

Realtek WiFi NIC Roadmap Update

2022/12/23

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WiFi NIC for PC/NB

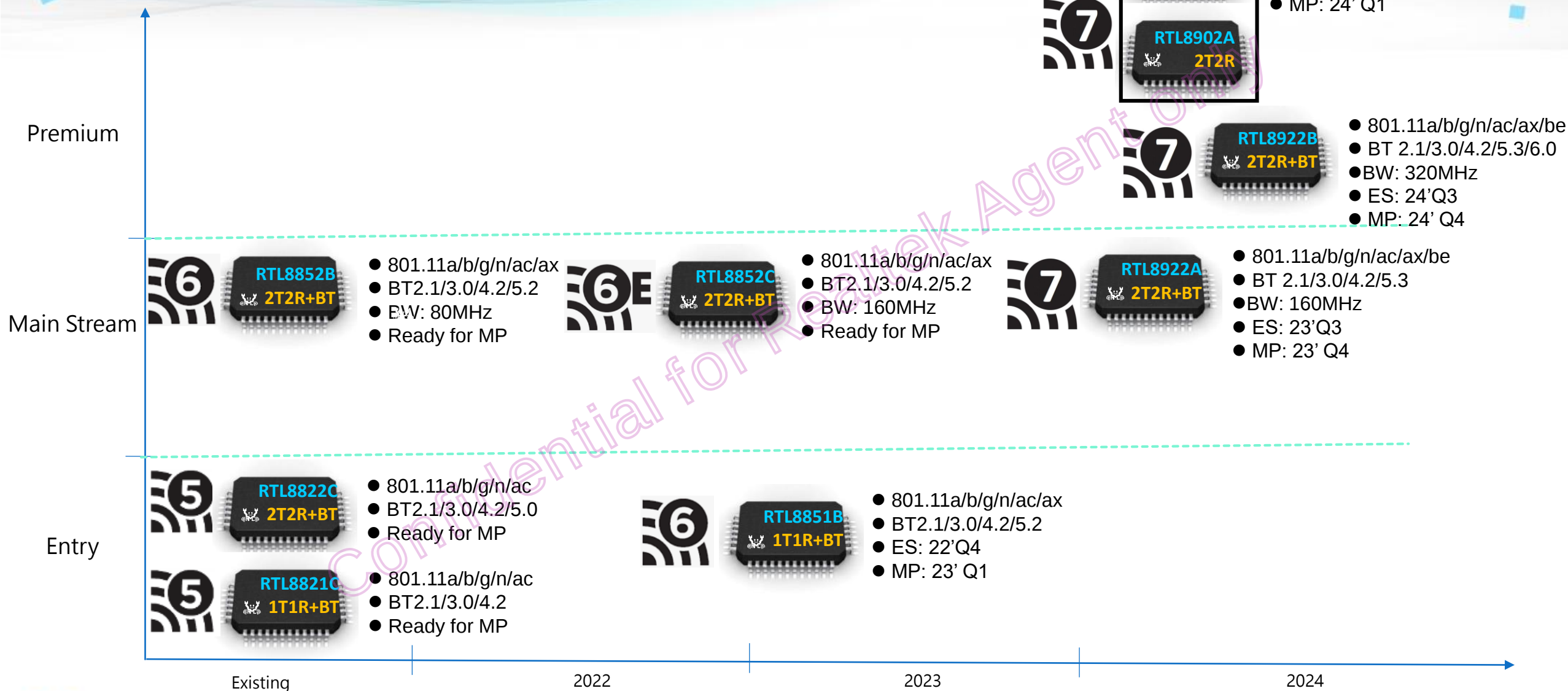
JC_Chien
2022/12/23

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WLAN NIC Product Roadmap

AP and High-End NIC



2021	2022
MP ● 802.11ax/ac/a/b/g/n, 2x2 ● 11ax, 1024 QAM ● 80MHz BW/2SS, 1.2Gbps PHY ● BT5.2 ● ES: July, 2021 ● MP: Sep, 2021	MP ● 802.11ax/ac/a/b/g/n, 2x2 ● 11ax, 1024 QAM ● 160MHz BW 2SS (2.4Gbps PHY) ● 6G (iFEM) ● DBCC ● BT5.3 ● ES: Q1, 2022 ● MP: Q2, 2022

