THE BEST **ROUTERS AND MODEMS** FOR
EVERY BUDGET

by Moe Long

The Best Routers and Modems for Every Budget

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Achieving the fastest internet speeds relies in part on service. However, many issues such as a slow or unreliable connection may find hardware, rather than an internet service provider (ISP) at fault.

Since an increasing number of gadgets require an internet connection, it's important to choose the best router and modem to maximize speed and number of connections. Check out the best routers and modems for every budget, from what to look for to best hardware!

What to Consider Before Buying Routers and Modems

Before buying a modem or router, think about your needs.

First and foremost, many ISPs rent hardware: modems, routers, and modem-router combo devices. Purchasing your own hardware saves on what would be a monthly cost. In the long run, you'll save money by **avoiding monthly rental charges**. This assumes that you're able to continue using your equipment long enough that it pays off.

Aside from saving cash, owning your own hardware has a big advantage. Most ISPs provide poor quality modems and routers. Don't expect top-of-the-line equipment. As such, selecting different hardware may provide a more reliable connection by allowing a greater number of devices on a wireless network, better range, or other advantages.

Ultimately, there are few downsides to purchasing. Still, some ISPs offer free modems. Additionally, other technologies such as DSL and fiber use different equipment. Thus, a cable modem won't work for a fiber optic connection. If you switch to another technology, such as going from DSL to fiber, you won't be able to continue using the same devices.

Before buying, make sure that you're able to use a device long enough to see a return on your investment.

Advantages to buying:

- Better hardware

- Cheaper in the long run

- More reliable connection

Disadvantages to buying:

- Proprietary hardware

- Some ISPs provide free cable modems

What to Look for When Buying Routers and Modems

For routers and modems, you'll want to look for certain technologies. Networking can get pretty complicated, but **understanding the technologies which comprise your network**makes troubleshooting easier.

DOCSIS

Data Over Cable Service Interface Specification, or DOCSIS, is a standard for delivering an internet connection via a cable modem. DOCSIS 3.0 is most common, and as **Ars Technica reveals**, can mostly support gigabit internet efficiently. However, for truly efficient Gigabit, a DOCSIS 3.1 modem is recommended.

Whereas DOCSIS 2.0 routers were limited to a single channel for uploads and another for downloads, DOCSIS 3.0 introduced combined channels. This levels up upload and download speeds. You'll want a modem with at least 8×4 or 16×4 combined channels, which is downstream and upstream.

Therefore, either eight downstream channels and four upstream channels or higher. Generally, you'll see 8×4 modems top out at maximum download speeds of 340Mbps, and 16×4 modems with a max download speed of 680Mbps. Some high-end modems feature as high as 32 downstream and four upstream channels.

The verdict: Get at least a DOCSIS 3.0 modem

- DOCSIS 3.0 or higher

- DOCSIS 3.1 for Gigabit

- 8×4 at a minimum

Wired vs. Wireless

Wireless networks experienced massive advancements reducing latency while proving less vulnerable to attacks than their wireless counterparts. For wired networks, you'll find that these come as 10/100/1000 and 1oGbE. A 10/100/1000 network supports 10Mbps, 100Mbps, and 100Mbps. 10GbE means that a device features 10 Gigabit Ethernet. Many newer devices offer 1GbE internet which is plenty for the average user as 10GbE networks are vastly more expensive.

Similarly, wireless networks come with their own set of standards. Most commonly, you'll see 802.11ac, 802.11n, and 802.11g for instance. 802.11ac boasts support for up to eight antennas, capable of reaching 400Mbps each. Although, 802.11ac is limited to operating on a 5GHz frequency.

802.11n supports both 5GHz and 2.4GHz frequencies. 5GHz boasts a higher bandwidth than 2.4GHz, but while its bandwidth is higher, its range is longer. Most routers include more than one specification, maintaining backward compatibility.

For instance, you'll see many routers which are 802.11b/a/g/n/ac. The latest iteration is 802.11ad, which is a wireless standard operating on the 60GHz spectrum as opposed to 2.4GHz or 5GHz. 802.11ad brings a theoretical maximum speed of 7Gbps. There's a catch though. The functional range is ridiculously short, so it's not feasible for use unless you're sitting right by your router.

