



Driving IC Innovation



Technology Day

Bluetooth

www.RealMCU.com



Realtek Bluetooth Everything Everywhere

三種方案 x 多元應用 x 全面覆蓋



► Audio ► Entertainment ► Health Care ► Industry ► Smart Home

1

WorkerBee
Host
Transceiver

- The Best BT5 Transceiver worldwide
- No MCU

2

HoneyBee
Data
Connectivity
MCU

- Design for Low power consumption application.
- BLE + MCU + Rich Peripheral

3

BumbleBee
Audio
Connectivity
Multimedia

- Design for Multimedia application
- BT + MCU + DSP + Codec



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Honey BEE: Connectivity MCU World

More MCU: Redefining MCU with Connectivity, 不只藍牙,更多MCU功能, 串接呈現全世界

Realtek Bluetooth MCU Feature Roadmap				2021	2022	2023	
Interface	Feature	Spec	Product	RTL8762C/D	RTL8762E/RTL8762H	RTL8772F	RTL8762G
Application				Wearable/RCU/ Dashboard/Lock	RCU/ESL/HID	High End Wearable	Wearable/IOT/HID/ Dashboard/Lock
RF Architecture				TPM v2.0 TX:8dbm	TPM v3.0 TX:8dbm	TPM v3.0+IQM For lagacy and BLE	TPM v4.0 TX1:3dbm, TX2: 14dbm(max)
Connection			Low power design				
	Bluetooth BLE	Bluetooth Spec	General	BLE5.2	BLE5.2/BLE5.3	BT5.3 (Classic/BLE Audio)	BLE5.3
	Ethernet MAC		IoT				Ethernet for (IoT)
	80215.4		IoT				Zigbee, Matter
Display	2.4G Proprietary		Mouse/HID/ES:L		2.4Ghz for ESL/HID		2.4Ghz for HID
	WiFi interface	SDIO, Co-existence	High End Wearable			WiFi interface	
	320x320 TFT	I8080	Wearable/E-Scotter	I8080, 20MHz	I8080, 20MHz	I8080, 50MHz	I8080, 50MHz
	454x454 TFT	QSPI	Wearable/E-Scotter	3xQSPI, 45MHz		4xQSPI, 100MHz	3xSPIC, 100MHz
Display Effect	480x480 AMOLED	MIPI:DSI,2-lane, 500Mbps 4MB RAM	High End Wearable			MIPI, 500Mbps	
	RAMLess LCD (Cheaper)	QSPI Display Controller	Wearable/E-Scotter				Display Controller
	SEG-COM DTR LCD	Difference Screen (斷碼屏)	IOT(86盒) (Home Box)				SEG-COM
	(Faster reflash rate)	QSPI supports DTR	Wearable/E-Scotter				SPIC w/DTR
Display Effect	2.5D GPU	GCNanoUltraV	High End Wearable			2.5D	
	DMA2D		High/Mid End Wearable				2D
DSP	Audio	Hifi 1, 200MHz	High End Wearable			HIFI mini	
AuxADC(Accuracy)	ADC	12bit	General Purpose		10bit		
		24bit	Medical				Medical (24bit)
Secuirty	SecureBoost	Amazon/Google	RCU				
	TrustZone	General	Hign End Wearable			TrustZone	TrustZone
Codec	ADC		RCU/Wearable	Voice	Voice	Voice/VAD	Voice
	DAC		Door Lock/Weable			Voice/Music	Voice
USB Interface							USB High Speed

