Embedded Solutions
Start with Sierra
CELLULAR PORTFOLIO

ESSENTIAL CF3® MODULES
- 2G: EDGE, GSM, GPRS
- 3G: HSPA, HSPA+ with 2G fallback
- 4G: LTE Cat-1, Cat-4 with 2G/3G fallback

SMART CF3® MODULES
- 2G: EDGE, UMTS with 2G fallback
- 4G: LTE Cat-1, Cat-3, Cat-4 with 2G/3G fallback
- LPWA: LTE-M/NB-IoT with 2G fallback

PCI-SIG® MODULES
- LTE ADVANCED PRO
- 4G: LTE Cat-3, Cat-6, Cat-12 with 2G/3G fallback

SHORT RANGE/GNSS PORTFOLIO

WI-FI AND BLUETOOTH MODULES
- BX 3100
  - Wi-Fi / Bluetooth Combo
  - 802.11b/g/n with Bluetooth Classic and BLE

POSITIONING MODULES
- XM Series
  - GPS / GLONASS / BEIDOU / GALILEO
  - Single, dual, triple constellation, high-performance GNSS
- XA Series
  - Dual-Mode Bluetooth Classic and BLE

LPWA: LTE-M/NB-IoT with 2G fallback
CF3® enables flexibility to migrate between technologies and future-proof product designs

Common across product generations
Flexible to support any wireless technology
Form that scales between module families
Factor with defined footprints and pinouts

> RINGS A / C ensure fundamental electrical + functional compatibility between any CF3® module family with simple signal routing.

> RING A

> RING C
COMMON FORM FACTOR: Compact CF3® design to migrate between technologies and future-proof product platforms

APPLICATION PROCESSING: Dedicated ARM core application processor running Legato® open source software

OPEN HARDWARE: mangOH® reference design enables rapid prototyping with industrial-grade components to get you to market faster

EMBEDDED SIM: Ready-to-Connect solutions streamline operations and add future flexibility (optional)*

FOTA UPGRADES: FREE unlimited firmware over-the-air (FOTA) upgrades future-proof deployments and keep them secure

CLOUD CONNECTED: Securely collect data and remotely manage your IoT deployments with integrated AirVantage® cloud services

SECURE BOOT: Prevent unauthorized code on the target to keep your connectivity secure

ULTRA-LOW POWER MODE: Reduce power consumption by 200x for battery or solar powered applications

LOCATION SERVICES: Integrated GNSS receiver enables tracking and location-based services (optional)

INDUSTRIAL-GRADE: Tested for harsh environments and extreme temperatures

I/O INTERFACES: USB, UART, SDIO, HSIC, I2C, SPI, GPIO, ADC, PCM, to run an LCD screen, sensors, Wi-Fi, or BLE chips and more

*Not available on all module variants
**COMMON FORM FACTOR:** Compact CF3® design to migrate between technologies and future-proof product platforms

**ENHANCED COVERAGE:** Dual SIM single standby (DSSS) switches between networks quickly to stay connected

**EMBEDDED SIM:** Ready-to-Connect solutions streamline operations and add future flexibility (optional)*

**FOTA UPGRDES:** FREE unlimited firmware over-the-air (FOTA) upgrades future-proof deployments and keep them secure

**CLOUD CONNECTED:** Securely collect data and remotely manage your IoT deployments with integrated AirVantage® cloud services

**SECURE BOOT:** Prevent unauthorized code on the target to keep your connectivity secure

**LOCATION SERVICES:** Integrated GNSS receiver enables tracking and location-based services*

**TCP/IP STACK:** Embedded stack with TCP, UDP, FTP, HTTP, HTTPS for internet connectivity

**PROGRAMMABILITY:** Basic and Extended AT Commands simplify development

**INDUSTRIAL-GRADE:** Tested for harsh environments and extreme temperatures

**I/O INTERFACES:** SIM, UART, USB, ADC, GPIO, flash LED output, PWM (buzzer), and Tx Power indicator

*Not available on all module variants*
ENHANCED COVERAGE: Dual SIM single standby (DSSS) switches between networks quickly to stay connected

NETWORK SWITCHING: Switch networks anytime with up to three different certified firmware variants on board*

EMBEDDED SIM: Ready-to-Connect solutions streamline operations and add future flexibility (optional)*

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*Not available on all module variants
COMPACT, LOW-POWER POSITIONING MODULES DELIVERING HIGH-PERFORMANCE GNSS TRACKING WITH QUALITY PRECISION

MULTI-GNSS: Support for Single, Dual and Triple GNSS system combinations with ability to change default factory setting

POSITIONING: Improve accuracy and time-to-fix with AGPS, SBAS and EASY™

ANTI-JAMMING: Active interference cancellation with automatic detection and removal

ULTRA-LOW POWER: Reduce active tracking power consumption by up to 50% with GLP™

PROGRAMMABILITY: 15+ SDK commands to change default GNSS behavior and enable extended features

FULLY INTEGRATED: Built-in RTC Crystal, TCXO, SMPS, additional LNA and additional SAW-filter for best-in-class performance

ANTENNA: Variant options for internal or external antenna

INDUSTRIAL-GRADE: Tested for harsh environments and extreme temperatures

I/O INTERFACES: UART, I2C or SPI for communication and 1PPS for an accurate time-pulse output
COMMON FORM FACTOR: Compact CF3® form factor for scalability across technologies including cellular

HOSTLESS: Embedded TCP/IP and Bluetooth Stacks with simple UART interface makes it easy to integrate

FOTA UPGRADES: FREE unlimited firmware over-the-air (FOTA) upgrades future-proof deployments and keep them secure

CLOUD CONNECTED: Securely collect data and remotely manage your IoT deployments with integrated AirVantage® cloud services

SECURE BOOT: Prevent unauthorized code on the target to keep your connectivity secure

LOW POWER: Best-in-class low power when not transmitting in sleep and stand-by modes

ANTENNA: Variant options for internal or external antenna

CERTIFICATION: Full regulatory certifications for faster time to market

PROGRAMMABILITY: AT Commands enable easy integration to a host platform

INDUSTRIAL-GRADE: Tested for harsh environments and extreme temperatures

I/O INTERFACES: UART, I2C, SDIO or SPI (Multiplexed), I2S digital audio, GPIOs
**DUAL-MODE BLUETOOTH CLASSIC AND LOW ENERGY MODULE FOR HIGH-QUALITY AUDIO AND DATA**

- **AUDIO**: High-performance Bluetooth codecs for best-in-class audio streaming (optional)
- **HOSTLESS**: Embedded Bluetooth Stack with simple UART interface
- **INTEGRATED ANTENNA**: Integrated chip antenna to quickly add advanced wireless communications
- **CERTIFICATION**: Full regulatory certifications for faster time to market
- **INDUSTRIAL-GRADE**: Tested for harsh environments and extreme temperatures

**BLUETOOTH LOW ENERGY DATA ONLY MODULE**

- **HOSTLESS**: Embedded Bluetooth Stack with simple UART interface
- **INTEGRATED ANTENNA**: Integrated PCB antenna to quickly add advanced wireless communications
- **CERTIFICATION**: Full regulatory certifications for faster time to market
- **INDUSTRIAL-GRADE**: Built to stay connected in harsh environments and extreme temperatures
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