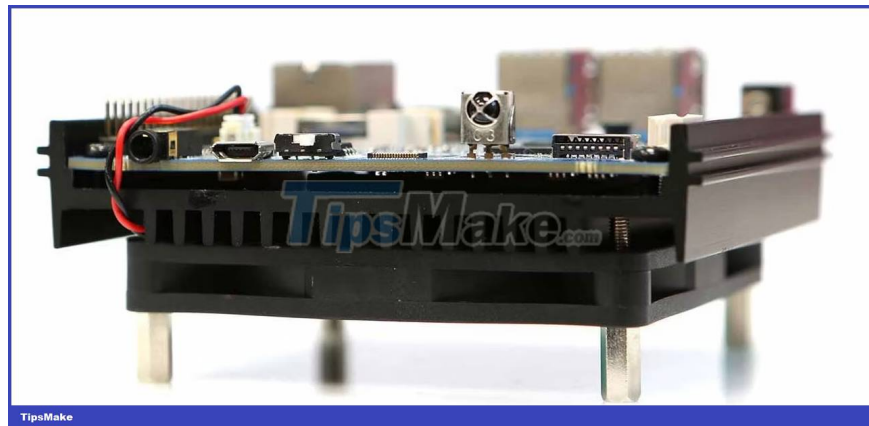


Comparing Odroid-N2+ and Raspberry Pi 4: Which option offers better value?

When it comes to single board computers (SBCs), there are many options to meet different needs. Raspberry Pi 4 and Odroid N2+ are two SBCs aimed at the same audience: hobbyists, programmers and tinkerers.

Compare these 2 SBCs in terms of price, performance, memory, connectivity, and other features.

Odroid-N2+



The Odroid-N2+ is a single-board computer released by Korean hardware company, Hardkernel Co., Ltd in 2020. Odroid-N2+ comes with several improvements over the original (now discontinued) N2.) released last year, such as faster clock speeds on both CPU assemblies, thinner heatsinks, and coin-cell battery slots.

It has a powerful hexacore processor split into two clusters based on the big.LITTLE architecture and a pretty powerful graphics card with a clock speed of around 950MHz. There are 2GB and 4GB RAM variants to suit your budget. Notably, Odroid-N2+ has appeared in the list of the most powerful single-board tablets you can buy right now.

Raspberry Pi 4B



The Raspberry Pi 4 Model B is the flagship product of Raspberry Pi Ltd that is shaped like a small, credit card. It has a 1.5GHz quad-core processor (or 1.8GHz on certain models using Raspberry Pi OS Bullseye) and comes with up to 8GB of RAM. Unfortunately, Raspberry Pi 4 Model B is often out of stock at official retailers.

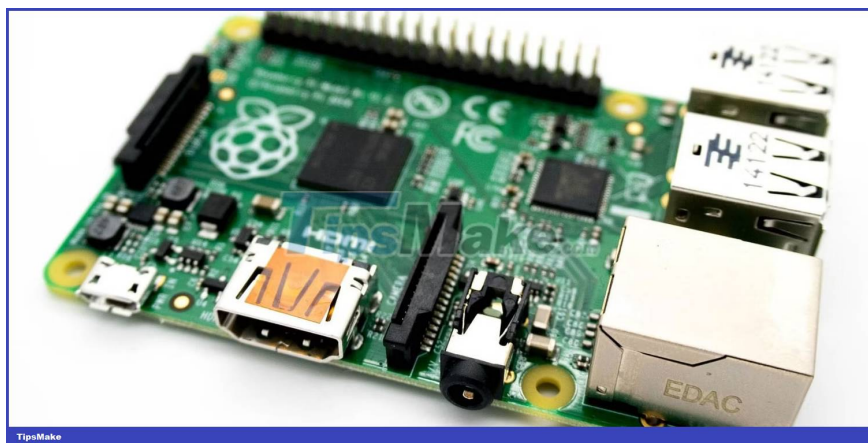
Otherwise, you'd be hard-pressed to find a better-supported single-board computer than the Raspberry Pi 4 Model B. The support for this board (and other Raspberry Pi models) is unmatched.

