radxa

Radxa UFS Module
High-Performance Detachable Embedded Storage Module

Revision 1.2
2026-01-13

Radxa Computer

Contents

1 Revision Control Table

Version	Date	Changes from Previous Version
0.8	27/08/2022	Initial version
1.1	2025/04/25	Change PDF fonts to avoid CJK characters
1.2	2026/01/13	Modify UFS Module Connector Pinout

2 Introduction

The Radxa UFS Module is a high-performance embedded storage solution, offering exceptional read/write speeds and reliability in an ultra-compact form factor. Featuring dual B2B (Board to Board) connectors, the module can be easily replaced without soldering, simplifying system OS or data storage maintenance.

The Radxa UFS Module is designed for modern embedded applications that demand high-speed data access, compact design, and long-term reliability. It offers a significant performance upgrade over traditional eMMC storage and is ideal for use in AI edge computing, industrial gateways, and embedded development platforms.
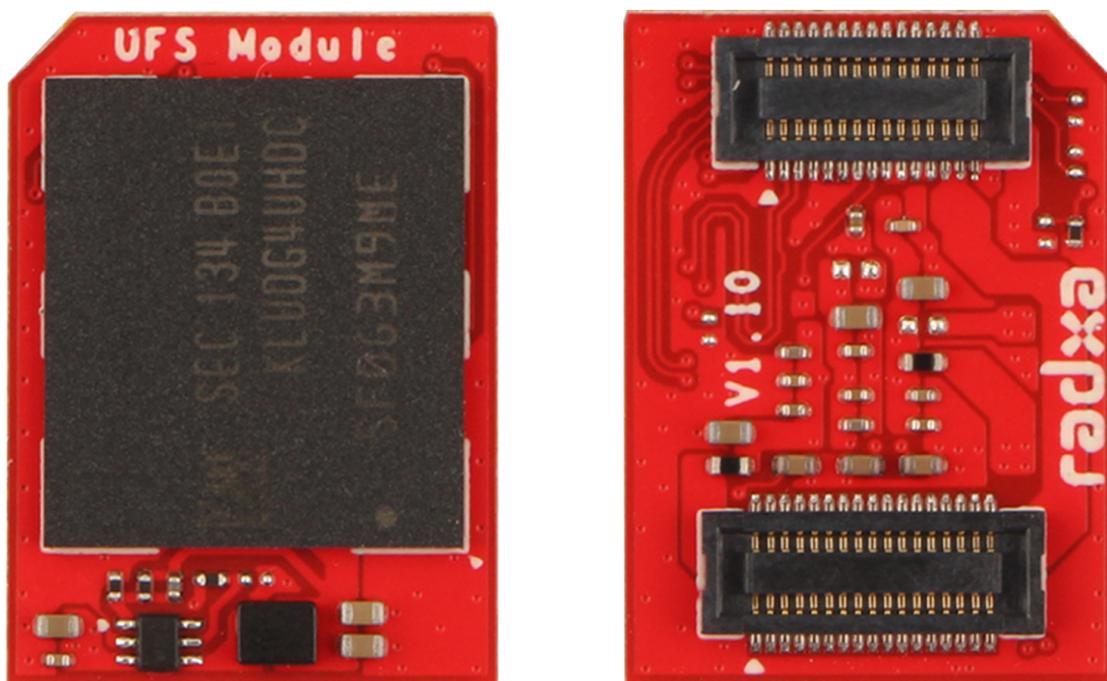
3 Features

- High-speed UFS 3.1 interface (JEDEC JESD220E compliant)
- Up to 2100MB/s read and 1800MB/s write performance with WriteBooster
  (Actual performance may vary depending on host platform; e.g., Radxa ROCK 4D with RK3576 achieves ~1000MB/s read and ~250MB/s write in typical benchmarks)

- 2-lane data bus, supporting HS-Gear4 mode
- Capacities: 64GB / 128GB / 256GB / 512GB / 1TB
- Plugin detect pin for system-level hot swap detection
- Solder-free dual B2B connector for quick maintenance and upgrade
- Compatible with SoCs including Allwinner, Rockchip, Mediatek, and Qualcomm
- Optional industrial-grade version (-25°C to +85°C)
- Supports OS boot and high-speed data storage
- Enhanced with security features: write protection, secure erase, power-off notification

4 Connector

The UFS module utilizes dual B2B connectors for signal and mounting purposes:

- **Connector 1**: GB042-30S-H10 (socket-30pin) for UFS data and control signals
- **Connector 2**: GB042-34S-H10 (socket-34pin), reserved NC for mounting only

The corresponding mating connectors are GB042-30P-H10 (plug-30pin) and GB042-34P-H10 (plug-34pin).

