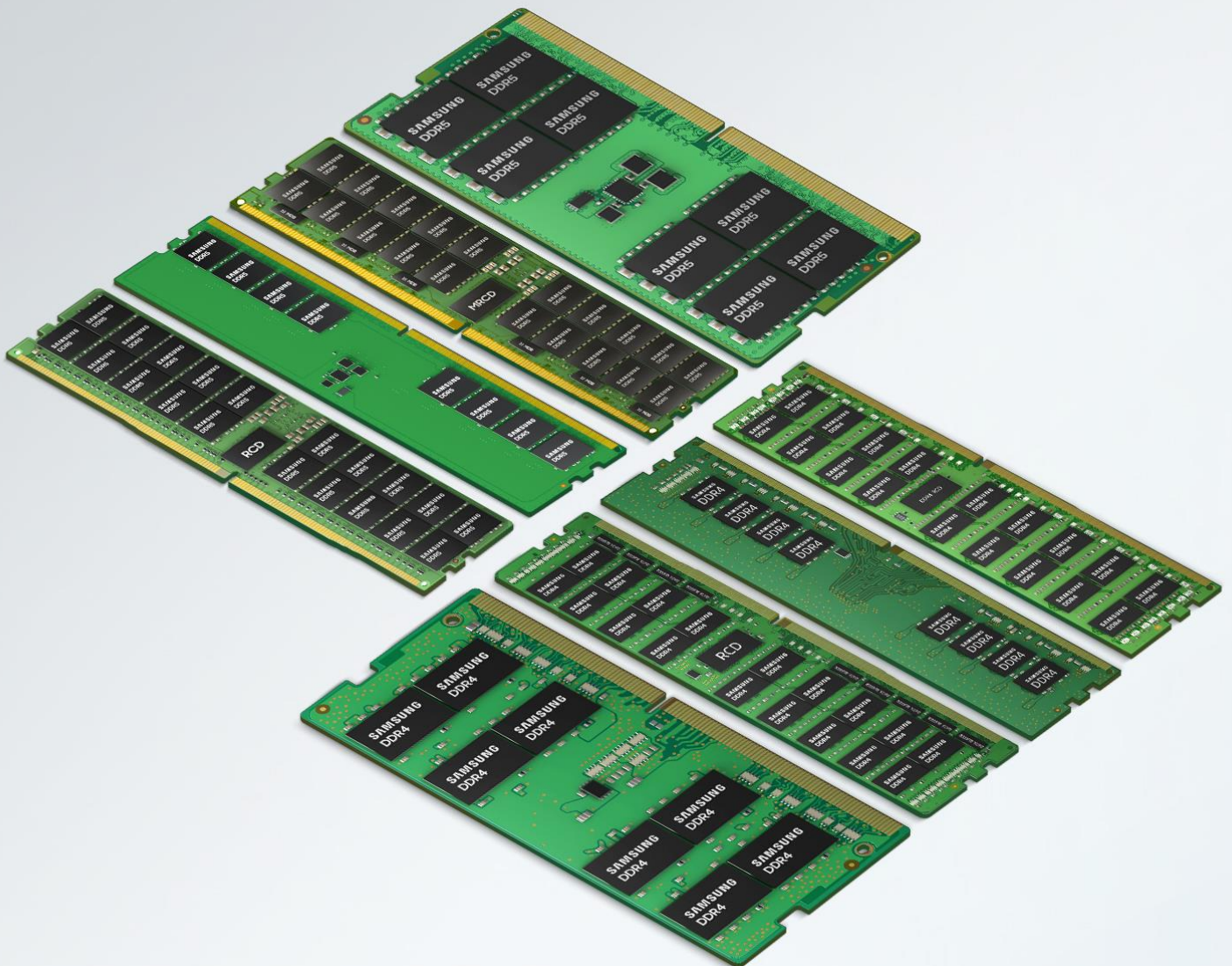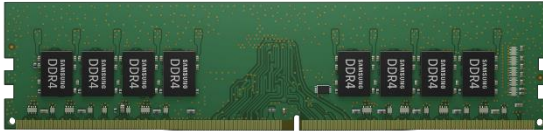# SAMSUNG

Module
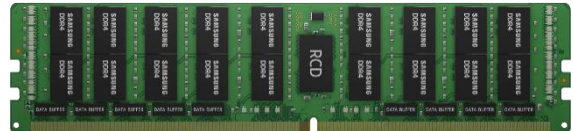# Handling Guide

Brochure

How to handle the module
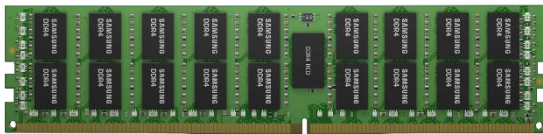
Memory Module Introduction

