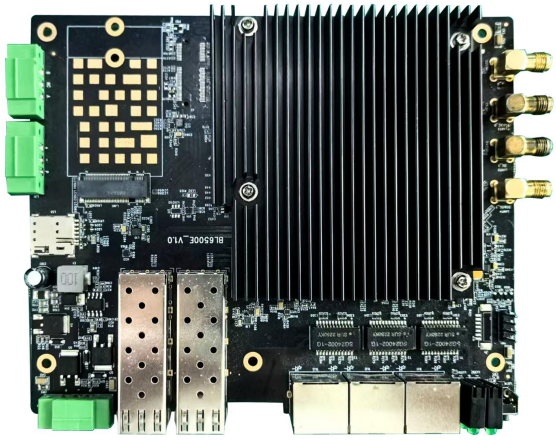
Intrinsically Safe Industrial Wi-Fi 7 AP Base Station BL6500E-2.5G



Features and Advantages

- Two 2.5G SFP ports and three 2.5G Ethernet ports, with 5G or RS-485 expansion
- 802.11k/v/r fast roaming with 15 ms switching and Mesh self-organizing networks
- Ring redundancy, VLAN and centralized AC, cloud and SNMP management
- Roaming proxy supports cross-subnet roaming and helps avoid service interruption
- Intrinsically safe hardware design with multi-stage power and port protection
- Wireless diagnostics, network recovery, client event notifications and remote logging

Introduction



The BL6500E is an industrial Wi-Fi 7 AP/router based on a Qualcomm high-performance processor. It supports 2.4 GHz and 5.8 GHz operation with 2 x 2 radios and an aggregate rate up to 3.6 Gbps. The hardware design meets intrinsic-safety requirements and incorporates multi-stage power and port protection for demanding industrial environments. It has passed EMC testing and includes a software watchdog.

Mesh self-organizing and cascading networks support seamless fast roaming. With a BL5000Air client, the base station is intended to provide low-latency, high-bandwidth, compatible and cost-effective long-distance links. Applications include underground coal mines, warehousing, inspection robots, AGVs, video surveillance, autonomous driving and converged communications.

Hardware Specifications

Item	Specification
Model	BL6500E
Chipset	IPQ5312 + QCN6402 + QCA8386
Operating bands	2.4 + 5.8 GHz
Memory	512MB
Flash	128MB + 4MB
Antennas	4 x SMA antenna connectors for directional or omnidirectional antennas
Power input	9-36V through Phoenix terminal and DC interfaces; reverse-polarity and overvoltage protection
Surge protection	6kV surge protection on Ethernet and power ports; 2kV pulse

Item	Specification
Roaming	15 ms
Power consumption	11W
Interfaces	2 x 10/100/1000/2500Mbps auto-negotiation SFP ports 3 x 10/100/1000/2500Mbps auto-negotiation Ethernet ports 2 x DC, 1 x Phoenix terminal 1 x 5G/485
Indicators	Ethernet, system and Wi-Fi LEDs
Environment	Operating temperature: -40°C to 75°C Storage temperature: -40°C to 85°C Relative humidity: 5% to 95%, non-condensing
Mechanical	Mounting: embedded installation Dimensions (W x L x H): 130 x 155 x 23mm Weight: 0.2kg (including heatsink)
Warranty	one years

