MAXLINEAR

WAV600 Wi-Fi Chipset

6th Generation Wi-Fi Chipset based on the *802.11ax* standard

PRODUCTS

WAV654	*802.11ax* concurrent dual-band 2+2 (5 GHz + 2.4 GHz) up to 3 Gbps PHY rate at 160 MHz
WAV624	*802.11ax* 5 GHz 4x4 up to 1.14 Gbps PHY rate
WAV614	*802.11ax* 2.4 GHz 4x4 up to 1.14 Gbps PHY rate

FEATURES

- *IEEE 802.11ax* Compliant
- Wi-Fi Alliance™ Wi-Fi 6 Certified
- Up to 160MHz
- Up to Four Spatial Streams

BENEFITS

- Gigabit Wi-Fi
- Improved Speed and Network Efficiency in Dense Environments
- Supports up to 256 Clients Simultaneously

APPLICATIONS

- Service Provider Gateways
- Routers, Access Points, Extenders & Repeaters

Wi-Fi 6, based on the *802.11ax* standard, delivers faster throughput, and improved coverage in dense environments. MaxLinear is offering Wi-Fi 6 chipsets for home Wi-Fi routers, gateways, and intelligent range extenders in cable, xDSL, fiber, and consumer retail infrastructure, which are designed to deliver both fast and consistent connectivity.

The Wi-Fi Chipset WAV600 Series is designed to meet the IEEE *802.11ax* standard and is Wi-Fi 6 certified. It supports multi-Gigabit Wi-Fi and offers up to 4 streams of 5GHz spectrum with 160MHz channel support creating higher capacity. In addition, these SoCs provide the ability to connect up to 256 clients simultaneously, enabling a high-quality user experience for a growing number of connected devices. These Wi-Fi SoCs are optimized for the AnyWAN™ SoCs and the Puma™ 7 Family to fully offload the wireless traffic with zero CPU utilization. This frees up the CPU performance for advanced services such as security, analytics, photo/video hosting, and parental controls while delivering a consistent user experience.

Speed: Gigabit Wi-Fi

Gigabit Wi-Fi makes it possible to connect, stream, and download faster. Routers, access points and gateways based on the Wi-Fi Chipset WAV600 Series can deliver multi-Gigabit Wi-Fi speeds to PCs with integrated Gigabit Wi-Fi or Wi-Fi 6 (Gig+) enabling high-quality user experiences.

Performance: Improved speed and network efficiency in dense environments

Designed to meet the *IEEE 802.11ax* standard, the WAV600 Series delivers speeds up to 4.8 Gbps in the 5GHz band and 1.14Gbps in 2.4GHz band. It offers support for key features, such as 160MHz, OFDMA (uplink and downlink), MU-MIMO, Target Wake Time (TWT), 4x Symbol Duration, spatial reuse/ BSS Coloring, and higher modulation (1024 QAM), thereby improving network performance and efficiency. The WAV600 Series is also engineered to deliver enhanced throughput rates for a mix of small and large packet sizes. This helps ensure optimal performance for devices and low latency for applications like gaming, video, and voice calls.

Scalability: More bandwidth for clients

Consumers are connecting a growing number of devices in the home. The WAV600 Series can handle this increase, with the ability to support up to 256 clients simultaneously and optimize each transmission to enhance the total network efficiency. The combination of wireless functionality offload, robust interference rejection through the use of advanced radio frequency technology, and various algorithms for airtime fairness, intelligent band steering technologies, and intelligent queue management enable high-quality user experiences when there are simultaneous video and data transmissions to and from clients.

Technical Specifications

Dimensions	15 mm x 16 mm
Digital Technology	Enhanced maximum likelihood, LDPC, STBC (2x1), Beamforming, OFDMA, 1024 QAM (MCS 10-11), MU-MIMO, Target Wake Time (TWT), BSS Coloring, and Spatial Reuse
Full CPU Offloading	Supported for MaxLinear AnyWAN™ SoC GRX350 and GRX550; Puma™ 7 Family
Connectivity	Supports up to 256 clients and 32 virtual access points per radio, WDS 4 address mode access point-client support, and multiple client modes (WDS, L2NAT, WISP)
Interface	PCIe* Gen3/Gen2 (support for both 1 and 2 lines)
Operating Temperature (Adapter Shield)	0° to 70°C
Operating Systems	Supports Linux Kernels 3.X and 4.X. Software packages enabling both Open-WRT (UCI) and RDK-B alignment
Wi-Fi Alliance	Wi-Fi Alliance CERTIFIED a/b/g/n/ac, and Wi-Fi CERTIFIED 6
IEEE WLAN Standard	*IEEE 802.11abgn, 802.11ac, 802.11d, 802.11e, 802.11i, 802.11h, 802.11w, 802.11ax*
Roaming	Roaming software support for *802.11k/v/r/ai* and band steering
Dynamic Bandwidth	Supported on per-packet basis
Zero Wait Dynamic Frequency Selection (ZWDFS)	Supports ZWDFS
Security	
Authentication	WPA2 & WPA3 including support for Wi-Fi Easy Connect™, 802.1x (EAP-TLS, TTLS, PEAP, LEAP, EAP-FAST), EAP-SIM, EAP-AKA
Encryption	64-bit and 128-bit WEP, TKIP, CCMP-128, CCMP-256, GCMP-128, GCMP-256
Management Frame Protection	802.11w (WFA-Protected Management Frames)
Compliance	
Government	FCC Section 15 relevant chapters, latest ETSI EN 300 328, and EN 301 893

Product Information

Product	Description	Package
WAV654	*802.11ax* concurrent dual-band 2+2 (5 GHz + 2.4 GHz) up to 3 Gbps PHY rate at 160 MHz	MRQFN, LGA 15mm x 16mm
WAV624	*802.11ax* 5 GHz 4x4 up to 4.8 Gbps PHY rate	
WAV614	*802.11ax* 2.4 GHz 4x4 up to 1.14 Gbps PHY rate	

Both 2x2 (2 spatial stream) and 3x3 (3 spatial stream) variants are available.

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