Product Brief

Intel® Wi-Fi 6E AX210 IoT Embedded Kit
2nd Generation Wi-Fi 6 with Extended Wi-Fi 6E (6 GHz band) Support

Intel® Wi-Fi 6E AX210 (Gig+) Commercial Temperature (0°C to 70°C) IoT Embedded Kit

Optimize speed, latency, and reliability benefits of Wi-Fi 6 supporting higher activity for embedded IoT applications such as kiosks, digital signage, and mobile point-of-sale (MPOS) terminals.

The Intel® Wi-Fi 6E AX210 (Gig+) Commercial Temperature IoT Embedded kit is targeted for use cases and applications where the module has to operate more than 8 hours per day.

The Intel® Wi-Fi 6E AX210 (Gig+) Commercial Temperature IoT Embedded kit is ideal for IoT applications such as self-checkout, digital signage, interactive kiosks, and point-of-sale (POS) terminals that are in use for long periods of time and enables retailers, manufacturing, healthcare, hospitality and other IoT customers to take advantage of artificial intelligence and inferencing at the edge via fast, reliable, and flexible connectivity.

The product supports dual-stream Wi-Fi in the 2.4GHz, 5GHz, and 6GHz bands, and includes improved TCP throughput and future Wi-Fi 6 R2 features, including UL MU-MIMO[1] that improves UL network capacity in dense environments. These new features optimize the benefits of Wi-Fi 6, including Gigabit speed, ultra-low latencies, and enhanced reliability benefits across new radio frequencies exclusive to Wi-Fi 6E devices, and deliver a significant improvement in user experience in dense deployments.

This IoT kit is designed to support upcoming Wi-Fi 6E technology and related Wi-Fi Alliance Wi-Fi 6E[2] certification.

Wi Fi 6 CERTIFIED

WI-FI GIG+ 6E BY INTEL®

Easy Installation

Most Intel® Wi-Fi 6 kit installations can be completed in 10 minutes or less.

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2nd GENERATION INTEL Wi-Fi 6 WIRELESS WITH EXTENDED Wi-Fi 6E (6GHz BAND) SUPPORT	
High Activity Use Cases **Excellent Support and Availability** **Stronger Security with WPA3**	Intel® Wi-Fi 6E AX210 (Gig+) Commercial Temperature IoT Embedded kits are targeted for use cases and applications where the module has to operate more than 8 hours per day, or up to 80% of platform active time. The Intel Wi-Fi 6E AX210 (Gig+) Commercial Temperature IoT Embedded kits also feature the latest WPA3* security that helps improve authentication and encryption while making connections easy.
Greater Network Flexibility **Faster Speed** **Reduced Latency** **Wi-Fi 6E Dual Band 2X2 160MHz**	Intel® Wi-Fi 6E AX210 (Gig+) Commercial Temperature IoT Embedded kit supports legacy Wi-Fi 4, 5, 6, and Wi-Fi 6E, as well as Wi-Fi 6 *Wave 2* features. By implementing the new Wi-Fi 6E technology supporting the new 6GHz band that includes 1200MHz of new contiguous spectrum (>2x compared to 5GHz) with more Gigabit Wi-Fi options and exclusivity to Wi-Fi 6 products, Intel® Wi-Fi 6E AX210 (Gig+) Commercial Temperature IoT Embedded kit helps enable greater network flexibility, faster downloads, sharing and backups as well as reduced latency and improved reliability. When using Wi-Fi 6 technology with 1024QAM and 160Mhz channels, Intel® Wi-Fi 6E AX210 (Gig+) Commercial Temperature IoT Embedded kit can deliver nearly 3x higher peak data rates[3] (up to 2.4Gbps) and up to 4x capacity improvement in dense or congested environments compared to 802.11ac[4].

Bluetooth® 5.3	On top of existing features, Bluetooth® 5.3 includes the Isochronous Channel feature that lays the foundation for the implementation of the next generation of Bluetooth® Audio - LE Audio. Bluetooth® 5.3 Core specification also provides the capability to change the transmit power of the devices (local and peer) in order to help improve the link quality while not using consuming extra power.
Operating Systems	Windows* 10 Enterprise Long-Term Servicing Channel (LTSC) and Yocto Project*-based OS.
M.2 2230 Form Factor	The M.2 2230 form factor enables system configuration and platform usage flexibility with the use of a standard Key A or Key E socket to attach the module.

EXPERIENCE THE INTEL® DIFFERENCE

Worldwide Regulatory Support **Intel® Dynamic Regulatory Solution**	Enables performance-optimized worldwide regulatory compliance on a single adapter SKU. The Intel® Wi-Fi 6E AX210 (Gig+) Commercial Temperature IoT Embedded module detects its location and automatically optimizes the Wi-Fi settings to local regulatory requirements, optimizing performance in each geography, simplifying global enterprise procurement. Future regulatory changes are easily managed during the product life cycle.
Wireless Functionality in Pre-boot Environment	Support for Wi-Fi network and Bluetooth® Low Energy HID connectivity in the platform UEFI (Unified Extensible Firmware Interface) environment during its boot stage. This capability enables use cases like OS recovery over Wi-Fi and Bluetooth® Low Energy-based keyboard and mouse connectivity in this pre-boot environment.

