

Bahan Ajar

Chapter 1



Materi Pembelajaran

Matakuliah :

INTERFACING PERIPHERAL

Kode Matakuliah : SKO 20416

Prodi : **SISTEM KOMPUTER**

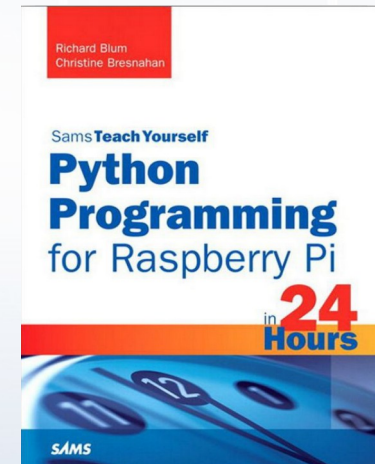
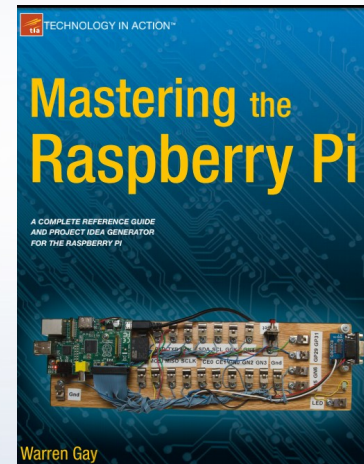
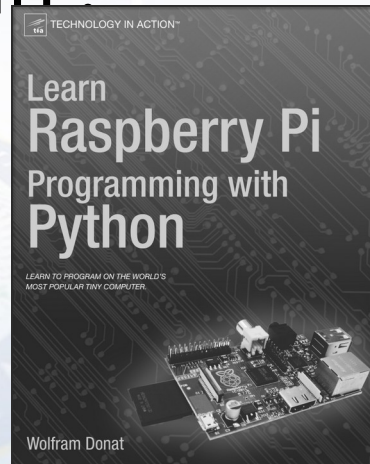
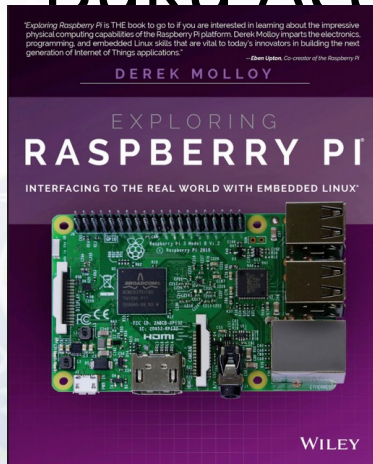
Dosen Pengampu Matakuliah:

