Flairmicro

慧翰微电子股份有限公司

Reliable Partner of IOT

CONTENT

1 **About Us**

2 **Product Introduction**

3 **Manufacturing**

1

About us

Company Profile

Flairmicro is an innovative corporation which focus on developing automobile wireless product and solution.

- ➤ HQ : Fuzhou
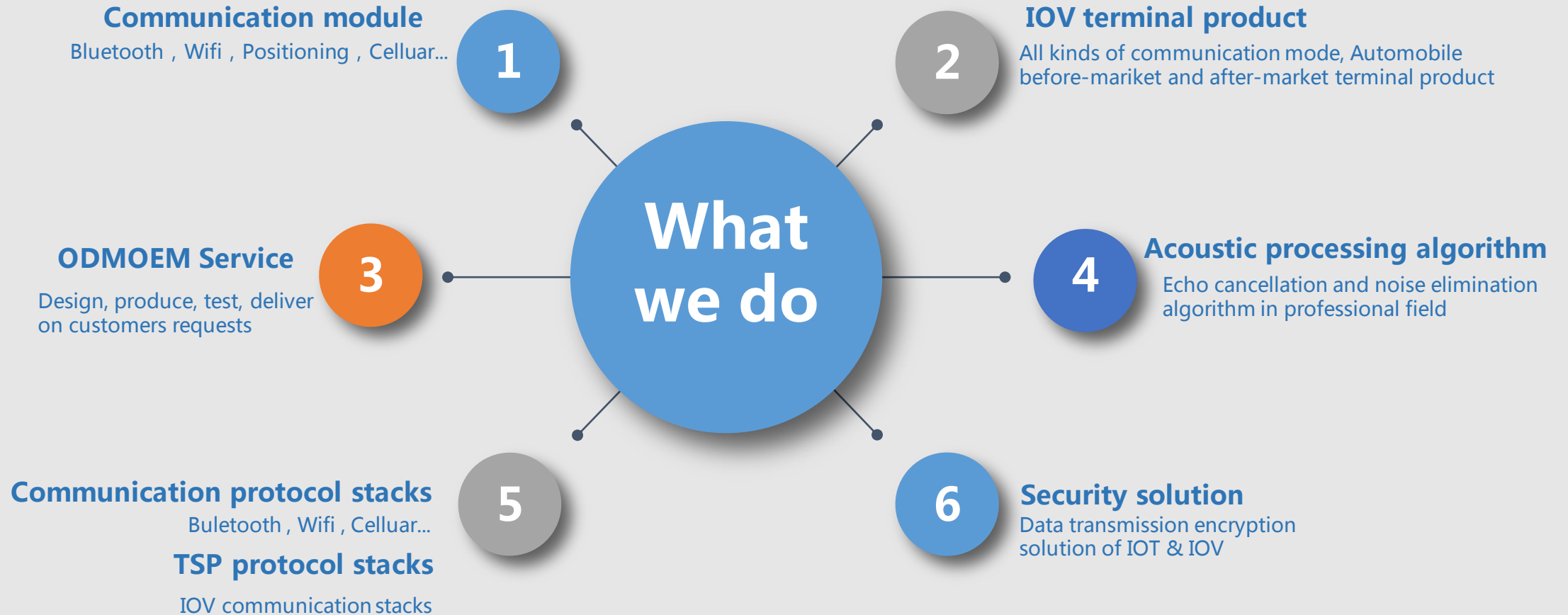- ➤ R&D : Shanghai, Xiamen
- ➤ Sales office: Shenzhen
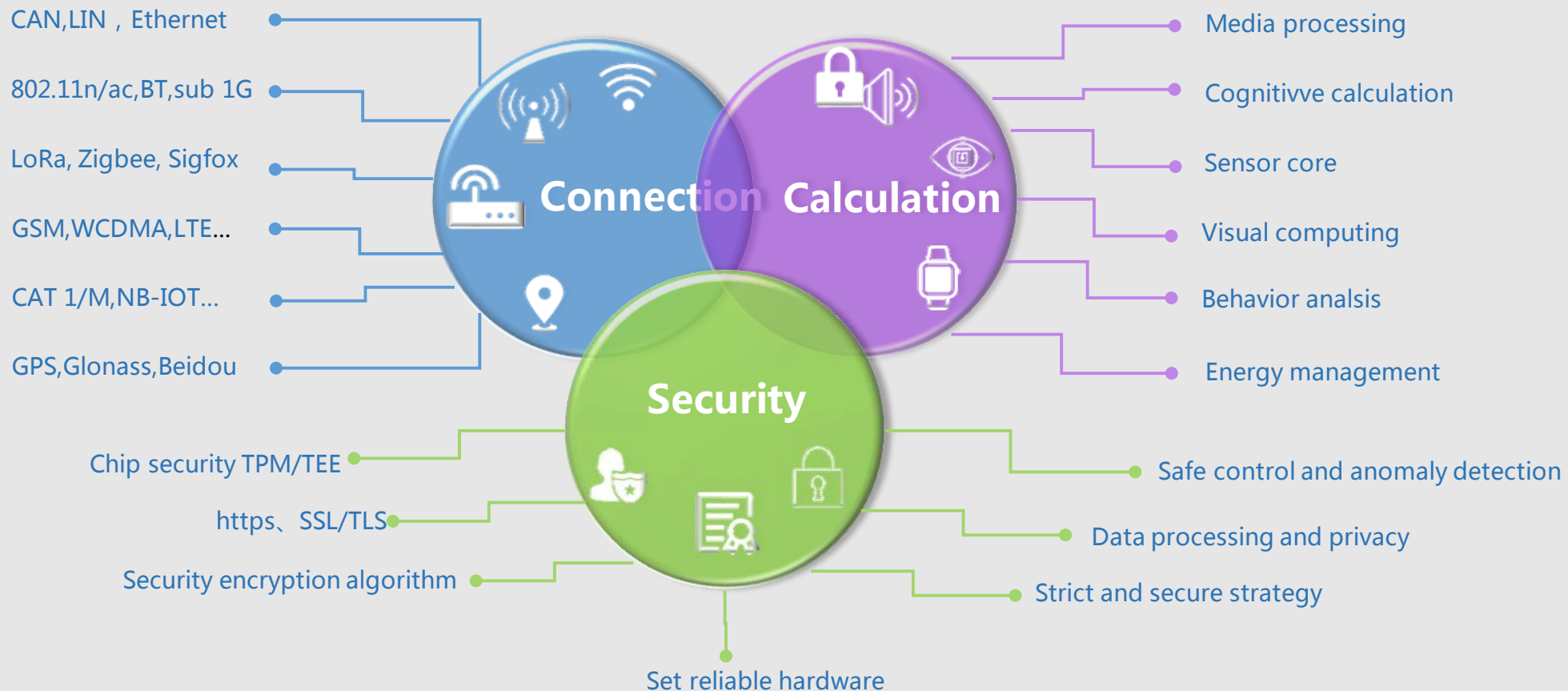
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01 **Fuzhou-HQ**

