Apacer

PT25R-Pi HAT SSD with CoreSnapshot

User Manual

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Version 1.0

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1. Introduction

Thank you for purchasing the Apacer PT25R-Pi HAT SSD with CoreSnapshot.

The Apacer PT25R-Pi HAT (Hardware Attached on Top) SSD is an add-on expansion board specifically designed for Raspberry Pi computers. It connects directly to the Raspberry Pi's 40-pin GPIO header and interfaces with the board through an FPC/FFC cable, providing a compact and reliable storage solution for embedded and industrial applications. It is compliant with the PCIe Gen3 x1 interface, allowing users to use the HAT SSD as an operating system drive or a storage drive for an improved user experience.

A key feature of the PT25R-Pi HAT SSD is its support for Apacer CoreSnapshot 2 technology, an exclusive patented real-time backup and index conversion solution. This technology eliminates time-consuming data transfer procedures and enables SSD backup and recovery to be completed in a very short time. As a result, systems can be rapidly restored to an operational state, minimizing downtime and ensuring continuous operation.

This document provides step-by-step instructions to help users install and operate the Apacer PT25R-Pi HAT SSD.

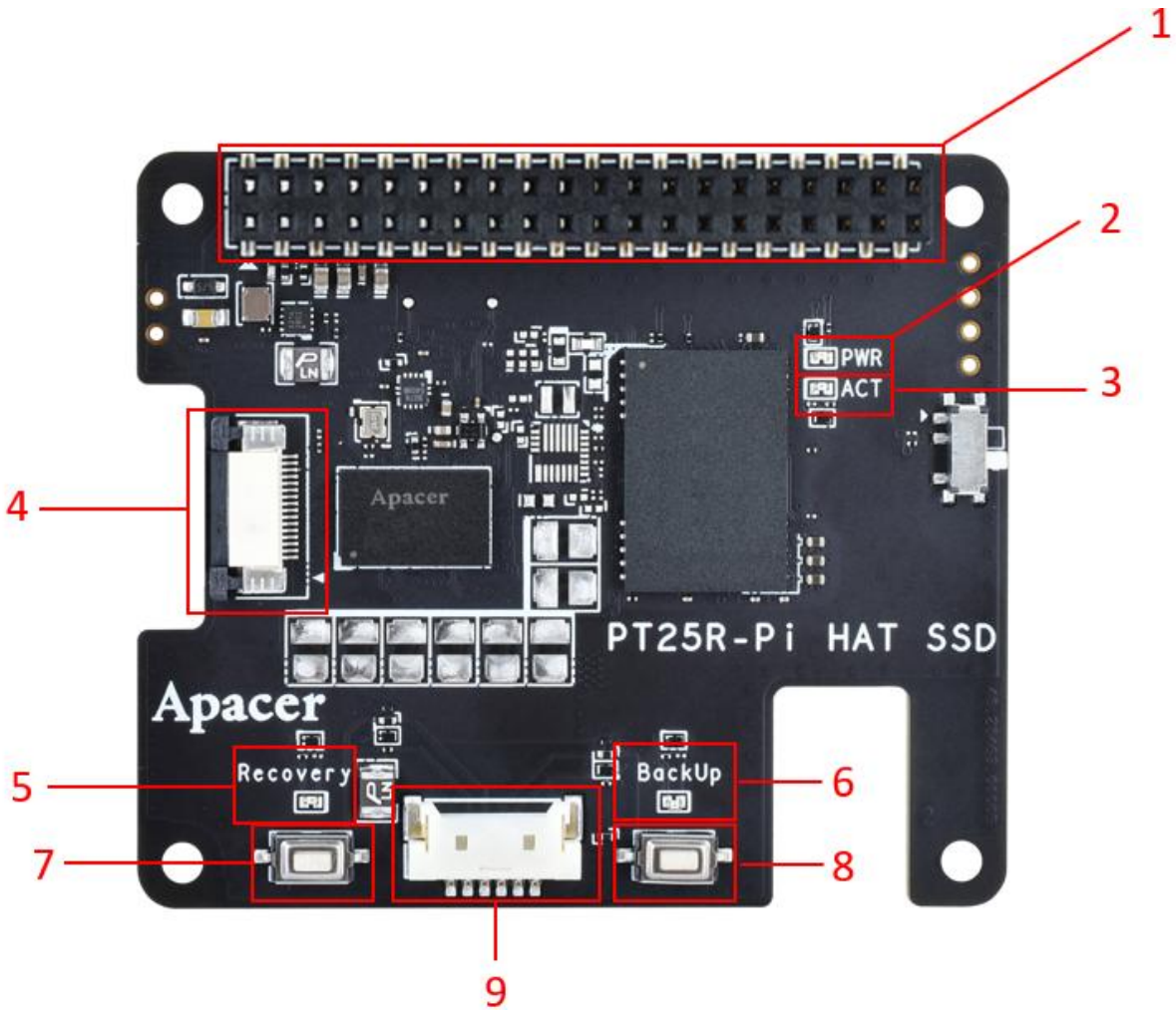
2. Before You Start

The following items are included with Apacer PT25R-Pi HAT SSD with CoreSnapshot. Please check the package contents before using. If anything is missing or damaged, contact the dealer from whom you purchased the SSD. Also, make sure you read the safety instructions thoroughly to avoid harming yourself or damaging the instrument before, during, and after using this product.

2.1 Package Contents

Item	Qty
PT25R-Pi SSD board	1
40-pin GPIO header	1
FPC/FFC cable	1
Standoffs	4
Screws	8
Y-split cable with red and black push button switch or Y-split cable with metal flat head illuminated green and red push button switch	1

2.2 PT25R-Pi HAT at a Glance



No.	Item	Description
1.	40-pin GPIO connector	Used to connect to the Raspberry Pi's 40-pin GPIO header.
2.	Power LED	LED glows solidly when power is on.
3.	Activity LED	LED blinks when the drive is being accessed.
4.	FFC connector	Used to connect to the Raspberry Pi's 16-pin FFC connector.
5.	Recovery LED (red)	LED blinks when the recovery mechanism is active.
