

Bahan Ajar

Chapter 1



Materi Pembelajaran

Matakuliah :

INTERFACING PERIPHERAL

Kode Matakuliah : SKO 20416

Prodi : **SISTEM KOMPUTER**

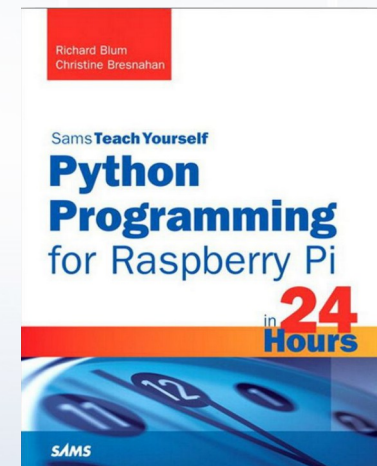
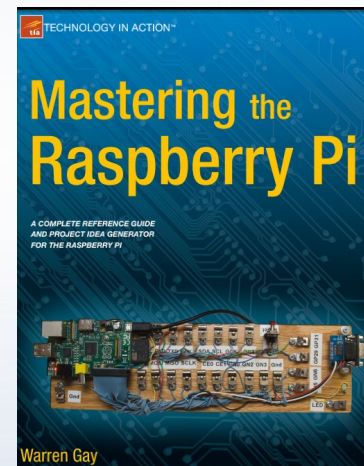
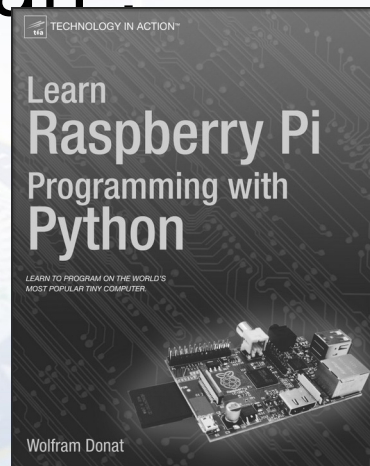
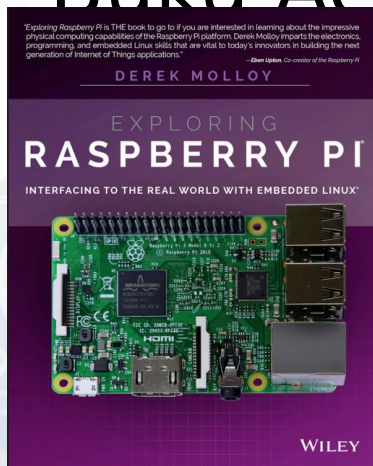
Dosen Pengampu Matakuliah:

Bayu Nugroho, S.Kom., M.Eng

Introduction

INTERFACING PERIPHERAL

- Kontrak Perkuliahan & Instrument Assessment
- Rencana Pembelajaran Semester (RPS)
- Tugas Mandiri (Teori & Praktikum)
- Buku Acuan :



