Internet of Things

Fundamen IOT

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Obyektif

- Mendeskripsikan Dua Jenis komputasi yang digunakan sebagai IOT
- Membedakan kapan menggunakan General Purpose Computer , dan kapan menggunakan MicroController

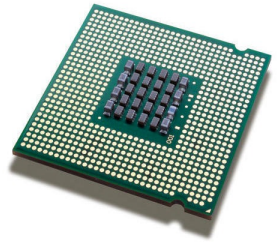
General Purpose Computer

- Raspberry Pi
- Beagleboard

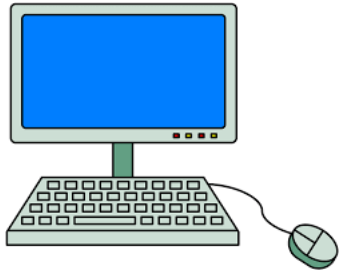
Microcontroller

- Arduino
- ESP32, …

General Purpose Computer



Microprocessor, memory, I/O



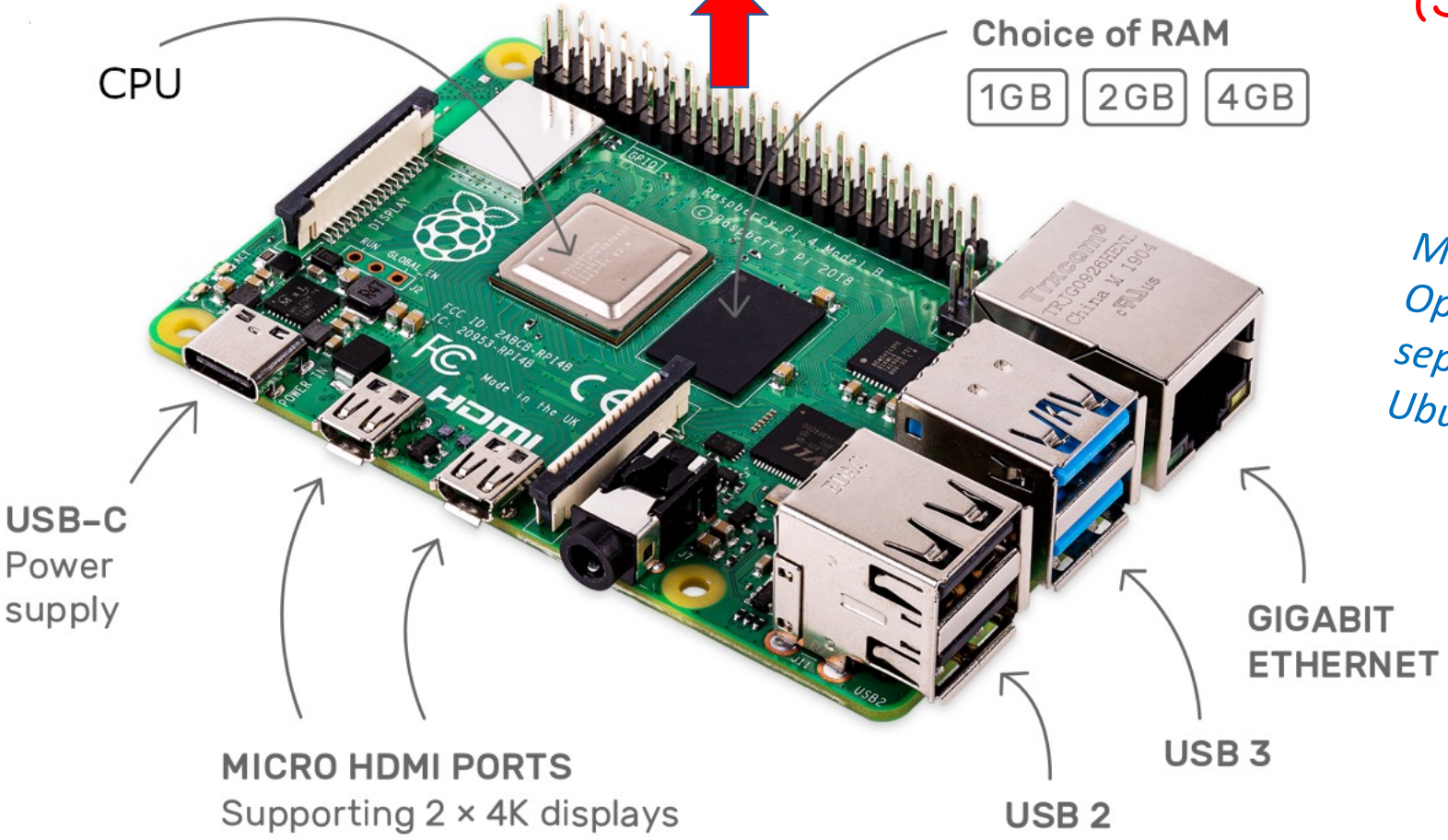
Keyboard
