

DATASHEET

Wi-Fi 7 Router Board

AP7988-001**With MediaTek
MT7988A**

Description

AP7988-001 Wi-Fi 7 Router board with MediaTek MT7988A quad-core ARM Corex-A73 design, 1GB DDR4 RAM, 8GB eMMC, 128MB SPI-NAND flash on board, also have 1x10Gbit SFP, 1x 2.5Gbit and 4x Gbit network port, with USB3.2 port, M.2 B key support 4G/5G WWAN Module. 2x M.2 AE key slots with PCIe3.0 2lane interface for Wi-Fi 7 NIC (Network Interface Card).

The MediaTek MT7988A is a world-Leading network processing platform for high-performance and reliable networking experiences, both in wired and wireless applications. The MT7988A comprises a rich connection interface sets include 4 Gigabit Ethernet ports, 2 USXGMII interfaces.

The MT7988A further enables seamless Wi-Fi 7 tri-band, 2.4 GHz, 5 GHz and 6 GHz, connectivity, with its Wi-Fi 7 companion chip that features 320-MHz bandwidth, 4096-QAM, MLO, MRU, and AFC.

To answer the need of fast-evolving tunneling applications, the MT7988A comes with MediaTek Tunnel offload processor System (TOPS), which facilitates the processing of a wide range of tunneling protocols. The MT7988A optimizes networking performance with exquisitely tuned ISA of MediaTek TOPS, and is dedicated to lifting networking offloading performance to premium level.

Features

- MediaTek MT7988A (Filogic 880) quad-core Arm Corex-A73, 1.8GHz processor
- 1GB DDR4
- 8GB eMMC flash
- 128MB SPI-NAND Flash
- 1 x 10GbE SFP port
- 1 x 2.5GbE network port
- 4 x GbE network port
- 1 x USB3.2 slot
- 1 x M.2 B Key slot with USB3.2 interface for 4G/5G WWAN Module
- 2 x M.2 A-E Key slots with PCIe3.0 2lane interface for Wi-Fi 7 NIC (Network Interface Card)
- Frame Engine
 - Packet Aggregated DMA (A-DMA)
 - QoS DMS (QDMA)
 - Packet Switch Engine (PSE)
 - Look-aside and inline encryption and decryption engine (EIP-197)
 - Packet Processing Engine (PPE)
 - Tunnel offload System (TOPS)

For more detailed information, please contact our sales team: sales@asiarf.com / +886 2 2940 7880



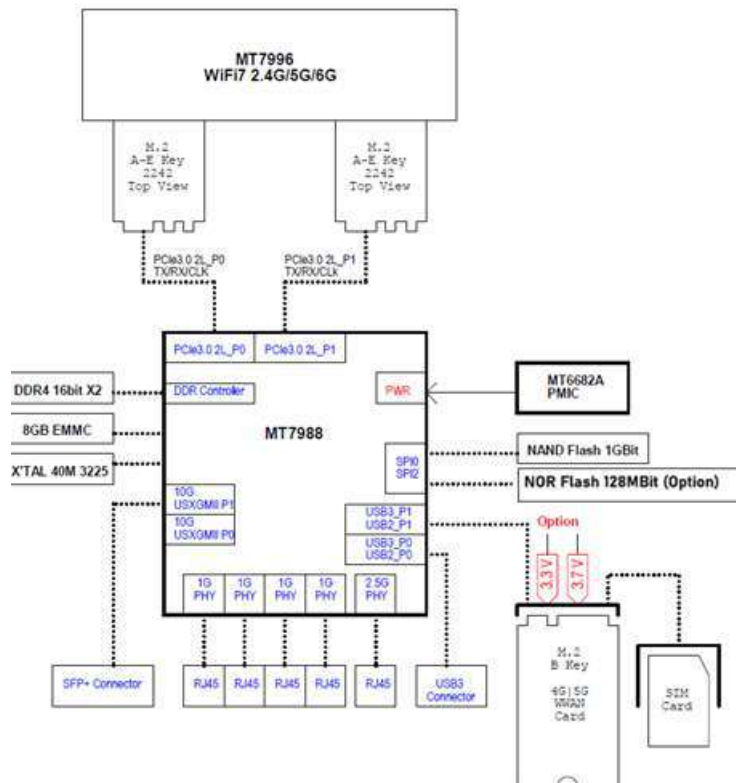
With MediaTek MT7988A AP7988-001 Wi-Fi 7 Router Board

