Radxa Dual 2.5G Router HAT

Network and Storage Expansion Board

Version 1.0

2025-04-01

Contents

1 Revision Control Table

Version	Date	Changes from previous version
1.0	2025/02/21	First Version

2 Introduction

The Radxa Dual 2.5G Router HAT is a high-performance expansion board specifically engineered for Radxa SBCs and the Raspberry Pi 5. This HAT significantly enhances network and storage capabilities through its integrated PCIe Gen3 switch chip, which expands a single PCIe interface into multiple downstream ports:

- Two 2.5GbE Ethernet ports powered by RTL8125BG controllers
- One M.2 M Key slot for NVMe SSDs
- One FPC connector with PCIe signals for additional expansion

The HAT features a 40P IPEX connector with PCIe Gen3 2-lane capability, though the included adapter board utilizes only 1-lane due to limitations of compatible SBCs.

With its exceptional network bandwidth, flexible storage options, and expansion capabilities, the Radxa Dual 2.5G Router HAT is ideal for building high-performance network devices, edge computing platforms, and embedded systems.
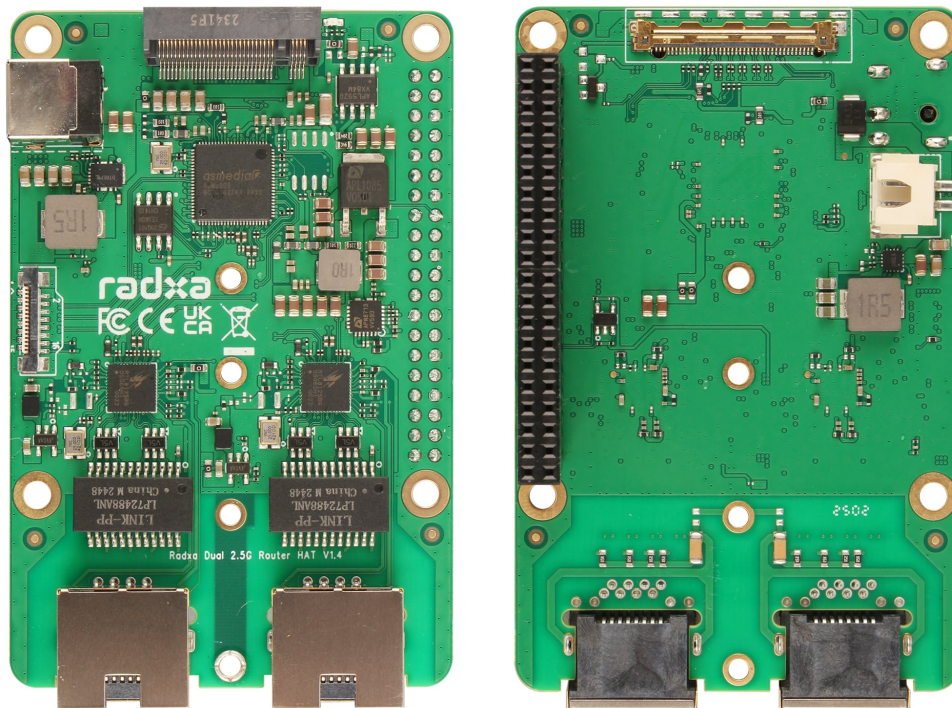

Figure 1: *Radxa Dual 2.5G Router HAT*

Currently Supported Products:

- ROCK 2A / 2F(PCIe Gen2 x1)
- ROCK 4D(PCIe Gen2 x1)
- ROCK 5C(PCIe Gen2 x1)
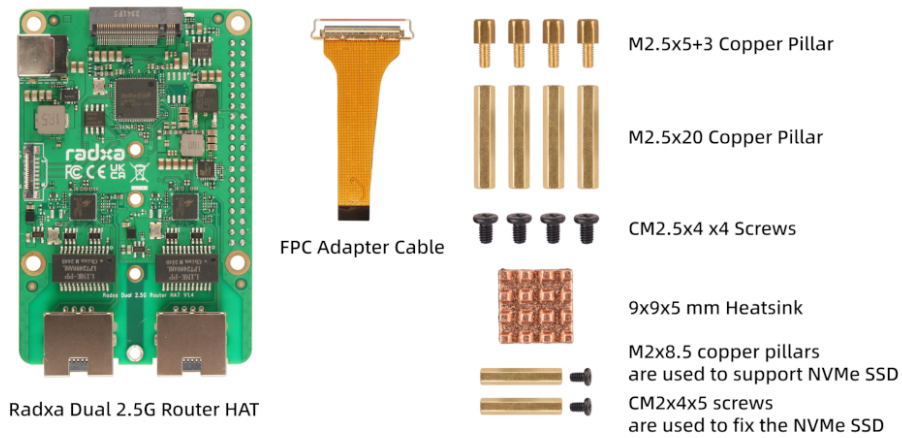- Raspberry Pi 5(PCIe Gen2 or Gen3 x1)

3 Features

- ASM2806 PCIe 3.0 switch delivering up to 8Gb/s per lane
- 40P IPEX connector supporting up to PCIe Gen3 2-lane uplink capability
- IPEX toFPC adapter limited to PCIe 1-lane due to Raspberry Pi and other SBC hardware constraints
- Dual 2.5G Ethernet ports for high-speed networking
- M.2 M Key connector supporting NVMe SSDs
- FPC connector with PCIe 1-lane for additional expansion

4 Package Contents

- Radxa Dual 2.5G Router HAT
- 9×9×5mm heatsink for PCIe switch chip cooling
- CM2×4×5 screws for SSD mounting
- M2×7+3 copper pillar for SSD support
- M2.5×20 copper pillar, M2.5×5+3 copper pillar, and CM2.5×4 screws for HAT installation
- IPEX to FPC adapter cable

Note: The default package includes an IPEX to FPC adapter cable for the following products:

- Radxa ROCK 2A / 2F
- Radxa ROCK 4D
- Radxa ROCK 5C
- Raspberry Pi 5

Radxa Dual 2.5G Router HAT

FPC Adapter Cable

M2.5x5+3 Copper Pillar

M2.5x20 Copper Pillar

CM2.5x4 x4 Screws

9x9x5 mm Heatsink

M2x8.5 copper pillars
are used to support NVMe SSD

CM2x4x5 screws
are used to fix the NVMe SSD

5 Product Availability

Radxa guarantees the availability of the Dual 2.5G Router HAT until at least September 2033.

6 Technical Support

For technical assistance and documentation, please visit the Radxa website. For community support and questions, join the discussion on the Radxa Forum.