It's best to get an 802.11ac router at a minimum. The only reason to snag an 802.11n router is if it outperforms the best 802.11ac router you can afford.

The verdict: Get an 802.11ac router
Wired:

- 10/100/1000

- 10GbE

Wireless:

- 802.11ad

- 802.11ac

- 802.11n

- 802.11g

- 802.11a

- 802.11b

Other Features

Certain routers and modems are pretty barebones, whereas others offer tons of features. Depending on your needs, you may require certain specific options. Some routers allow for installation of a VPN or virtual private network. This prevents you from having to install a VPN on each machine on your network. But it means if you toggle your VPN on, the traffic for each device is routed through that VPN's servers.

Dual-band or even tri-band Wi-Fi is a great feature. This refers to the aforementioned 2.4GHz and 5GHz frequencies. You'll want to check with your devices and see what bands you'll need, though the majority of modern routers include dual-band Wi-Fi. Tri-band routers host two 5GHz networks and automatically adjust devices onto the 5GHz frequencies which delivers greater speed by allowing for efficiency when connecting a bevy of devices.

Note that a tri-band router does not speed up your connection, but rather reduce the potential for bottlenecks. You'll only notice a difference if you regularly use lots of devices on your network.

MU-MIMO, or multiple-user multiple-input, multiple-output, is a technology capable of evenly dividing bandwidth into separate streams to share connections regardless of application. It's a nifty network feature, though MU-MIMO only works for 802.11ac. Plus, MU-MIMO only functions if devices are compatible with the signal, so you'll need gadgets with MU-MIMO Wi-Fi chips to work with your MU-MIMO router. Nevertheless, MU-MIMO is excellent for an even distribution of a Wi-Fi signal.

Open-source software may provide a much-needed refresh to your router. Select routers allow users to install custom firmware, such as DD-WRT and OpenWRT.

Features to look for:

- Dual-band vs. tri-band

- MU-MIMO

- Open-source firmware compatibility

- VPN compatibility

Modem vs. Router vs. Modem-Router Combo

Routers and modems aren't the same things. A router is a box which lets several internet-capable devices join a network. There's typically an Ethernet input and several Ethernet outputs. Wireless routers also include an antenna for wireless internet access.

A modem, on the other hand, delivers internet access. As such, a modem sends an internet signal to the router, and the router distributes that network connection to individual devices.

Depending on your needs, you might purchase a **modem, router, or both**.

Want to consolidate? Try a modem-router combo. Usually, it's best to get a separate modem and router rather than a combo device. There's more choice in device features, upgradability, and performance with a dedicated modem and router. When purchasing a modem, you'll want to **consider several elements**, including cable provider compatibility and Ethernet port speed.

- Modem: Connects one device to the internet

- Router: Connects multiple devices to a network

- Modem-router combo: Connects and distributes

Best Modem-Router Combos for Every Budget

Netgear Nighthawk X4S

Image Credit: Amazon

If you need DOCSIS 3.1 and desire a modem-router combo device, the **Netgear Nighthawk X4S** is the best option. However, it's among the most expensive routers available.

Nevertheless, the Nighthawk X4S yields dual-band Wi-Fi, 32×8 channel bonding, and as high as 6Gbps download speeds. On the back, you'll find four gigabit Ethernet ports, and over Wi-Fi, the X4S boasts speeds as high as 3.2Gbps. There's a USB 3.0 port of NAS use.

For those with the budget, the Netgear Nighthawk X4S is hands-down the best router-modem combo you can find.

Pros:

- Modem-router combo

- DOCSIS 3.1

- 32×8 channel bonding

- Dual-band Wi-Fi (2.4GHz and 5GHz networks)

- Up to 3.2Gbps download speeds over Wi-Fi

- Up to 6Gbps download speeds over Ethernet

- Four gigabit Ethernet ports

Cons:

- Pricey

Netgear Nighthawk AC1900

Image Credit: Amazon

Equipped with 24×8 channels, the **Netgear Nighthawk AC1900** is a DOCSIS 3.0 modem achieving 960Mbps download speeds. There's a 1.6GHz processor, and dual-band 802.11ac Wi-Fi. It's certainly not cheap, but for the price, you get a router and a modem in one convenient package.

