AIRETOS C27 CLASS

# Wi-Fi 7 + Bluetooth® 6.0 Industrial Module Platform

**PRELIMINARY**

AIRETOS® C27 Class | Qualcomm® FastConnect™ C7700 | 2×2 MIMO | Tri-Band | PCIe + BT (UART/USB)

Wi-Fi 7 · BT 6.0 · INDUSTRIAL -40/+85°C · 2×2 · 320 MHz · TRI-BAND · MLO · WPA3 · BLE RANGING · WI-FI RANGING · WI-FI SENSING · AUX RADIO

- Tri-band Wi-Fi 7 (2.4 / 5 / 6 GHz) — 320 MHz channels, 4096-QAM, Multi-Link Operation; up to 5.76 Gbps PHY rate
- Bluetooth 6.0 with Channel Sounding, LE Audio and BLE Long Range (Coded PHY) — selectable UART or USB host interface
- Dedicated Wi-Fi Aux Radio (concurrent background scan / standby listen); 802.11az ranging and CSI-based sensing
- True industrial grade -40°C to +85°C | one 12 × 16 mm LGA core, three carrier form factors from a single design

## TECHNICAL SUMMARY

| | |
|---|---|
| **Silicon platform** | Qualcomm® FastConnect™ C7700 (QCC2072; pin-compatible QCC2070, 160 MHz, on request) |
| **Wi-Fi standard** | IEEE 802.11be/ax/ac/n/a/b/g (Wi-Fi 7) |
| **Frequency bands** | 2.4 GHz, 5 GHz, 6 GHz — tri-band, non-simultaneous |
| **Max PHY rate** | 5.76 Gbps (320 MHz, 2SS, 4096-QAM); 2.88 Gbps at 160 MHz |
| **Spatial streams** | 2×2 MIMO (2-stream) |
| **Channel width** | 20 / 40 MHz (2.4 GHz); up to 160 MHz (5 GHz); up to 320 MHz (6 GHz) |
| **Wi-Fi features** | MLO (eMLSR), MU-MIMO, UL/DL OFDMA, TWT, BSS Coloring, Preamble Puncturing |
| **Security** | WPA3-Personal / WPA3-Enterprise, WPA2, 802.1X, SAE |
| **RF output / RX sensitivity** | Key numbers in RF Performance table, page 2 |
| **Bluetooth** | 6.0 BR/EDR + LE — Channel Sounding, LE Audio (LC3), LE Long Range, LE 2M PHY |
| **BT host interface** | Selectable: UART or USB (firmware-selected per variant) |
| **Wi-Fi host interface** | PCIe Gen 3 ×1 (USB 3.0 and SDIO 3.0 variants on roadmap) |
| **Audio interfaces** | I2S / PCM; SoundWire (firmware support pending) |
| **Power supply** | 3.3 V single rail (tolerance per Device Specification), integrated PMU |
| **Operating temp** | -40°C to +85°C (Industrial Grade) |
| **Certifications — phase 1** | Being prepared: FCC (USA) · ISED (Canada) · CE/RED + EN 18031-1 (EU) · TELEC (Japan) |
| | NCC (Taiwan) · RCM (Australia/NZ) · SRRC (China) · KC (Korea) · ANATEL (Brazil) |
| **Certifications — phase 2** | Further markets on demand (e.g. Indonesia, Vietnam, India, Singapore, Mexico, Thailand) |
| **OS support** | Linux (Wi-Fi 7 driver + BT HCI), Windows 10 / 11 — under engagement |

## COMMERCIAL SUMMARY

| | | | |
|---|---|---|---|
| **Year Released** | 2026 | **Expected Lifespan** | 2036+ (YTEOL >10 yr) |
| **Production** | Eng. samples now | **Lead time** | At MP release |
| **Samples** | On request | **Certifications** | Being prepared (9) |

## COMPATIBLE ANTENNA OPTIONS

| Antenna series | Type | Band Coverage | Gain | Certification |
|---|---|---|---|---|
| **OXFORDTEC® WAPT** | Internal, PCB Dipole | 2.4 / 5 / 6 GHz tri-band | ≤ 4 dBi | Qualifying |
| **OXFORDTEC® WAFT** | Internal, FPC Dipole | 2.4 / 5 / 6 GHz tri-band | ≤ 4 dBi | Qualifying |
| **OXFORDTEC® WANT** | External, RP-SMA | 2.4 / 5 / 6 GHz tri-band | ≤ 4 dBi | Qualifying |
| **Embedded** | Chip antenna | 2.4 / 5 / 6 GHz tri-band | per design | On request |