02 **Xiamen-IOT R&D**

03 **Shanghai-IOV R&D**

04 **Nanjing-Production base**

05 **Shenzhen-Sales office**

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Communication module

Bluetooth，Wifi，Positioning，Celluar...

1

2

IOV terminal product

All kinds of communication mode, Automobile before-mariket and after-market terminal product

ODMOEM Service

Design, produce, test, deliver on customers requests

3

What we do

4

Acoustic processing algorithm

Echo cancellation and noise elimination algorithm in professional field

Communication protocol stacks

Buletooth , Wifi , Celluar...

TSP protocol stacks

IOV communication stacks

5

6

Security solution

Data transmission encryption solution of IOT & IOV

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Key technology of IOT

Built intelligent and secure IOT world

CAN,LIN，Ethernet

802.11n/ac,BT,sub 1G

LoRa, Zigbee, Sigfox

GSM,WCDMA,LTE...

CAT 1/M,NB-IOT...

GPS,Glonass,Beidou

Connection

Calculation

Security

Media processing

Cognitivve calculation

Sensor core

Visual computing

Behavior analsis

Energy management

Chip security TPM/TEE

https、SSL/TLS

Security encryption algorithm

Safe control and anomaly detection

Data processing and privacy

Strict and secure strategy

Set reliable hardware

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IOT-Celluar module

IOV-TBox

IOT-short-distance communication module

Stacks & Algorithm

IOV-TBox

- Support all mainstream communication mode
- Ample input and output interface
- High-reliable and cost-effective
- Support e-Call
- Support built-in battery and antenna

IOT-Celluar module

- Support multiple communication mode
- Support three communication operators in China at the same time
- Through strict reliability testing
- Support software customize development
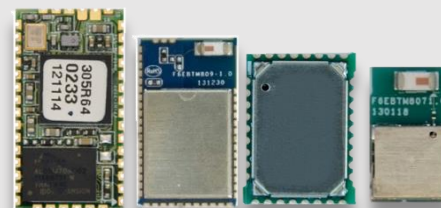
IOT-short-distance communication module