Pros:

- 24×8 channel bonding

- DOCSIS 3.0

- Modem plus router

- Dual-band Wi-fi (2.4GHz and 5GHz networks)

- Up to 960Mbps download

Cons:

- No DOCSIS 3.1

Netgear N300

The **Netgear N300** fuses affordability and performance. With modest download speeds of 340Mbps, the N300 yanks down moderate internet speeds. If you can afford a bit more, step up to the N600 for a DOCSIS 3.0 dual-band router featuring eight downstream and four upstream channels.

Pros:

- DOCSIS 3.0

- Dual-band Wi-Fi (2.4GHz and 5GHz networks)

- Ultra-affordable

Cons:

- No DOCSIS 3.1

- Only 802.11n

Motorola MG7540

Image Credit: Amazon

The **Motorola MG7540 Gigabit** router and modem snags download speeds as high as 686Mbps. There's dual-band Wi-Fi and a wireless boost feature which ensures whole-home coverage. It's compatible with most ISPs and has four gigabit Ethernet ports. At just shy of $200, it's not cheap, but Motorola makes a high-performer in its MG7540 modem-router combo.

Pros:

- 16×4 channel bonding

- Up to 686Mbps download

- DOCSIS 3.0

- Dual-band Wi-fi (2.4GHz and 5GHz networks)

Cons:

- No DOCSIS 3.1

- Go gigabit Ethernet

The Best Routers for Every Budget

Here are the best routers you can buy. The likes of TP-Link, Google, Netgear, and Linksys rank as the **top router manufacturers**.

Netgear Nighthawk X10 AD7200

Image Credit: Amazon

Easily the best router you can find, the **Netgear Nighthawk X10 AD7200** comes maxed out. It's an 802.11ad router with MU-MIMO and 160MHz as well. Not only that but the X10 houses a whopping six gigabit Ethernet ports and an SPF+ LAN port which produces fiber connectivity. Netgear packs in a smorgasbord of inputs and outputs such as two USB ports and a WPS button. It's capable as a Plex server, a nifty inclusion.

Performance remains phenomenal, with **PC Mag's tests** drawing 99.1Mbps on its close proximity 2.4GHz tests and a blistering 951Mbps in its 802.11ad test. However, it's pretty pricey and oddly considering its high-end array of hardware and software, lacks QoS.

You may also consider the **TP-Link Talon AD7200**, which is another 802.11ad option. Although, it's not as feature-rich as the Netgear Nighthawk X10.

Pros:

- 802.11ad

- MU-MIMO

- 160MhZ

- Lots of connectivity ports

- NAS capable

- Plex server functionality

Cons:

- Average MU-MIMO

- No QoS

Linksys WRT3200ACM

Image Credit: Amazon

Decked out in classic blue and black garb like its routers of old, the **Linksys WRT3200ACM** is a high-performing router with a bevy of features. It's a **tri-band router**with two 5GHz networks, allowing more 5GHz-compatible devices to connect without bottlenecking.

Loaded with features, you'll find IPv6, firewall compatibility, and the ability to install a VPN on the router. You'll also find MU-MIMO, as well as Tri-stream 160 which takes channel width from 80Hz to 160Hz for maintaining blazing fast speeds regardless of network traffic. Therefore, Tri-Stream 160 provides up to 2.6Gbps.

For its internals, the WRT3200ACM houses a 1.GHz dual-core CPU, 256MB of flash memory, and 512MB of RAM. As such, it's suitable for NAS use with its USB 3.0 port and EASTA connector which doubles as a USB 2.0.

But its highlight feature is open-source software compatibility. The WRT3200ACM touts alternative firmware options such as OpenWRT and DD-WRT. Loading one of these software options allows features like TOR browsing. **TechRadar enjoyed** that the Linksys WRT3200ACM embraces open-source software, provides a ton of power-user worthy features, and delivers fast Wi-Fi speeds with decent range. However, in their review, coverage was a bit spotty.