6.	Backup LED (green)	LED blinks when the backup mechanism is triggered; LED glows when the backup mechanism is complete.
7.	Recovery button	Used for CoreSnapshot 2 recovery mechanism.
8.	Backup button	Used for CoreSnapshot 2 backup mechanism.
9.	CoreSnapshot 2 connectors	Used to connect to the Y-split cable for CoreSnapshot 2 backup and recovery switch button.

2.3 Warnings

- This product must only be connected to a Raspberry Pi via the PCIe interface.
- Any external power supply used with the PT25R-Pi HAT SSD must comply with local regulations and standards.
- Operate this product in a well-ventilated environment. If installed inside a case, ensure the case is not covered.
- While in use, ensure the product is securely mounted and avoid contact with conductive objects.
- Connecting incompatible devices may cause damage, affect compliance, and void the warranty.
- All peripherals should meet relevant standards in the country of use and be properly labeled to ensure safety and performance.
- Cables and connectors of all peripherals must have adequate insulation to meet safety requirements.

2.4 Safety Instructions

Precautions to Prevent Malfunction or Damage

- Do not expose this product to water or moisture, and avoid placing it on conductive surfaces while in operation.
- Keep the product away from heat sources. Raspberry Pi computers and the PT25R-Pi HAT SSD are designed for reliable operation at normal ambient temperatures.
- Handle the product with care to prevent mechanical or electrical damage to the PCB and connectors.
- When powered, avoid touching the PCB directly; if handling is necessary, hold it by the corners to reduce the risk of electrostatic discharge (ESD) damage.

2.5 FPC/FFC Cable Handling Precautions

Improper handling of the FPC/FFC cable may cause permanent damage and void the warranty.

- Do not bend, crease, or apply excessive force to the FPC/FFC cable.
- Do not bend or press the gold finger area or reinforced sections of the cable.
- Always fully open the FFC connector lock before inserting or removing the cable.
- Never force the cable into or out of the connector.

3. Hardware Setup

3.1 Tools and Parts for Installation

- A screwdriver
- A Raspberry Pi

3.2 Install the PT25R-Pi HAT SSD

This section provides step-by-step instructions for installing the PT25R-Pi HAT SSD onto a Raspberry Pi. For a visual reference, please refer to Figure 3-1 and 3-2 during the installation process.