*Additional antenna types available. Antenna pairing guidance on request; modular approvals and approved-antenna lists publish when granted.*

## DISTRIBUTION & SAMPLES

| | |
|---|---|
| **VOXMICRO direct** | Samples and evaluation quantities — airetos.voxmicro.com/C27-class |
| **DigiKey** | Listing in progress |
| **Arrow Electronics** | Listing expected — volume supply and design-in support |
| **Regional partners** | Authorised VARs, distributors and representatives worldwide |

| VOXMICRO MPN | Series | Wi-Fi I/F | BT I/F | Grade | Form Factor | Dimensions | Pins | RF | SPQ | MRSP |
|---|---|---|---|---|---|---|---|---|---|---|
| **ACB-QCC2072-1YIT** | C27B | PCIe | UART/USB | Industrial | LGA Chip-on-Board (solder-down) | 12 × 16 × ~2.1 mm | 108 | Trace | 500 | $39.95 |
| **AFR-QCC2072-1YI1** | C27R | PCIe | UART/USB | Industrial | M.2 2230 E-Key (socketed) | 22 × 30 mm | 67 | MHF1 | 60 | $44.95 |
| **AFM-QCC2072-1YI1** | C27M | PCIe | USB | Industrial | M.2 2242 B+M-Key (socketed) | 22 × 42 mm | 59 | MHF1 | 60 | $44.95 |
| **AEH-QCC2072-1YI1** | C27H | PCIe | UART/USB | Industrial | mPCIe Half-Mini (socketed) | 30 × 26.8 mm | 52 | MHF1 | 60 | $44.95 |
| **ACB-QCC2072-3YIT *** | C27B | SDIO 3.0 | UART | Industrial | LGA Chip-on-Board (solder-down) | 12 × 16 × ~2.1 mm | 108 | Trace | 500 | $39.95 |

*Suffix: host I/F 1 = PCIe · 3 = SDIO 3.0 (USB 3.0: part number on release) | Y = nominal RF grade | I = Industrial | T = trace (LGA), 1 = MHF1 | MRSP = suggested list price (USD) | * roadmap; part numbers provisional; on-carrier TBC*

### PILLAR 1 — Long-Range Bluetooth Ranging

Bluetooth 6.0 Channel Sounding for secure, accurate distance measurement, combined with BLE Long Range (Coded PHY) for extended-reach links — asset location, access control and proximity services in one radio.

### PILLAR 2 — Sensing & Location

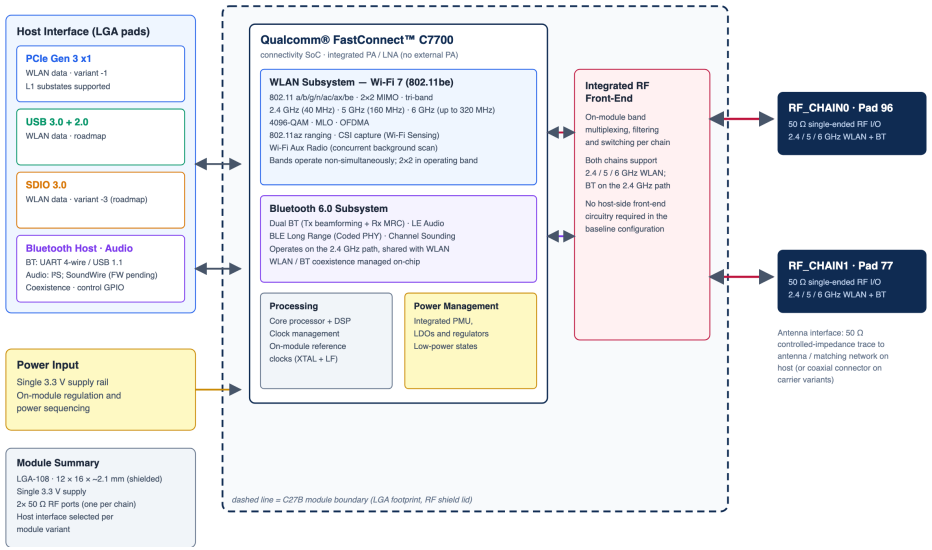
802.11az fine-timing ranging and channel-state (CSI) capture for Wi-Fi Sensing — presence, motion and positioning without extra sensors, on the same tri-band Wi-Fi 7 radio.

### PILLAR 3 — Wi-Fi Aux Radio

A dedicated auxiliary radio performs background scanning and standby listening while the primary radios sleep or carry data — faster roaming decisions and wake-from-sleep responsiveness.