BUSINESS-CLASS WIRELESS

Built for IoT	The Intel® Wi-Fi 6E AX210 (Gig+) Commercial Temperature IoT Embedded kit combines long-life support and long-life availability, pre-validation on Intel IoT platforms, as well as wireless Intel® AMT to connect your embedded IoT platforms to other edge devices. Target Wake Time (TWT) is a feature that can be used to extend the battery life of remote Wi-Fi 6E sensors.

INTEL® WI-FI 6E AX210 (GIG+) COMMERCIAL TEMPERATURE IOT EMBEDDED KIT TECHNICAL SPECIFICATIONS

General

Retail Single Box Dimensions (H x W x D)	145mm x 205mm x 26mm
Retail Single Box Weight	143.5g
Overpack 5u Dimensions (H x W x D)	160mm x 230mm x 150mm
Overpack 5u Weight	727.5g
RF Cable	2ft. length coaxial cable OD 1.13 mm FEP Black Jacket
Antenna	Dual-band: Frequency 2.4-2.5GHz/5.515-7.125GHz, SMA plug
Motherboard Connector Interface	M.2: Key E or A for wireless
Radio ON/OFF Control	Supported
Connector	SMA, male, brass, gold plated, insulated; MHF IV plug, gold plated
Use Conditions	For details on Intel Embedded use conditions, please contact your Intel Account Manager
Operating Ambient Temperature	0°C to +70°C
Non-operating	50% to 90% RH non-condensing (at temperatures of 25°C to 35°C)
Operating Systems	Microsoft* Windows* 10 Enterprise LTSC, Linux*
Wi-Fi Alliance[5]	Wi-Fi CERTIFIED* 6, Wi-Fi CERTIFIED* a/b/g/n/ac, WMM*, WMM*-Power Save, WPA2*, WPA3*, WPS*, PMF*, Wi-Fi Direct*, Wi-Fi Agile Multiband*, and Wi-Fi Timesync*
IEEE WLAN Standard	IEEE 802.11-2016 and select amendments (selected feature coverage) IEEE 802.11a, b, d, e, g, h, i, k, n, r, u, v, w, ac, ax; Fine Timing Measurement based on 802.11-2016, Wi-Fi Location R2 (802.11az) hardware readiness[6]
Bluetooth®	Bluetooth® 5.3
Availability and Support	Long-life availability Long-life Intel Support

Security

Security Methods[7]	WPA2*; WPA3*
Authentication Protocols	802.1x EAP-TLS, EAP-TTLS/MSCHAPv2, PEAPv0 -MSCHAPv2 (EAP-SIM, EAP-AKA, EAP-AKA')
Encryption	128-bit AES-CCMP, 56-bit AES-GCMP

Compliance

Regulatory	For a list of country approvals, please contact your local Intel representatives.
Product Safety	UL, C-UL, CB (IEC 60950-1)
US Government	FIPS[8] 140-2

PRODUCT NAME	ORDERING CODE	VERSION
Intel® Wi-Fi 6E AX210 (Gig+) Commercial Temperature IoT Embedded Kit	AX210.NGWGE.NVK	Wi-Fi 6E (6GHz), 2x2, Bluetooth® 5.3, M.2 2230

For more information on Intel® Wireless products, visit intel.com/wireless

[1] Wi-Fi 6 Uplink Multi-User MIMO (Multiple Input Multiple Output) supports up to 8 streams of UL data from multiple stations, improving UL network capacity in dense enviroments.

[2] Wi-Fi 6E WFA certification was received in January 2021.

[3] "Nearly 3x higher peak data rates" Intel® Wi-Fi 6 AX claims are based on the comparison of the expected maximum theoretical data rates for similarly configured 802.11ax and standard 802.11ac Wi-Fi solutions as documented in IEEE 802.11ax D4.0 spec and IEEE 802.11 wireless standard specifications, and require the use of similarly configured 802.11ax wireless network routers.

[4] Wi-Fi 5 = 802.11ac. In accordance with the IEEE 802.1ax PAR. For additional details, visit: https://mentor.ieee.org/802.11/dcn/14/11-14-0165-01-0hew-802-11-hew-sg-proposed-par.docx.

[5] Support of Wi-Fi Alliance certification is OS-dependent.

[6] IEEE 802.11az hardware readiness per expected Wi-Fi Location R2 feature support and based on Draft 2.1 of the IEEE 802.11az amendment and is subject to change.

[7] Some security solutions may not be supported by your device operating system and/or by your device manufacturer or may require additional hardware (e.g., UICC - SIM card). Check with your device manufacturer for details on availability.

[8] On Microsoft* Windows* 10.

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Performance varies by use, configuration and other factors. Learn more at www.Intel.com/PerformanceIndex.

Performance results are based on testing as of dates shown in configurations and may not reflect all publicly available updates. See backup for configuration details. No product or component can be absolutely secure.

Your costs and results may vary.

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