

Introduction to Raspberry Pi 5 Model B and its components

The Raspberry Pi 5 Model B is the latest iteration of the Raspberry Pi single-board computer, offering significant performance enhancements over its predecessors. It features a 64-bit quad-core ARM Cortex-A76 processor running at 2.4GHz, delivering 2–3 times the CPU performance compared to the Raspberry Pi 4. Additionally, it includes a dedicated VideoCore VII GPU, providing improved graphics capabilities. The board is available in multiple RAM configurations, including 4GB, 8GB, and 16GB options .

Key Components of Raspberry Pi 5 Model B

1. Processor (CPU)

- **Model:** Broadcom BCM2712
- **Architecture:** 64-bit ARM Cortex-A76
- **Cores:** Quad-core
- **Clock Speed:** 2.4GHz
- **Performance:** 2–3 times faster than Raspberry Pi 4

2. Graphics Processing Unit (GPU)

- **Model:** VideoCore VII
- **Performance:** Enhanced graphics capabilities for better video rendering and gaming experiences

3. Memory (RAM)

- **Configurations:** 4GB, 8GB, and 16GB LPDDR4x
- **Purpose:** Supports multitasking and memory-intensive applications

4. Storage

- **Primary Storage:** microSD card slot supporting UHS-I speeds
- **Secondary Storage:** USB 3.0 ports for external drives
- **Performance:** Peak SD card performance doubled; supports high-speed USB storage

5. Connectivity

- **USB Ports:** 2 × USB 3.0, 2 × USB 2.0
- **Networking:** Gigabit Ethernet
- **Wireless:** Dual-band 802.11ac Wi-Fi, Bluetooth 5.0
- **Audio:** HDMI audio output; no 3.5mm audio jack

6. Display & Video

- **HDMI Ports:** 2 × micro HDMI supporting up to 4K @ 60Hz
- **Camera Interface:** 2 × MIPI CSI-2
- **Display Interface:** 2 × MIPI DSI

7. Power Management

- **Power Input:** USB-C
- **Power Button:** Yes (a first for Raspberry Pi)
- **Real-Time Clock (RTC):** Yes (requires external battery)

8. Expansion

- **GPIO Header:** 40-pin GPIO header compatible with HATs
- **PCIe Interface:** Single-lane PCIe 2.0 for additional peripherals