Wi-Fi 7 Solutions

① Main Stream NIC



- 802.11be/ ax/ac/a/b/g/n
- 2x2 or 1x1+1x1
- 4096 QAM
- iFEM/eFEM
- 160MHz BW 2SS (2.88Gbps PHY) or 160MHz BW 1SS + 160MHz BW 1SS
- BT6.0
- ES: Q3/ 2023
- MP: Q4/ 2023
- Interface
 - PCI-e Gen2 1-lane
 - USB 3.2 Gen 1x1
 - USB 2.0
 - SDIO 3.0
 - HS-UART

②Main Stream Router/High End NIC



- 802.11be/ ax/ac/a/b/g/n
- 2x2 + 2x2
- 4096 QAM
- iFEM/eFEM
- 2SS 160MHz @5G/6G + 2SS 80MHz @2.4G/5G
- BT6.0
- ES: Q4/ 2023
- MP: Q1/ 2024
- Interface
 - PCI-e Gen2 2-lane
 - USB 3.2 Gen 1x1
 - USB 2.0
 - SDIO 3.0
 - HS-UART

WiFi USB Dongle

Nero Huang

2022/12/23



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USB Dongle: Realtek WiFi Roadmap

Existing

2022

2023

2024

Wi-Fi7



- 802.11be/ax/ac/a/b/g/n
- 2T2R TB (6GHz)
- 4096 QAM
- 160MHz BW
- USB3.0
- Auto-Installation
- ES @23Q4, MP @24Q1

Wi-Fi 6/6E



- 802.11ax/ac/a/b/g/n
- 2T2R DB
- USB3.0
- Auto-installation



- 802.11ax/ac/a/b/g/n
- 2T2R TB (6GHz)
- 160MHz BW
- USB3.0
- Auto-installation
- ES @ 22 Nov, MP @23 Feb

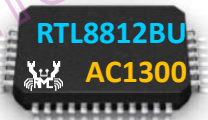


- 802.11ax/ac/a/b/g/n
- 1T1R DB
- USB2.0
- BT5.3 (Optional, RTL8851BU)
- Auto-installation
- ES @ 23Feb, MP @ 23 May

Wi-Fi 4/5



- 802.11ac/a/b/g/n
- 1T1R DB
- Auto-installation



- 802.11ac/a/b/g/n
- 2T2R DB
- USB3.0

Auto-installation



- 802.11ac/a/b/g/n
- 2T2R DB
- USB2.0
- Auto-installation



- 802.11b/g/n
- 1T1R SB
- Auto-installation



- 802.11b/g/n,
- 2T2R SB
- Auto-installation

WiFi NIC for IPcam

Mike Yeh

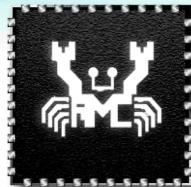
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Realtek WLAN Roadmap – MP Products (WiFi4)

Value
802.11n
Dual Bands



RTL8733B (1T1R+BT)

- 802.11abgn, 2.4G/5G Hz
- [BT 2.1/3.0/4.2/5.0/5.2](#)
- USB 2.0 (BT5.2): 8733BU
- SDIO+UART/PCM (BT5.2): 8733BS



RTL8731B (1T1R)

- 802.11abgn, 2.4G/5G Hz
- USB 2.0 (HT40): 8731BU

Value
802.11n
Single Band



RTL 8188F (1T1R)

- 802.11n, 40MHz/20MHz BW
- USB 2.0 (HT40): 8188FTV-VC



RTL 8189F (1T1R)

- 802.11n, 40MHz/20MHz BW
- SDIO (HT40): 8189FTV-VC



RTL 8723D (1T1R+BT)

- 802.11n, 40MHz BW
- [BT 2.1/3.0/4.2](#)
- USB2.0: 8723DU
- SDIO+UART: 8723DS



RTL 8192E (2T2R)

- 802.11n, 40MHz BW
- USB 2.0: 8192EU
- SDIO: 8192ES

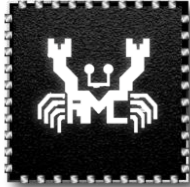


RTL 8192F (2T2R)