Bayu Nugroho, S.Kom., M.Eng

Introduction

INTERFACING PERIPHERAL

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



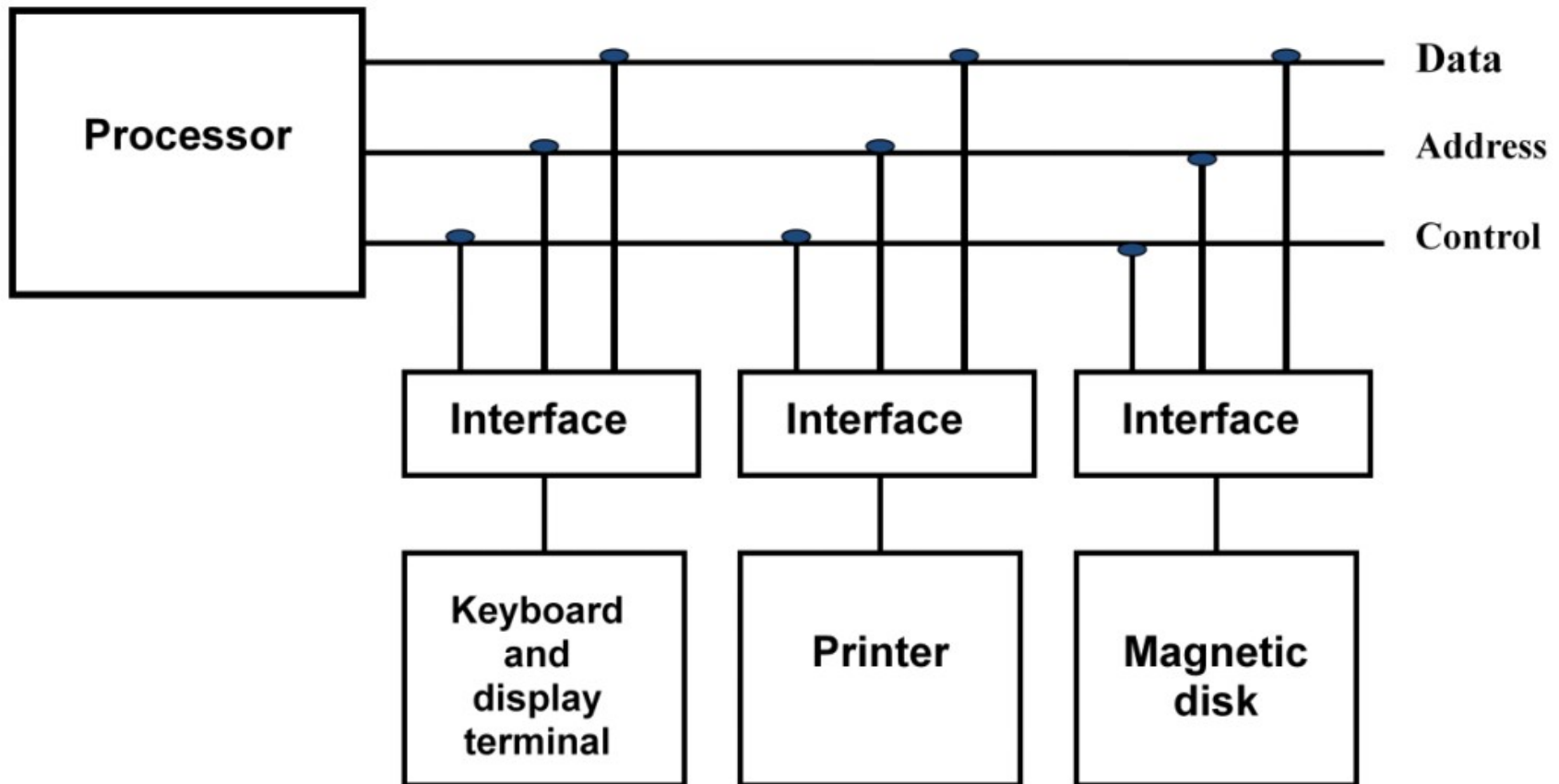
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Interfacing with Raspberry Pi

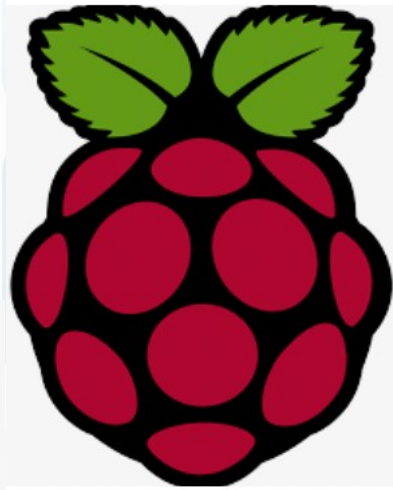
- Konsep Interfacing
- What is a Raspberry Pi?
- Model Variants
- Specifications Overview
- Pipeline Flow for Multiplication Operations
- GPU Overview

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.