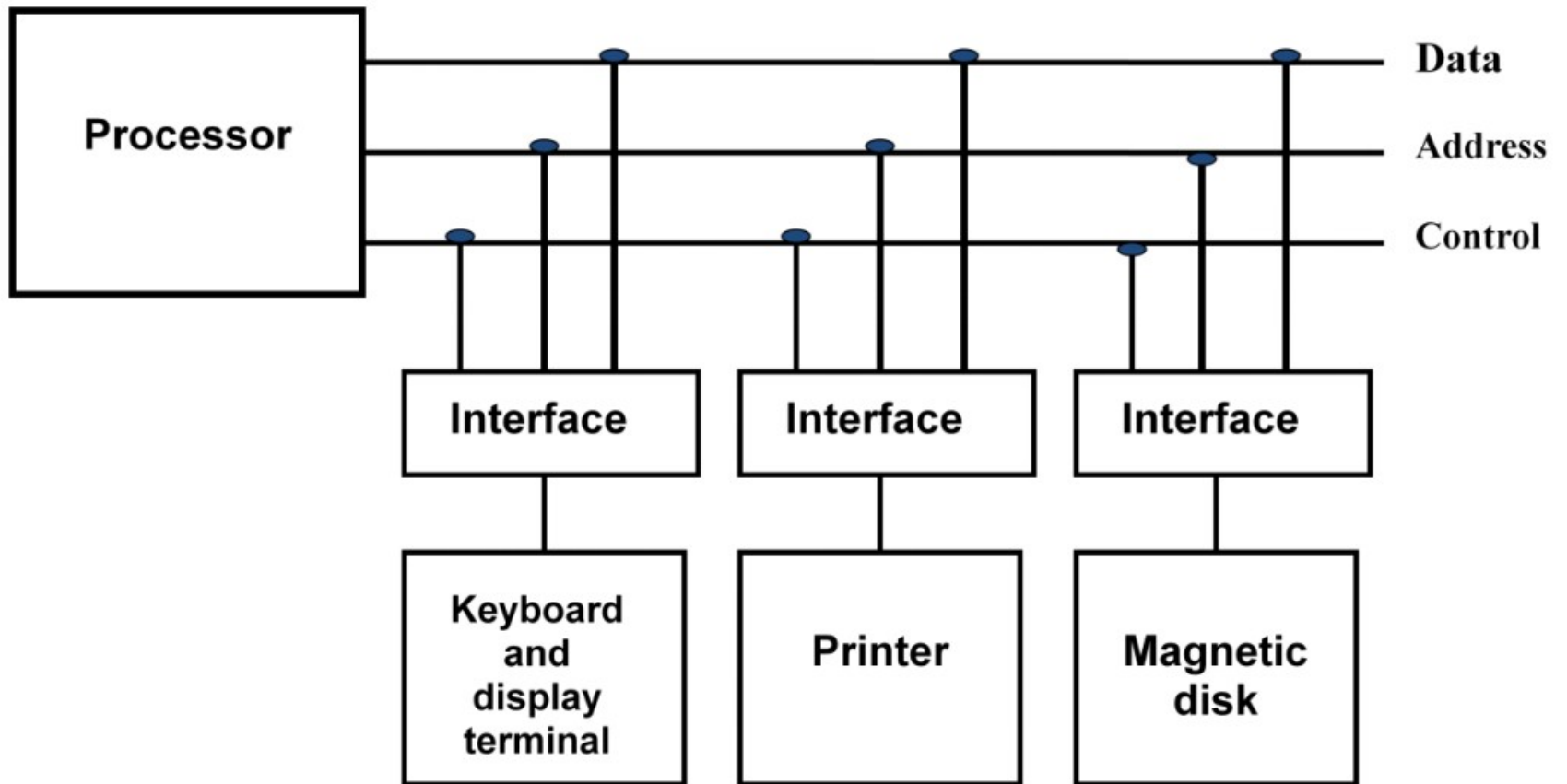
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Interfacing with Raspberry Pi

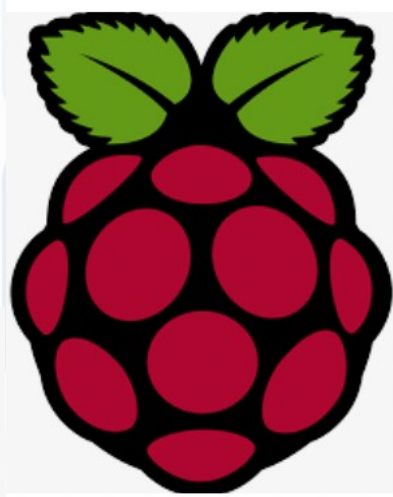
- Konsep Interfacing
- What is a Raspberry Pi?
- Model Variants
- Specifications Overview
- Pipeline Flow for Multiplication Operations
- GPU Overview

Tugas Mandiri

Konsep Interfacing



What is a Raspberry Pi?



What is a Raspberry Pi?

Raspberry Pi is a credit-card sized single-board computer designed and manufactured by the Raspberry Pi foundation in the United Kingdom. Raspberry Pi has an ARMv6 700 MHz single-core processor, a VideoCore IV GPU and 512MB of RAM. it uses an SD card for its operating system and data storage.