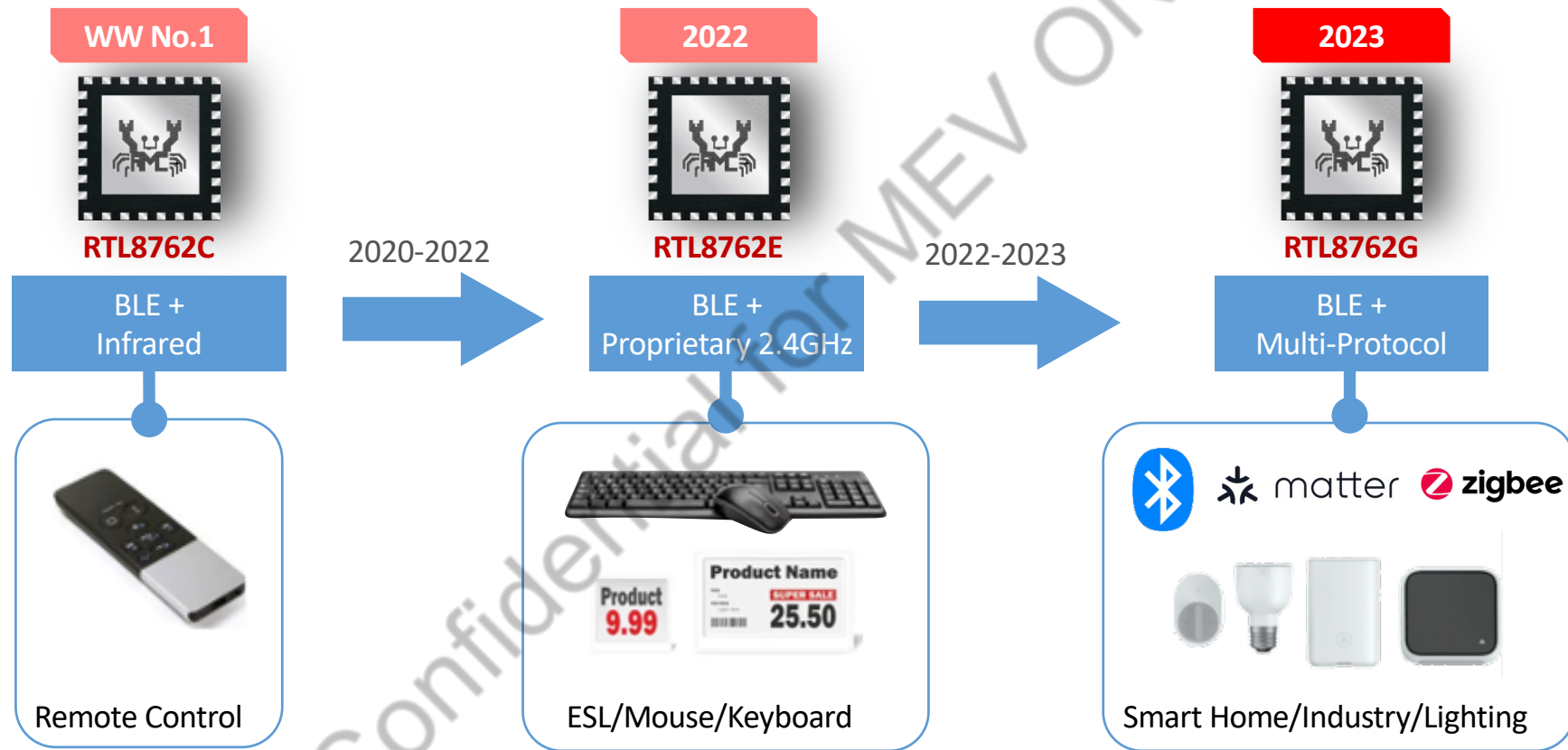


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Connectivity MCU World: Multi-Protocol

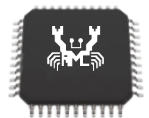
More Connection: 不只藍牙, 多模式無線方案, 串接全世界



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Connectivity MCU World: Multi-Protocol RTL8762G – 8Kx4K High-end Gaming HID (2023 New Product)

