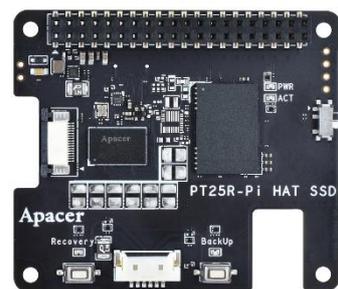


The Most **Reliable** Storage For Industries

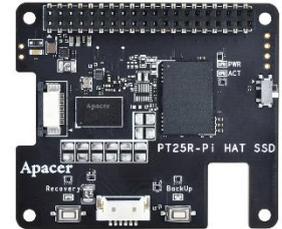
PT25R-Pi HAT SSD



Overview

PT25R-Pi HAT SSD

Apacer PT25R-Pi HAT SSD is a compact, high-performance storage expansion solution specifically designed for Raspberry Pi platforms. As a Hardware Attached on Top (HAT) add-on board, it connects directly to the Raspberry Pi's 40-pin GPIO header and supports a PCIe Gen3 x1 interface, enabling the SSD to function as either an operating system drive or a high-speed storage device. This design delivers enhanced system responsiveness and an improved user experience for embedded and industrial applications.



PT25R-Pi HAT SSD supports Apacer's exclusive CoreSnapshot 2 technology, a patented real-time backup and index conversion solution that enables rapid data backup and recovery without time-consuming data transfer procedures. This allows systems to be restored quickly to an operational state, minimizing downtime and ensuring continuous and reliable operation.

Engineered with a powerful PCIe controller, PT25R-Pi HAT SSD features on-the-module ECC, efficient wear leveling, and optimized power management modes to achieve exceptionally low latency, high data transfer performance, and reduced power consumption. Utilizing advanced 3D NAND flash technology with capacities up to 512GB, the SSD delivers higher power efficiency than traditional 2D NAND solutions. An integrated LDPC ECC engine further enhances endurance and data reliability.

To ensure stable operation in demanding environments, PT25R-Pi HAT SSD incorporates a built-in thermal sensor accessible via S.M.A.R.T. commands and supports thermal throttling to dynamically adjust performance under overheating conditions. Sidefill technology reinforces mechanical stability, enabling reliable operation under high vibration and extreme temperature fluctuations. For data integrity and security, the SSD supports End-to-End Data Protection and AES encryption, safeguarding data throughout the transfer path and protecting against unauthorized access.

With its compact HAT form factor, PCIe Gen3 x1 interface, advanced data protection technologies, and robust thermal and mechanical design, Apacer PT25R-Pi HAT SSD delivers a reliable, high-performance storage solution tailored for Raspberry Pi systems. It is ideally suited for embedded, industrial, and edge-computing applications that demand fast boot times, stable operation, enhanced data security, and long-term reliability.

* Raspberry Pi is a trademark of Raspberry Pi Ltd. This product is not affiliated with, endorsed by, or sponsored by Raspberry Pi Ltd.

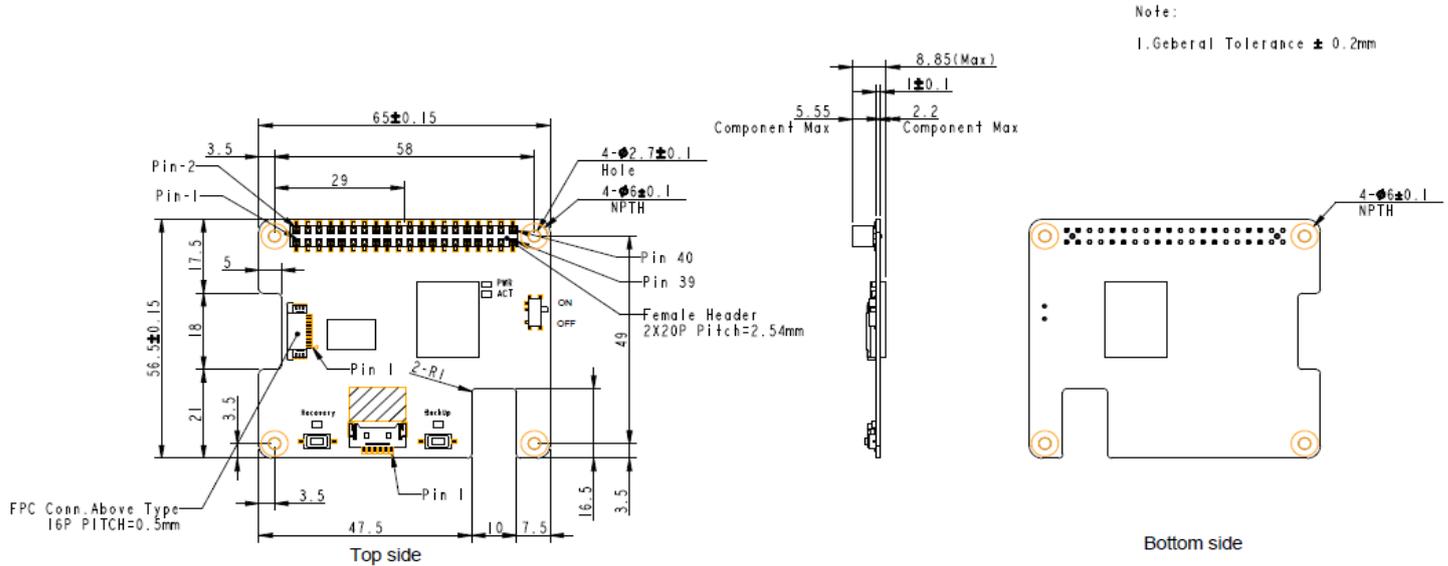
Features

- Adopts advanced LDPC ECC engine with 3D NAND flash memory to improve reliability
- Global Wear-leveling
- Flash Bad-block Management
- Flash Translation Layer: Page Mapping
- DataDefender™
- Supports SSDWidget S.M.A.R.T function
- Power Failure Management
- End-to-End Data Protection
- TRIM Support
- SMART Read Refresh™
- NVMe Secure Erase

Specifications

| | |
|--|---|
| Model Name | PT25R-Pi HAT SSD |
| Interface | PCIe Gen4 x4 |
| Connector | 75-pin M.2 module pinout |
| Form Factor | Raspberry Pi HAT Expansion Board |
| NAND Flash Type | 3D TLC |
| Capacity | 64GB~512GB |
| External DRAM | Yes |
| Sustained Write Performance (MB/sec.) | Up to 430 |
| ECC Engine | Low-Density Parity-Check (LDPC) Code |
| IOPS (4K Random Read/Write) | 109K |
| Standard Operating Temperature (°C) | 0°C ~ 70°C |
| Storage Temperature (°C) | -55°C ~ + 100°C |
| Thermal Sensor | Yes |
| Shock | Operation: Acceleration, 50(G)/11(ms)/half sine (Compliant with MIL-STD-202G) Non-operation: Acceleration, 1500(G)/0.5(ms)/half sine (Compliant with MIL-STD-883K) |
| Vibration | Operation: 7.69 GRMS, 20~2000 Hz/random (Compliant with MIL-STD-810G) Non-operation: 4.02 GRMS, 15~2000 Hz/random (Compliant with MIL-STD-810G) |
| Operating Voltage | 3.3V ±5% |
| Power Consumption | Active mode: 335 mA / Idle mode: 25mA |
| Dimension (L x W x H) | 65.00 x 56.50 x 8.85 mm (max.) |
| MTBF (Hours) | >3,000,000 |

Mechanical Specifications



Note:
1. General Tolerance ± 0.2 mm

Unit: mm

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