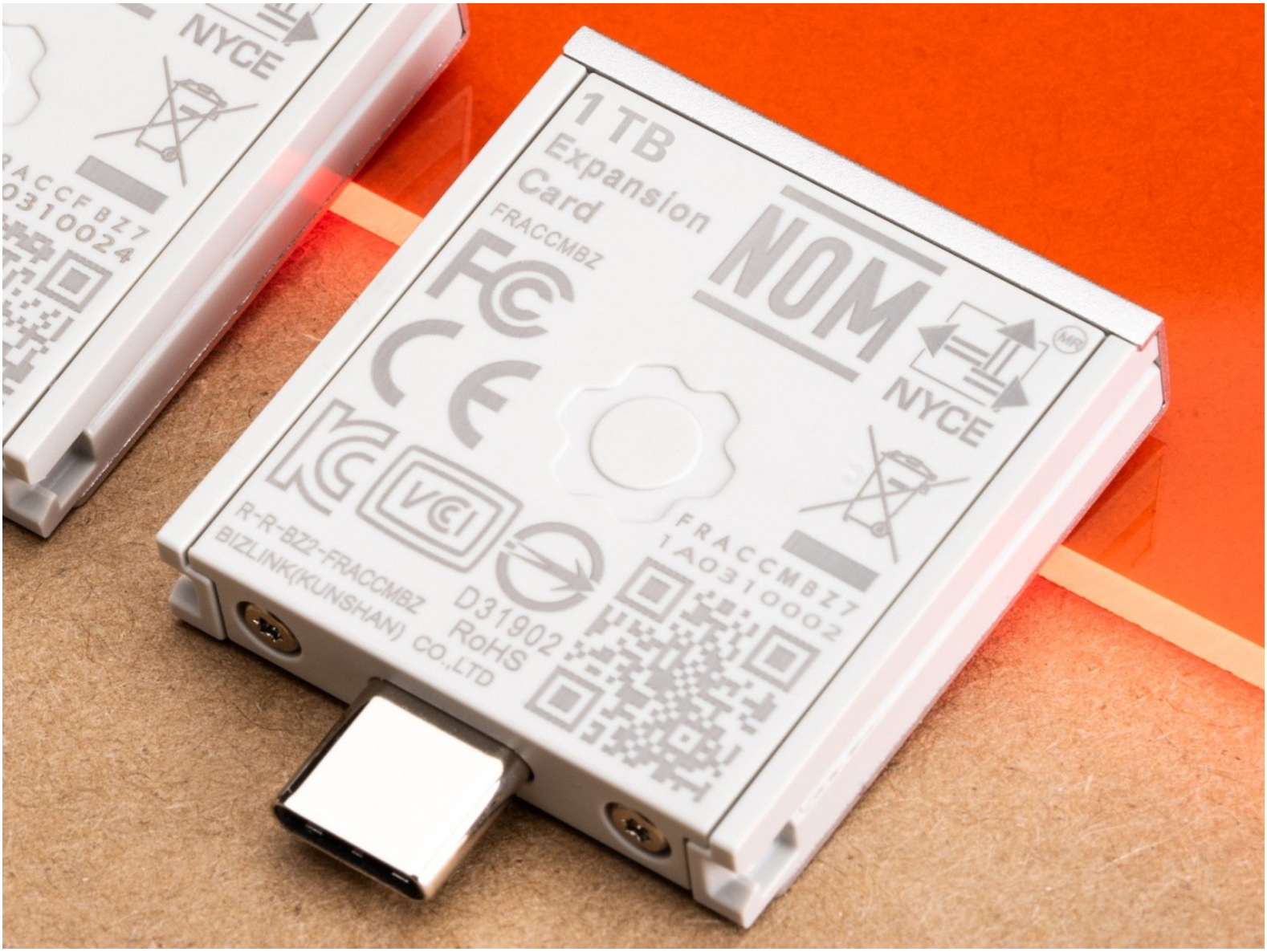
1TB Expansion Card Throttling

Adding a thermal pad to the 1TB Expansion Card to resolve throttling

Written By: Nirav Patel



This document was generated on 2025-08-25 10:06:33 AM (MST).