Price and performance

The Odroid-N2+ is priced at \$66 and \$83 for the 2GB and 4GB versions, respectively. The Raspberry Pi 4B has different official prices for its RAM variants: the 2GB version is \$45, the 4GB is \$55, and the 8GB is \$75.

The Odroid-N2+ comes with a case and heatsink, unlike the Raspberry Pi. It also has a powerful processor and faster RAM.

Memory and CPU



The Odroid-N2+ has an Amlogic S922X hexacore SoC based on big.LITTLE architecture that integrates a quad-core ARM Cortex-A73 CPU cluster (max clock speed 2.4GHz) and a dual-core Cortex-A53 cluster (max clock speed) 2.0GHz). The big.LITTLE architecture makes it possible for tasks to be shared between clusters,

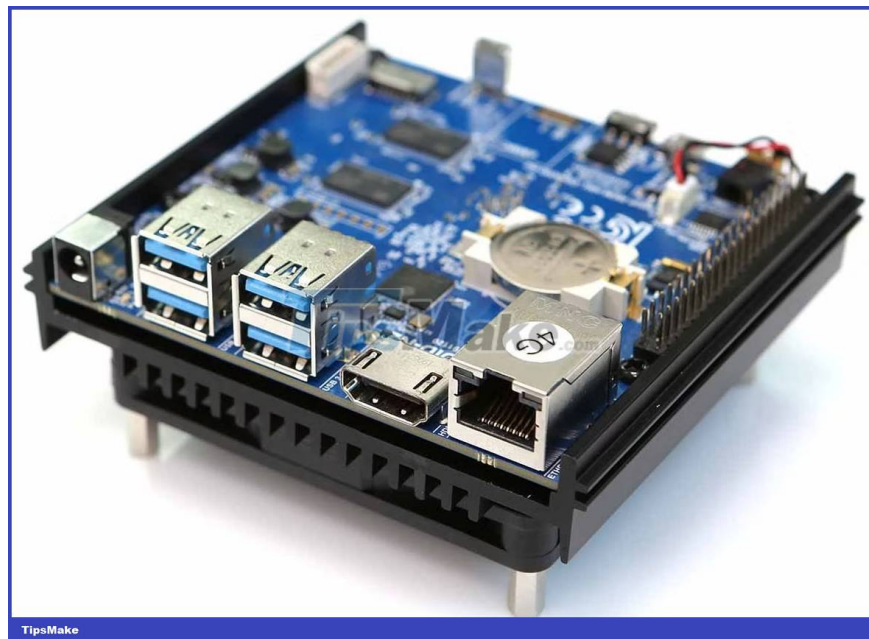
depending on the request level, and thus the processor uses less power overall.

This S922X is much faster than the BCM2711 found in the Raspberry Pi 4B (twice as much in some performance tests). Additionally, the more powerful graphics processing unit (GPU) in the Odroid-N2+ means it performs much better than the Raspberry Pi 4 in tasks like video editing, YouTube watching, and gaming.

The Raspberry Pi 4 Model B is based on the Broadcom BCM2711 SoC, which features a quad-core Cortex-A72 CPU with a default clock speed of 1.5GHz (or 1.8GHz, as mentioned previously). The processor is much less powerful than the one found in the Odroid-N2+, but it's a great product for the price.

The Raspberry Pi offers up to 8GB of RAM, 4GB more than the flagship Odroid-N2+ model. If you are going to run memory intensive applications on your SBC, then Raspberry Pi 4 might be a better choice. It's worth noting that the Raspberry Pi uses low-power dynamic RAM (LPDDR4) for its memory, unlike the Odroid-N2+ which uses a faster but power-hungry DDR4.

Network and connectivity



The Raspberry Pi 4B leads the way when it comes to networking features, coming with built-in WiFi and Bluetooth as well as Gigabit Ethernet. The Odroid-N2+ lacks built-in WiFi or Bluetooth, although it does support Gigabit Ethernet. If you prefer wireless connectivity to the Internet and/or peripherals and aren't too keen on dongles, then the Odroid-N2+ might not be the SBC for you.

