

Linux on Renode

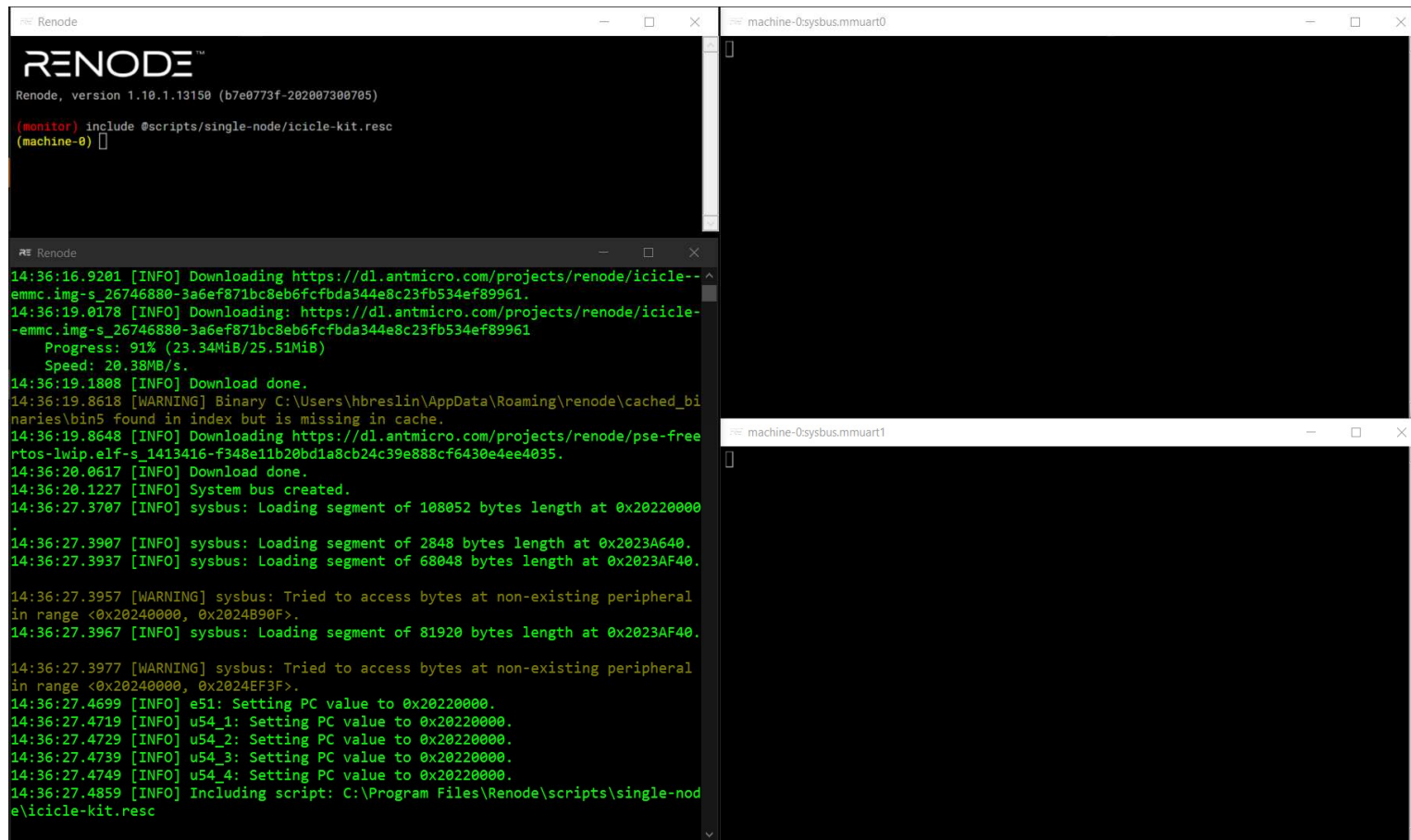
- To run the demo and boot Linux execute
“include @scripts/single-node/icle-kit.resc”

Renode

```
RENODE™  
Renode, version 1.10.1.13150 (b7e0773f-202007300705)  
(monitor) include @scripts/single-node/icle-kit.resc
```