1. DDR4

Unbuffered DIMM

Load Reduced DIMM
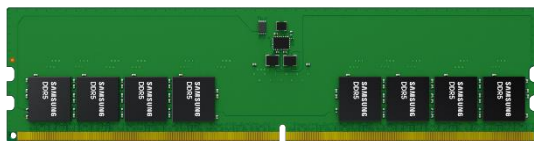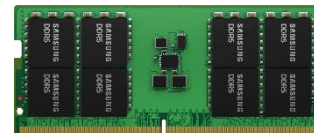
Registered DIMM

Small Outline DIMM

2. DDR5

Unbuffered DIMM
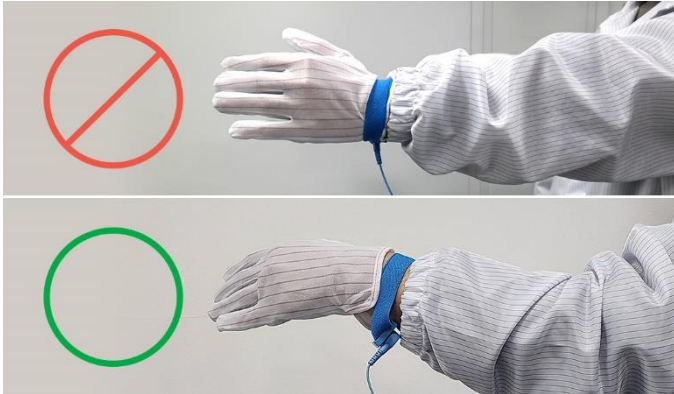
Multiplexed Rank DIMM

Registered DIMM

Small Outline DIMM
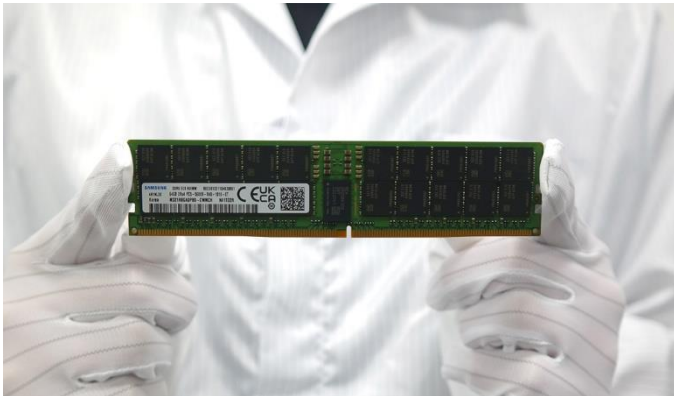
SAMSUNG

Proper Handling

- Anti-ESD* straps should be used.
- The strap should be linked to your skin.

   *ESD : Electro-Static Discharge

- Modules should be picked up from packing trays only one-by-one from the nearest side.
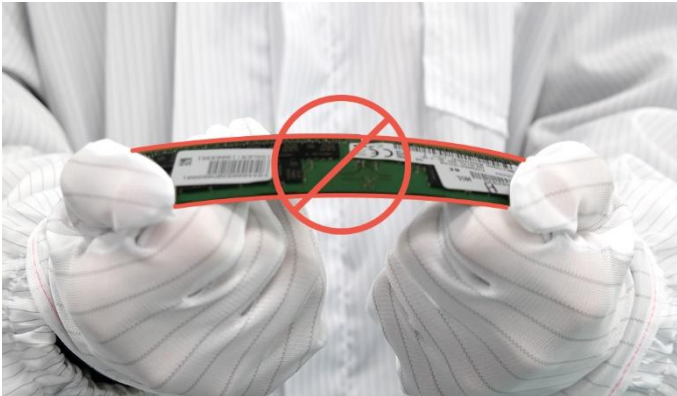- Product should be handled at the conductive mat.

- Do not grab packages & tab area. Hold only the edges of the PCB with both hands.
- Wear gloves when handling.