1. **Power Off**

   Shut down the operating system, turn off the Raspberry Pi, and disconnect the power supply and all peripheral cables.

2. **Install Standoffs**

   Attach the four provided standoffs to the mounting holes on the Raspberry Pi baseboard.

3. **Connect FPC/FFC Cable**

   a. Fully open the latch of the Raspberry Pi PCIe FFC connector.

   b. Insert the FPC/FFC cable with the correct orientation.

   c. Lock the connector latch securely.

   d. Repeat the same steps to connect the other end of the FPC/FFC cable to the PT25R-Pi HAT SSD.

4. **Attach PT25R-Pi HAT SSD Board**

   Align the 40-pin GPIO connector on the PT25R-Pi HAT SSD with the Raspberry Pi GPIO header.

   Gently and evenly press the board downward until the connector is fully seated.

5. **Secure the Board**

   Fasten the PT25R-Pi HAT SSD to the standoffs using the provided screws.

   Do not overtighten the screws.

6. **Final Check**

   Confirm that:

   - All screws are securely fastened.
   - The FPC/FFC cable is fully inserted and locked.
   - The PT25R-Pi HAT SSD is parallel to the Raspberry Pi board.

7. **Power On**

   Reconnect the power supply and turn on the Raspberry Pi.

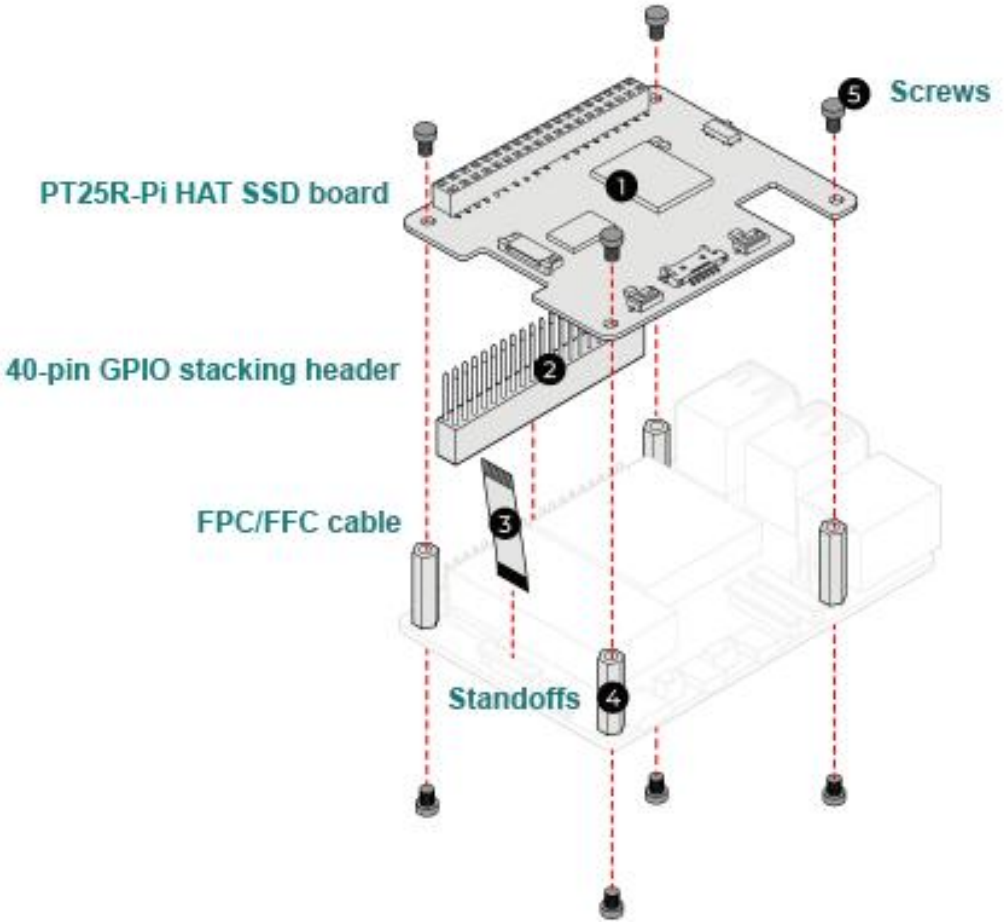


Figure 3-1 PT25R-Pi HAT SSD Assembly Overview

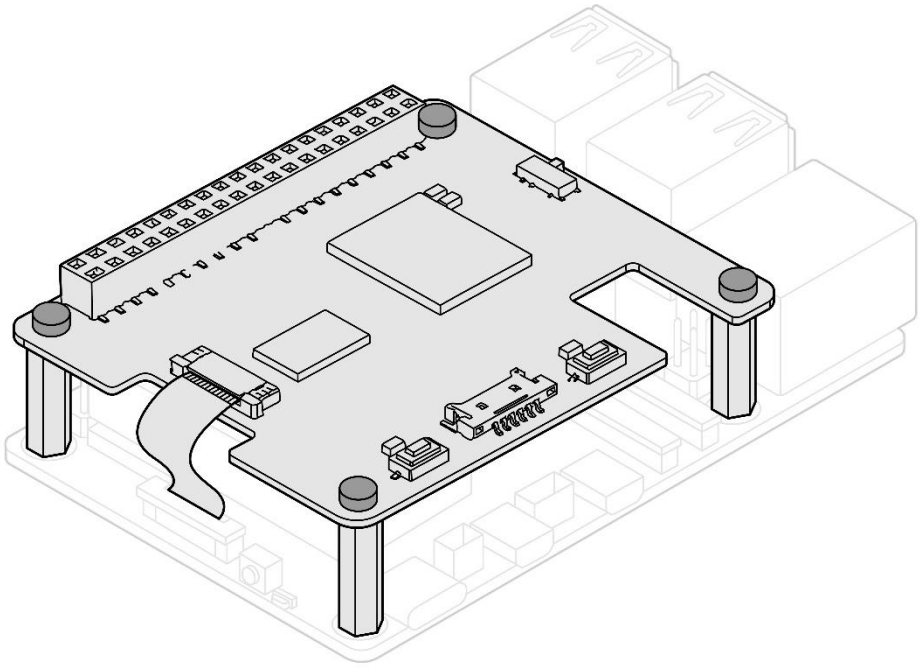


Figure 3-2 PT25R-Pi HAT SSD Fully Assembled on Raspberry Pi

Caution: Always follow the FPC/FFC cable handling precautions described in 2.5 FPC/FFC Cable Handling Precautions. Improper installation may cause permanent damage to the connector or cable.

4. CoreSnapshot Backup/Recovery on PT25R-Pi HAT SSD

4.1 CoreSnapshot Overview