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Model Variants

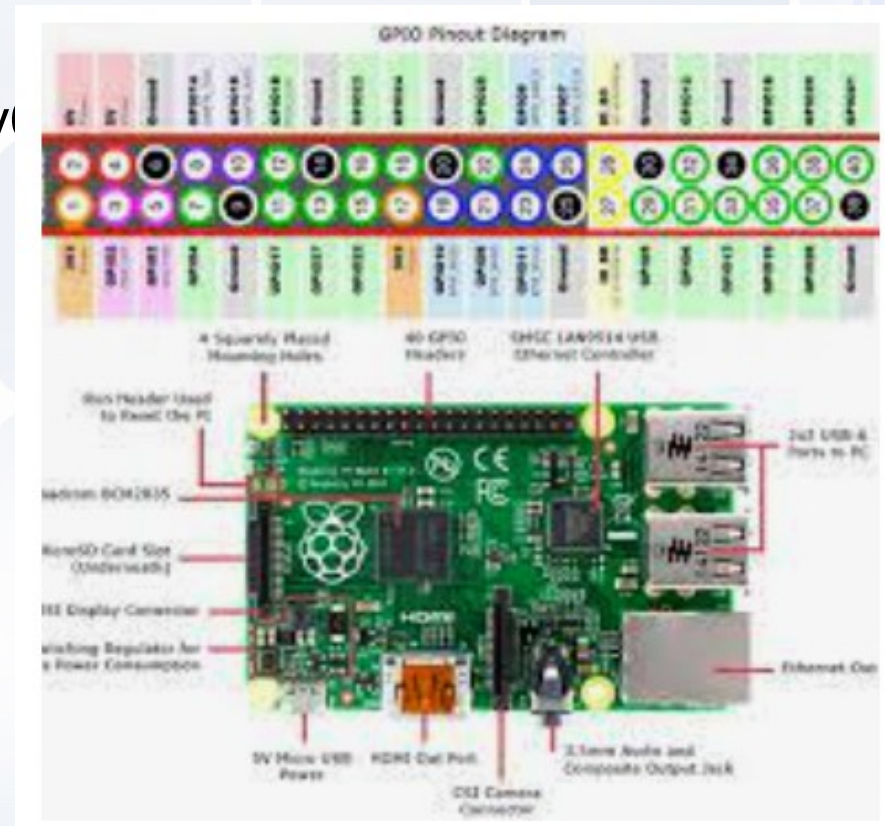
Raspberry Pi:	Model A	Model B	Model B+	Model A+
Price:	\$24.99	\$39.99	\$29.99	\$19.99
Release Date	February, 2013	April, 2012	July, 2014	November, 2014
Chip:	Broadcom BCM2835			
Processor:	ARMv6 single core			
Processor Speed:	700 MHz			
Voltage and Power Draw:	600mA @ 5V			
GPU:	Dual Core VideoCore 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			

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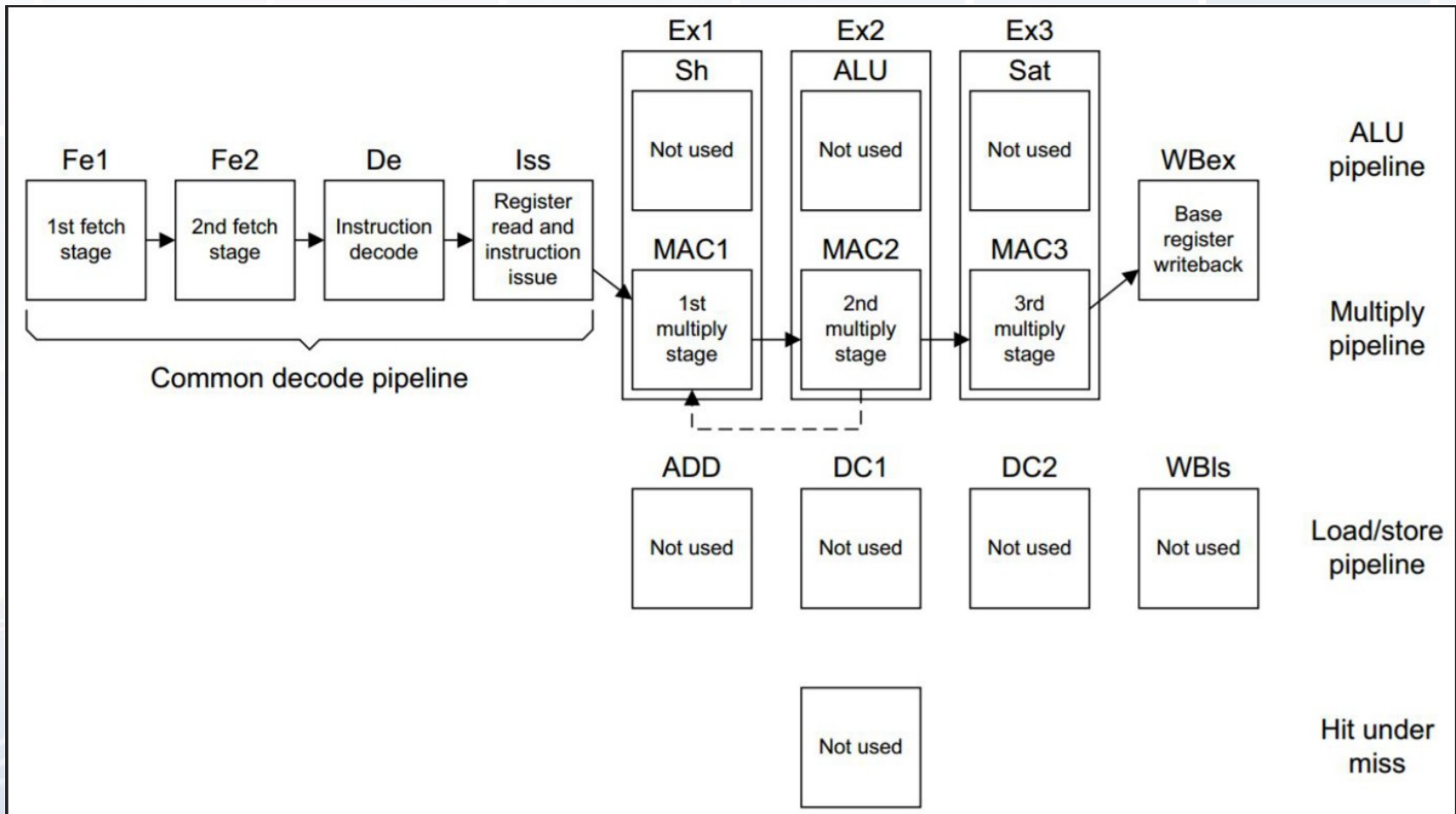
Specifications Overview