Linux on Renode

- This will load the memory files and open the UART analysers



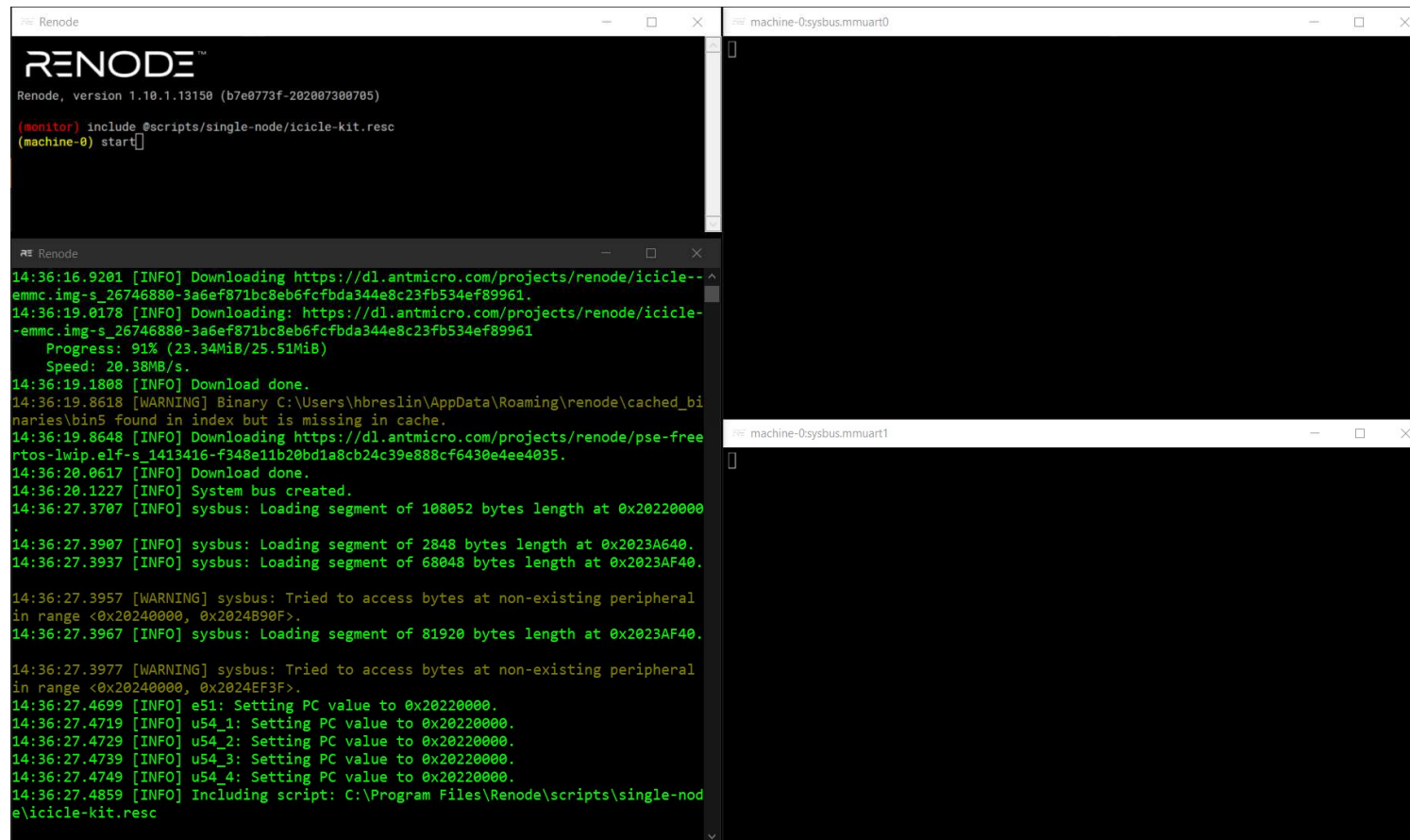
The screenshot displays the Renode environment and two UART analyser windows. The Renode window shows the execution of a script that includes the 'single-node/icicle-kit.resc' file. The logs indicate the downloading of various firmware images from the Antmicro website, including 'emmc.img' and 'rtos-lwip.elf'. The system bus is created, and segments are loaded into memory. The UART analyser windows show the system boot process, including the setting of PC values for various components and the loading of the 'single-node/icicle-kit.resc' script.

```
Renode
Renode, version 1.10.1.13150 (b7e0773f-202007300705)
(monitors) include @scripts/single-node/icicle-kit.resc
(machine-0) []

14:36:16.9201 [INFO] Downloading https://dl.antmicro.com/projects/renode/icicle--
emmc.img-s_26746880-3a6ef871bc8eb6fcfbda344e8c23fb534ef89961.
14:36:19.0178 [INFO] Downloading: https://dl.antmicro.com/projects/renode/icicle-
emmc.img-s_26746880-3a6ef871bc8eb6fcfbda344e8c23fb534ef89961
Progress: 91% (23.34MiB/25.51MiB)
Speed: 20.38MB/s.
14:36:19.1808 [INFO] Download done.
14:36:19.8618 [WARNING] Binary C:\Users\hbreslin\AppData\Roaming\renode\cached_bi
naries\bin5 found in index but is missing in cache.
14:36:19.8648 [INFO] Downloading https://dl.antmicro.com/projects/renode/pse-free
rtos-lwip.elf-s_1413416-f348e11b20bd1a8cb24c39e888cf6430e4ee4035.
14:36:20.0617 [INFO] Download done.
14:36:20.1227 [INFO] System bus created.
14:36:27.3707 [INFO] sysbus: Loading segment of 108052 bytes length at 0x20220000.
14:36:27.3907 [INFO] sysbus: Loading segment of 2848 bytes length at 0x2023A640.
14:36:27.3937 [INFO] sysbus: Loading segment of 68048 bytes length at 0x2023AF40.
14:36:27.3957 [WARNING] sysbus: Tried to access bytes at non-existing peripheral
in range <0x20240000, 0x2024B90F>.
14:36:27.3967 [INFO] sysbus: Loading segment of 81920 bytes length at 0x2023AF40.
14:36:27.3977 [WARNING] sysbus: Tried to access bytes at non-existing peripheral
in range <0x20240000, 0x2024EF3F>.
14:36:27.4699 [INFO] e51: Setting PC value to 0x20220000.
14:36:27.4719 [INFO] u54_1: Setting PC value to 0x20220000.
14:36:27.4729 [INFO] u54_2: Setting PC value to 0x20220000.
14:36:27.4739 [INFO] u54_3: Setting PC value to 0x20220000.
14:36:27.4749 [INFO] u54_4: Setting PC value to 0x20220000.
14:36:27.4859 [INFO] Including script: C:\Program Files\Renode\scripts\single-nod
e/icicle-kit.resc
```

Linux on Renode

- Type “start” or just “s” to run the emulation



The screenshot displays the Renode emulator interface. The top window shows the Renode logo and version information (1.10.1.13150). Below it, the command `(monitor) include @scripts/single-node/icle-kit.resc` and `(machine-0) start` are entered. The bottom window shows the resulting log output, which includes download progress for the `emmc.img` file and system initialization messages for the `sysbus` and `mmuart1` components.