However, there are some differences when it comes to peripheral interfaces and expansion slots. The Raspberry Pi 4B comes with two USB 3.0 ports, two USB 2.0 ports, and two micro-HDMI video ports (supports dual monitors and up to 4K@60Hz for one monitor). The Odroid-N2+, on the other hand, has four USB 3.0 ports and a single full-size HDMI video port (up to 4K@60Hz). Both boards have a 40-pin GPIO header and a microSD card slot, but only the Odroid has an eMMC module socket for extra storage.

Compare hardware specs

The table below compares the hardware specifications of Raspberry Pi 4 and Odroid-N2+.

	Raspberry Pi 4B	Odroid-N2+
Processor	Broadcom BCM2711 Quad-core Cortex-A72 (ARM v8) 64-bit SoC @ 1.5 GHz (up to 1.8 GHz on recent models)	Amlogic S922X SoC (12nm) with quad core Cortex-A73 (up to 2.4 GHz) and dual core Cortex-A53 (up to 2 GHz)
GPU	Broadcom VideoCore VI	Mali-G52 GPU (800MHz)
RAM	2GB, 4GB or 8GB LPDDR4-3200 SDRAM	2GB or 4GB DDR4 RAM
Memory	1 x microSD card slot	1 x eMMC connector (for 8GB, 16GB, 32GB, 64GB and 128GB modules); 1 microSD card slot
Network	Gigabit Ethernet; WiFi IEEE 802.11ac 2.4 GHz and 5.0 GHz; Bluetooth 5.0, BLE	Gigabit Ethernet; WiFi USB adapter optional
Audio output	3.5mm analog audio-video jack (or digital via HDMI)	3.5mm analog audio-video jack (or digital via HDMI)
Video output(s)	2 × micro-HDMI 2.0 (supports up to 4K@60Hz), MIPI-DSI interface, 1 x Composite video (3.5 mm jack)	1 x HDMI 2.0 (up to 4K@60Hz with HDR, CEC, EDID), 1 x Composite video (3.5mm jack)
Source	5V DC (minimum 3A) via USB-C or GPIO . connector	12V/2A power via DC . connector
USB	2 USB 3.0 ports and 2 USB 2.0 ports	4 x USB 3.0 host ports (shares a single root hub), 1 x USB 2.0 OTG port for Host or Device mode
GPIO	40-pin (2x20) GPIO header, 2.54 mm . pitch	40-pin (2x20) GPIO header, 2.54 mm . pitch

IR	Are not	Have
Other features	Power over Ethernet (using optional PoE HAT), 2-lane MIPI DSI display port and 2-lane MIPI CSI camera port	Heatsink, optional active cooling fan connector, onboard real-time clock

Power consumption and form factor



With faster clock speeds and higher core counts, it's easy to assume that the Odroid-N2+ will use more power than the Raspberry Pi 4, but it's not - thanks to the processor's power efficiency big.LITTLE architecture management, it uses less. The Odroid-N2+ has higher voltage requirements, so that's something to keep in mind when choosing a power source.

The Odroid-N2+ has a power consumption between 1.6 and 6.2 watts which, depending on the workload, is relatively low for a fairly powerful SBC. Raspberry Pi 4 has higher power consumption between 2.7 and 6.4 watts, depending on model and workload. The Odroid-N2+ is much more suitable for battery-powered projects

due to its relatively low power consumption.

Although both boards are quite small in size, the Odroid-N2+ is several inches larger than the Raspberry Pi 4B.

So which SBC should I choose?

The Odroid-N2+ has a more powerful and energy-efficient processor than the Raspberry Pi 4B. If you care about pure power, the Odroid-N2+ is clearly the better choice. It's perfect for a variety of applications including gaming, media playback, and video streaming.

The Raspberry Pi 4B offers a form factor advantage (more compact), making it more suitable for embedded projects. What's more important is that the Raspberry Pi 4 is a better supported single-board computer and beginners will find much-needed step-by-step instructions in both the forums and official and unofficial documentation. .

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