INTRODUCTION

Under sustained full-speed sequential write, we've seen the 1TB Expansion Card start to throttle. The extent of throttling will depend on the specific workload, card, and ambient temperature. Applying a thermal pad on the flash package to sink heat into the enclosure significantly improves the behavior. This is an adjustment we're applying in new production, but if you have an older 1TB Expansion Card, you can manually apply a thermal pad following this guide.

TOOLS:

- Framework Screwdriver (1)

PARTS:

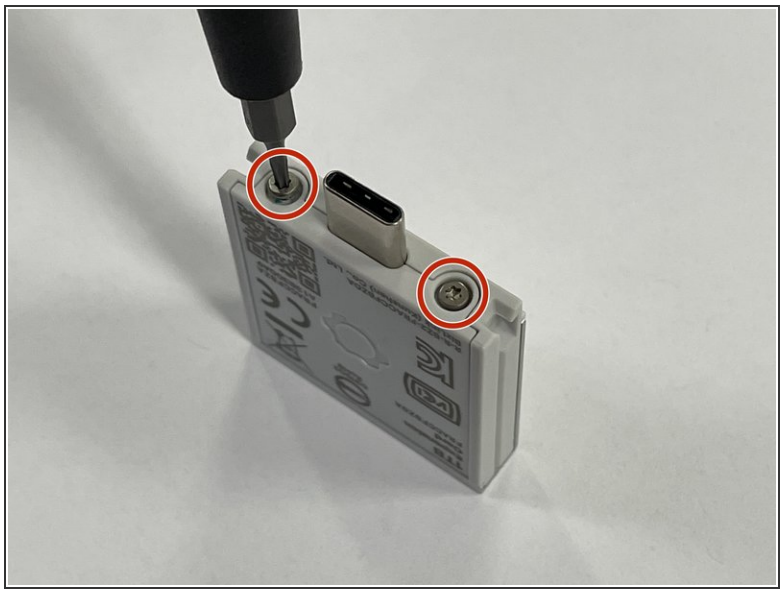
- Thermal Pad (1)

