

MT7921LEN Product Brief

802.11a/b/g/n/ac/ax Wi-Fi 2T2R + Bluetooth v5.2 Combo Chip

System overview

1.1 General Description

MT7921 is highly integrated single chip which features a low power 2x2 11a/b/g/n/ac/ax dual-band Wi-Fi subsystem and a Bluetooth subsystem. The Wi-Fi subsystem contains the 802.11a/b/g/n/ac/ax radio, baseband, and MAC that are designed to meet both the low power and high throughput application, and 32-bit RISC MCU to handle Wi-Fi tasks. The Bluetooth subsystem contains the Bluetooth radio, baseband, link controller, and 32-bit RISC MCU for Bluetooth protocols.

1.2 Features

1.2.1 Technology and package

- MT7921 – DRQFN 11.5x8.7 109 pins package

1.2.2 Power management and clock source

- Integrate high efficiency power management unit with single 3.3V power supply input
- Support 40MHz crystal clock with low power operation in idle mode

1.2.3 Platform

- 32-bit RISC MCU for Wi-Fi/Bluetooth protocols
- Embedded SRAM/ROM
- UART interface with hardware flow control
- Programmable and multiplexed GPIO pins
- Host interface: PCIe device fully compliant to PCIe v2.1 specification

1.2.4 WLAN

- IEEE 802.11 a/b/g/n/ac/ax compliant
- Support 20MHz/40MHz bandwidth in 2.4GHz band and 20/40/80M bandwidth in 5GHz band
- MT7921 supports MU-MIMO RX and DBDC (dual band dual concurrent)
- MT7920 supports MU-MIMO RX
- Support STBC, LDPC, TX Beamformer and RX Beamformee
- Greenfield, mixed mode, legacy modes support
- IEEE 802.11 d/e/h/i/j/k/mc/r/v/w support

- Security support for WFA WPA/WPA2 personal, WPS2.0, WAPI
- QoS support of WFA WMM, WMM PS
- Integrated LNA, PA, and T/R switch
- Optional external LNA and PA support.

1.2.5 Bluetooth

- Bluetooth specification 2.1+EDR
- Bluetooth 4.2 Low Energy (LE)
- Bluetooth 5.2
- Support BLE Isochronous channel + NBC
- Integrated BALUN and PA
- Scatternet support: Up to 7 piconets simultaneously with background inquiry/page scan
- Up to 7 BT link + 16 BLE link
- Support SCO and eSCO link with re-transmission
- Support wide-band speech and hardware accelerated SBC codec for A2DP streaming
- Packet loss concealment
- Channel quality driven data rate adaptation
- Channel assessment and WB RSSI for AFH

1.2.6 Miscellaneous

- Integrate efuse to store device specific information and RF calibration data.
- Advanced FDD/TDD mode Wi-Fi/Bluetooth coexistence scheme