- Bluetooth, Wifi, Positioning...
- Meet strict requirement of automobile before-market
- Remarkable radio-frequency performance
- Reliable and simple interfaces

Stacks & Algorithm

- Stable and reliable communication profiles
- Outstanding acoustic algorithm
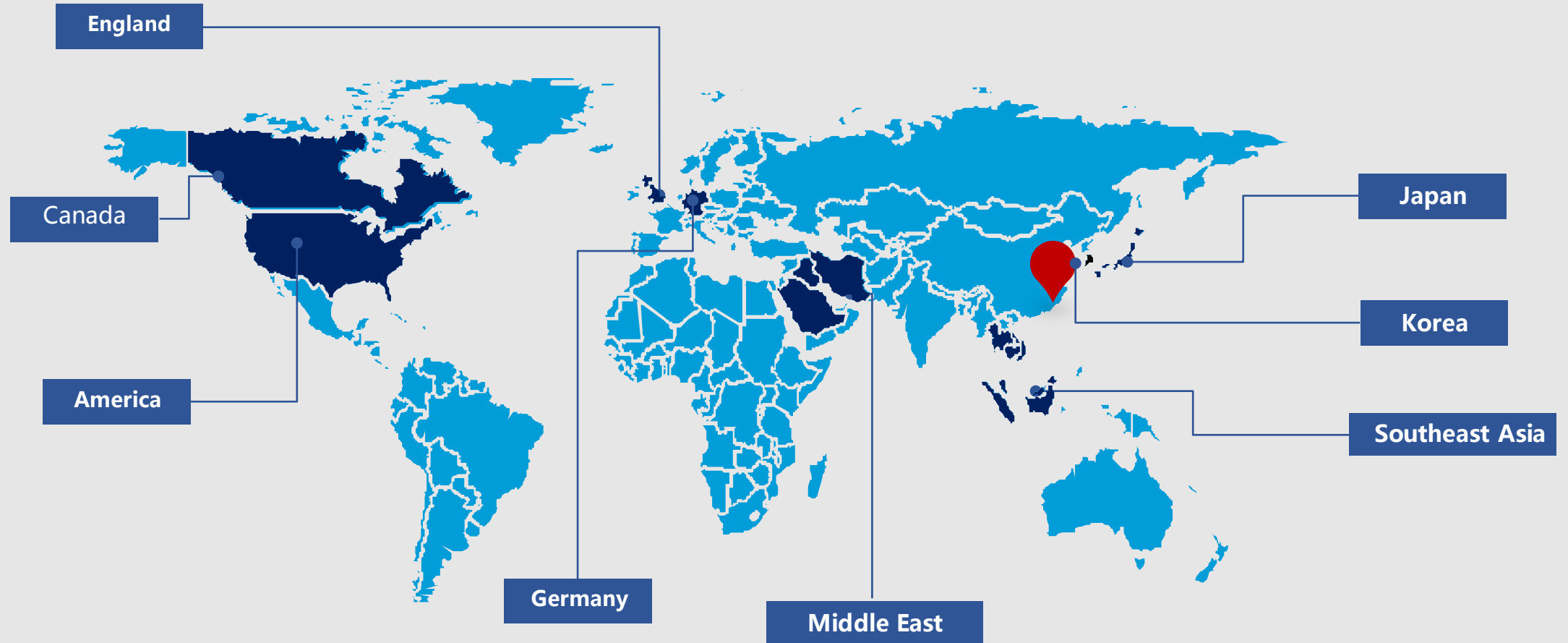- Secure and reliable vehicle communication profiles
- Customized service

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Qualification Certification

System certification
ISO9001、ISO14001、TS16949

Product certification
CE、IC、FCC、BQB...