- Tray must be covered with tray cover when handling module tray.
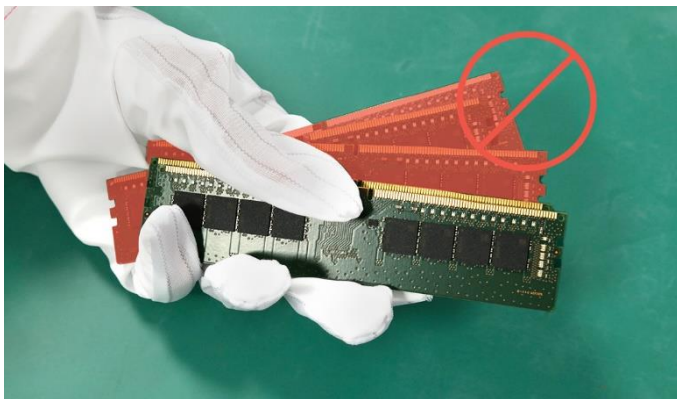
SAMSUNG

Wrong Handling

- Do not twist or bend a module.

- Do not drop modules on the floor.

- Do not hold several modules using one hand.

- Do not touch module without gloves. It can cause tab contamination.

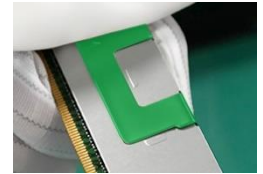**SAMSUNG**

Wrong Handling

- Do not detach H/S* or clip. (FDHS product)
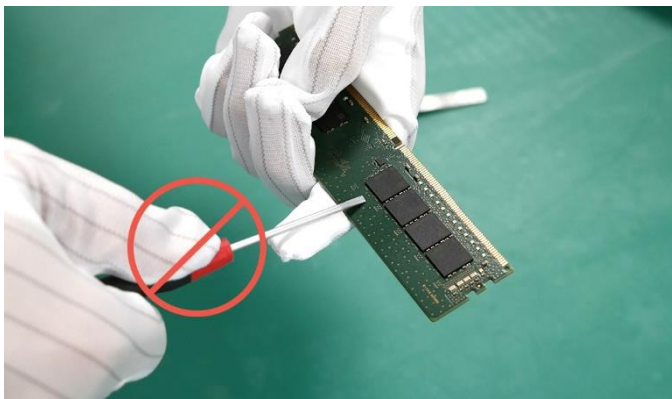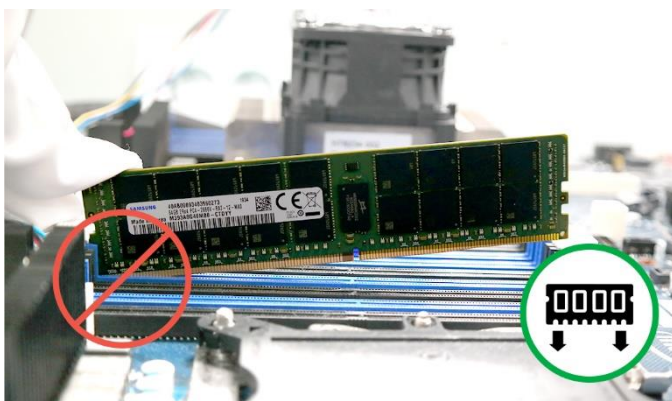
  *H/S : Heat Spreader
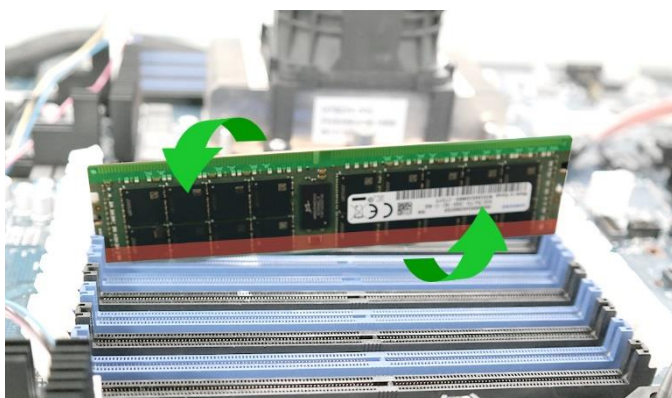

[Improper Way]   [Proper Way]

