RAIDON iR5740M: 4-Bay M.2 SATA Hardware RAID with Optional Hot Spare

Four M.2 SATA SSDs. One 3.5-Inch Bay. Flexible RAID 5 Protection.

Overview

The RAIDON iR5740M integrates four M.2 SATA SSDs and a hardware RAID controller into one standard 3.5-inch drive bay, combining high-density storage, RAID protection, and front-serviceable maintenance.

Choose four-drive RAID 5 for higher usable capacity or a dedicated hot spare configuration for automatic rebuilding after an active SSD fails. Designed for industrial PCs and embedded systems, the iR5740M simplifies storage integration through a single SATA III 6Gb/s host connection.

Key Features

Compact M.2 SATA Storage

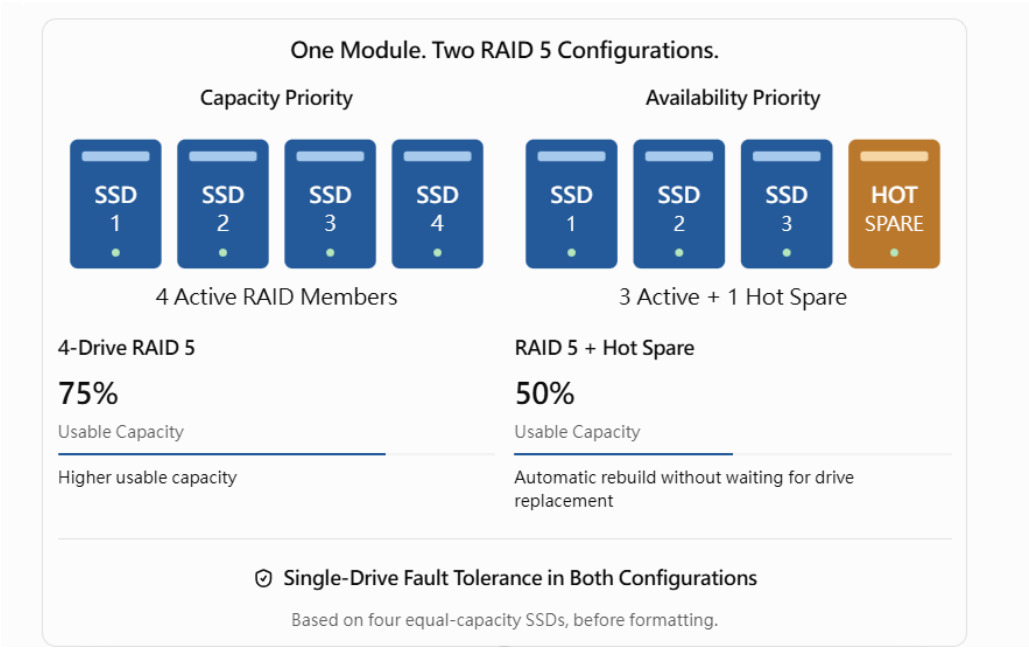
Accommodates up to four M.2 SATA SSDs in one standard 3.5-inch drive bay.

Each tray supports M.2 SATA SSDs in 2230, 2242, 2260, and 2280 sizes.

Flexible RAID 5 Configuration

Choose the RAID 5 configuration that best meets your storage requirements.

One Module. Two RAID 5 Configurations.



Shared SATA III 6Gb/s Host Interface

All four SSDs share a single SATA III 6Gb/s host connection.

The 6Gb/s specification represents the nominal host-side interface rate of the module, not dedicated bandwidth for each SSD. Actual throughput depends on the RAID mode, SSD performance, workload, and host configuration.

This architecture is optimized for storage density, RAID protection, and serviceability rather than aggregate multi-SSD throughput.

Built-In Hardware RAID

The onboard hardware RAID controller supports RAID 0, RAID 5, BIG, and JBOD, with an optional dedicated hot spare configuration for RAID 5.

No separate RAID controller is required.

Tool-Free, Lockable Hot-Swap Trays

Front-access trays with auto-latch mechanisms simplify SSD installation and replacement without requiring tools.

Individual tray locks help prevent accidental removal, while the hot-swap-capable design simplifies field maintenance in supported system configurations.

Status Monitoring and Alerts

Front-panel LEDs indicate power, drive activity, drive failure, and RAID rebuilding. A fault LED and audible buzzer provide alerts for overheating or fan failure.

RAIDON STATUSGUARD for Windows provides graphical monitoring of supported RAID and device-status information.

Hardware RAID operation does not require the monitoring software to be installed.

Adjustable Cooling

The all-metal enclosure, aluminum-alloy thermal plates, and integrated 20 mm fan help dissipate SSD heat. High and Low fan speed settings allow users to balance cooling performance and noise.

