

# Arduino's overview

## Entry-Level Boards

### 1. Arduino UNO R4 Minima

- **Price:** ~\$20
- **Main Purpose:** Beginner-friendly board for learning electronics and programming.
- **Capabilities:** HID support (keyboard/mouse emulation), no built-in Wi-Fi or Bluetooth.
- **Memory:** 32 KB SRAM, 256 KB Flash, 8 KB EEPROM.

### 2. Arduino UNO R4 WiFi

- **Price:** ~\$27
- **Main Purpose:** Enhanced UNO for IoT and creative projects with wireless features.
- **Capabilities:** Wi-Fi, Bluetooth (via ESP32-S3), HID support, 12x8 LED matrix, Qwiic connector.
- **Memory:** 32 KB SRAM (RA4M1), 512 KB SRAM (ESP32-S3), 256 KB Flash (RA4M1).

### 3. Arduino Nano Every

- **Price:** ~\$13
- **Main Purpose:** Compact, affordable board for small projects and prototyping.
- **Capabilities:** No Wi-Fi or Bluetooth, no HID support natively.
- **Memory:** 6 KB SRAM, 48 KB Flash.

## 4. Arduino Leonardo

- **Price:** ~\$25
  - **Main Purpose:** USB-focused projects and HID applications.
  - **Capabilities:** Native USB communication, HID support (can act as keyboard/mouse), no Wi-Fi or Bluetooth.
  - **Memory:** 2.5 KB SRAM, 32 KB Flash, 1 KB EEPROM
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# Enhanced Boards

## 4. Arduino Mega 2560 Rev3

- **Price:** ~\$48
- **Main Purpose:** Advanced projects needing many I/O pins and higher memory.
- **Capabilities:** No Wi-Fi or Bluetooth, no HID support natively, 54 digital I/O pins.
- **Memory:** 8 KB SRAM, 256 KB Flash, 4 KB EEPROM.

## 5. Arduino Due

- **Price:** ~\$45
  - **Main Purpose:** High-performance projects requiring 32-bit processing.
  - **Capabilities:** No Wi-Fi or Bluetooth, HID support, DAC for analog output.
  - **Memory:** 96 KB SRAM, 512 KB Flash.
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# IoT-Focused Boards

## 6. Arduino Nano 33 IoT

- **Price:** ~\$25

- **Main Purpose:** Small IoT projects with wireless connectivity.
- **Capabilities:** Wi-Fi, Bluetooth, HID support, onboard crypto chip.
- **Memory:** 32 KB SRAM, 256 KB Flash.

## 7. Arduino Nano 33 BLE

- **Price:** ~\$28
- **Main Purpose:** IoT and wearable projects with Bluetooth focus.
- **Capabilities:** Bluetooth Low Energy (BLE), HID support, no Wi-Fi, onboard IMU.
- **Memory:** 256 KB SRAM, 1 MB Flash.

## 8. Arduino Nano ESP32

- **Price:** ~\$20
- **Main Purpose:** Compact IoT with high-performance ESP32 capabilities.
- **Capabilities:** Wi-Fi, Bluetooth, HID support, MicroPython support.
- **Memory:** 520 KB SRAM, 16 MB Flash (external).

## 9. Arduino MKR WiFi 1010

- **Price:** ~\$40
- **Main Purpose:** IoT projects with secure wireless communication.
- **Capabilities:** Wi-Fi, Bluetooth, HID support, onboard crypto chip.
- **Memory:** 32 KB SRAM, 256 KB Flash.

## 10. Arduino GIGA R1 WiFi

- **Price:** ~\$75
- **Main Purpose:** Advanced, large-scale projects with multimedia and connectivity.
- **Capabilities:** Wi-Fi, Bluetooth, HID support, dual-core MCU, camera/display support.
- **Memory:** 576 KB SRAM (M7 core) + 256 KB (M4 core), 2 MB Flash.

## 11. Arduino Portenta H7

- **Price:** ~\$110
- **Main Purpose:** Industrial-grade, high-performance IoT and AI applications.
- **Capabilities:** Wi-Fi, Bluetooth, HID support, dual-core MCU, high-speed I/O.
- **Memory:** 2 MB SRAM (total), 16 MB Flash (external).

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