- 802.11n, 40MHz BW
- USB 2.0: 8192FC
- SDIO: 8192FS

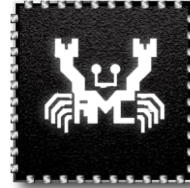
Realtek WLAN Roadmap – MP Products (WiFi5)

Performance
802.11ac
Dual Bands



RTL 8811C (1T1R)

- 802.11n/ac, 80MHz BW
- MU-MIMO,
- USB 2.0: 8811CU



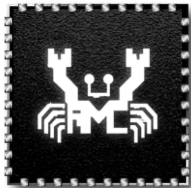
RTL 8812C (2T2R)

- 802.11n/ac DB, 80MHz BW
- MU-MIMO, 20/40/80MHz BW
- USB 2.0: 8812CU



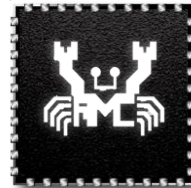
RTL 8812E (2T2R)

- 802.11n/ac DB, 80MHz BW
- MU-MIMO, 20/40/80MHBW
- USB2.0: 8812EU
- ES/ MP: Q2 2022/ Q3 2022



RTL 8821C (1T1R+BT)

- 802.11n/ac, 80MHz BW
- MU-MIMO
- [BT 2.1/3.0/4.2](#)
- **USB 2.0: 8821CU**
- **SDIO+UART/PCM: 8821CS (& -VI)**



RTL 8822C (2T2R+BT)

- 802.11n/ac DB, 80MHz BW
- MU-MIMO, 20/40/80MHzBW
- BT 2.1/3.0/4.2/5.0
- USB2.0: 8822CU
- SDIO+UART/PCM: 8822CS



RTL 8822E (2T2R+BT)

- 802.11n/ac DB, 80MHz BW
- MU-MIMO, 20/40/80MHz BW
- [BT 2.1/3.0/4.2/5.3](#)
- USB2.0: 8822EU
- SDIO+UART/PCM: 8822ES
- ES/ MP: Q2 2022/ Q3 2022

Realtek WLAN Roadmap – New Products (WiFi6/6E)

Now

H1 2023

H2 2023

H1 2024

H2 2024



RTL8852B
(2T2R+BT)

- 802.11ax, 2x2.4G/5G Hz
- MU-MIMO, OFDMA, 1024QAM, DCM
- BT 2.1/3.0/4.2/5.0/5.2



NEW



RTL8852BP
(2T2R+BT)

- 802.11ax, 2x2, 2.4G/5G/6G Hz
- MU-MIMO, OFDMA, 1024QAM, DCM
- BT 2.1/3.0/4.2/5.0/5.2
- ES/ MP: Q1 2023/ Q2 2023



NEW



RTL8851B
(1T1R+BT)

- 802.11ax, 1x1 2.4G/5G Hz
- MU-MIMO, OFDMA, 1024QAM, DCM
- BT 2.1/3.0/4.2/5.0/5.3
- ES/ MP: Q1 2023/ Q2 2023



NEW



RTL8851E
(1T1R+BT)

- 802.11ax, 1x1 2.4G/5G Hz
- MU-MIMO, OFDMA
- BT 2.1/3.0/4.2/5.0/5.3
- ES/ MP: Q4 2023/ Q1 2024



NEW



RTL8850F
(1T1R+BLE)

- 802.11ax, 1x1 2.4G
- MU-MIMO, OFDMA
- BLE 4.2/5.0
- ES/ MP: Q3 2023/ Q4 2023

Performance
802.11ax
Dual Bands
/Triple Bands

WiFi NIC for TV

Patrick Tsai

2022/12/23

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RTK WiFi in TV Roadmap

2022

2023

2024



RTL8852BU-VS

- **WiFi 6**
- **2x2+BT5.2**
- **USB2.0**



RTL8822CU

- **WiFi 5**
- **BW 20/40/80**
- **2x2+BT5.0**



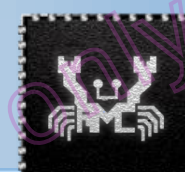
RTL8822EU

- **WiFi 5**
- **BW 20/40/80**
- **2x2+BT5.2**
- **LE Audio**



RTL8851BU

- **WiFi 6**
- **HE 20/40/80**
- **2GHz/5GHz**
- **1x1+BT5.3**
- **LE Audio**



RTL8922A

- **WiFi 7**
- **802.11be 2T2R**
- **MLO**
- **HE 20/40/80/160**
- **BT 6.0**
- **I/O: USB/PCIe**