- Using metal tools to handle the module or placing them near it is prohibited due to the potential risk of damaging module.
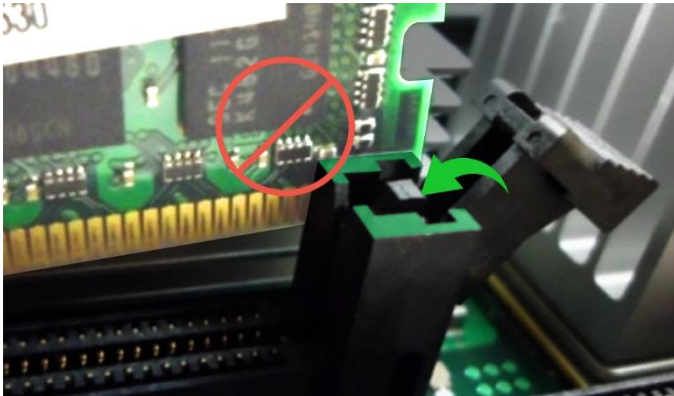

- Do not insert module by seating one end first then seating the other. (this is called zippering or rocking)

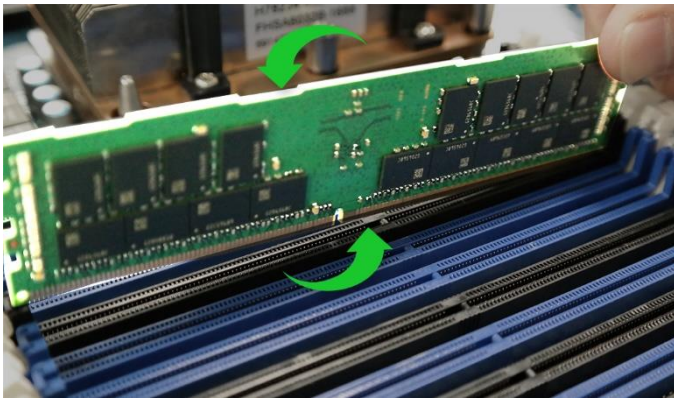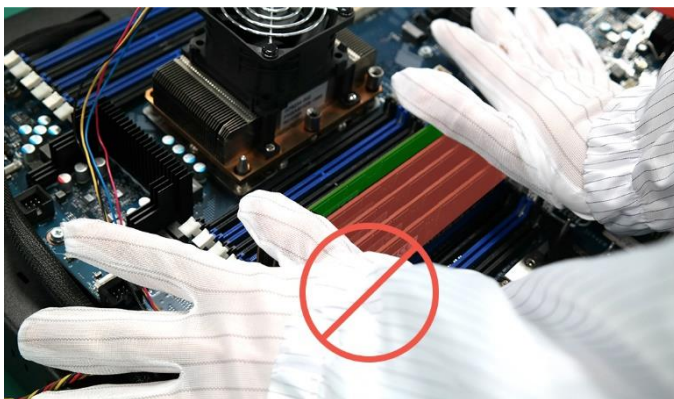- Do not insert module upper side.