Apacer CoreSnapshot is a proprietary technology that utilizes advanced firmware-based backup and recovery mechanisms, allowing systems to be backed up and restored rapidly. No third-party backup or recovery tools are required on the host, simplifying system deployment and maintenance. The following sections describe how to perform backup and recovery operations using CoreSnapshot on the PT25R-Pi HAT SSD.

4.2 Backup

To perform the CoreSnapshot backup*, press and hold the backup button for three seconds on the PT25R-Pi HAT SSD, or on the Y-split cable with black push button switch or the Y-split cable with metal flat-head green-illuminated push button switch. The backup LED will begin blinking green, indicating that the backup process has been triggered and that a power cycle is required to complete the operation.

After the power cycle, the backup LED will remain steadily lit, indicating that the backup process has been active.

Note: Clients have to decide when to take backup snapshots at some suitable moments.

4.3 Recovery

To perform the CoreSnapshot recovery, press and hold the recovery button for three seconds on the PT25R-Pi HAT SSD, or on the Y-split cable with red push button switch or the Y-split cable with metal flat-head red-illuminated push button switch. The recovery LED will begin will begin blinking red, indicating that the recovery process has been activated and that a power cycle is required to complete the operation.

After the power cycle and once the operating system has started, both the backup and recovery LEDs will return to normal status, indicating that the recovery process has been successfully completed and that the system is ready for the next backup operation.

Revision History

Revision	Description	Date
0.1	Preliminary release	2/23/2026
1.0	Official release	2/25/2026

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