

## Who Needs Wi-Fi 7?



### Wi-Fi 7 for Entertainment

Enjoy massive online games, immersive AR/VR, and 4K/8K video anytime, anywhere. Experience a bustling digital world with no buffering, delay, or congestion, all thanks to Wi-Fi 7. When everyone starts exploring the Metaverse, you'll be ready.



### Wi-Fi 7 for Businesses

Run a lag-free meeting across time zones with global partners and hash out ideas. Telecommute from home with Wi-Fi 7, so you waste no time loading things from the cloud. The higher efficiency of the next generation of Wi-Fi will bring huge value to your business.



### Wi-Fi 7 for Intelligent Lifestyles

Wi-Fi 7 leads to a true intelligent life. If you own multiple smart home devices or simply have a large number of internet devices in your household, Wi-Fi 7 will keep them online with superfast response times.



## Whole Home Multi-Gigabit

# Wi-Fi 7

## Wi-Fi 7 vs. Wi-Fi 6/E vs. Wi-Fi 5

	Wi-Fi 7	Wi-Fi 6E	Wi-Fi 6	Wi-Fi 5
Launch date	2024 (expected)	2021	2019	2013
IEEE standard	802.11be	802.11ax	802.11ax	802.11ac
Max data rate	46 Gbps	9.6 Gbps	9.6 Gbps	3.5 Gbps
Bands	2.4 GHz, 5 GHz, 6 GHz	2.4 GHz, 5 GHz, 6 GHz	2.4 GHz, 5 GHz	5 GHz
Channel size	Up to 320 MHz	20, 40, 80, 80+80, 160 MHz	20, 40, 80, 80+80, 160 MHz	20, 40, 80, 80+80, 160 MHz
Modulation	4096-QAM OFDMA (with extensions)	1024-QAM OFDMA	1024-QAM OFDMA	256-QAM OFDM
Channel size	16×16 UL/DL MU-MIMO	8×8 UL/DL MU-MIMO	8×8 UL/DL MU-MIMO	4×4 MIMO DL MIMO
RU	Multi-RUs	RU	RU	/
MAC	MLO	/	/	/

Maximum wireless signal rates are the physical rates derived from IEEE Standard 802.11 specifications. Actual wireless data throughput and wireless coverage are not guaranteed and will vary as a result of network conditions, client limitations, and environmental factors, including building materials, obstacles, volume and density of traffic, and client location. Data is from semiconductor companies.

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# 46 Gbps

## What Does Wi-Fi 7 Bring?

With the upcoming 7<sup>th</sup> generation of Wi-Fi, the ultimate online experience will be unleashed.



### 4.8× Faster

Wi-Fi 7 accelerates throughput up to 46 Gbps.



### 4× Lower Latency\*

Ultra smooth Wi-Fi with 4× lower latency than Wi-Fi 6E routers enables emerging applications to always run at top performance.



### 5× Network Capacity\*

With 320 MHz and MLO (Multi-Link Operation), Wi-Fi 7 provides up to 5× greater capacity than Wi-Fi 6.

\*Data is from laboratory tests. Maximum wireless signal rates are the physical rates derived from IEEE Standard 802.11 specifications. Actual wireless data throughput and wireless coverage are not guaranteed and will vary as a result of network conditions, client limitations, and environmental factors, including building materials, obstacles, volume and density of traffic, and client location.

## Up to 320 MHz on 6 GHz: Express Data on the Latest Band

Access to the 6 GHz frequency brings more bandwidth, faster speeds, and lower latency, opening up resources for future innovations in AR/VR, 8K streaming, and more.

### The Wide and Clear 6 GHz Band

Unlike the 2.4 GHz and 5 GHz bands that are filled with signals from microwave ovens, radio, phones, radar, satellite equipment, and Bluetooth, the 6 GHz band brings cleaner and wider band resources to Wi-Fi.



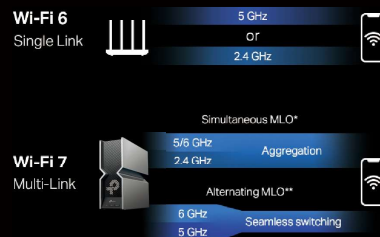
### Double the Width, Double the Speed

Wi-Fi 7 unleashes the full potential of the 6 GHz band to double the bandwidth of the last generation. Extending channel width to 320 MHz also enables many more simultaneous transmissions at the fastest possible speeds.



## Multi-Link Operation: Higher Speed, Lower Latency, More Reliable

Traditional Wi-Fi devices use a single link to transmit data. With different Multi-Link Operation (MLO) Modes, Wi-Fi 7 enables devices to use multi-link aggregation to achieve higher throughput, lower latency, and higher reliability; or to use multi-link seamless dynamic switching to achieve load balancing and lower latency.



## Preamble Puncturing: No Waste, No Congestion

Before, busy channels meant bands could not be fully used. Data would only be sent through the primary channel. Now, with Preamble Puncturing, the interference can be blocked, opening up more channels to use.

Without Preamble Puncturing



With Preamble Puncturing

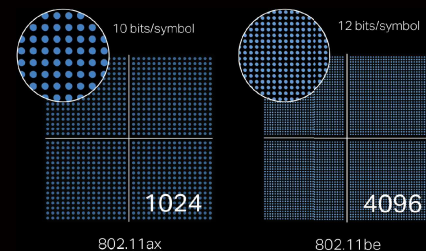
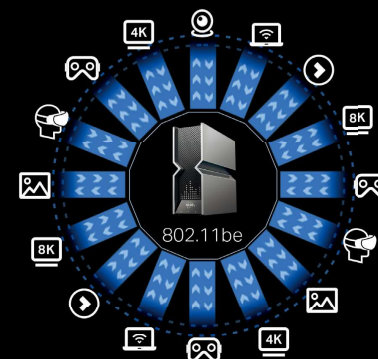


## Multi-RU: Makes Full Use of Every Resource

With Wi-Fi 6, each user could only send or receive frames on an assigned resource unit (RU), which significantly limited the flexibility of spectrum resource scheduling. To solve this problem and further enhance spectral efficiency, Wi-Fi 7 allows multiple RUs to be assigned to a single user and can combine RUs for increased transmission efficiency.

## 16×16 MU-MIMO: Double the Streams, Double the Capacity

16 streams are available—double the theoretical physical transmission rate compared to Wi-Fi 6. This allows more simultaneous device connections and increases overall throughput and peak performance.



## 4K-QAM: Packs 120% Data for Higher Speeds

4096-QAM enables each symbol to carry 12 bits rather than 10 bits, which means 20% higher theoretical transmission rates than Wi-Fi 6's 1024-QAM. Now you can watch flawless 4K/8K videos, play massive online games without lag, or live stream from your home computer. With 4096-QAM, streaming just got that much better.

\*STR-MLMR MLO Mode (Simultaneous Transmit and Receive Multi-Link Multi-Radio Operation Mode)  
\*\*E-MLSR MLO Mode (Enhanced Multi-Link Single Radio Operation Mode)