



SWINBURNE
UNIVERSITY OF
TECHNOLOGY

COS10004 Computer Systems

Lecture 7.3 Introducing ARMLite Simulator

CRICOS provider 00111D

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_start:



ARMLITE SIMULATOR

- Developed by Peter Higginson
- Simulates a simple computer
- Cut down version of a 32-bit ARM processor
- Why do we use it:
 - Allows us to directly focus on ARM instructions
 - Provides useful visualisations of memory, and code output (eg., displays)

WHY NOT A REAL CPU ?

Historically this unit used the Raspberry Pi – a low cost “computer on a chip”

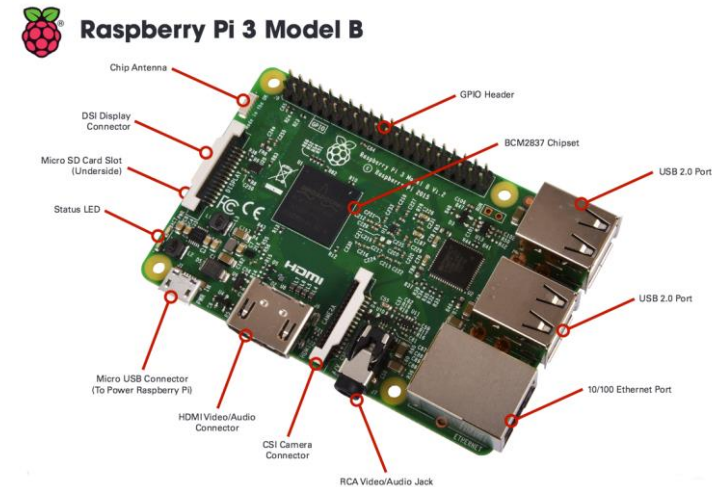
Real hardware experience is hard to replicate !

BUT

Real hardware experience is also hard to support at scale

In this unit we aim to focus on the concepts rather than the hardware specifics

However – we are happy to make the old content available to anyone interested in pursuing ARM assembly programming with a Raspberry Pi (after this unit) – it’s good fun



ARMLITE SIMULATOR

Program

Load Save Edit

Processor

PC

0x00000000

R1

0x00000000

R2

0x00000000

R3

0x00000000

R4

0x00000000

R5

0x00000000

R6

0x00000000

R7

0x00000000

R8

0x00000000

R9

0x00000000

R10

0x00000000

R11

0x00000000

R12

0x00000000

SP

0x00100000

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Count

Current Instruction

Status bits

NZCV0000

Input/Output

System Messages

LOAD, EDIT a program or modify memory

Memory

000

0x0

0x4

0xB

0xC

0x0000

0x00000000

0x00000000

0x00000000

0x00000000

0x0001

0x00000000

0x00000000

0x00000000

0x00000000

0x0002

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0x00000000

0x001b

0x00000000

0x00000000

0x00000000

0x00000000

0x001c

0x00000000

0x00000000

0x00000000

0x00000000

0x001d

0x00000000

0x00000000

0x00000000

0x00000000

0x001e

0x00000000

0x00000000

0x00000000

0x00000000

0x001f

0x00000000

0x00000000

0x00000000

0x00000000

Hex

Clear

ARMLite Simulator V1.2 © Peter Higginson 2020
[Documentation](#)

POWERPOINT SUCKS

- Let's just jump in and have a look

ARMLITE RESOURCES

All the labs borrow heavily from the online book:

"Computer Science from the Metal Up"
by Richard Prawson and Peter Higgonson.

ARMLite Programming Reference:

"The ARMLite Programming Reference Manual"

By Peter Higgonson

PDFS for these are available for download from Canvas