Model B

- Processor: Broadcom BCM2835
- CPU: ARM 1176JZFS (ARM 11 w/ v6 core, floating pt @ 700MHz)
- GPU: Videocore IV GPU
- RAM: 512 MB
- USB: 2 USB 2.0
- Network: Ethernet
- Video out: HDMI
- Audio out: 3.5 mm jack
- SD Card Storage (Up to 32GB)
- Micro USB power
- Display Serial Interface Port (DSI)
- Camera Serial Interface Port (CSI)



Pipeline Flow for Multiplication Operations



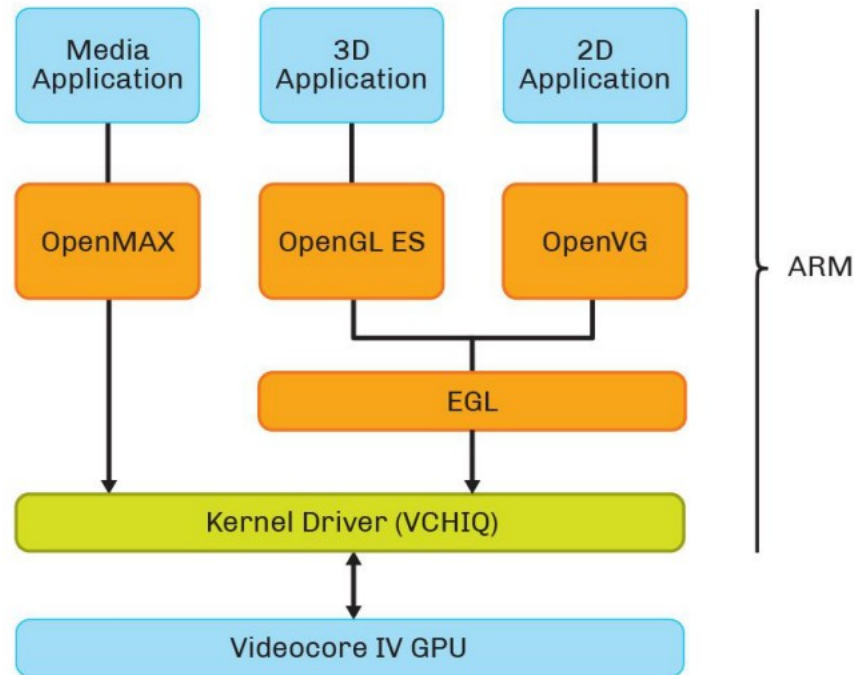
GPU Overview

- 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