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About us

England

Canada

America

Germany

Middle East

Japan

Korea

Southeast Asia

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2 Product

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Module Roadmap

M2M Roadmap

	In Production			2018	2019

BT FULL

CSR BC8 BTM8XX	CSR BC5 BTM5XX	CSR BC4 BTM4XX	CSR 1010 BTM10X
OV OVC3860 BTM04X	RDA RDA5856 BTM069	CSR 1024 BTM20X	

- Qualcomm Qcc300X BTM70X
- Nordic nRF52840 TBD
- Qualcomm CSR68100 BTM72X
- Nordic nRF52832 BTM020
- Qualcomm Qcc500X BTM71X

BT HCI

CSR BC6 BTM60X	CSR 8311 BTM808	CSR 8350 BTM818	CSR 8510 BTM804	CSR 8811 BTM805
Broadcom BCM89071 BTM081A	RDA RDA5875 BTM061	RDA RDA5876 BTM065	Cypress CY20713 BTM081B	

- Cypress CY8819 TBD BT5
- BT5.1 TBD

WIFI only

- ESPRESSIF ESP8266 WFM011/012
- Atheros AR6302 CBM2A1
- 802.11ac TBD
- 802.11ax TBD

Combo

TI WL183X CBM28X	TI WL187X CBM38X	TI WL1861 CBM581
Broadcom BCM88335 CBM251		

- Qualcomm QCA65X4AU TBD Ac & BT4.2
- Broadcom BCM88335 CBM251
- 802.11AX & BT5 TBD
- Broadcom BCM88335 CBM251

GNSS

- Unicore UC221 SLM301
- Allystar HD8020 SLM310
- Allystar HD8020D SLM311
- Allystar HD8089 TBD

Cellular

- VIA CDMA2000 EVDO MCM230
- Qualcomm 8215 GSM&WCDMA MCM530
- Qualcomm 9215 CAT3 LTE&WCDMA GSM MCM630A
- Qualcomm 9615 CAT3 LTE&WCDMA GSM&CDMA MCM63MA
- Qualcomm 9607 CAT4 LTE&WCDMA GSM&CDMA MCM63MB
- Qualcomm 9628 CAT4 LTE&WCDMA GSM&CDMA MCM63MC
- CAT-M NBIOT EMTC MCM83X
- Qualcomm 9X40 CAT6 LTE&WCDMA GSM&CDMA MCM64M
- Qualcomm 9150 V2X LTE&WCDMA GSM&CDMA MCM65M
- 5G TBD

Legend:
- BT Data Transmission
- BT Audio
- 802.11n
- 802.11ac
- 802.11ax
- 2G&3G Cellular
- 4G Cellular

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# 4G/LTE Multi-Band Module

FLC-MCM630A/B/C
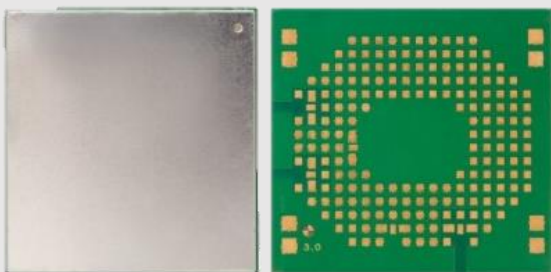
Feature

- Voice/SMS/MMS/Data
- Full telecommunications function support
- DOV support
- GNSS (AGPS)
- WiFi Access Point supported
- 3-Priority Smart Router
- NIC(Linux) & NDIS(Windows) Interface Support
- TTS/ASR (Optional)
- Support GSMA BIP

Specifications

- **Modem Technology**
  2G-GSM, 2G/3G-CDMA, 3G-TDSCDMA, 3G-UMTS/HSPA, 4G-LTE(TDD/FDD)

- **Frequency Bands**
  TDD/FDD-LTE： Band 38(2600MHz), Band 39(1900MHz), Band 40(2300MHz)
  Band 1(2100MHz), Band 3(1800MHz)
  UMTS： Band 1(2100MHz), Band 3(1800MHz)
  CDMA2000 1X & EVDO：BC0(800MHz)
  TD-SCDMA： Band 34(2000MHz), Band 39(1900MHz)
  GSM： Band 3(1800MHz)、Band 8(900MHz)

- **Mounting**
  Surface Mount (LGA)

- **Electrical Interfaces**
  USB2.0, HSIC

- **Operational temperature range**
  -40ºC to +85ºC (3.2 to 4.2V)

- **Chipset**
  Qualcomm MDM9615/9607/9628

- **Application Processor**
  Integrated ARM Cortex A5 Processor 500MHz~1.2GHz

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3G Multi-Band/Mode Module

FLC-MCM530
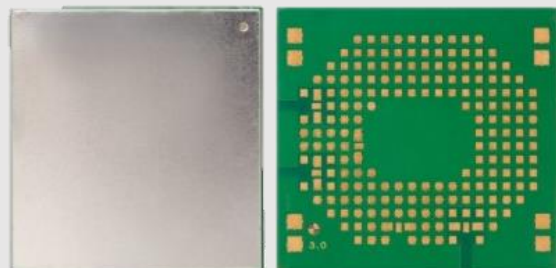
Features

- Voice/SMS/MMS/Data
- Full telecommunication functionalities
- DOV Supported for eCall
- GNSS: GPS/GLONASS/BD (optional)
- WiFi 802.11 a/b/g/n with SoftAP & WiFi Direct
- Bluetooth 2.1/3.0/4.0
- Noise Suppressing & Echo Cancelation
- Smart Routing Capabilities
- TTS/ASR (Optional)

