

Physical Anomalies:

To verify whether a batch of memory modules is authentic or consists of salvaged, counterfeit, or "re-mapped" components, a two-stage inspection must be performed.

Fraudsters use advanced tactics—such as chemical washing, laser-etching faked details—but they almost always leave behind subtle anomalies.

Look for the following physical and software warning signs during module inspection:

Physical Anomalies (Visual Inspection): Before inserting the modules into a production server, examine them under a magnifying glass or a digital microscope.

- 1. Shaved or Uneven IC Surfaces:** Scammers use micro-abrasives to grind off the original manufacturer markings on memory chips. Look for a slightly textured, dull, or uneven surface on the black memory ICs. Authentic chips from manufacturers like Samsung, SK Hynix, or Micron have a perfectly uniform, smooth finish.
- 2. Mismatched Chip Date Codes:** Every individual memory chip on a single module should come from the same manufacturing batch. Check the small alpha-numeric strings printed on the surface of each chip. If the date codes or batch numbers vary wildly across the same stick, the module was built using salvaged chips scraped from different discarded servers.
- 3. Chemical Residue and "Ghost" Text:** Look closely around the text on the chips under angled light. If a chip was re-etched, there may be faint "ghost" lines of the old text or a thin halo of chemical discoloration where a fake logo was laser-printed onto a scrubbed surface.
- 4. Rounded or Fractured PCB Edges:** Lower-tier gray-market manufacturers cut corners when sawing PCBs or recycling boards. Counterfeit or deeply refurbished sticks often exhibit abnormally rounded, rough, or splintered edges that reveal raw fiberglass.
- 5. DDR4 vs. DDR5 Component Layout Gaps:** Scammers sometimes dress up older DDR4 modules with fake heat spreaders or labels to sell them as expensive DDR5. The physical alignment notch is shifted left on DDR5, but closer to the center on DDR4.
- 6. The PMIC:** True DDR5 modules possess an on-board Power Management Integrated Circuit (PMIC)—a distinct, raised chip in the upper-middle section of the stick. If a stick is labeled DDR5 but lacks this chip under the hood, it is fake.
- 7. Empty "Dummy" Chips:** In aggressive fraud cases, bad actors install fake, hollow plastic or solid fiberglass blocks shaped like memory ICs onto the board just to make it look full-density. Weighing the modules on a precise scale against a known genuine unit can flag these instantly.