This is my router of choice, and offers fantastic file transfer speeds, keeping up with the demanding needs of a work-from-home writer and editor. You may also consider the **Linksys WRT32X**, which resembles the WRT3200ACM in its form factor and feature set while targeting gamers specifically.

Pros:

- Tri-band

- Lots of features

- MU-MIMO

- Tri-stream 160MHz

- Open-source firmware compatibility

- Blazing fast 5GHz

- Fast file transfer speeds

Cons:

- Average 2.4GHz network

Synology RT1900ac

Image Credit: Amazon

Not only does the **Synology RT1900ac** make a solid router, it's suitable as a networked attached storage (NAS) device. **PC Mag lauded** its 5GHz performance, features, and competitive pricing. You'll find a USB 3.0 port as well as an SD card slot. Plus, the AC1900 employs a Linux-based operating system (OS) dubbed Synology Router Manager (SRM).

It's similar to DiskStation Manager (DSM), the OS Synology uses for its NAS devices. Within SRM, there's the Package Center, essentially an app store. Here, you may download various apps to the Synology RT1900ac like a Media Server app and VPN Server application.

The performance saw quick speeds on the 5GHz band, though a bit of a drop off in range around 100 feet. The 2.4GHz band yielded stable performance, but its range is merely average. Disappointingly, while the Synology RT1900ac makes a capable NAS, its network storage performance suffers. Using gigabit connections, CNET witnessed a copy speed of 40MBps, around 320Mbps for its write speeds, and 42MBps, roughly 336Mbps on read speeds. That's ultimately sufficient for basic home network use.

A solid mid-range router, the Synology RT1900ac offers NAS functionality, excellent 5GHz throughput, and a modest price tag.

Pros:

- 802.11ac

- Fast Wi-Fi

- Decent range

- NAS capabilities

- Linux-based SRM

- Apps

Cons:

- Average file transfer speeds

- Moderate 2.4GHz range

TP-Link Archer C7 AC1750

Image Credit: Amazon

According to Tom's Guide, the **TP-Link Archer C7** is a solid yet inexpensive performer. Its 5GHz network maintains a fast, reliable connection, and you'll find two USB ports. Besides that, it's compatible with open-source software for adding your own firmware. At close proximity, the C7 drew in around 363Mbps download speeds with support for up to 1750Mbps and has a 110-foot range.

Oddly, the USB ports are 2.0, not 3.0. While its 5GHz network shines, the 2.4GHz performance is middling. Yet at under $100, the TP-Link Archer C7 delivers hefty throughput, a smattering of customization options, and simple installation.

Pros:

- Fast Wi-Fi

- Lots of settings

- Gigabit Ethernet

- USB ports

Cons:

- Average 2.4GHz performance

- Only USB 2.0, not 3.0

Trendnet TEW-818DRU

Image Credit: Amazon

Consider the **Trendnet TEW-818DRU** for a beefy router that won't break the bank. It's quick and simple to set up. **CNET appreciated** its comprehensive feature set. Moreover, the TEW-818DRU ranked among the fastest routers. Coupled with incredible Wi-Fi signal strength and superb range, it's the best pick. Top speeds hit around 1300Mbps on its 5GHz band, with around 600Mbps on the 2.4GHz band.

What's more, the TEW-818DRU is packed with options. Onboard, you'll find guest networks, **Quality of Service** (QoS), a firewall, and IPv6. Unfortunately, despite the USB port, the Trendnet TEW-818LW doesn't function well with many portable drives. Ultimately, with lots of inclusions, fantastic Wi-Fi performance, and a long range, the Trendnet TEW-818DRU balances price and performance masterfully.

Pros:

- 802.11ac

- Fast Wi-Fi

- Long range

- QoS

- IPv6

- Firewall options

Cons:

- USB port doesn't function well

D-Link DIR-818LW

Image Credit: Amazon

The **D-Link DIR 818LW** is easily the most affordable 802.11ac router on the market. In its review, **CNET praises** the DIR-818LW for its small stature, intuitiveness, and gigabit Ethernet. Additionally, the D-Link DIR-818LW includes cloud functionality. Performance is reliable which makes this the best cheap wireless router available.