Specifications

- Modem Technology
  2G-GSM, 2G/3G-CDMA, 3G-TDSCDMA, 3G-UMTS/HSPA, 4G-LTE(TDD/FDD)

- Frequency Bands
  UMTS :   Band 1(2100MHz), Band 3(1800MHz)
  GSM :   Band 3(1800MHz)、Band 8(900MHz)

- Mounting:
  Surface Mount (LGA, BGA, LCC, etc.)

- Electrical Interfaces:
  USB2.0, HSIC

- Operational Temperature Range:
  Normal: -30ºC to +75ºC
  Extended: -40ºC to +85ºC

- Chipset
  Qualcomm MDM8x15

- Application Processor Integrated ARM Cortex A5 Processor

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BT FULL Module

Dual mode BT5 Module

BTM70x Series

New !
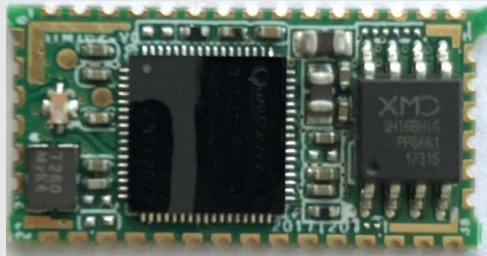
CSR solution

- A2DP (1.3.1)
- AVRCP (1.6)
- DUN /OTA
- HFP (1.7)
- HSP (1.2)
- PBAP (1.1)
- SPP (1.2)

- Size:23.7mmx12mmx2.2mm
- Chipset: CSR solution
- Flash: 16Mbits~32Mbit
- 80MIPS DSP
- Bluetooth Class 1.5 (30 meters)
- Temperature: -40℃ to +85℃
- BT Profiles: HSP/HFP, SPP, PBAP, A2DP and AVCRP
- UART interface to 3Mbits/s
- USB interface
- Built - in EC / NR

Features

- Phone book download
- Double Link
- SW upgradeable
- 128-bit Bluetooth encryption
- Accept/Reject/End Calls
- Last number redial
- Call waiting
- 3-Way calling
- Microphone mute/un-mute
- Caller ID/name display
- Voice dial
- Number dialing
- DTMF dialing
- Call history
- SMS indication

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BT FULL Module

BT 3.0 Module

BTM50x Series

FCC, CE, QDID Listed, VDA 1.6 Passed
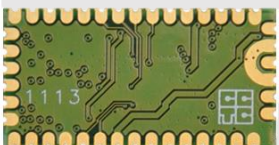
CSR BC5MM

- A2DP (1.2)

  AVRCP (1.5)
- DUN
- HFP (1.6)
- HSP (1.2)
- OPP (1.0)
- PBAP (1.1)
- SPP (1.2)

- Size: 3.7mmx12mmx2.2mm
- Chipset: BC5MM
- Flash: 16Mbits
- 64MIPS DSP
- Bluetooth Class2 (10meters)
- Temperature: -40℃ to +85℃
- BT Profiles: HSP/HFP, SPP, OPP, PBAP, A2DP and AVCRP
- UART interface to 3Mbits/s
- USB interface
- 14 GPIOs, 2 AIOs

Features

- Phone book download
- Double Link
- SW upgradeable
- 128-bit Bluetooth encryption
- Accept/Reject/End Calls
- Last number redial
- Call waiting
- 3-Way calling
- Microphone mute/un-mute
- Caller ID/name display
- Voice dial
- Number dialing
- DTMF dialing
- Call history
- SMS indication

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BT FULL Module

BT 4.0 Dual-mode Module-Industrial

BTM809

CSR 8670

- ➢ Dual-mode BT4.0 & BT3.0

- ➢ Stereo codec

- ➢ Latest CVC for NBS & WBS connections

- ➢ High performance

- ➢ BT Profiles: HSP/HFP, SPP, OPP, PBAP, A2DP and AVCRP

- ➢ Size: 20.8mmx11.8mmx2.7mm

- ➢ Chipset: CSR8670

- ➢ Flash: 16Mbits

- ➢ Bluetooth Class 2 (10 meters)