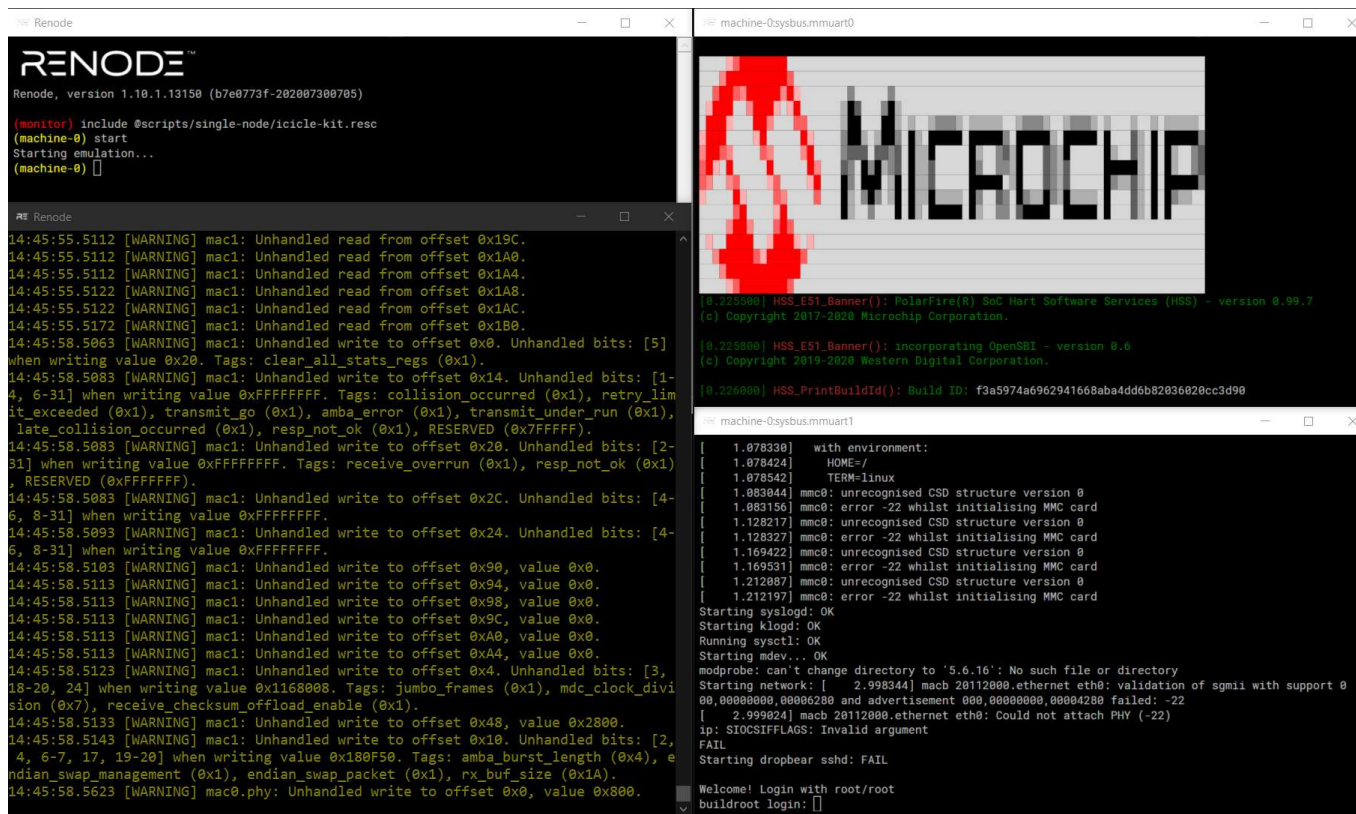
```
Renode, version 1.10.1.13150 (b7e8773f-202007300705)

(monitor) include @scripts/single-node/icle-kit.resc
(machine-0) start

14:36:16.9201 [INFO] Downloading https://dl.antmicro.com/projects/renode/icle-
emmc.img-s_26746880-3a6ef871bc8eb6fcfbda344e8c23fb534ef89961.
14:36:19.0178 [INFO] Downloading: https://dl.antmicro.com/projects/renode/icle-
emmc.img-s_26746880-3a6ef871bc8eb6fcfbda344e8c23fb534ef89961
Progress: 91% (23.34MiB/25.51MiB)
Speed: 20.38MB/s.
14:36:19.1808 [INFO] Download done.
14:36:19.8618 [WARNING] Binary C:\Users\hbreslin\AppData\Roaming\renode\cached_bi
naries\bin5 found in index but is missing in cache.
14:36:19.8648 [INFO] Downloading https://dl.antmicro.com/projects/renode/pse-free
rtos-lwip.elf-s_1413416-f348e11b20bd1a8cb24c39e888cf6430e4ee4035.
14:36:20.0617 [INFO] Download done.
14:36:20.1227 [INFO] System bus created.
14:36:27.3707 [INFO] sysbus: Loading segment of 108052 bytes length at 0x20220000
.
14:36:27.3907 [INFO] sysbus: Loading segment of 2848 bytes length at 0x2023A640.
14:36:27.3937 [INFO] sysbus: Loading segment of 68048 bytes length at 0x2023AF40.
14:36:27.3957 [WARNING] sysbus: Tried to access bytes at non-existing peripheral
in range <0x20240000, 0x2024B90F>.
14:36:27.3967 [INFO] sysbus: Loading segment of 81920 bytes length at 0x2023AF40.
14:36:27.3977 [WARNING] sysbus: Tried to access bytes at non-existing peripheral
in range <0x20240000, 0x2024EF3F>.
14:36:27.4699 [INFO] e51: Setting PC value to 0x20220000.
14:36:27.4719 [INFO] u54_1: Setting PC value to 0x20220000.
14:36:27.4729 [INFO] u54_2: Setting PC value to 0x20220000.
14:36:27.4739 [INFO] u54_3: Setting PC value to 0x20220000.
14:36:27.4749 [INFO] u54_4: Setting PC value to 0x20220000.
14:36:27.4859 [INFO] Including script: C:\Program Files\Renode\scripts\single-nod
e\icle-kit.resc
```