Unfortunately, Wi-Fi data is considerably slower than on high-end and even mid-range routers. Further, the DIR-818LW features a fairly short range. While it's a dual-band router, the 5GHz band only supports a single 802.11ac stream that tops out at 433Mpbs. The 2.4Ghz frequency band is capable of dual-stream at a maximum speed of 300Mpbs.

Therefore, while it's a true 802.11ac router, the DIR-818LW delivers real-world performance on par with most 802.11n routers. With its distinctive cylindrical design, multiple color options, and an 802.11ac network, the D-Lik DIR-818LW is the top budget router on the market.

Pros:

- True 802.11ac

- Dual-and

- Cylindrical shape

- Small footprint

- Four color options

- Reliable performance

- Cloud features

- Gigabit Ethernet

Cons:

- Short wireless range

- Slow Wi-Fi

The Best Modems for Every Budget

Netgear Nighthawk CM1000

Image Credit: Amazon

If you're into 4K video and gaming, the **Netgear Nighthawk CM1000** DOCSIS 3.1 modem achieves a whopping 1Gbps download speed.

It's a splurge at over twice the cost of the Surfboard SB6183. However, no modems come close to the performance of the Netgear CM1000. With 32×8 channels, it's the best modem you can buy. Notably, the Arris Surfboard SB8200 is a DOCSIS 3.1 modem worthy of consideration, and the Motorola MB8600 also touts DOCSIS 3.1.

Pros:

- DOCSIS 3.1

- 1Gbps

- 32×8

Cons:

- Pricey

Arris Surfboard SB6183

Image Credit: Amazon

For a more comprehensive modem, check out the **Arris Surfboard SB6183**. Tom's Guide noted that the SB6183 pulled in 686Mbps down, and 131Mbps upload speeds. That's an improvement over the DCM-301. It's a DOCSIS 3.0 modem, with 16 downstream and 4 upstream channels.

Arris is one of the most commonly-used modem manufacturers, and the Surfboard SB6183 is an excellent modem option. Alternatively, the Zoom 5370 is a similarly specced out modem but lacks Cable One and Optimum support. Thus, the Arris Surfboard SB6183, with its increased ISP compatibility, is the better buy.

Pros:

- 16×4 channel bonding

- Up to 686Mbps download

- Up to 131Mbps

- DOCSIS 3.0

Cons:

- Not DOCSIS 3.1

Linksys CM3008

Image Credit: Amazon

As **Tom's Guide aptly states**, the **Linksys CM3008** is an inexpensive alternative to renting a modem from your ISP. It's a no-frills DOCSIS 3.0 modem and reportedly delivers speeds on par with the Arris Surfboard SB6141. Moreover, the CM3008 comes in a small form factor that's easy to fit virtually anywhere. Unfortunately, it's not a DOCSIS 3.1 router, but for the price, it's tough to complain.

Pros:

- Good speeds
- 8×4 channel bonding
- DOCSIS 3.0
- Small footprint

Cons:

- Not DOCSIS 3.1

The Best Routers and Modems for Every Budget

Routers and modems abound. Depending on your ISP, it may be worth snagging a modem as well, although I'd suggest keeping your modem and router separate and avoiding combo devices. You've got more options with dedicated modems and routers, plus you'll likely want to upgrade at least your router in the future. Sure, you may continue to use a modem-router combo as just a modem, but you can get a better standalone modem for the price when compared with modem-router combos. But if you'd like everything in one convenient package, a combo device is the way to go.

For routers, stick with an 802.11ac router if you can afford it. A dual-band router is good, but a tri-band router provides an increasingly stable connection especially when more devices populate the 5GHz network. The only reason to get an 802.11n only router is if you're on a limited budget where a wireless-n router achieves the same performance as the best available 802.11ac router in your price range.

Aside from networks and bands, customization options truly determine which router is best for your needs. While some allow for open-source firmware, others don't. Then there's the slew of settings, including QoS, MU-MIMO, whole-home VPN, and more. Most routers come with some sort of NAS functionality, but not certain routers are better suited as NAS devices. With modems, a DOCSIS 3.0 modem should suffice, although if you've got access to gigabit Ethernet, opt for DOCSIS 3.1.

Ultimately, there are loads of options for routers and modems on the market, but these are the best you can find.

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