- ➢ Temperature: -40℃ to +80℃

- ➢ UART interface to 3Mbits/s

- ➢ Interface: USB , IIS , PCM , SPDIF,UART

- ➢ LED controllers

- ➢ Capacitive touch sensor inputs

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BT FULL Module

BT 4.0 Dual-mode Module-Consumer

BTM069
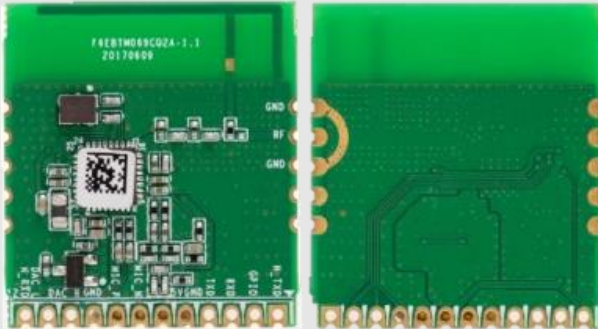
- Dual-mode BT4.2 +BR/EDR+BLE
- A2DP 1.2 , HFP 1.5 , AVRCP1.5
- Support MP3 , SBC , WMA ,ACC decoder
- Built-in 104MHz RISC MCU and 104MHz VoC DSP
- 16bit Stereo DAC
- 16bit Mono ADC

- Size: 25.6mmx28.3mmx2.45mm
- Chipset: RDA5856
- Bluetooth Class 2 (10 meters)
- Temperature: -20℃ to +65℃
- UART interface to 3Mbits/s
- Stereo output
- Mono MIC input
- Interface : UART , Analog ,

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BT FULL Module

BT 4.0 BLE only

BTM101
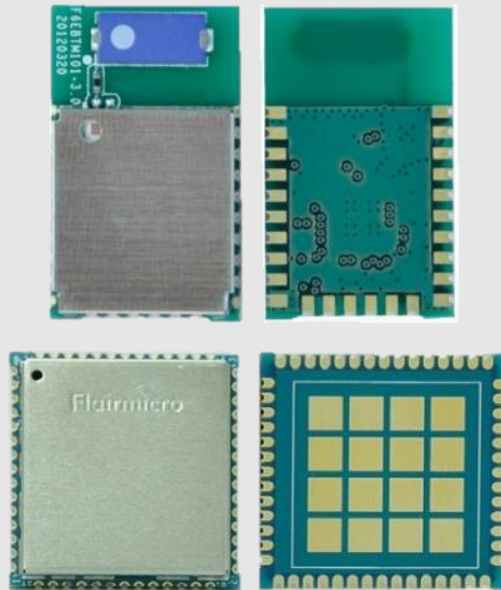
> BT4.0 BLE only

> Profile : ATT , GATT , SMP , L2CAP ,GAP

> Built-in 64KBRAM,64KBROM and 64KB EEPROM

> Built-in WDT ,10bit ADC and clock

> Size: 22mmx13.4mmx2.3mm

> Chipset: CSR1000 series

> Temperature: -30℃ to +85℃

> Interface : UART , ADC , PWM , IIC , SPI , IO

> BQB/FCC/CE
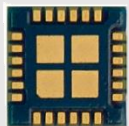
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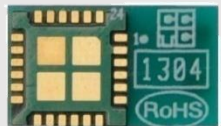
BT FULL Module

BT 4.2 BLE only

BTM201
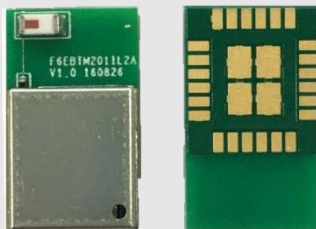
- BT4.2BLE only

- Profile : ATT , GATT , SMP , L2CAP ,GAP

- Built-in 80KBRAM,256KB

- Built-in WDT ,10bit ADC and clock

- G.722 Codec

- 4x Quadrature decoders

- Keyboard Scanner

- IR encoder

- IIC master controller

- Size: 18mmx10.6mmx2.7mm

- Chipset: CSR1024 series

- Temperature: -30℃ to +85℃

- Digital MIC input

- PWM Output

- Interface : UART , ADC , PWM , IIS , IIC , SPI

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BT HCI Module

BT 4.0 Module

BTM804/805

CSR 8811/8510

Very small Dual mode HCI module with and without antenna

- ➢ Fully qualified BT 3.0 –HS system

- ➢ Support BT 4.0 (low energy)