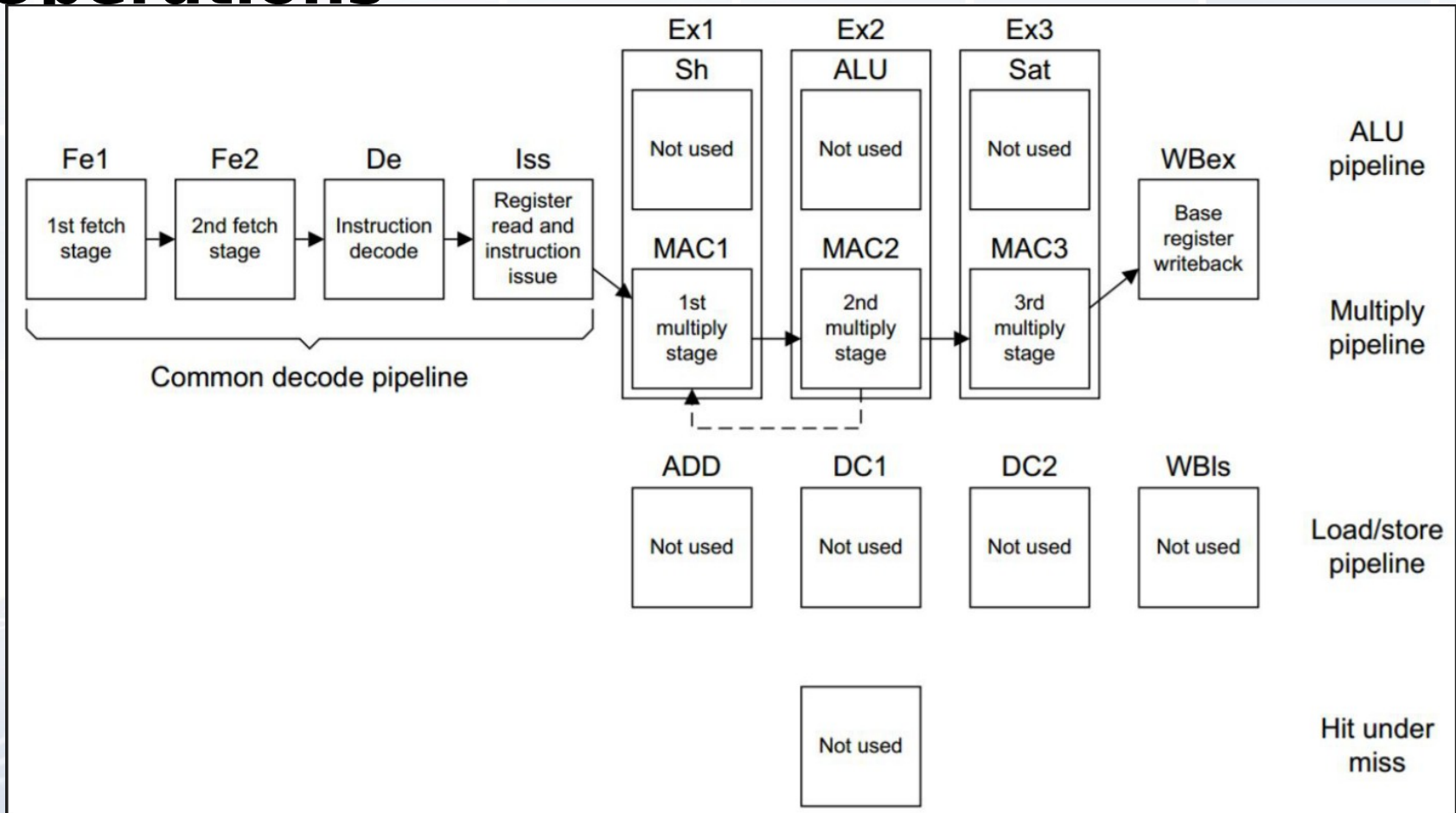
The Raspberry Pi officially supports Raspbian, a lightweight linux OS based on Debian.