Monitor

Desktop, Laptop

Raspberry PI

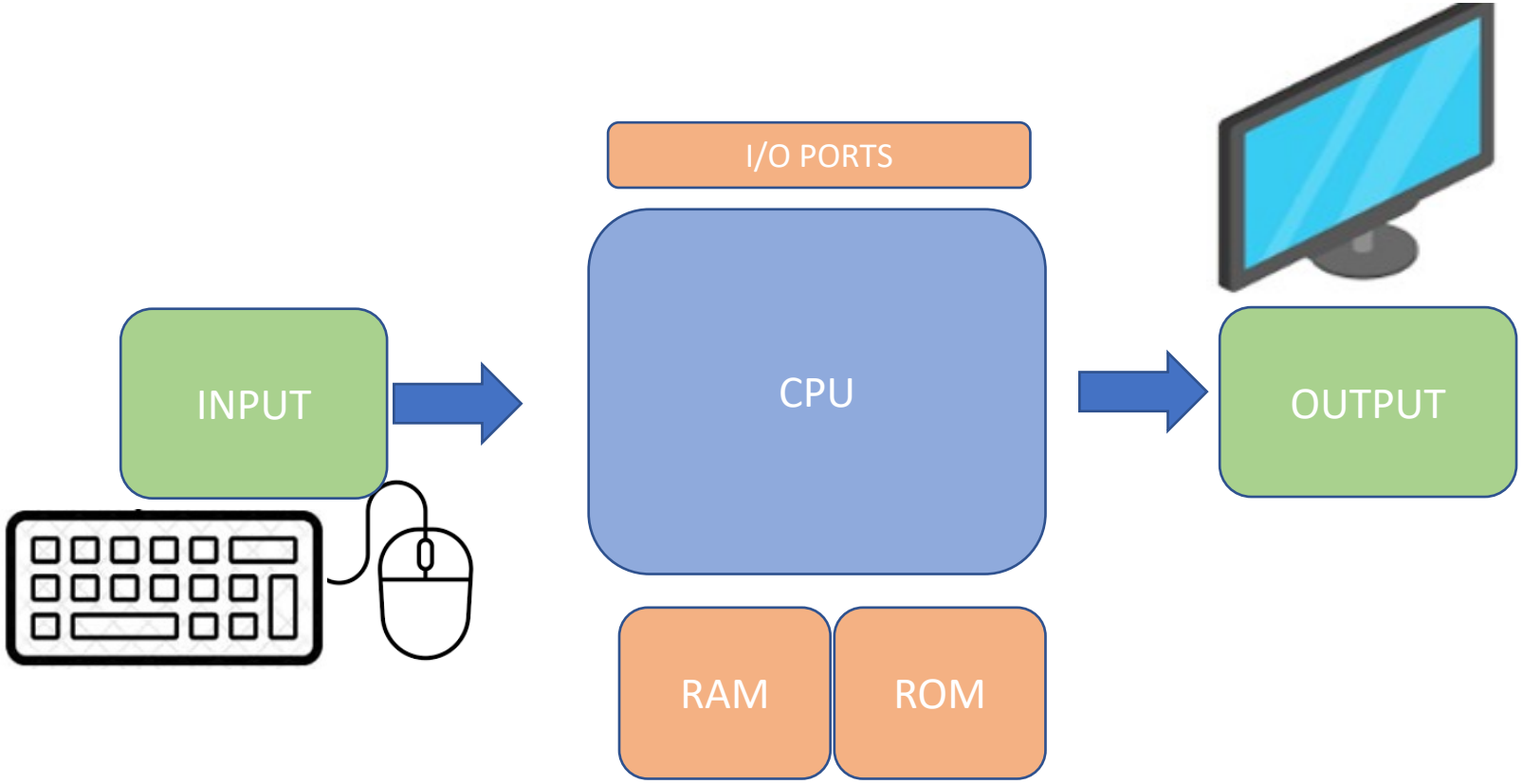
General Purpose Input Output
GPIO

Single Board Computer
(SBC)



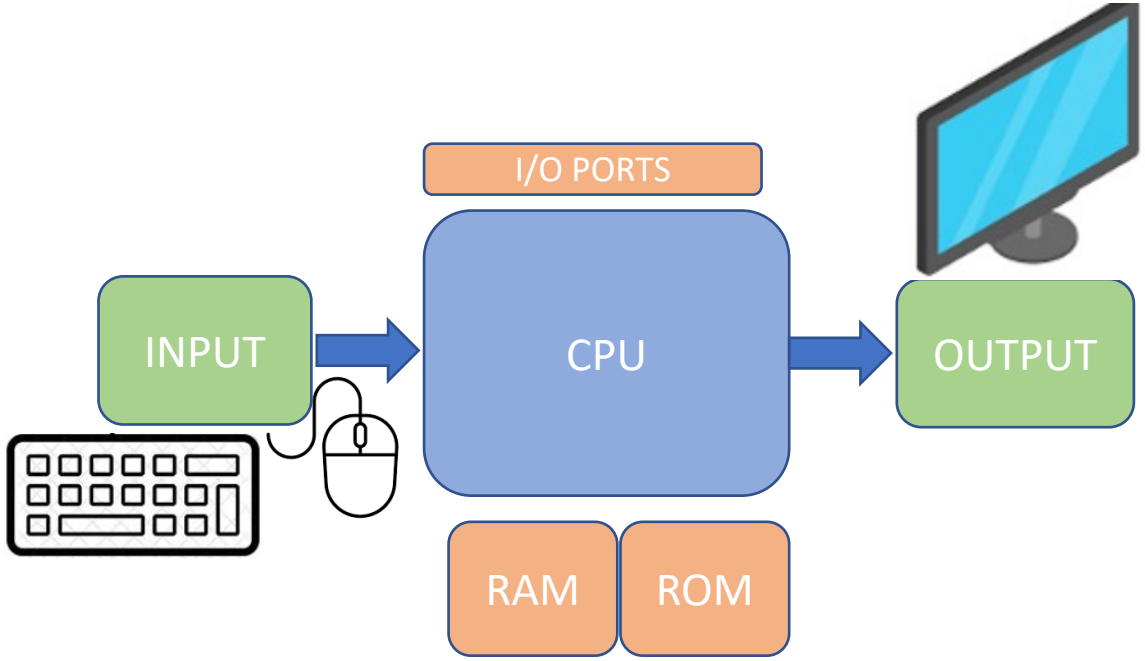
Mempunyai Operating System seperti Raspbian, Ubuntu Core

General Purpose Computer (GPC)