Hardware SPECIFICATION:

CPU	MediaTek MT7988A Quad-core Arm Corex-A73,1.8GHz processor
Memory	1GB DDR4 8GB eMMC Flash 128MB SPI-NAND Flash SPI-NOR Flash (reserve)
Network Port	1x 10GbE SFP port 1x 2.5GbE network port 4x GbE network ports
USB	1x USB3.2 slot
M.2 Interface	1x M.2 B Key slot with USB3.2 interface for 4G/5G WWAN Module 2x M.2 A-E Key slots with PCIe3.0 2lane interface for Wi-Fi 7 NIC (Network Interface Card)*
Buttons	Reset button, boot Jumper
LEDs	Power status LED, 2.5 GbE LED and RJ45 LED
DC Power	12V/6.2A or 19V/3.9A
Sizes	147.94 x 160 mm

*Wi-Fi7 NIC P/N: AW7256-P01 WiFi7 Module

AP7988-001 Board Diagram



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Wi-Fi 7 M.2/Mine PCIe Module **AW7256-P01**



Description

AW7256-P01 is a 94x96.5 mm WiFi7 module with **MT7996AV** supports Wi-Fi7 technology and feature IEEE802.11a/b/g/n/ac/ax/be compliant, 2.4GHz 4x4 4ss, 5GHz 4x4 4ss, and 6GHz 4x5 4ss BE19000 Wi-Fi subsystem. The MT7996AV offers feature-rich wireless connectivity at high standards and delivers reliable, cost-effective throughput from an extended distance.

The optimized Wi-Fi baseband algorithms provide superb performance. The intelligent MAC design deploys a highly efficient offload engine and hardware data processing accelerators, which fully offload Wi-Fi task of the host processor. The MT7996AV is designed to support standard-based features in the areas of security, quality of service, and international regulations, giving end users the greatest performance at any time and in any circumstances.

Features

PLATFORM

- MediaTek MT7996AV chipset
- 32-bit RISC-V MCU for Wi-Fi protocol and Wi-Fi offload
- Embedded SRAM and ROM
- UART interface with hardware flow control
- 2 PCIe 3.0 Interface, 2-lane

WLAN

- IEEE 802.11 a/b/g/n/ac/ax/be compliant
- Frequency band 2.4GHz
 - Bandwidth: 20 and 40MHz
 - 4T4R
- Frequency band 5GHz
 - Bandwidth: 20, 40,80, and 160MHz
 - 4T4R 4ss
- Frequency band 6GHz
 - Bandwidth: 20, 40,80,160 and 320MHz

-4T5R 4ss

-5th antenna for more diversity and for better 6Ghz performance

- Tr-Band Triple Concurrent (TBTC)
- Zero-Wait DFS without interrupting 4x4 (prevent client disassociation with 1+3x3 architecture)
- MU-MIMO TX and RX
- MU-OFDMA TX and RX
- STBC, LDPC, TX beamformer and RX beamformee
- Greenfield mode, mixed mode, and legacy mode
- Security: WFA WPA, WPA2, WPA3 personal, WPS2.0
- QoS: WFA WMM and WMM-PS