Linux on Renode

- The HSS will print from UART0, openSBI, U-Boot and the Linux console will output on UART1



The screenshot displays the Renode emulator interface with two terminal windows. The left window, titled 'Renode', shows the command prompt and a series of warnings from the mac1 component regarding unhandled reads and writes to various offsets. The right window, titled 'machine-0sysbus.mmuart0', displays the Microchip logo and the HSS banner, followed by the Linux boot logs. The logs indicate that the system is starting syslogd, klogd, and sysctl, and that the network is starting. The final prompt is 'Welcome! Login with root/root'.

```
Renode
Renode, version 1.10.1.13150 (b7e0773f-202007300705)

(machine-0) include @scripts/single-node/icle-kit.resc
(machine-0) start
Starting emulation...
(machine-0)

14:45:55.5112 [WARNING] mac1: Unhandled read from offset 0x19C.
14:45:55.5112 [WARNING] mac1: Unhandled read from offset 0x1A0.
14:45:55.5112 [WARNING] mac1: Unhandled read from offset 0x1A4.
14:45:55.5122 [WARNING] mac1: Unhandled read from offset 0x1A8.
14:45:55.5122 [WARNING] mac1: Unhandled read from offset 0x1AC.
14:45:55.5172 [WARNING] mac1: Unhandled read from offset 0x1B0.
14:45:58.5063 [WARNING] mac1: Unhandled write to offset 0x0. Unhandled bits: [5]
when writing value 0x20. Tags: clear_all_stats_regs (0x1).
14:45:58.5083 [WARNING] mac1: Unhandled write to offset 0x14. Unhandled bits: [1-4, 6-31] when writing value 0xFFFFFFFF. Tags: collision_occurred (0x1), retry_lim
it_exceeded (0x1), transmit_go (0x1), amba_error (0x1), transmit_under_run (0x1),
late_collision_occurred (0x1), resp_not_ok (0x1), RESERVED (0x7FFFFFFF).
14:45:58.5083 [WARNING] mac1: Unhandled write to offset 0x20. Unhandled bits: [2-31]
when writing value 0xFFFFFFFF. Tags: receive_overrun (0x1), resp_not_ok (0x1),
RESERVED (0x7FFFFFFF).
14:45:58.5083 [WARNING] mac1: Unhandled write to offset 0x2C. Unhandled bits: [4-6, 8-31]
when writing value 0xFFFFFFFF.
14:45:58.5093 [WARNING] mac1: Unhandled write to offset 0x24. Unhandled bits: [4-6, 8-31]
when writing value 0xFFFFFFFF.
14:45:58.5103 [WARNING] mac1: Unhandled write to offset 0x90, value 0x0.
14:45:58.5113 [WARNING] mac1: Unhandled write to offset 0x94, value 0x0.
14:45:58.5113 [WARNING] mac1: Unhandled write to offset 0x98, value 0x0.
14:45:58.5113 [WARNING] mac1: Unhandled write to offset 0x9C, value 0x0.
14:45:58.5113 [WARNING] mac1: Unhandled write to offset 0xA0, value 0x0.
