

2: "Wi-Fi ADAPTERS FOR WINDOWS 10/11, macOS, AND LINUX COMPUTERS

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EXECUTIVE SUMMARY

You can probably add a Wi-Fi 6 adapter to your existing Windows 10 or 11, MacOS, or Linux computer to speed up it's wireless connection to a Wi-Fi router.

TOPICS

- Wi-Fi Generations
- Wi-Fi adapters for the 6 GHz Radio Frequency band
- EDUP's AX5400M USB Wi-Fi adapter is the fastest one available
- Netgear's A8000 USB Wi-Fi adapter is the second fastest one
- Intel's AX210 PCIe-based adapter is the fastest one for Linux

Wi-Fi GENERATIONS

- Each generation of Wi-Fi technology makes massive increases in speed per
<https://en.wikipedia.org/wiki/Wi-Fi> :

Wi-Fi Generations

Generation	IEEE Standard	Maximum Linkrate (Mbit/s)	Adopted	Radio Frequency (GHz)
Wi-Fi 7	802.11be	721 to 46120	(2024 or 2025)	2.4/5/6
Wi-Fi 6E	802.11ax	600 to 9608	2020	2.4/5/6
Wi-Fi 6	802.11ax	600 to 9608	2019	2.4/5
Wi-Fi 5	802.11ac	433 to 6933	2014	5
Wi-Fi 4	802.11n	72 to 600	2008	2.4/5
<i>(Wi-Fi 3*)</i>	802.11g	6 to 54	2003	2.4
<i>(Wi-Fi 2*)</i>	802.11a	6 to 54	1999	5
<i>(Wi-Fi 1*)</i>	802.11b	1 to 11	1999	2.4
<i>(Wi-Fi 0*)</i>	802.11	1 to 2	1997	2.4

AVAILABILITY OF 6 GHz RF BAND Wi-Fi ADAPTERS

- 2020-November: Intel AX210 chipset adapters in PCIe and motherboard form factors
- 2022-October: Netgear A8000 USB 3.0 adapter
- 2023-June: EDUP AX5400M USB 3.0 adapter

EDUP's AX5400M USB Wi-Fi Adapter

- EDUP's AX5400M has been available since June 2023. It works for "Windows 11" and "Windows 10".
- This adapter is the only one that can reach a nominal speed of 2400 Megabits per second per Windows 11 and 10 (as of August 2023).

EDUP's AX5400M USB Wi-Fi Adapter (continued)

- Make sure that you are buying EDUP's 802.11AXE adapter and NOT their 802.11AX or 802.11AC adapters. They all look the same!
- This adapter uses a "Realtek" 8832CU integrated circuit chip

Wi-Fi 10 Status



General

Connection

IPv4 Connectivity: Internet
IPv6 Connectivity: No network access
Media State: Enabled
SSID: TP-Link_B03A_6G
Duration: 04:32:09
Speed: 2.4 Gbps
Signal Quality:

Details...

Wireless Properties

Activity

Sent Received
Bytes: 93,682,650 | 954,162,768

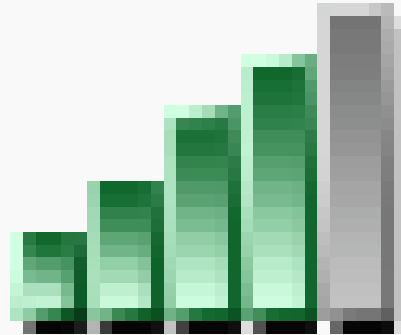
Properties

Disable

Diagnose

Close

2.4 Gbps



EDUP's AX5400M USB Wi-Fi Adapter (continued)

- [https://www.amazon.com/dp/B0C77G
BBY6?psc=1](https://www.amazon.com/dp/B0C77GBBY6?psc=1)

EDUP's AX5400M USB Wi-Fi Adapter (continued)

- This is a real USB 3.0 device so either keep USB extension cables under 3 feet long or use an active USB extension cable.

"NETGEAR" A8000 USB ADAPTER

- This USB adapter became available in October 2022
- This "Netgear" adapter uses a "Mediatek" MT7921 chip set
- This "Netgear" adapter works great for "Windows 10" computers but it is slower compared to the "EDUP" adapter for "Windows 11" computers



General

Connection

IPv4 Connectivity: Internet
IPv6 Connectivity: No network access
Media State: Enabled
SSID: TP-Link_B03A_5G
Duration: 00:02:01
Speed: 1.2 Gbps
Signal Quality:

Details...