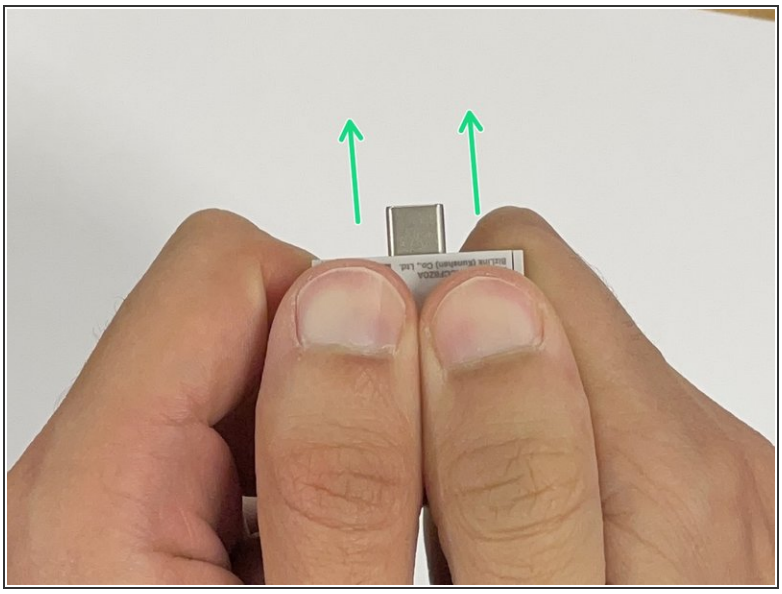
TG-A1250-10-10-1.5

10x10x1.5mm thermal pad

© 2025

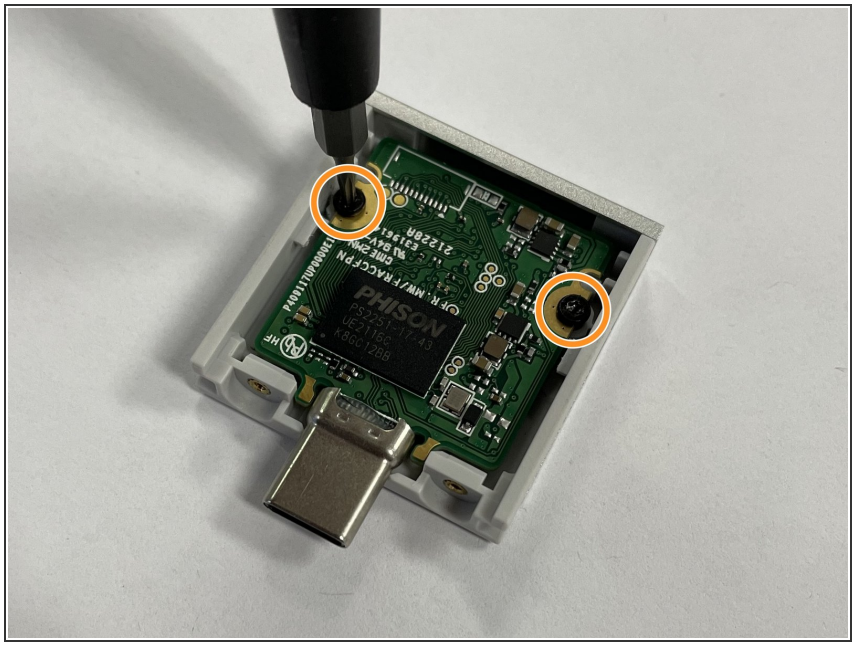
Step 1 — Remove the lid





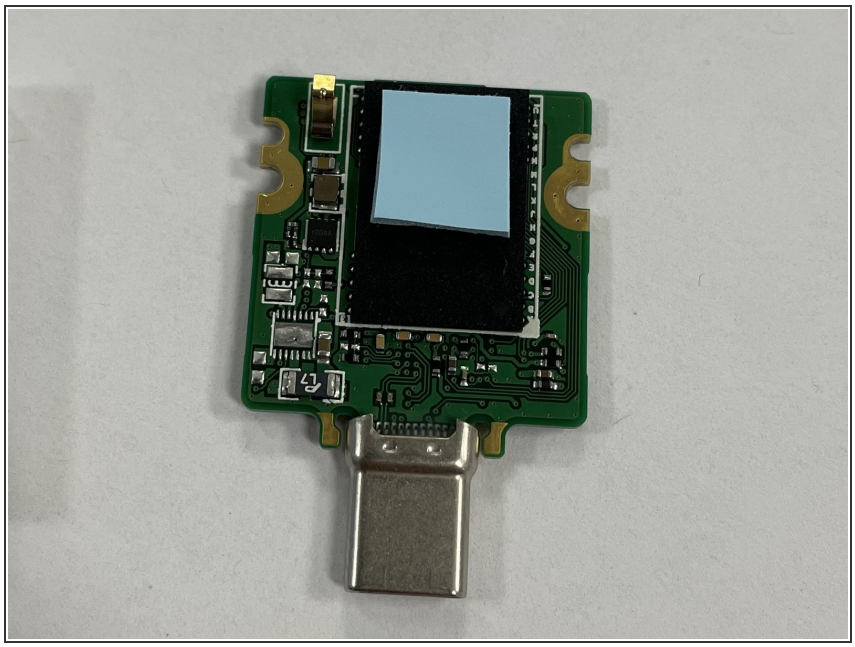
- With the T5 bit in your Framework Screwdriver, remove the two fasteners holding the lid onto the 1TB Expansion Card.
- Hold the Expansion Card with both of your thumbs on the lid and slide the lid towards the USB-C plug. It will take a little force to get the lid to unlatch.