RTL8192FC

- **WiFi 4 SB**
- **2x2**



RTL8723DU

- **WiFi 4 SB**
- **1x1+ BT4.2**



RTL8733BU

- **WiFi 4 Dual-band**
- **2GHz/5GHz**
- **BW 20/40**
- **1x1+ BT5.1**

WiFi NIC for STB

Gary Gao

2022/12/23

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- 802.11ax, 2T2R
- 80MHz BW/2SS (1.2Gbps PHY)
- BT5.2
- Interface USB/PCIe/SDIO



- 802.11ac, 2T2R
- 80MHz BW/2SS (866Mbps PHY)
- BT5.2
- Interface SDIO/USB



- 802.11ax, 1T1R
- 80MHz BW/1SS (600Mbps PHY)
- BT5.3
- Interface USB/PCIe/SDIO
- ES Jan/2023, MP Mar/2023



- 802.11ax, 2T2R
- 2.4G/5G/6G (iFEM)
- BT5.2
- 80MHz BW(1.2Gbps PHY)
- Interface USB/PCIe/SDIO
- ES: Nov /2022
- MP: Jan/2023



- 802.11ax, 1T1R
- 40MHz BW/1SS (287Mbps PHY)
- BT5.3
- Interface USB/SDIO
- ES Q4/2023, MP Q1/2024



- 802.11be, 2T2R, DBDC
- 2.4G/5G/6G (iFEM)
- BT5.3
- 160MHz BW(2.88Gbps PHY)
- 802.11az
- Interface USB/PCIe/SDIO
- ES: 2023/Q3, **MP: 2024/Q1**



- 802.11be, 2T2R+2T2R
- 2.4G/5G/6G (iFEM)
- BT5.3
- 160MHz BW(4.32Gbps PHY)
- 802.11az
- Interface USB/PCIe
- ES: 2023/Q4, MP: **2024/Q2**

Y2024

WiFi NIC for Automotive

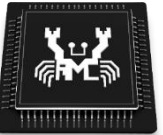
Kay Chang

2022/12/23

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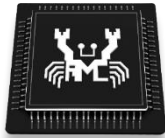
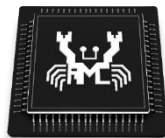


Automotive Wi-Fi Roadmap – Wi-Fi 5 & 6 & 6E

Wi-Fi Spec.	2018-2021	2022				2023			
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Wi-Fi 6/6E 802.11ax		 RTL8852BE-VR		 RTL8852BE-VI			 RTL8852DE-VR		 RTL8852DE-VI
Wi-Fi 5 802.11ac	 RTL8821CS-VI								

Product	Target Market	Wi-Fi Spec	Band	Channel BW	Wi-Fi Support	Wi-Fi I/F	BT Spec	BT I/F	Security	Data Rate	Operating Temp.
RTL8821CS-VI	Aftermarket OEM	802.11ac	2.4 & 5	80	1x1	SDIO	BT4.2	UART	WPA3	433	-40~+85℃
RTL8852BE-VR	Aftermarket OEM	802.11ax	2.4 & 5	80	2x2	PCIe	BT5.2	UART	WPA3	1200	-10~+70℃
RTL8852BE-VI											-40~+85℃
RTL8852DE-VR	Aftermarket OEM	802.11ax	2.4 & 5 & 6	160	1x1	PCIe	BT5.3	UART	WPA3	2400	-10~+70℃
RTL8852DE-VI										1200+1200	-40~+85℃

Automotive Wi-Fi Roadmap – Wi-Fi 7

Wi-Fi Spec.	2023				2024			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Wi-Fi 7 160MHz								
				RTL8922AE-VR	RTL8922AE-VI	RTL8952AE-VR	RTL8952AE-VI	
Wi-Fi 7 320MHz								
							RTL8922BE-VR	RTL8922BE-VI