Wireless Properties

Activity

Sent Received
Bytes: 9,715,553 | 398,029

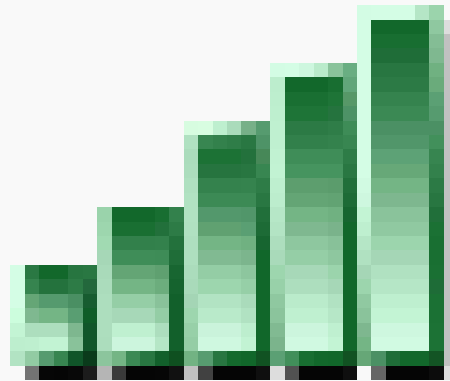
Properties

Disable

Diagnose

Close

1.2 Gbps



"NETGEAR" A8000 ADAPTER (continued)

- <https://www.amazon.com/NETGEAR-Nighthawk-Adapter-Tri-Band-Wireless/dp/B0B94R78N7/>

"NETGEAR" A8000 ADAPTER (continued)

- This is a real USB 3.0 device so either keep USB extension cables under 3 feet long or use an active USB extension cable.

INTEL AX210 INTEGRATED CIRCUIT CHIPS

- Intel's AX210 integrated circuit chips in PCIe adapters and motherboards were the "only game in town" until October 2022.
- For Linux computers, adapters that use the AX210 integrated circuit chips such as those made by "FENVI" and "Ubit" are still the only available Wi-Fi adapters for the 6-Gigahertz RF band.

INTEL AX210 INTEGRATED CIRCUIT CHIPS


(continued)

- However, for Windows.. computers Intel AX210-based Wi-Fi adapters have falled behind EDUP and Netgear USB-based adapters for speed

Wi-Fi 9 Status



General

Connection

IPv4 Connectivity:	Internet
IPv6 Connectivity:	No network access
Media State:	Enabled
SSID:	TP-Link_B03A_6G
Duration:	00:01:46
Speed:	865.0 Mbps
Signal Quality:	

Details... Wireless Properties

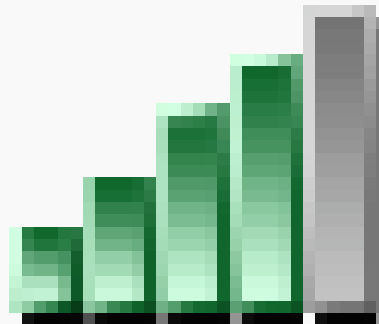
Activity

	Sent		Received
Bytes:	318,579,215		314,035,515

Properties Disable Diagnose

Close

865.0 Mbps



INTEL AX210 INTEGRATED CIRCUIT CHIPS

(continued)

- <https://www.amazon.com/Ubit-Ubit-AX200/dp/B07Y2MYK4N/>

INTEL AX210 INTEGRATED CIRCUIT CHIPS (continued)

- <https://www.amazon.com/3000Mbps-Wireless-Generation-802-11ac-ax210ngw/dp/B08VWRW7X7/>

ACTIVE USB EXTENSION CABLES FOR USB Wi-Fi ADAPTER

- To determine if a USB extension cable, if you are using one for a USB Wi-Fi adapter, is causing a slowdown or instability, you can use the free "USBTreeView" program at http://www.uwe-sieber.de/usbtreeview_e.html

ACTIVE USB EXTENSION CABLES FOR USB Wi-Fi ADAPTER

- If you have a USB extension cable that is the cause of slowdowns or failures for a USB Wi-Fi adapter, here are some powered USB extension cables that can resolve the problem:
- <https://www.amazon.com/Tripp-Lite-Extension-Compatible-U330-05M-C2A-G2/dp/B09MJK4FJP/>

ACTIVE USB EXTENSION CABLES FOR USB Wi-Fi ADAPTER (continued)

- <https://tripplite.eaton.com/usbc-active-extension-cable-usbc-to-usbc-male-to-female-usb-31-gen-1-data-only-16ft-5m~U33005MC2C>

ACTIVE USB EXTENSION CABLES FOR USB Wi-Fi ADAPTER (continued)

- <https://tripplite.eaton.com/usb-3-2-gen-1-active-cable-aluminum-10-m-33-ft~U33010MAL>

ACTIVE USB EXTENSION CABLES FOR USB Wi-Fi ADAPTER (continued)

- The following USB-C plug to USB-A jack converter may be useful for some the the previously-mentioned powered USB cables:

<https://www.amazon.com/Anker-Adapter-Converts-Technology-Compatible/dp/B01COOQIKU/>