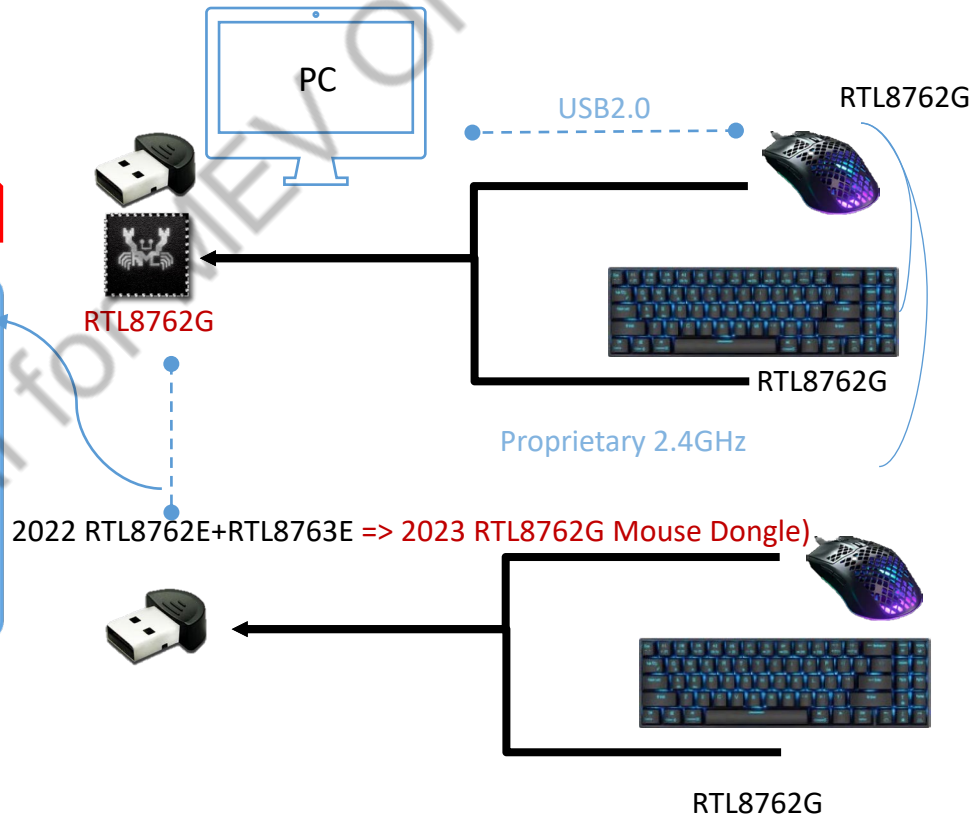


RTL8762G

Bluetooth 5.3

2023 Q2

- USB + BT + Proprietary 2.4GHz (3-in-1)
- USB2.0 High Speed
- 8K reporting rate by USB
- 4K reporting rate by Proprietary 2.4GHz
- Low Latency < 1ms
- 10 PWM for LEDs



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Proprietary 2.4GHz

Connectivity MCU World: Low power consumption platform RTL8762E – Apple Find My Card

Hot Application: Find My tag or Card, Realtek is one of Apple Find My eco-system partners.



- BLE MCU w/ Apple Find My protocol
- Battery Runtime: Up to 6 months
- Supports Small Package (QFN24, 3mm x 4mm)
- Light Blinking and Sound for finding
- Supports IP68