- ➢ Compliant to BT 2.1 + EDR

- ➢ High-sensitivity BT receiver

- ➢ Fully-speed BT operation with full piconet and scatternet support

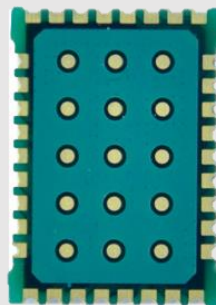- ➢ High-speed UART port (up to 4Mbps)

- ➢ PCM/I2S digital audio interface

- ➢ Size: 7mmx7mmx1.5mm without Antenna

- ➢ Size: 7mmx12mmx1.5mm with Antenna

- ➢ Chipset: CSR8811

- ➢ Host Interface: UART

- ➢ 5Mb ROM

- ➢ Wakeup Interrupt

- ➢ Debug SPI

- ➢ Bluetooth Class 1.5 (6dBm TX)

- ➢ BT Profiles: Up to HCI

- ➢ 5 GPIOs

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BT HCI Module

BT 4.0 Module – Automotive

BTM808

- Size: 23.24mmx12mmx2.0mm
- Chipset: CSR8311-Automotive
- Automotive Grade
- Temperature: -40℃ to +85℃
- BT2.1+EDR, BT3.0 – HS, BT4.0
- Class 1.5 (7.5dBm RF power)
- Two PCM/I2S digital audio interface
- HCI BT module
- UART and USB host interfaces

BTM081A/B

- Size: 23.24mmx12mmx2.0mm
- Chipset: BCM89071/CYM20713
- Automotive Grade
- Temperature: -40℃ to +85℃
- BT2.1+EDR, BT3.0 – HS, BT4.2
- Class 1.5 (7.5dBm RF power)
- Two PCM/I2S digital audio interface
- HCI BT module
- UART host interfaces

FCC, CE, QDID Listed   JAMA Passed

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BT HCI Module

BT 4.0 Module - Automotive

- Dual-mode BT 4.1

- 80MHz RISC MCU and 80MIPS Kalimba DSP

- Stereo/Dual-mono codec with 2 mic inputs and stereo audio output

- 2 mic CVC

- NBS &WBS

- SBC and aptX codec

- PCM&IIS digital audio interface

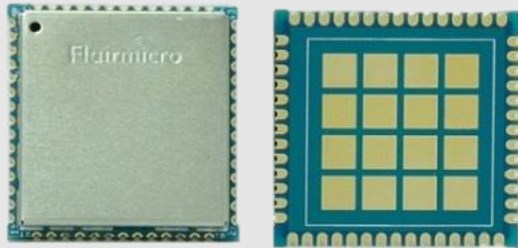- UART,USB,IIC

- Automotive grade
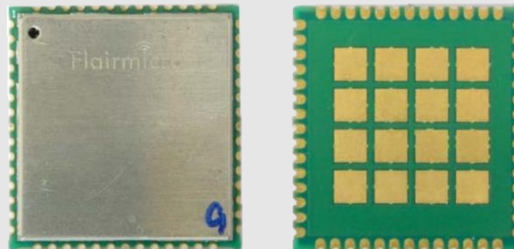
- Size: 21x20x2.8mm without Antenna

- Chipset: CSR8350

- Host Interface: UART/USB

- Wakeup Interrupt

- Debug SPI

- Bluetooth Class 1.5 (6dBm TX)

- BT Profiles: Up to HCI

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COMBO Module

802.11n+BT4.0+GNSS

Multi-Function Modules

CBM28X/38X Series

- With a unique 20mm x 21mm x 2.5mm packaging design, 12 multi-function combo modules offered by FLC-CBM28x/38x series are all pin-to-pin compatible. This design allows the user to add/remove features easily.

- Single module integrates all functionalities including WiFi, BT, BLE, GPS and Glonass

- Support full BT standards: BT2.1+EDR, BT3.0-HS and BT4.0-BLE

- With measurement and compensation, the RF performance are guaranteed for all modules within -40°C~85°C temperature range

- Automotive Grade modules with AEC-Q100 chipset built-in

  - Support GPS, GLONASS (Russian positioning system), QZSS (Quasi-Zenith Satellite System) and SBAS all at the same time

  - Support up to 36 satellites

  - 16 high-accuracy tracking channels (GPS, SBAS and QZSS)

  - 9 high-accuracy tracking channels (GLONASS)

  - Mechanism to coexist with and other wireless technologies

- Bluetooth Smart Ready (Full BT4.0 supported)