Connector 1
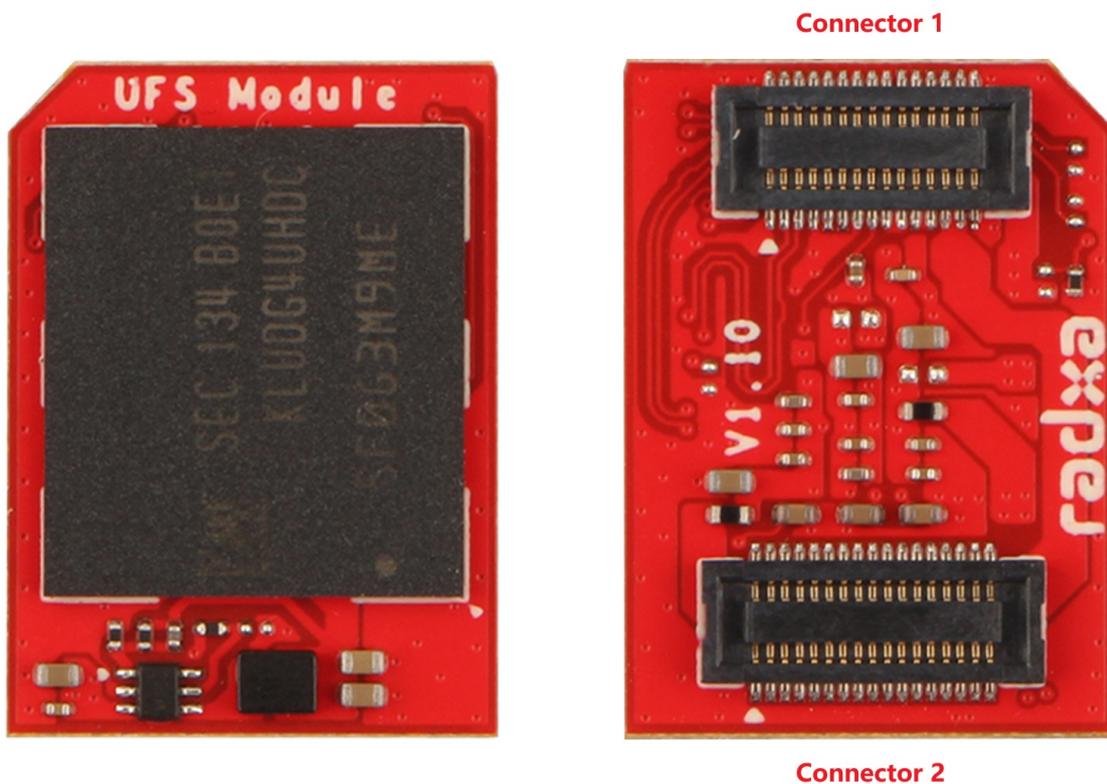
Connector 2

5 Pinout

Connector 1 socket-30Pin:

Pin#	Signal
1	GND
2	UFS_RX_D0P
3	UFS_RX_D0N
4	GND
5	UFS_RX_D1P
6	UFS_RX_D1N
7	GND
8	UFS_RESET
9	VCC_3V3
10	VCC_3V3
11	VCC_1V8
12	VCC_1V8
13	VCC_1V2
14	VCC_1V2
15	GND
16	GND
17	NC
18	NC
19	UFS_DET
20	FSPI_DE
21	EMMC_DET
22	GND
23	UFS_REF_CLK
24	GND
25	UFS_TX_D1N
26	UFS_TX_D1P
27	GND

Pin#	Signal
28	UFS_TX_D0N
29	UFS_TX_D0P
30	GND

Connector 2 socket-34Pin:

Pin#	Signal
1	NC
2	NC
3	NC
4	NC
5	NC
6	NC
7	NC
8	NC
9	NC
10	NC
11	NC
12	NC
13	NC
14	NC
15	NC
16	NC
17	NC
18	NC
19	NC
20	NC
21	NC
22	NC
23	NC

Pin#	Signal
24	NC
25	NC
26	NC
27	NC
28	NC
29	NC
30	NC
31	NC
32	NC
33	NC
34	NC

6 Use Cases

The Radxa UFS Module is suitable for a wide range of applications:

- AI vision systems and edge inference devices
- Industrial automation controllers
- Robotics and autonomous systems
- Embedded Linux boards requiring fast boot and large storage
- Secure, removable OS drives for commercial devices

7 Compatibility

The Radxa UFS Module is compatible with the following products:

- Radxa ROCK 4D
- Radxa CM4 IO Board
- Radxa Cubie A7A
- Radxa Dragon Q6A
- Radxa Orion O6N
- Radxa UFS/eMMC Module Reader

8 Availability

Radxa guarantees the availability of the UFS Module until at least September 2035.

9 Support

For support, please refer to the support documentation on the Radxa website and post any inquiries on the Radxa Forum.