2023 MP

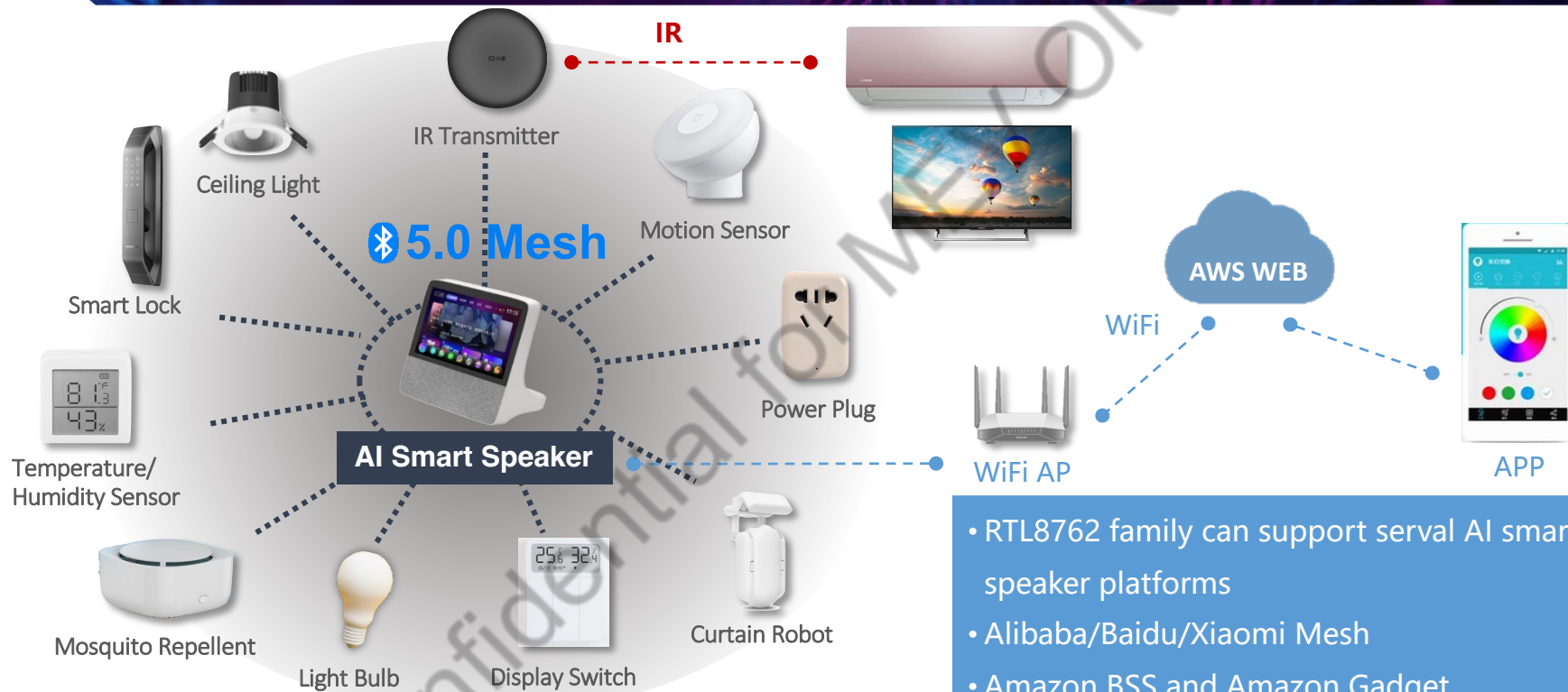
Bluetooth 5.2



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Connectivity MCU World: Low power consumption platform RTL8762CMF BLE SoC Solution on Smart Home



- RTL8762 family can support several AI smart speaker platforms
- Alibaba/Baidu/Xiaomi Mesh
- Amazon BSS and Amazon Gadget
- Apple Homekit

* All Products with RTL8762CMF inside



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Connectivity MCU World : MultiCore + Rich GUI + Rich Peripheral

RTL8762/63 Wearable Solution Roadmap

Now

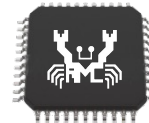
Bluetooth 5.3
Dual Mode



Personal Assistant
Call and Music

RTL8763E

Bluetooth 5.3
Dual Mode



Personal Center
2.5D GPU, AI

RTL8772F

- 4-Core MCU/DSP/GPU system
- KM4w/MVE (CM55 like) 200MHz +
- KM0 (CM23 like) 40MHz +
- Tensilica HiFi-one DSP 320MHz
- 2.5D GPU, 640x480, VGA res. video
- Trustzone for Security
- 5MB SRAM
- RF TX@0dB 4mA, RX 3.5mA (Target)
- Up to 120 GPIO

Q2

Bluetooth 4.2



Healthy
Steps, Sleep, HRD

RTL8762A

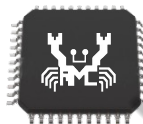
Bluetooth 5



Large Panel
320x320 TFT

RTL8762C

Bluetooth 5.1



High Resolution
454x454 AMOLED

RTL8762D

2015

2018

2020

2022

2023



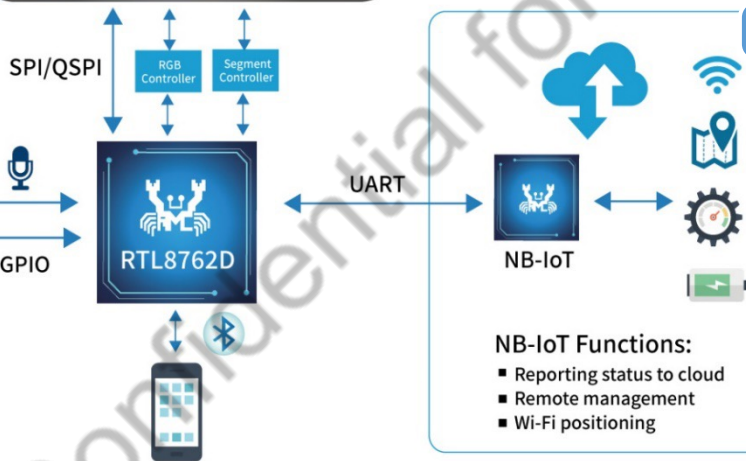
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Connectivity MCU World : MultiCore + Rich GUI + Rich Peripheral RTL8762DW/DK - E-Scooter/Bike dashboard