1.3 Block Diagram

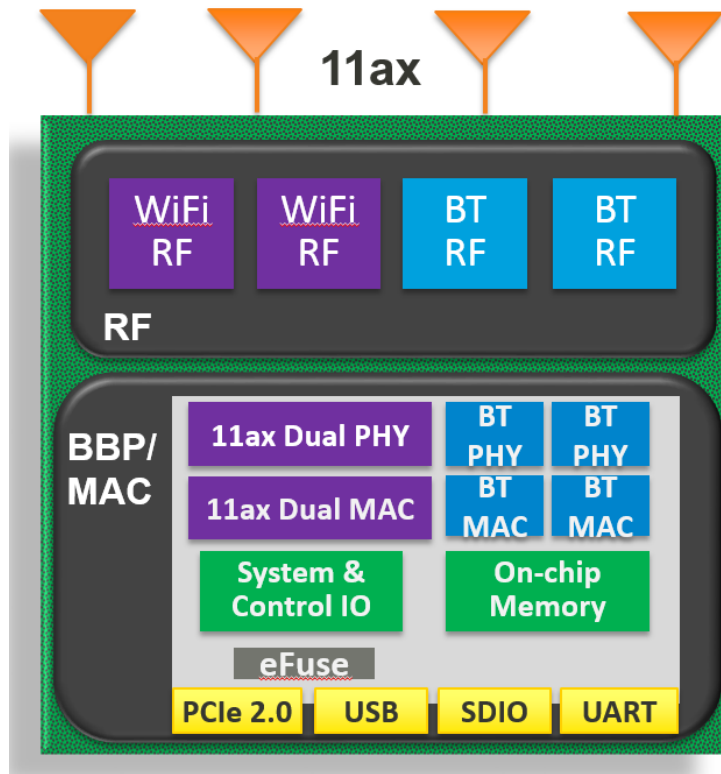
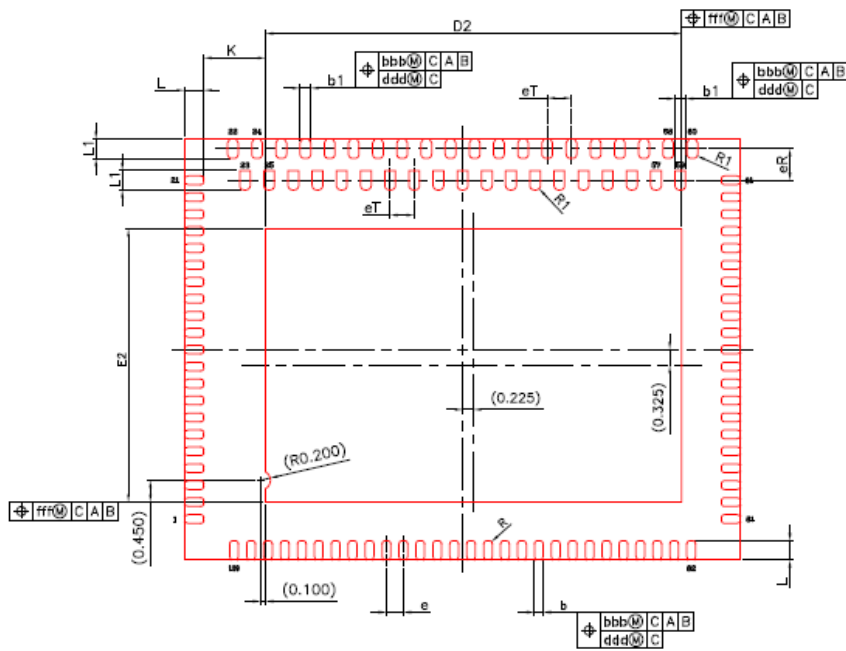


Figure 1 MT7921 system-on-chip block diagram



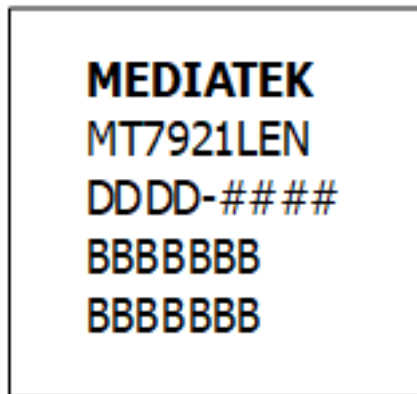
BOTTOM VIEW

Item	Symbol	MIN.	NOM.	MAX.	
Total height	A	0.80	0.85	0.90	
Stand off	A1	0.00	0.02	0.05	
Mold thickness	A2	0.65	0.70	0.75	
Lead frame thickness	A3	0.15 REF.			
Lead width	b	0.13	0.18	0.23	
Lead width	b1	0.18	0.22	0.30	
Package size	X	D	11.40	11.50	11.60
	Y	E	8.60	8.70	8.80
E-PAD size	X	D2	8.50	8.60	8.70
	Y	E2	5.55	5.65	5.75
Lead length	L	0.30	0.40	0.50	
Lead length	L1	0.30	0.40	0.50	
Lead pitch	e	0.35 bsc			
Lead pitch	eT	0.50 bsc			
Lead pitch	eR	0.65 bsc			
Lead arc	R	0.065	---	---	
Lead arc	R1	0.09	---	0.14	
Lead to E-PAD tolerance	K	0.20	---	---	
Package tolerance	aaa	0.10			
Package profile of a surface	bbb	0.10			
Lead profile of a surface	ccc	0.10			
Lead position	ddd	0.05			
Lead profile of a surface	eee	0.08			
Epad position	fff	0.10			

2.3 Ordering Information

Part number	Package	Operational temperature range
MT7921LEN	11.5mm x 8.7mm 109pin DRQFN	-10~70°C



2.4 Top Marking



MT7921LEN : Part number
DDDD : Date code
: Internal control code
BBBBBBBB : Lot number

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