- BT, BLE Voice and WiFi can function at the same time, as well as can be prioritized by the coexistence mechanism

- Support SBC and WBS Voice Coding

- Support all BLE Profiles

- Up to 10 BLE devices can be connected

- 2.4G and 5G Dual Band WiFi

- Support 802.11a/b/g/n

- 20MHz Bandwidth (SISO and MIMO) (up to 144Mbps)

- 40MHz Bandwidth (SISO) (Up to 150Mbps)

- Support 802.11n MIMO (2.4GHz Band / 20MHz bandwidth)

- Encryption: WEP64/128, WPA, WPA2, KIP, CCMP(AES), WAPI

- Support 802.11d,e,h,i,k,r

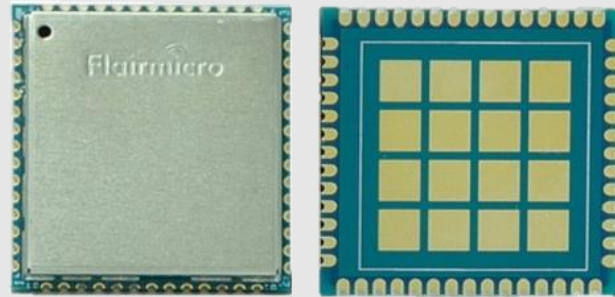- WiFi and BT/BLE Coexistence (Single 2.4GHz Antenna)

- High speed SDIO supported

Product Name		Features				
		WLAN			BT/BLE	GNSS
Automotive	Industrial	2.4GHz	5GHz	MIMO		
CBM383A	CBM383I	√	√	√	√	√
CBM283A	CBM283I	√	√	√	√	
CBM386A	CBM386I	√			√	√
CBM286A	CBM286I	√	√		√	
CBM387A	CBM387I	√			√	√
CBM287A	CBM287I	√			√	

COMBO Module

802.11ac+BT4.1

Multi-Function Modules

CBM251

- Bluetooth Smart Ready (Full BT4.1 supported)

- BT, BLE Voice and WiFi can function at the same time, as well as can be prioritized by the coexistence mechanism

- Support SBC and WBS Voice Coding

- Support all BLE Profiles

- 20mm x 21mm x 2.5mm

- Single module integrates all functionalities including WiFi, BT and BLE

- BT 4.1,WIFI2.4G and WIFI 5G use the same antenna interface

- 4-wire hight speed UART and includes PCM for audio

- With measurement and compensation, the RF performance are guaranteed for all modules within -40°C~85°C temperature range

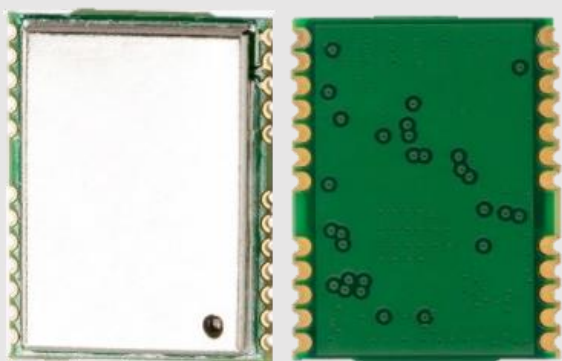- Automotive Grade modules with AEC-Q100 chipset built-in

- 2.4G and 5G Dual Band WiFi

- Support 802.11a/b/g/n/ac

- Support 20,40 and 80MHz channels

- 40MHz Bandwidth (SISO) (Up to 433.3Mbps)

- Encryption: WPA, WPA2,

- WiFi and BT/BLE Coexistence (Single 2.4GHz Antenna)

- High speed SDIO supported (SDIO V3.0)

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GNSS Module

Beidou + GPS

Dual-Mode Positioning Modules

SLM310

- 16mm x 12.2mm x2.4mm
- Chip:HD8020
- Support GPS L1 & BD2 B1
- Positioning precision:2.5m CEP,SBAS 2.0m CEP
- Equipped with backup power input interface , enabling warm start
- Enable antenna status detection and short-circuit protection
- Interfaces : UART , IIC

Standards	Bands
GPS	L1(1575.42.MHz)
Beidou	B1(1561.098MHz)

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03 Manufacturing

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Production base : Fuzhou Institute of Technology

Lianjiang plant was established in June 2015, and completely in accordance with the production requirements of microelectronic products, including SMT, Test, Assemble workshop... all of the production and testing equipments are top-ranking. And it's TS16949, ISO9001, ISO14001 certified.

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