454 x 454 High resolution
TFT / AMOLED display



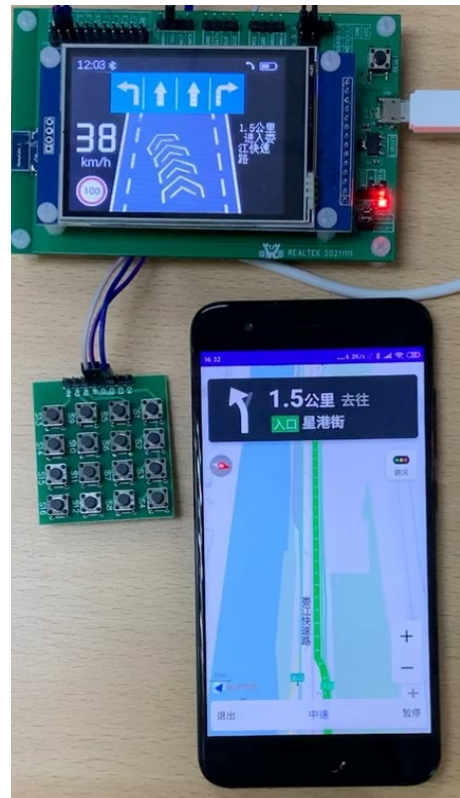
- freeRTOS inside
- Navigation notification
- Message notification
- Calling notification
- Phone call answering control
- Voice assistant



Apple FindMy

NB-IoT Functions:

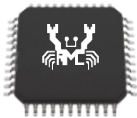
- Reporting status to cloud
- Remote management
- Wi-Fi positioning



More info.: <https://www.realmcu.com/en/blog/blog/46f405d6-35be-4f20-b160-2bcc9e5b3d9b>

RTL8762E - ESL (Electronic Shelf Labels)

Hot Application: ESL, Realtek ESL solution in Europe now



RTL8762E

Bluetooth 5.2 + 2.4G

- BLE5.2 + 2.4GHz proprietary
- Cortex M0+ 40MHz, 104KB SRAM
- Application ESL (2.4GHz) in Europe now
- ESL Battery Life >7years
- RTL8762H (2023Q2) for longer battery life
 - DLPS <1.4uA
 - Advertising <14uA



- Ultra Low Power Consumption
- Supports 2.4GHz Proprietary and BLE



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Connectivity MCU World: Multi-Protocol RTL8762E – HID Device (BLE+2.4Ghz)

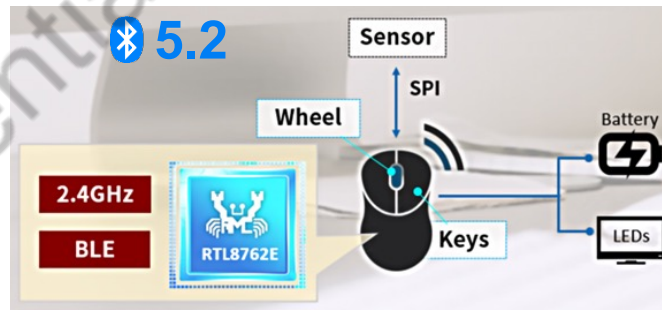
More possibility: 有更高自由度，能夠輕鬆實現自訂通信協議，滿足超低功耗和高性能要求。

- Keyboard 、 Mouse Human Interface Device (HID) application

- ◆ 2.4GHz proprietary ⇔ BLE (Bluetooth low energy) switching
- ◆ Multi-device switching : Windows/iOS/Android/Mac
- ◆ Ultra-low power : TX 5.9mA @0dBm, RX 5.3mA , longer usage
- ◆ Low latency : <1ms

- Feature :

- ◆ ARM Cortex-M0+, 40MHz
- ◆ 104kB SRAM, 1MB Flash MAX
- ◆ 2 Channel Rx Simultaneous
- ◆ Audio ADC for Voice input



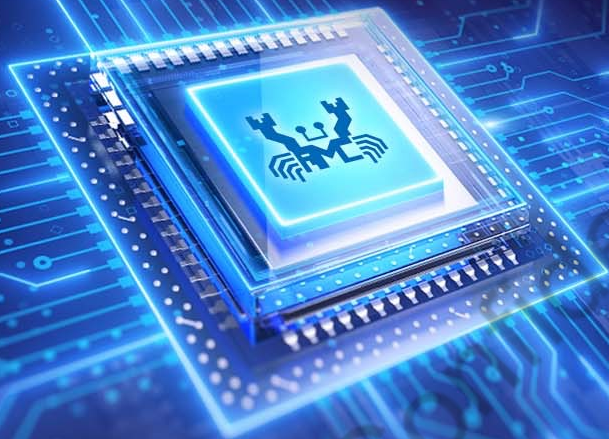
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Thank You



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