

# Script

## INTRO - 0:00 - 0:20

(Camera on you or voice-over with timelapse of printer starting)

Hey everyone, Today, I'm excited to show you a DIY Raspberry Pi 5 project that turns a standard 5.25-inch hot-swap drive bay into a standalone NAS enclosure. It's powered by the Radxa Penta SATA Hat, housed in a fully 3D-printed modular chassis I designed myself.

## SECTION 1 - 0:20 - 1:20

(B-roll: show the Rosewill RSV-SATA-Cage-34, Pi 5, SATA Hat, printed parts)

At the heart of this build is the Rosewill RSV-SATA-Cage-34, a 4-bay hot-swap module originally meant for desktops or rackmounts. But instead of installing it inside a case, I designed an enclosure that houses the hot-swap bay itself — turning it into a compact, self-contained NAS unit. The design is flexible, so you can adapt it for almost any similar 5.25-inch cage, not just this model.

Combined with the Raspberry Pi 5 and Radxa Penta SATA Hat, this setup gives you up to five SATA drives in a surprisingly small form factor.

## SECTION 2 - 1:20 - 2:45

(B-roll: timelapse of all 5 prints with short captions labeling each part)

The enclosure is made up of five printed parts: the **base**, **frame**, **rear plate**, **faceplate**, and **translucent insert**. All project files are provided and already include the **pre-configured supports** necessary for some of the parts — mainly the rear plate, frame, and faceplate.

The **frame** itself was too large for most printers, so I sliced it right through the middle. Once printed, the two halves are reattached using **M3x7 screws**. To print the frame correctly, you'll need at least a **256 mm print bed**.

All parts are optimized for FDM printing with no unnecessary supports, clean overhangs, and an easy fit. Once you have everything printed, it's time to move on to the assembly.

## SECTION 3 - 2:45 - 5:45

(B-roll: real-time assembly with close-up shots of each step)

Let's start putting everything together.

1. **Prepare your Raspberry Pi 5.** Flash a microSD card with **Pi OS Lite**, then insert it into the Pi.
2. **Mount the drives.** Screw each HDD or SSD into its respective bay in the hot-swap cage, then set them aside.
3. **Assemble the cables.** Prepare all the SATA and power cables according to your setup.
4. **Install the cables on the hot-swap bay.** Plug in everything before inserting it into the frame — it's much easier that way.
5. **Insert the hot-swap bay into the frame.** Slide it in and secure it using **M3x5 screws**.
6. **Connect the PCIe cable.** Plug the PCIe ribbon from the Raspberry Pi 5 to the **Radxa Penta SATA Hat**.
7. **Mount the Pi inside the frame.** Use the long posts provided with the SATA Hat.

You can gently push the hat aside while screwing in the posts.

8. **Attach the SATA Hat.** Secure it using the small **brass posts** included with the hat.
9. **Connect the SATA cords.** SATA Port 1 is the port **on the opposite side of the DC input**.
10. **Install the rear plate.** Use **M3x10 screws**, but hold the plate at a slight angle to connect both **DC cables** —

one goes to the hat, and the other to the bottom of the frame for the **\*\*LEDs\*\***.

11. **Insert the translucent part.** This piece slides right into place and diffuses the front LEDs.
12. **Attach the faceplate.** Finally, secure it with **M3x10 screws**.

Once everything is together, the result is a clean, modular enclosure ready to power up your drives.

## SECTION 4 - 5:45 - 6:30

(B-roll: final build showcase, lights on, drives spinning)

And here's the finished build — a fully 3D-printed modular NAS enclosure powered by the Raspberry Pi 5 and the Radxa Penta SATA Hat. Compact, quiet, and completely customizable. If you'd like to print your own, the full project files and print settings are available on **MakerWorld** under a **personal-use-only license**.

In the next part of this video, we'll power it up and go over the software setup.

## OUTRO

(B-roll: logo overlay, finished NAS spinning drives, fade to your site)

You can find the full build details, print settings, and updates on my website — LaswitchTech.com I share all my open-source hardware and software projects there. Don't forget to like, subscribe, and leave a comment if you'd like to see the software setup, power testing, or performance benchmarks in a future video.

Thanks for watching — and as always, happy printing!

From:

<https://laswitchtech.com/> - **LaswitchTech**

Permanent link:

<https://laswitchtech.com/en/projects/nas-pi5/documentation/script>

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