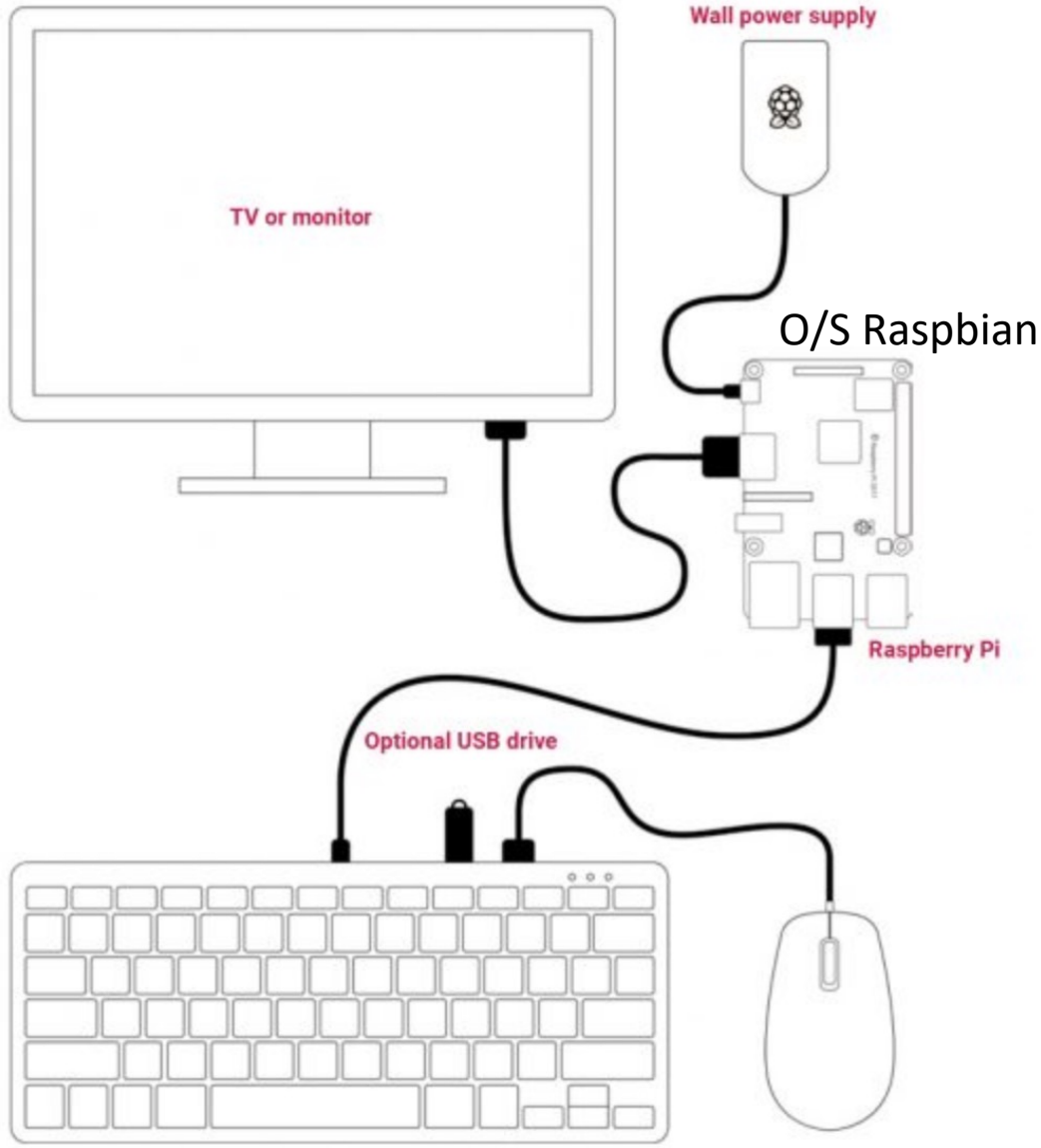


Raspberry Pi

General Purpose Computer (GPC)