Product	Target Market	Wi-Fi Spec	Band	Wi-Fi Support	Wi-Fi I/F	BT Spec	BT I/F	Security	Data Rate	Operating Temp.
RTL8922AE-VR	Aftermarket	802.11be	2.4 & 5 & 6	2x2	PCIe	BT6.0	UART	WPA3	2880	-10~+70°C
RTL8922AE-VI	OEM			1x1+1x1					1440+1440	-40~+85°C
RTL8952AE-VR	Aftermarket	802.11be	2.4 & 5 & 6	2x2+2x2	PCIe	BT6.0	UART	WPA3	2880+1440	-10~+70°C
RTL8952AE-VI	OEM			2x2+2x2					2880+1440	-40~+85°C
RTL8922BE-VR	Aftermarket	802.11be	2.4 & 5 & 6	2x2	PCIe	BT6.0	UART	WPA3	5760	-10~+70°C
RTL8922BE-VI	OEM			1x1+1x1					1440+2880	-40~+85°C

RTL8852AE+RTL8902A to achieve 2x2+2x2

Realtek WLAN Roadmap and BT5.2 BLE Audio

Harry Cheng
2022/12/23

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Realtek WLAN Roadmap – MP Products (WiFi4)

Value
802.11n
Dual Bands



LE AUDIO

RTL8733B (1T1R+BT)

- 802.11a/b/g/n, 2.4G/5G Hz
- [BT 2.1/3.0/4.2/5.0/5.2](#)
- USB 2.0 (BT5.2): 8733BU
- SDIO+UART/PCM (BT5.2): 8733BS

Value
802.11n
Single Band



RTL 8188F (1T1R)

- 802.11n, 40MHz/20MHz BW
- USB 2.0 (HT40): 8188FTV-VC



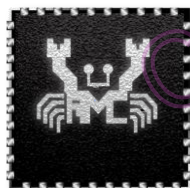
RTL 8723D (1T1R+BT)

- 802.11n, 40MHz BW
- [BT 2.1/3.0/4.2](#)
- USB2.0: 8723DU
- SDIO+UART: 8723DS



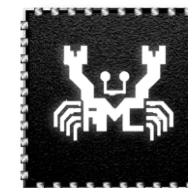
RTL 8192E (2T2R)

- 802.11n, 40MHz BW
- USB 2.0: 8192EU
- SDIO: 8192ES



RTL 8189F (1T1R)

- 802.11n, 40MHz/20MHz BW
- SDIO (HT40): 8189FTV-VC



RTL 8192F (2T2R)

- 802.11n, 40MHz BW
- USB 2.0: 8192FC
- SDIO: 8192FS

Performance

802.11ac

Dual Bands



- ## RTL 8812C (2T2R)

- NEW



- 802.11n/ac DB, 80MHz BW
- MU-MIMO, 20/40/80MHBW
- USB2.0: 8812EU
- ES/ MP: Q2 2022/ Q3 2022



- 802.11n/ac, 80MHz BW
- MU-MIMO
- BT 2.1/3.0/4.2
- USB 2.0: 8821CU
- SDIO+UART/PCM: 8821CS (& -VI)



- 802.11n/ac DB, 80MHz BW
- MU-MIMO, 20/40/80MHzBW
- BT 2.1/3.0/4.2/5.0
- USB2.0: 8822CU
- SDIO+UART/PCM: 8822CS-VS



- 802.11n/ac DB, 80MHz BW
- MU-MIMO, 20/40/80MHzBW
- BT 2.1/3.0/4.2/5.3
- USB2.0: 8822EU
- SDIO+UART/PCM: 8822ES
- ES/ MP: Q3 2022/ Q4 2022



- 802.11n/ac DB, 80MHz BW
- MU-MIMO, 20/40/80MHzBW
- BT 2.1/3.0/4.2/5.0
- SDIO+UART/PCM: 8822CS-VE
- MP: Q3 2022

Thank You!

Realtek is committed to providing its customers with the best possible connectivity and multimedia solutions

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RTL8852B Part No.

	WiFi Interface	BT Interface	Status
RTL8852BS-CG	SDIO 3.0	HS UART	MP
RTL8852BE-VR-CG	PCIe Gen1	HS UART	MP
RTL8852BE-VI-CG			MP
RTL8852BE-CG	PCIe Gen1	USB 2.0	MP
RTL8852BU-CG	USB 3.0/2.0		MP
RTL8852BU-VS-CG	USB 2.0		MP