14:45:58.5113 [WARNING] mac1: Unhandled write to offset 0xA4, value 0x0.
14:45:58.5123 [WARNING] mac1: Unhandled write to offset 0x4. Unhandled bits: [3, 18-20, 24]
when writing value 0x1168008. Tags: jumbo_frames (0x1), mdc_clock_divi
sion (0x7), receive_checksum_offload_enable (0x1).
14:45:58.5133 [WARNING] mac1: Unhandled write to offset 0x48, value 0x2800.
14:45:58.5143 [WARNING] mac1: Unhandled write to offset 0x10. Unhandled bits: [2, 4, 6-7, 17, 19-20]
when writing value 0x180F50. Tags: amba_burst_length (0x4), e
ndian_swap_management (0x1), endian_swap_packet (0x1), rx_buf_size (0x1A).
14:45:58.5623 [WARNING] mac0.phy: Unhandled write to offset 0x0, value 0x800.

[0.225000] HSS_E51_Banner(): PolarFire(R) Soc Hart Software Services (HSS) - version 0.99.7
(c) Copyright 2017-2020 Microchip Corporation.

[0.225000] HSS_E51_Banner(): incorporating OpenSBI - version 0.6
(c) Copyright 2019-2020 Western Digital Corporation.

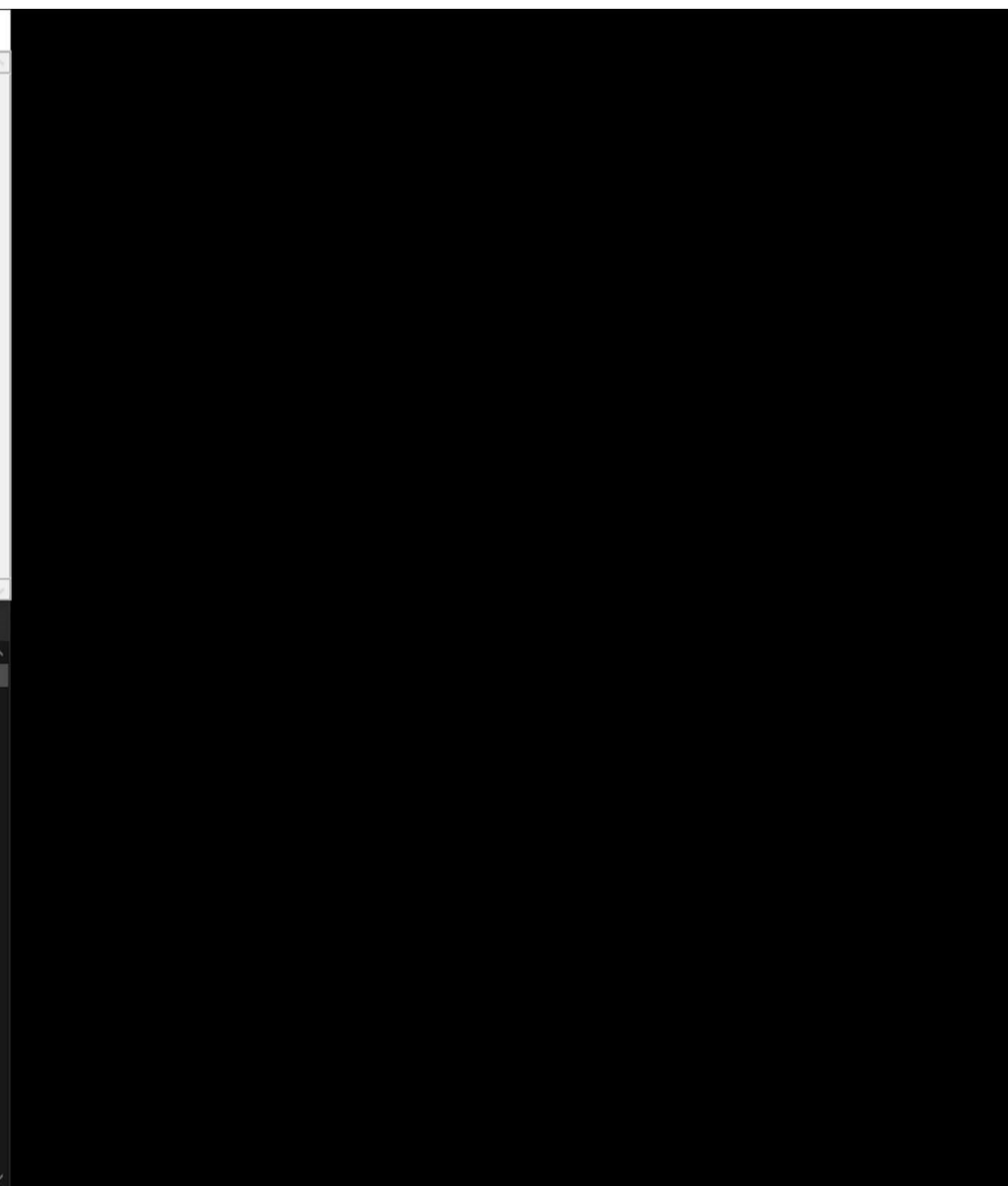
[0.226000] HSS_PrintBuildId(): Build ID: f3a5974a6962941668aba4dd6b82036020cc3d90

machine-0sysbus.mmuart1

[ 1.078330] with environment:
[ 1.078424] HOME=/
[ 1.078542] TERM=linux
[ 1.083044] mmc0: unrecognized CSD structure version 0
[ 1.083156] mmc0: error -22 whilst initialising MMC card
[ 1.128217] mmc0: unrecognized CSD structure version 0
[ 1.128327] mmc0: error -22 whilst initialising MMC card
[ 1.169422] mmc0: unrecognized CSD structure version 0
[ 1.169531] mmc0: error -22 whilst initialising MMC card
[ 1.212887] mmc0: unrecognized CSD structure version 0
[ 1.212197] mmc0: error -22 whilst initialising MMC card
Starting syslogd: OK
Starting klogd: OK
Running sysctl: OK
Starting mdev... OK
modprobe: can't change directory to '/5.6.16': No such file or directory
Starting network: [ 2.998344] macb 20112000.ethernet eth0: validation of sgmi with support 0
00,00000000,00006200 and advertisement 000,00000000,00004200 failed: -22
[ 2.999824] macb 20112000.ethernet eth0: Could not attach PHY (-22)
ip: SIOC9IFFLAGS: Invalid argument
FAIL
Starting dropbear sshd: FAIL

Welcome! Login with root/root
buildroot login:
```





Linux on Renode

- To help speed up boot you can reduce the log level for the system by globally setting the log level

“logLevel 3”

RENode

Renode, version 1.10.1.13150 (b7e0773f-202007300705)

(monitor) include @scripts/single-node/icycle-kit.resc

(machine-0) []

RENode

e\icycle-kit.resc

15:01:37.1102 [INFO] System bus created.