Software Features

Item	Specification
Operating modes	Router / AP / Mesh (Cloud)
Wi-Fi 7	802.11a/b/g/n/ac/ax/be; TWT; OFDMA; BSS Color
WLAN basics	16 virtual APs; A-MPDU; A-MSDU; maximum likelihood demodulation (MLD); maximum ratio combining (MRC); STBC; LDPC
Security policy	Wireless user allowlist/blocklist, client isolation, IP filtering, MAC filtering, port forwarding, MAC address authentication, PSK authentication, SSID-to-VLAN binding
WLAN extensions	STA management; client limit; link integrity detection; broadcast probe-request response control; weak-signal client access restriction; hidden SSID; WLAN RRM; Mesh Doctor AP; Remote AP; 802.11k/v/r
Quality of service	802.11e; Ethernet 802.1p identification and marking; wireless-to-wired priority mapping; QoS policy mapping; L2-L4 packet filtering and traffic classification; per-user bandwidth management; load balancing; spectrum navigation; multicast enhancement; CAC based on user count and channel utilization; application identification
Energy saving	Green AP mode; dynamic MIMO power saving; U-APSD; SM Power Save
Management	Centralized AC management; cloud management; local web, Telnet, SSH, SNMP and debug serial port; intelligent operations and maintenance
Radio	802.11b/g/n/ax/be: 2.412-2.4835GHz 802.11a/n/ac/ax/be: 5.18-5.825GHz 2.4G: 2 x 2, 700Mbps 5G: 2 x 2, 2900Mbps Modulation: DBPSK, DQPSK, CCK, OFDM, 16-QAM, 64-QAM, 256-QAM, 1024QAM, 4096QAM

Item	Specification
Receive/transmit sensitivity	802.11b: -86dBm@1Mbps, -80dBm@11Mbps 802.11g/a: -82dBm@6Mbps, -65dBm@54Mbps 802.11n: -82dBm@MCS0, -64dBm@MCS7 802.11ac: -82dBm@MCS0, -59dBm@MCS9 802.11ax: -82dBm@MCS0, -52dBm@MCS11 802.11be: -82dBm@MCS0, -46dBm@MCS13
Transmit power	802.11b: 24dBm@1Mbps, 24dBm@11Mbps 802.11g: 24dBm@6Mbps, 23dBm@54Mbps 802.11a: 23dBm@6Mbps, 20. 5dBm@54Mbps 802.11n: 22.5dBm@MCS0, 20dBm@MCS7 802.11ac: 22.5dBm@MCS0, 1 9dBm@MCS9 802.11ax: 22.5dBm@MCS0, 18. 5dBm@MCS11 802.11be: 22.5dBm@MCS0, 1 8dBm@MCS13
Serial interface	RS-485
Recommended power	For one intrinsically safe power supply: 12V 1.8A recommended. With two supplies operating simultaneously, 12V 1A may be used; the two supply voltages must be the same.

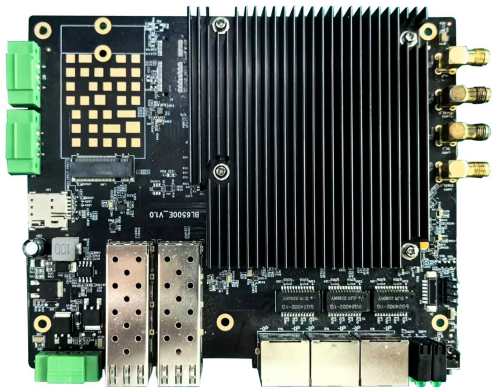
Additional Functions

Item	Specification
External network	PPPoE, static IP or DHCP for external network connectivity and routing
Wireless security	WPA / WPA2 / WPA3 Personal and Enterprise; TKIP / AES
AC and roaming proxy	Directed AC management using specified AC device information; cross-subnet roaming proxy to avoid interruption from delayed upstream forwarding-table updates
Firewall	IP filtering, MAC filtering, port forwarding, ARP binding and DMZ
Wireless user management	User and event management; allowlist/blocklist filtering; client online/offline notifications
Diagnostics and recovery	Wireless network diagnosis and selected network recovery operations; Ping and traceroute
Ring and VLAN	Ring redundancy to prevent network storms; VLAN for simplified network planning
Logging	Wireless user, system and serial logs; synchronization to a remote log server
WMM	Improved wireless transmission quality for voice, video and similar applications

Ordering Information

Model	2.4G/5G dual-band antenna connectors	Interfaces	Power	Wi-Fi
BL5000X	2	2	1	WiFi6
BL5000Air	2	2	1	WiFi6
BL6000Max	4	3 optical + 3 electrical	2	WiFi6
BL5300E	2	2	1	WiFi7
BL6500E	4	2 optical + 3 electrical	2	WiFi7

Product Appearance



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