

arm

Morello

Lab session

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Introduction

- Goals:
 - Get yourself vaguely familiar with capabilities / CHERI / Morello
 - Explore a bit memory safety
- Notes:
 - This lab does include discussion to have as a group
 - The examples might look contrived ... but IRL, codebase are large and complex

Environment: docker / Ubuntu 20.04

- An LLVM baremetal toolchain
 - C/C++ compiler : clang / clang++
 - Linker: lld
 - Debugger: lldb
 - Standard C library: newlib
 - Standard C++ library: libc++, libc++abi, libunwind
 - Various utilities: assembler, disassembler, ...
- A Morello board simulator
- All are publicly available

- Documentation and lab instructions are in the container:
 - `/opt/doc/DDI0606_A.k_morello_architecture_external.pdf`
 - `/opt/doc/UCAM-CL-TR-947.pdf`
 - `/home/dev/TP/README.{pdf,html}`

Ready, steady ... go !

- Get the the docker archive and lab instructions:

- `wget http://192.168.1.4/* OU http://192.168.1.4/`
- `focal-morello-devenv-0.1.tar.gz` `<- docker archive`
- `README.{pdf,html}` `<- instructions`

- Install the docker image:

```
$ docker load < focal-morello-devenv-0.1.tar.gz
```

```
$ docker images
```

REPOSITORY	TAG	IMAGE ID	CREATED	SIZE
focal-morello-devenv	0.1	d6e3b4c10c49	3 days ago	3.67GB

- Create and start a container:

```
$ docker run -it --name morello \  
    --mount type=bind,source="$PWD",target=/home/dev/host \  
    focal-morello-devenv:0.1
```

- You can re-join your container if you have left it with:

```
$ docker start morello
```

```
$ docker attach morello
```

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Thank You

Danke

Gracias

Grazie

谢谢

ありがとう

Asante

Merci

감사합니다

धन्यवाद

Kiitos

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