

Wi-Fi CERTIFIED 6™: Next generation Wi-Fi®



Wi-Fi® technology is a mainstay of life today – at work, home, and on the go. Included in virtually every smartphone, computer, and tablet, Wi-Fi capability is now a requirement for a growing array of devices from televisions and appliances to security systems. Providing [nearly \\$2 trillion USD in economic value](#) worldwide, Wi-Fi demand grows every year. Technological innovation has driven many uses for Wi-Fi to market, and enabled emerging opportunities such as virtual reality and high-definition telepresence. Expectations to connect everyone and everything, everywhere is rising.

[Wi-Fi CERTIFIED 6™](#), an upcoming certification program from Wi-Fi Alliance®, will ensure that devices based on Wi-Fi 6, or IEEE 802.11ax technology, meet industry agreed standards and deliver key benefits such as higher data rates, greater network capacity, better power efficiency, and performance in remote or congested environments.



Wi-Fi CERTIFIED 6 brings next generation Wi-Fi to any environment

Wi-Fi CERTIFIED 6 devices will deliver capabilities required to ensure that users' next generation connectivity needs are reliably met in a wide variety of scenarios:

Home: In single-family homes or multi-family dwellings, Wi-Fi CERTIFIED 6 smart home products and personal devices efficiently co-exist, enabling users to simultaneously manage the home, stream ultra high-definition content on demand, and support immersive experiences

Public Wi-Fi: Wi-Fi CERTIFIED 6 devices brings better user experiences in densely populated environments with efficient spectral resource management and consistent service as users traverse large networks

Enterprise: Increased automation in manufacturing environments, enhanced telepresence and e-learning capability, and extended remote services such as healthcare monitoring are emerging uses for Wi-Fi CERTIFIED 6 in business, reaching beyond the ability to effectively handle a large number of users for mission-critical applications

Key capabilities and benefits

Wi-Fi CERTIFIED 6 devices operate in the 2.4 and 5 GHz bands and deliver greater capacity than the prior generation of Wi-Fi. Wi-Fi CERTIFIED 6 devices bring reliable performance indoors, outdoors, and in dense environments. Client devices will also demonstrate longer battery life. Key features enabling the benefits of Wi-Fi CERTIFIED 6 are listed below.

- **Orthogonal frequency division multiple access (OFDMA)** enables more users to simultaneously operate in the same channel and therefore improves efficiency, latency, and throughput
- **Multi-user multiple input, multiple output (MU-MIMO)** allows more data to be transferred at once and enables an access point to handle a larger number of concurrent clients
- **Transmit beamforming** improves signal power resulting in significantly higher rates at a given range
- **1024 quadrature amplitude modulation mode (1024-QAM)** enables throughput increases by as much as 25 percent over Wi-Fi 5
- **Target wake time (TWT)** makes Wi-Fi CERTIFIED 6 devices more power efficient

Wi-Fi generation comparison overview

Wi-Fi 6 technology continues to build on the performance of previous Wi-Fi generations, bringing advancements for Wi-Fi devices and networks.

Feature	Wi-Fi 4	Wi-Fi 5	Wi-Fi 6
Channel bandwidth (MHz)	20, 40	20, 40, 80, 80 + 80, 160	20, 40, 80, 80 + 80, 160
Frequency bands	2.4 and 5 GHz	5 GHz	2.4 and 5 GHz
Maximum data rate	150 Mbps	3.5 Gbps*	9.6 Gbps*
Highest subcarrier modulation	64-QAM	256-QAM	1024-QAM
Spatial streams	1	4	8
Underlying technology	IEEE 802.11n	IEEE 802.11ac	IEEE 802.11ax

* Depending upon number of spatial streams and channel used

Wi-Fi CERTIFIED™: Technology to trust

Since 2000, Wi-Fi Alliance has been driving the adoption and evolution of Wi-Fi through the Wi-Fi CERTIFIED program. The Wi-Fi CERTIFIED logo designates products with proven interoperability, backward compatibility, and the highest industry-standard security protections in place. Wi-Fi CERTIFIED devices can communicate with previous and future generations of Wi-Fi technologies, enabling Wi-Fi CERTIFIED networking devices to provide a seamless, interoperable experience with a multitude of other Wi-Fi devices for years to come.

Wi-Fi CERTIFIED 6 devices can be easily identified by the Wi-Fi CERTIFIED 6 logo. Look for the logo to ensure devices have been tested for interoperability security standards.



Learn more: www.wi-fi.org/wi-fi-certified-6