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## Module Block Diagram — C27B (LGA core)




## Silicon Selection Guide

| Feature | QCC2072 | QCC2070 |
|---|---|---|
| **Bands** | 2.4 / 5 / 6 GHz | 2.4 / 5 / 6 GHz |
| **Max channel width** | 320 MHz (6 GHz) | 160 MHz |
| **Max PHY rate (2SS)** | 5.76 Gbps | 2.88 Gbps |
| **Wi-Fi standard** | Wi-Fi 7 | Wi-Fi 7 |
| **Bluetooth 6.0** | Yes | Yes |
| **Wi-Fi Aux Radio** | Yes | Yes |

*Pin-compatible silicon options on the same footprint and carriers.*

## RF Performance — Preliminary

| Parameter (per chain) | 2.4 GHz | 5 GHz | 6 GHz |
|---|---|---|---|
| **Wi-Fi TX — 11b 1 Mbps** | +22 dBm | — | — |
| **Wi-Fi TX — EHT40 MCS0** | +20 dBm | +18.5 dBm | +18 dBm |
| **Wi-Fi TX — EHT80 MCS0** | — | +18 dBm | +17.5 dBm |
| **Wi-Fi TX — EHT320 MCS0 / MCS13** | — | — | +16 / +11 dBm |
| **Wi-Fi RX — 11b 1 Mbps** | –96 dBm | — | — |
| **Wi-Fi RX — EHT20 MCS0** | –90 dBm | –90 dBm | –90 dBm |
| **Wi-Fi RX — EHT160 MCS0** | — | –81 dBm | –81 dBm |
| **Wi-Fi RX — EHT320 MCS0** | — | — | –81 dBm |
| **Bluetooth TX (Y grade)** | Class 1.5 | | |
| **Bluetooth RX — BR / LE 1M** | –94 to –96 dBm | | |

*Wi-Fi TX = production target power (±1.5 dB), to be confirmed on production units; RX = measured on engineering samples. Conducted, per chain, room temperature. Preliminary — final figures publish with the Device Specification. Ships as Y grade (Bluetooth Class 1.5). A Class 1 Bluetooth grade (+20 dBm) is planned.*

## Module Form Factor Gallery



**LGA CoB — C27B**
12 × 16 mm



**M.2 E-Key — C27R**
22 × 30 mm



**M.2 B+M-Key — C27M**
22 × 42 mm



**mPCIe Half-Mini — C27H**
30 × 26.8 mm

*Representative marking — regulatory identifiers shown in part; final marking per the certification grants.*

## QUALITY & RELIABILITY

| | |
|---|---|
| **Operating Temp** | -40°C to +85°C (Industrial Grade) |
| **Storage Temp** | -40°C to +125°C (target) |
| **MSL Rating** | Level 3 (LGA, target) |
| **Reflow** | IPC/JEDEC J-STD-020 (LGA, qualification pending) / N/A (socketed) |
| **MTBF** | TBC — publishes with the Device Specification |
| **Environmental** | RoHS 3 (EU 2015/863), REACH, lead-free SAC305 — design targets; declarations at MP |
| **Lifecycle** | YTEOL > 10 years; 12-month last-buy notice |

## SOFTWARE & BSP SUPPORT

| | |
|---|---|
| **Linux** | ath12k-based Wi-Fi driver + Qualcomm reference stack; BT HCI — STA + SoftAP |
| **Windows** | Windows 10 / 11 (x86-64) — Qualcomm driver package, under engagement |
| **Host platforms** | Arm64 and x86-64 Linux hosts; reference platforms on request |
| **BSP Pkg** | Wi-Fi + BT firmware, BDF, hostapd / wpa_supplicant, BT stack, test-mode — planned Q4 2026 |
| **BT audio** | I2S/PCM or HCI audio per host platform; SoundWire (firmware support pending) |
| **Features** | SoftAP, WPA3-SAE, MLO (eMLSR), OFDMA, TWT, 802.11az ranging, CSI capture — with the BSP |
| **Security** | Security bulletins + vulnerability handling per EU CRA readiness program |

## Target Applications

- Robotics, AGV / AMR & cobots
- Portable industrial & medical equipment
- Logistics & asset tracking
- Drones, UAVs & aerial platforms
- Smart factory & predictive maintenance
- Edge-AI gateways & inference appliances
- Smart buildings & occupancy sensing
- Transportation & fleet systems

**Ready to evaluate?**
Engineering samples available now to qualified industrial OEMs — contact the VOXMICRO sales team.
*Drop-in silicon options without host redesign; design-in documentation and support on request.*

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