15:01:49.8647 [INFO] sysbus: Loading segment of 108052 bytes length at 0x20220000.

15:01:49.9264 [INFO] sysbus: Loading segment of 2848 bytes length at 0x2023A640.

15:01:49.9324 [INFO] sysbus: Loading segment of 68048 bytes length at 0x2023AF40.

15:01:49.9364 [WARNING] sysbus: Tried to access bytes at non-existing peripheral in range <0x20240000, 0x2024B90F>.

15:01:50.0134 [INFO] sysbus: Loading segment of 81920 bytes length at 0x2023AF40.

15:01:50.0324 [WARNING] sysbus: Tried to access bytes at non-existing peripheral in range <0x20240000, 0x2024EF3F>.

15:01:50.0614 [INFO] e51: Setting PC value to 0x20220000.

15:01:50.0624 [INFO] u54_1: Setting PC value to 0x20220000.

15:01:50.0624 [INFO] u54_2: Setting PC value to 0x20220000.

15:01:50.0734 [INFO] u54_3: Setting PC value to 0x20220000.

15:01:50.0754 [INFO] u54_4: Setting PC value to 0x20220000.

15:01:50.0964 [INFO] Including script: C:\Program Files\Renode\scripts\single-node\icycle-kit.resc

e\icycle-kit.resc

15:07
Thursday
13/08/2020

machine-0:sysbus.mmuart0

[]

machine-0:sysbus.mmuart1

[]

Updating Renode with new images

Updating Renode with new images

- Below are the images that get downloaded with Renode

```
:name: Icicle Kit
:description: This is a sample script running HSS, U-Boot and Linux on Icicle Kit with PolarFire SoC

$bin?=@https://dl.antmicro.com/projects/renode/icicle--hss.elf-s_3297936-bcb7ef60abc78a878995554160eaac1dea962e95
$uboot?=@https://dl.antmicro.com/projects/renode/icicle--u-boot-s_5132448-194bf14572a9bc4b26727567065ede2ffd7f1201
$vmlinux?=@https://dl.antmicro.com/projects/renode/icicle--vmlinux-s_8563992-fa2aad1e61ec38b411f6afb543503cb26601b1e2
$fit?=@https://dl.antmicro.com/projects/renode/icicle--fitImage.fit-s_16976563-1d0e86ed4cc7c24e167ca899fd929d954956b478
$emmc?=@https://dl.antmicro.com/projects/renode/icicle--emmc.img-s_26746880-3a6ef871bc8eb6fcfbda344e8c23fb534ef89961
```

- You can overwrite a variable by passing its name along with the new image name

e.g `$bin=@D:/linux_images/hss.elf`

RE Renode

RENODE™

Renode, version 1.10.1.13150 (b7e0773f-202007300705)