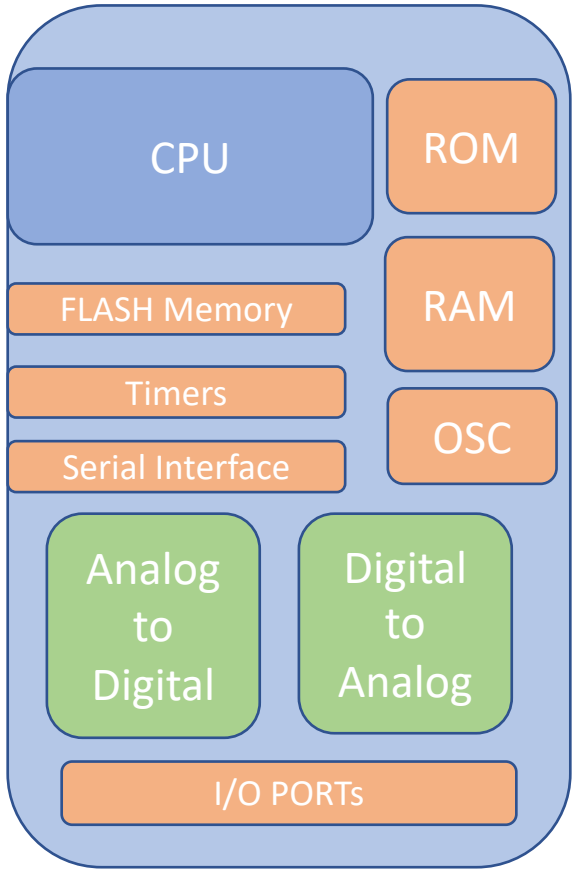


Komponen Hardware berdiri sendiri-sendiri

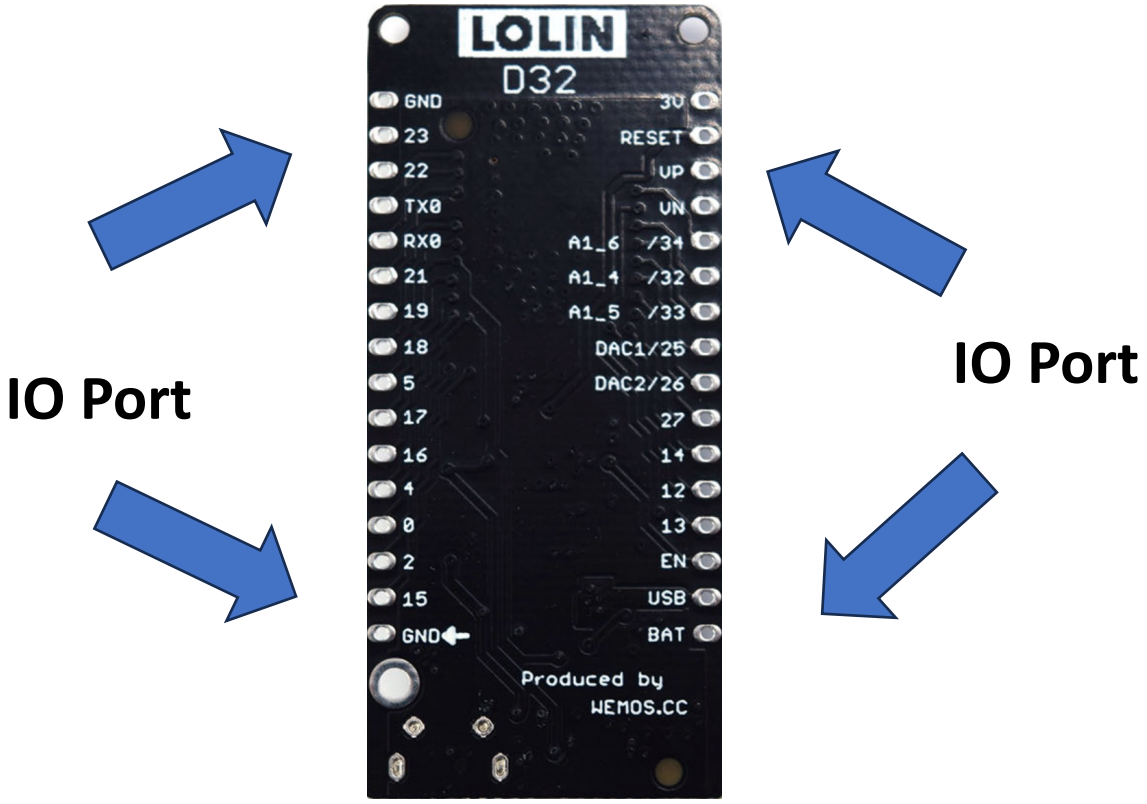


Microcontroller

Microcontroller

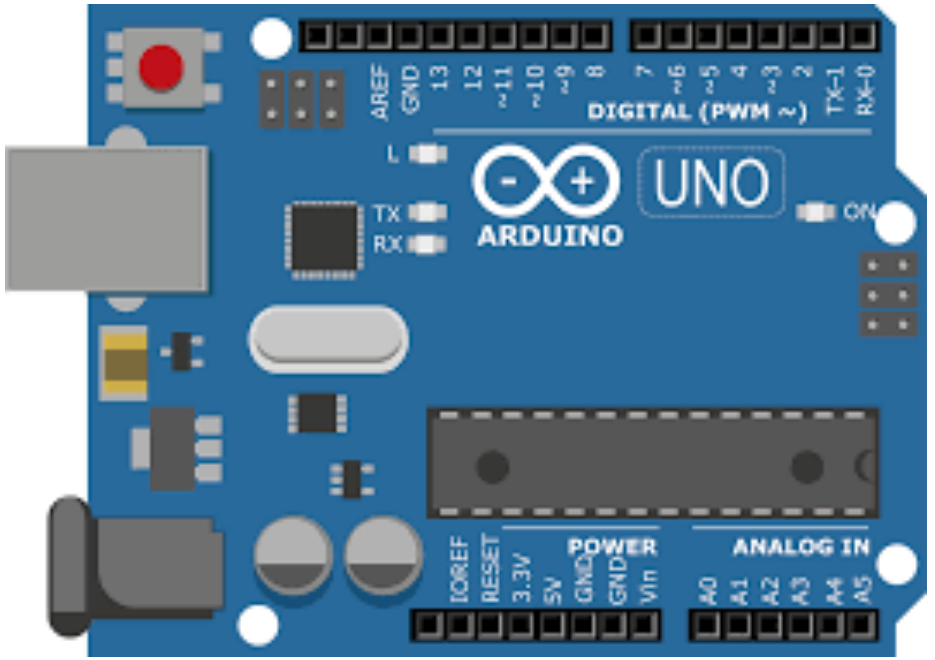


Single Chip

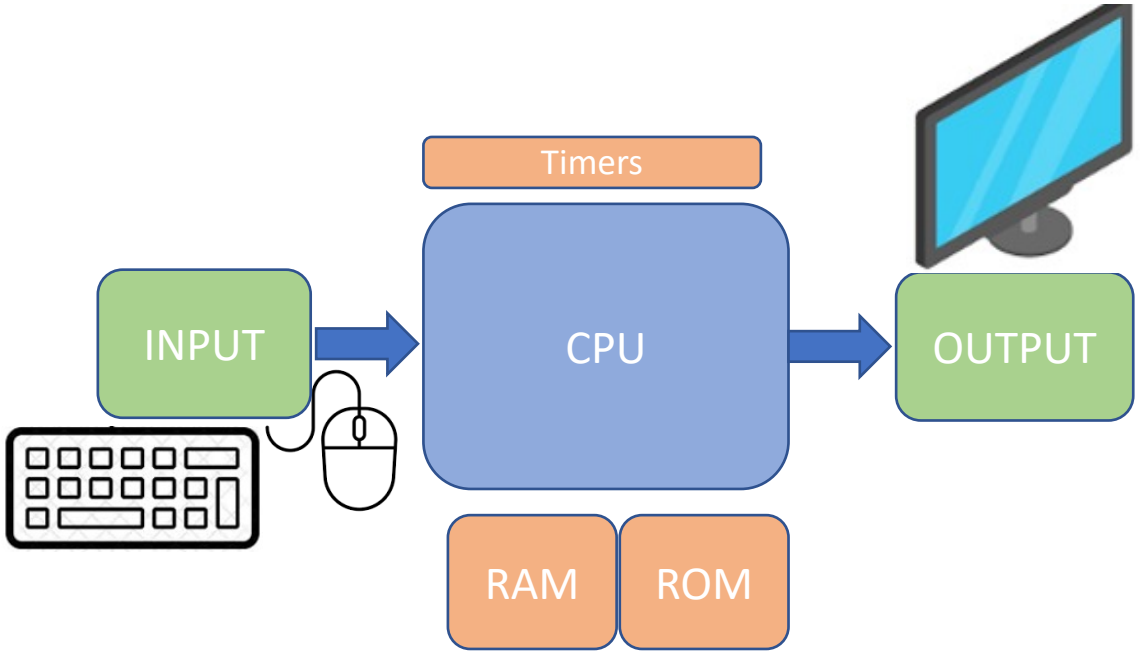


Microcontroller (Arduino UNO)

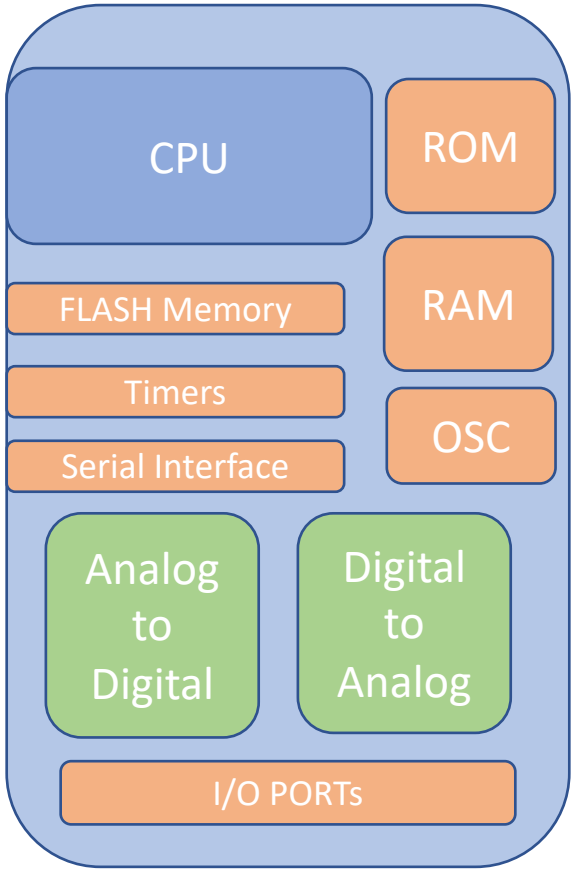
- Computer terdiri atas
  - **Central processing unit (CPU)**
  - **Random Access Memory (RAM)**
  - **Read Only Memory(ROM)**
  - Input/output ports
  - Timers and Counters
  - Interrupt Controls
  - Analog to digital converters
  - Digital analog converters
  - Serial interfacing ports



Raspberry vs Microcontroller



banyak chip



satu chip

Komparasi Desktop/Laptop vs MicroController

	Desktop/Laptop	MicroController
CPU	Mikroporcessor	Microprocessor (single chip)
RAM	Besar (8 GB keatas)	Kecil (>320 KiB)
Disk	Besar (GB – TB)	Tidak ada
Flash Memory	Opsional	Ada
Keyboard	Ada	Tidak ada
Monitor Display	Ada	Tidak ada
Network Interface	Ethernet, WiFi, Bluetooth	Wifi, Bluetooth *

* tidak selalu ada

Daftar Pustaka

1. **Lydia Parziale et.al., TCP/IP Tutorial and Technical Overview, ibm.com/Redbooks**

2. Jack Purdum, Beginning C for Arduino, 2012, Apress

3.Hans-Petter Halvorsen, Programming with Arduino, 2018, ISBN 978-82-691106-3-0