Step 2 — Unscrew the PCB



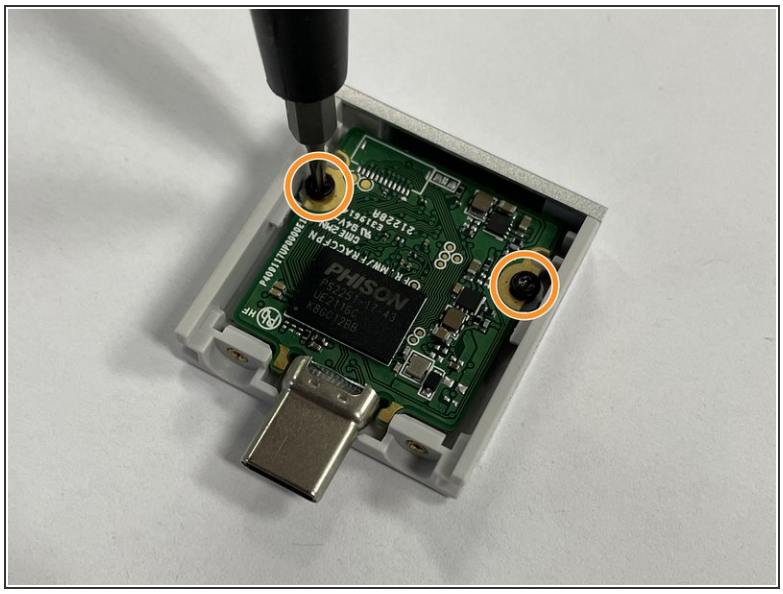
- Using the T5 bit in your Framework Screwdriver, remove the two fasteners that hold the PCB in. This will let you get to the flash on the underside of the PCB.

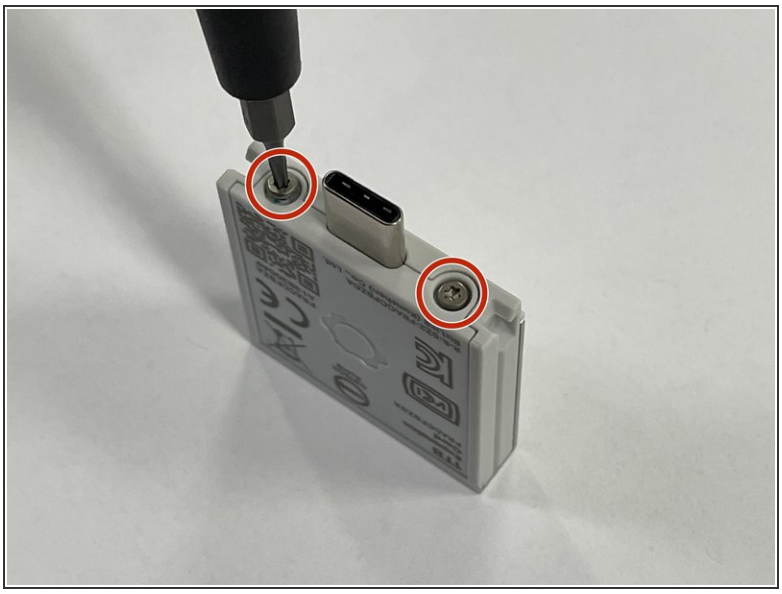
Step 3 — Apply the thermal pad



- Remove the protective plastic from both sides of the thermal pad. Stick it to the top half of the flash package as shown in the image.
  - ⓘ You can peel off the label that is on the flash package and stick it on the other side of the PCB if you'd like. It shouldn't substantially impact performance either way.
  - ⓘ Your thermal pad may be a different size or color, but you should make sure that it is no more than 2mm thick, that it is soft and non-conductive, and that it is making contact between the black flash package and the aluminum cover when the PCB is re-installed.

Step 4 — Re-install the PCB and lid





- Put the PCB back into the enclosure and fasten in back into place using the T5 bit in the Framework Screwdriver.
- Slide the lid back on and fasten the two fasteners back into place using the T5 bit in the Framework Screwdriver.

  ⚠ Be extra careful to not overtighten these, as it is easy to accidentally crack the lid plastic.