Chapter 1

Model Variants

| Raspberry Pi: | Model A | <u>Model B</u> | <u>Model B+</u> | Model A+ |
|-------------------------|---|-----------------------------|-----------------|----------------|
| Price: | \$24.99 | <u>\$39.99</u> | <u>\$29.99</u> | \$19.99 |
| Release Date | February, 2013 | April, 2012 | July, 2014 | November, 2014 |
| Chip: | Broadcom BCM2835 | | | |
| Processor: | ARMv6 single core | | | |
| Processor Speed: | 700 MHz | | | |
| Voltage and Power Draw: | 600mA @ 5V | | | |
| GPU: | Dual Core VideoCore IV Multimedia Co-Processor | | | |
| Size: | 85x56mm | | | 65x56mm |
| Memory: | 256 MB SDRAM | 512 MB SDRAM | | |
| Storage: | SD Card | SD Card | Micro SD Card | |
| GPIO: | 26 | 26 | 40 | |
| USB 2.0: | 1 | 2 | 4 | 1 |
| Ethernet: | None | 10/100mb Ethernet RJ45 Jack | | None |
| Audio: | Multi-Channel HD Audio over HDMI, Analog Stereo from 3.5mm Headphone Jack | | | |

Pipeline Flow for Multiplication Operations



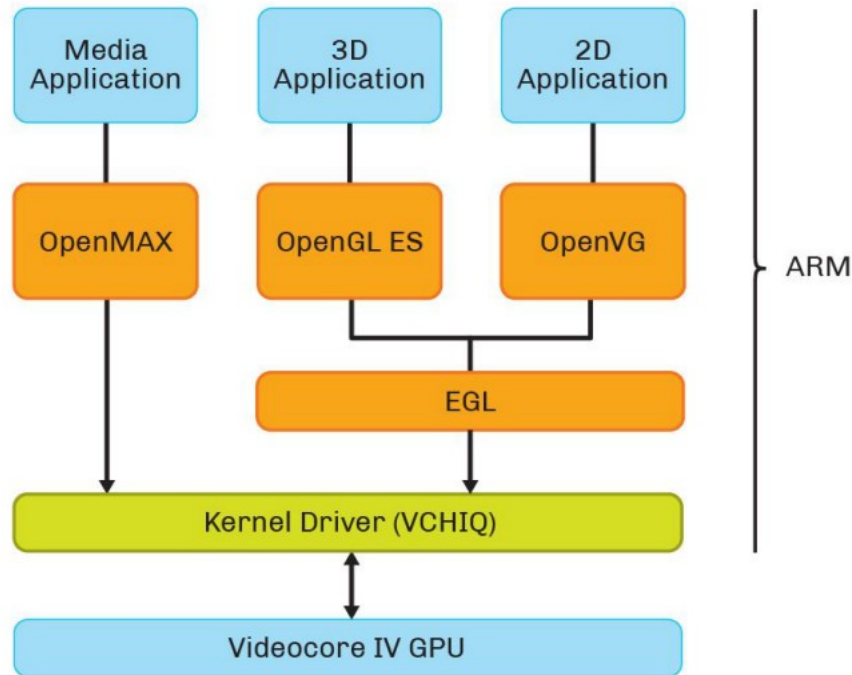
GPU Overview

- Broadcom Videocore IV GPU
 - Tile-based renderer (TBR) that use up to four cores
 - 40 nm technology
 - Integrated graphics card so shared memory
- Capable of Blu-Ray quality of 1080p with H.264 at 40Mb/s
- Graphics performance is similar to the Xbox 1
- 24 GFLOPS of general purpose computational power
- Has texture filtering and DMA infrastructure
- OpenGL ES 1.1, OpenGL ES 2.0, hardware accelerated OpenVG 1.1, Open EGL, and OpenMAX

GPU Overview

Raspberry Pi Software Architecture

Broadcom BCM2835 SoC



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Tugas Mandiri (teori):

1. Apa perbedaaan Mikrokontroller, Mikroprosesor, dan Minimum System?
2. Sebutkan Jenis dan macam-macam Single Board Computer (sertakan gambar alat)

Tugas Mandiri (prakt):

Instalasi simulator software Raspberri Pi di Proteus. Jelaskan tahapan instalasi.

end