Wi-Fi6/6E AND WiFi 7 OPERATION MODES

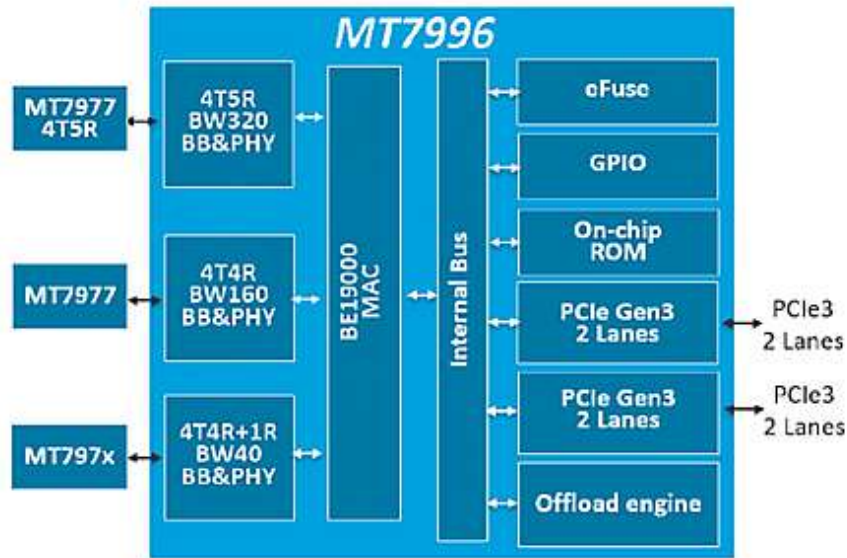
- Simultaneous tri-band 4+4+4, 12 spatial streams
- Wi-Fi 7: 2.4(40MHz)+5(160MHz)+6(320MHz)=19Gbps
- Wi-Fi 6/6E: 2.4(40MHz)+5(160MHz)+6(160MHz)=11Gbps

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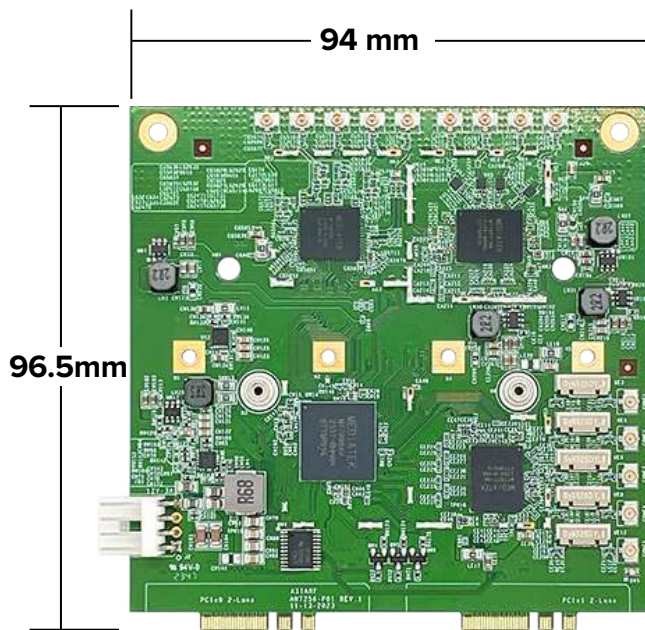


Wi-Fi 7 Module AW7256-P01

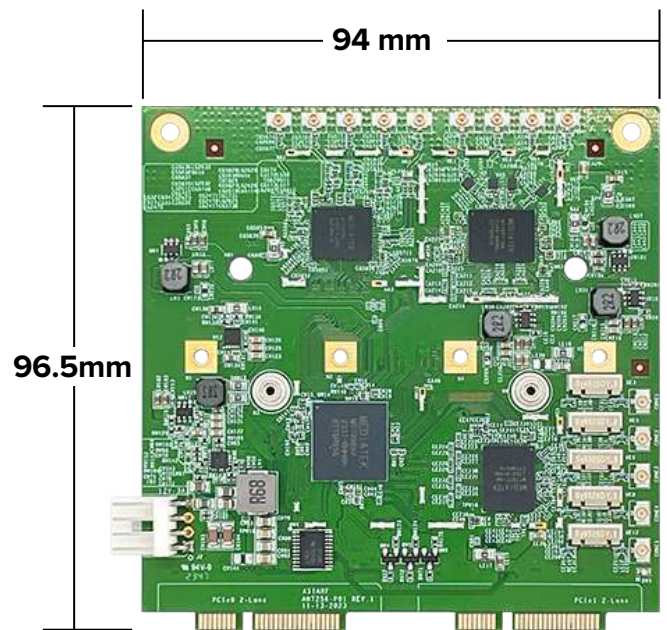
Block Diagram



Board Dimension



AW7256-P01 M.2



AW7256-P01 Mini PCIe