RAID Modes

Mode	Description	Best For
RAID 5	Distributed parity with single-drive fault tolerance and optional hot spare support	Protected local storage
RAID 0	Data striped across SSDs without redundancy	Performance-oriented workloads
BIG	Combines multiple SSD capacities into one logical volume	Large single-volume storage
JBOD*	Presents SSDs as independent drives	Individual drive access

Accessing all four SSDs independently in JBOD mode requires a host SATA controller with Port Multiplier support.

Main Applications

Industrial PCs

Add compact RAID-protected storage to industrial computers with limited internal space.

Embedded Systems

Integrate multiple M.2 SATA SSDs without adding a separate RAID controller.

Machine Vision & Automation

Store inspection images, production data, and system logs with RAID protection and front-serviceable drives.

Data Logging & Acquisition Systems

Provide local storage for continuously collected sensor, machine, and measurement data.

Video Surveillance

Support local video recording with RAID protection and front-serviceable SSD replacement in compatible surveillance systems.

Compact Servers & Storage Systems

Add high-density M.2 SATA storage to compatible systems with an available standard 3.5-inch drive bay.

RAID 5 + Hot Spare Configuration

Back up all important data before creating or changing a RAID configuration.

Initialize the RAID 5 array with three SSDs first, then install a fourth eligible SSD as the dedicated hot spare.

Important: Installing all four SSDs before RAID 5 initialization creates a standard four-drive RAID 5 array rather than a hot spare configuration.

The hot spare must be compatible, have sufficient capacity, and be free of conflicting RAID metadata. Using SSDs of the same model and capacity is recommended.

Refer to the latest Quick Installation Guide for detailed setup, spare-status verification, and drive replacement procedures.

Frequently Asked Questions

Q1: What type of M.2 SSD does the iR5740M support?

The module supports M.2 SATA SSDs in 2230, 2242, 2260, and 2280 sizes.

M.2 NVMe (PCIe) SSDs are not supported.

Q2: Does a hot spare increase RAID 5 fault tolerance?

No. Both RAID 5 configurations tolerate the failure of one active SSD.

A dedicated hot spare allows rebuilding to begin automatically without waiting for a replacement drive. The array remains degraded until rebuilding is completed.

Q3: Can an SSD be replaced while the system is running?

Yes. A failed RAID 5 member can be replaced without shutting down the system when the host SATA controller and system configuration support hot swapping.

RAID 0, BIG, and JBOD do not provide drive-failure protection. Follow the Quick Installation Guide before removing any active SSD.

Q4: Does JBOD work with every SATA controller?

No. Independent access to all four SSDs requires a SATA host controller with Port Multiplier support. Many motherboard SATA ports do not support this function.

Q5: Can SSDs from another RAID array be reused?

Yes, but previous RAID metadata should be cleared first.

Back up important data before using RAIDON Clear Disk Info or the disk-initialization procedure specified in the Quick Installation Guide.

Q6: Can the RAID mode be changed without losing data?

No. Changing the RAID mode erases or makes existing RAID data inaccessible. Always back up important data before changing RAID settings.

Q7: What happens after the failed SSD is replaced?

In a hot spare configuration, after rebuilding is completed, an eligible replacement SSD installed in the failed drive bay can become the new hot spare.

Follow the Quick Installation Guide to verify its spare status.

Q8: Does RAID 5 replace regular backups?

No. RAID 5 provides single-drive fault tolerance but does not protect against accidental deletion, file corruption, malware, or complete array failure.

Important data should always be backed up separately.

Product Specifications

Item	**Specification**
Model	iR5740M
Product Type	4-Bay M.2 SATA SSD Internal Hardware RAID Module
Form Factor	Standard 3.5-inch drive bay
Host Interface	1 × SATA III 6Gb/s, shared host bandwidth
Supported Drives	4 × M.2 SATA SSDs

Supported SSD Sizes	2230 / 2242 / 2260 / 2280
RAID Modes	RAID 0 / RAID 5 / BIG / JBOD
RAID 5 Hot Spare	Optional: 3 active members + 1 dedicated hot spare
RAID Architecture	Built-in hardware RAID controller
Power Input	15-pin SATA power connector
Drive Trays	Front-accessible, removable, lockable, and hot-swap capable
Monitoring	Drive activity / rebuilding / drive failure / temperature / fan-failure
Audible Alert	Buzzer with mute function
Cooling	20 mm fan with High and Low speed settings
Operating-System Support	Windows and Linux
GUI Monitoring	RAIDON STATUSGUARD for Windows
Certifications	CE / FCC / RoHS
Dimensions	101.6 × 146 × 25.6 mm (W x H x D)
Weight	Approximately 0.8 kg, excluding SSDs
Quantity / Carton	10 units per carton
Package Contents	• Tray keys × 2 • Accessory kits • Quick Installation Guide × 1