Create Your Own Platform

Build a New Linux Kernel Image(3.12) for ARM ISA in Gem5 FS Mode

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Part I

Result

Result

grasshopyx@grasshopyx-OptiPlex-GX620: ~/gem5 | grasshopyx@grasshopyx-OptiPlex-GX620: ~/gem5/u... | grasshopyx@grasshopyx-OptiPlex-GX620: ~/courses...

```
starting pid 398, tty '': '/sbin/getty
-L ttySA0 38400 vt100'

AEL login: root


BusyBox v1.15.3 (2010-05-07 01:27:07 BS
T) built-in shell (ash)
Enter 'help' for a list of built-in com
mands.

# uname -a
Linux AEL 3.12.1-gem5 #2 SMP Mon Dec 9
20:47:16 CST 2013 armv7l GNU/Linux
#
```

Part II

Introduction

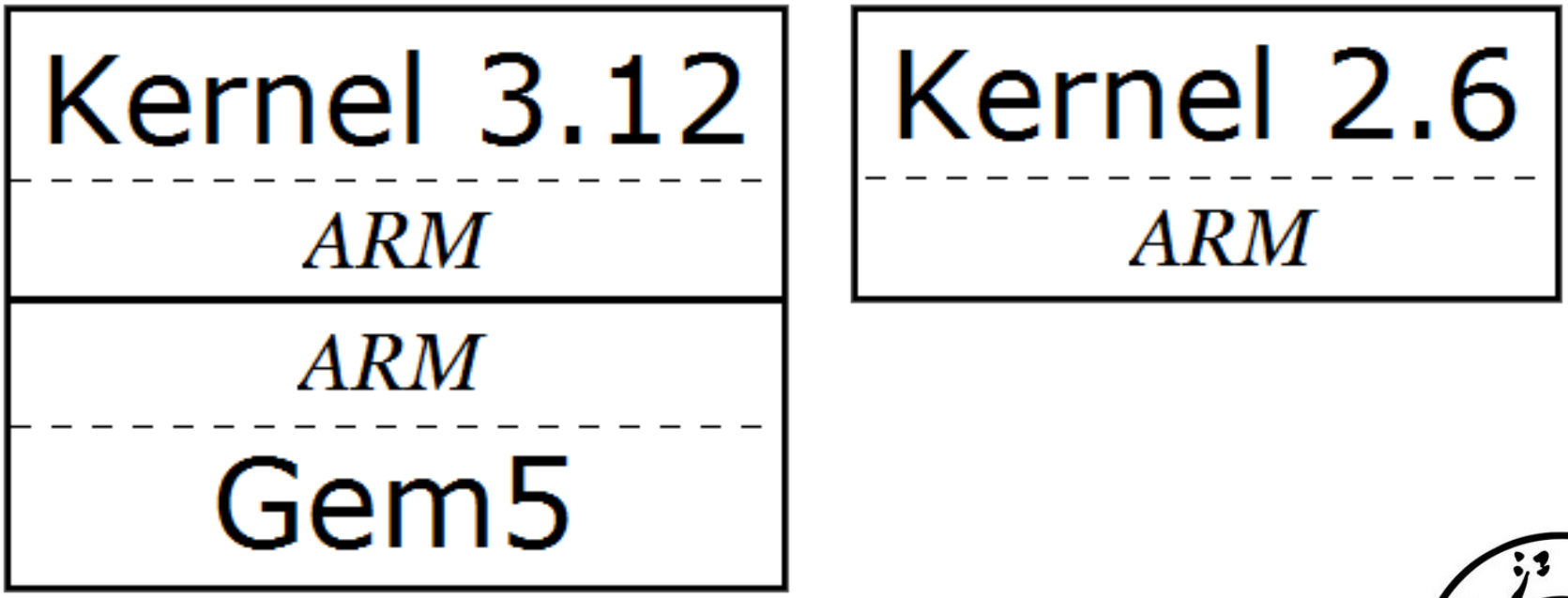
Outline

1 Overview

2 Steps

3 Environment

Overview



Outline

1 Overview

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3 Environment

Steps

1. Install requisite packages
2. Download Gem5 and compile it for ARM –> gem5.opt
3. Download Linux kernel and cross-compile it for ARM –> vmlinux-3.12
4. Configure M5_DIR (vmlinux-3.12, linux-arm-ael.img)
5. Run and test (m5term)

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Environment

Table: Hardware and operating system

Device		Optiplex GX620
	CPU	Pentium D 3.00GHz X 2
	Memory	2GB
OS		Ubuntu 13.04
	ISA	AMD64
	Swap	2GB

Part III

Obstacles

Outline

4 Compiling failed

5 Running failed

Compiling failed

Gem5

Gem5

1. Badminton and pingpong time

Compiling failed

Gem5

Gem5

1. Badminton and pingpong time
2. Inadequate DRAM

Compiling failed

Gem5

Gem5

1. Badminton and pingpong time
2. Inadequate DRAM
3. scons /build/ARM/gem5.opt -j2

Compiling failed

Kernel

Kernel

1. Badminton and pingpong time

Compiling failed

Kernel

Kernel

1. Badminton and pingpong time
2. make ARCH=arm O=PATH menuconfig

Compiling failed

Kernel

Kernel

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2. make ARCH=arm O=PATH menuconfig
3. make ARCH=arm CROSS_COMPILE=arm-linux-gnueabi- O=PATH vmlinux-3.12

Compiling failed

Kernel

Kernel

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2. make ARCH=arm O=PATH menuconfig
3. make ARCH=arm CROSS_COMPILE=arm-linux-gnueabi- O=PATH vmlinux-3.12
4. Prerequisite

Outline

4 Compiling failed

5 Running failed

Running failed

Gem5

SE mode runs smoothly.

Running failed

Gem5

SE mode runs smoothly.

Kernel on Gem5

1. –mem-size

Running failed

Gem5

SE mode runs smoothly.

Kernel on Gem5

1. –mem-size
2. –kernel

Running failed

Gem5

SE mode runs smoothly.

Kernel on Gem5

1. –mem-size
2. –kernel
3. –disk-image

Part IV

Solution

Solution

- Classification: Documentation and videos
- Index: Google

Part V

Cooperation

Cooperation

- No divide-and-conquering
- Discussing

Part VI

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