(monitor) █

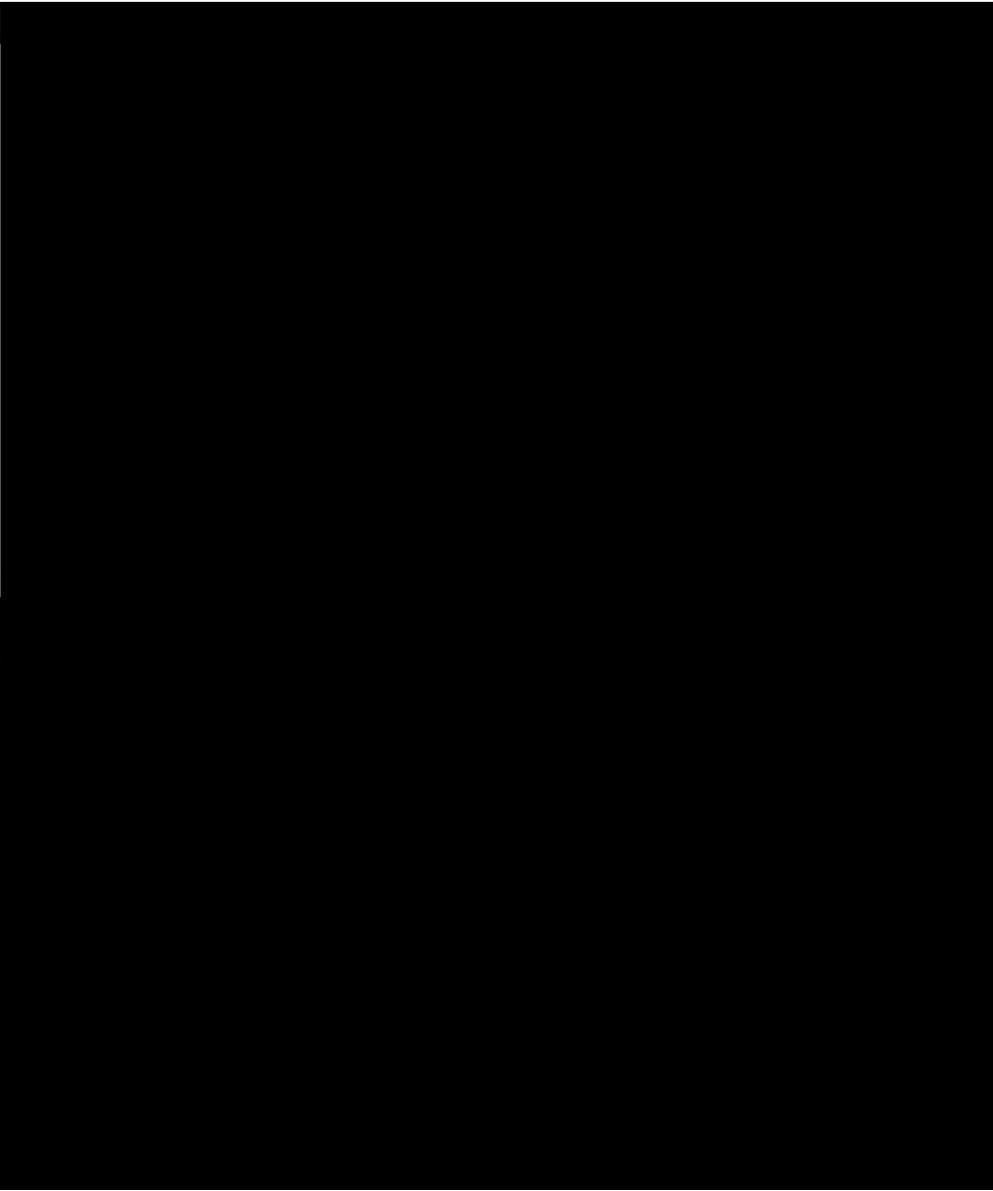
RE Renode

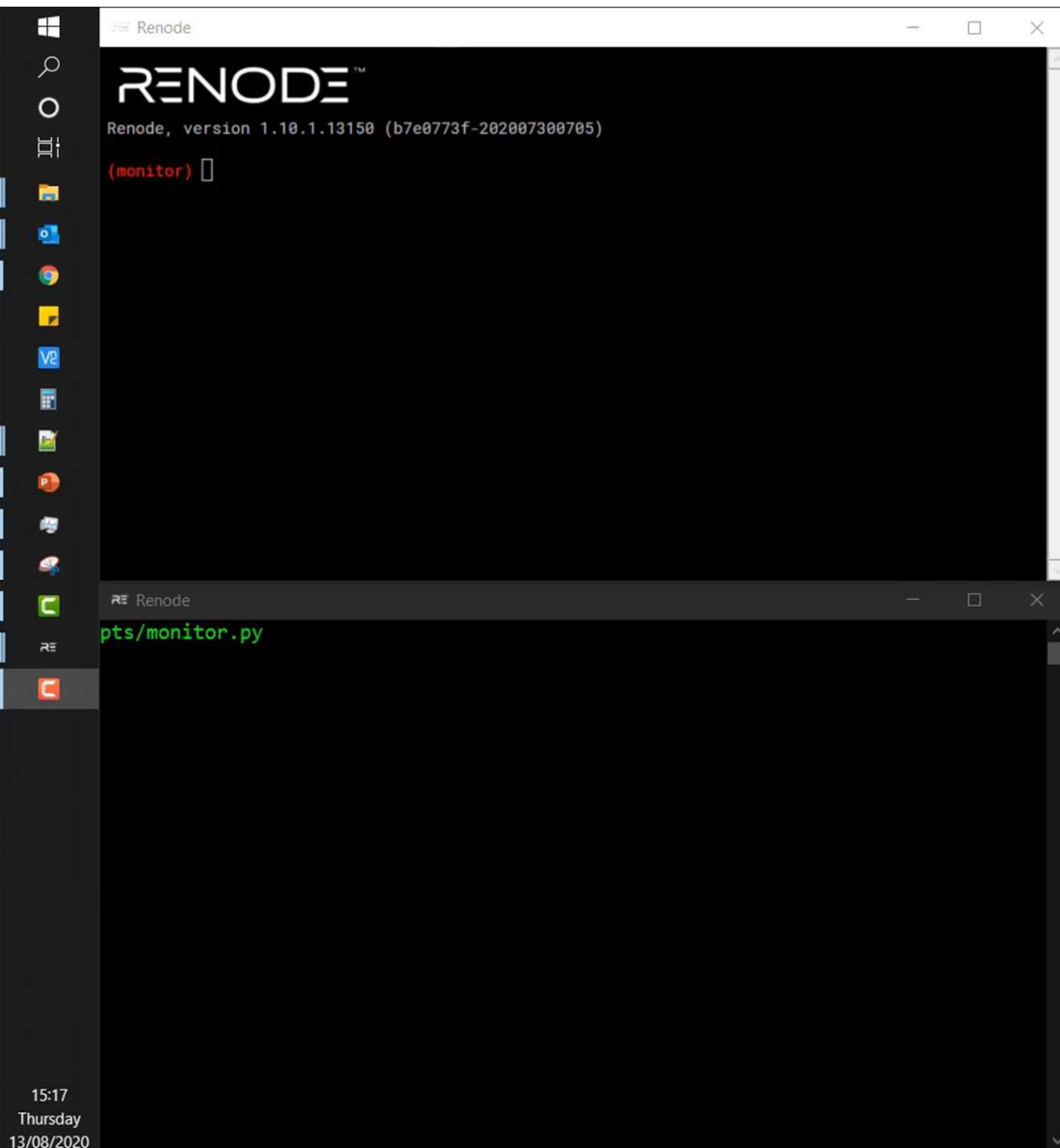
pts/monitor.py

14:54

Thursday

13/08/2020





Updating Renode with new images

- You can pass the variable names

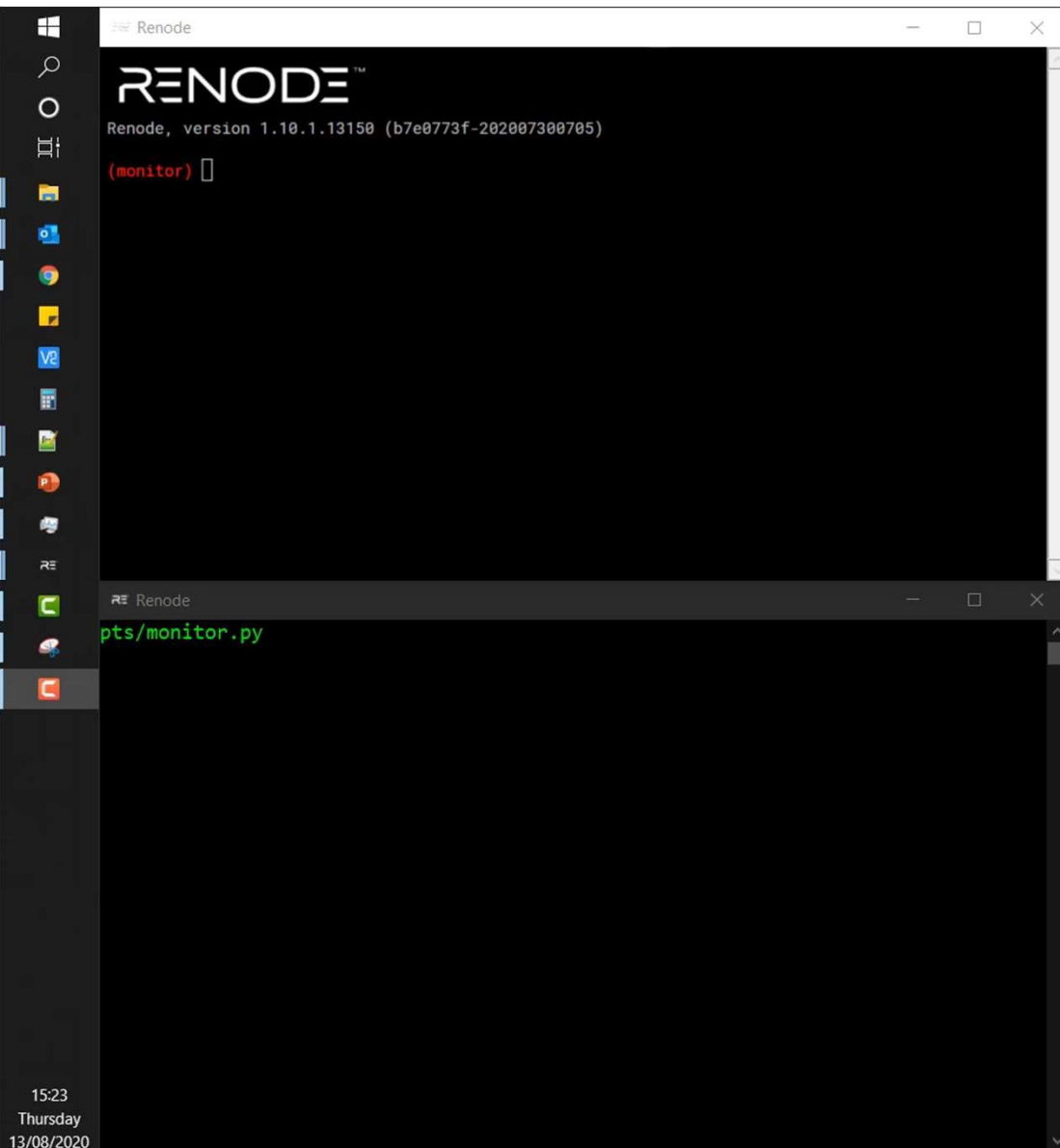
Renode



- Or update the original resc file

```
:name: Icicle Kit
:description: This is a sample script running HSS, U-Boot and Linux on Icicle Kit with PolarFire SoC

$bin?=@D:/linux_images/hss.elf
$subboot?=@https://dl.antmicro.com/projects/renode/icicle--u-boot-s_5132448-194bf14572a9bc4b26727567065ede2ffd7f1201
$vmlinux?=@https://dl.antmicro.com/projects/renode/icicle--vmlinux-s_8563992-fa2aad1e61ec38b411f6afb543503cb26601b1e2
$fit?=@https://dl.antmicro.com/projects/renode/icicle--fitImage.fit-s_16976563-1d0e86ed4cc7c24e167ca899fd929d954956b478
$emmc?=@https://dl.antmicro.com/projects/renode/icicle--emmc.img-s_26746880-3a6ef871bc8eb6fcfbda344e8c23fb534ef89961
```



Agenda

- **Linux on Renode**
- **Updating Renode with new images**

Thank you!

Any questions?

Second Thursdays

Sep. 10 - Webinar 17: Real-Time (AMP Mode) on PolarFire SoC