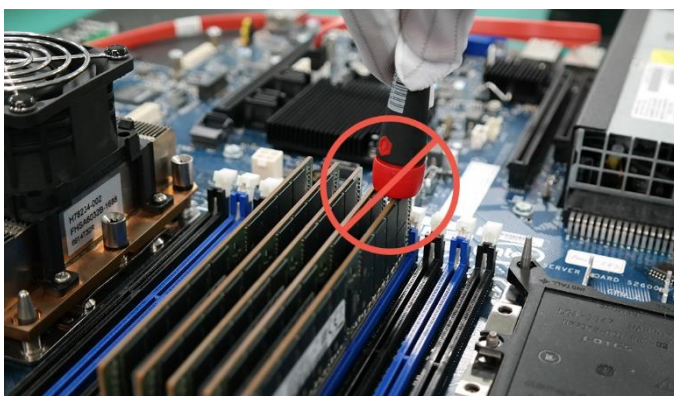**SAMSUNG**

Wrong Handling

- Do not insert module between sockets.
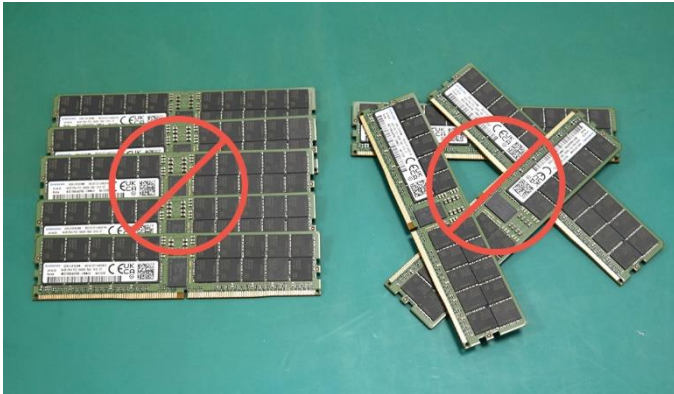
- Do not insert key notch reverse.
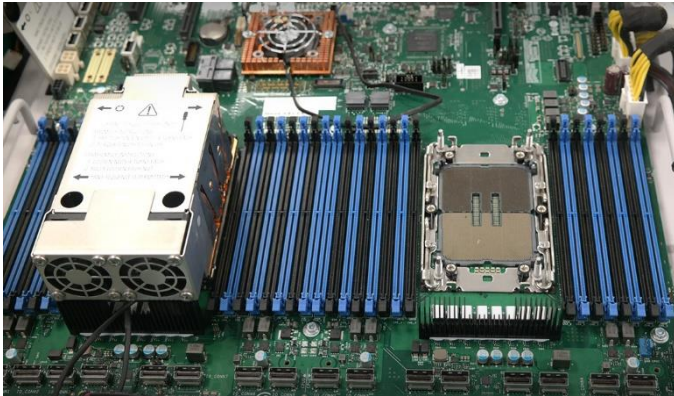
- Do not insert several modules at the same time.

- Do not use metal tools when socketing.

SAMSUNG

Wrong Handling

- Do not stack or load modules.

SAMSUNG

Proper Socketing Process

1. Socketing must be conducted before turn-on. Make sure the power is turned off.
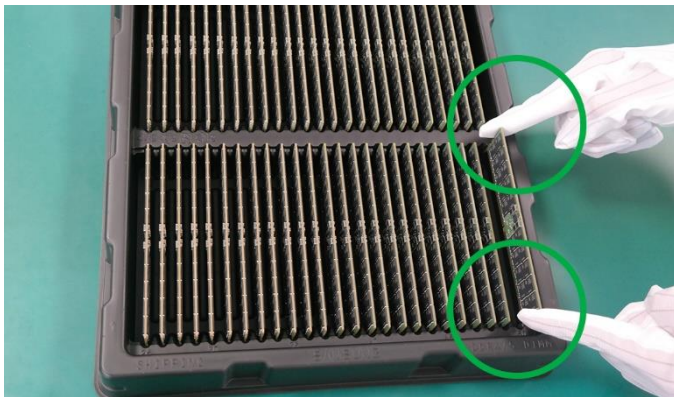

2. Ensure that both latch ejectors of connector are fully opened.
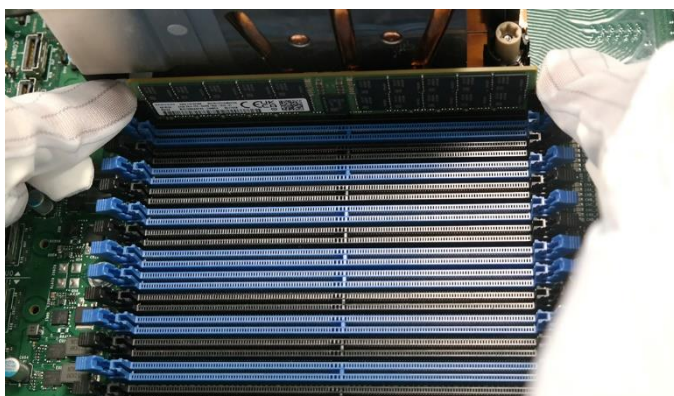

[Improper Way]   [Proper Way]

3. Use both hands to firmly hold the module by its edges. (avoid touching component area)
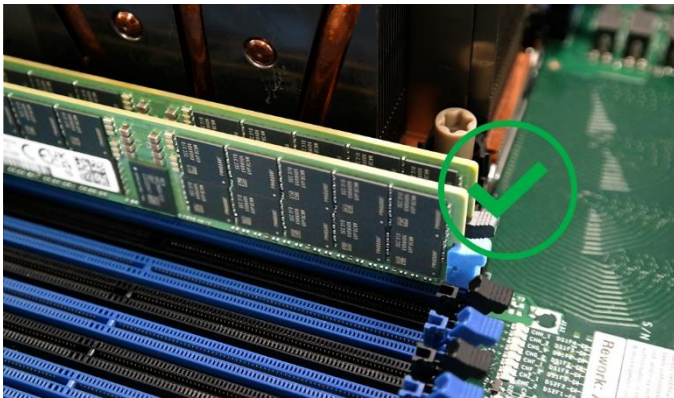

4. Align the module with the socket's notch & side guide. (when dealing with a substantial quantity, begin socketing from the far side)
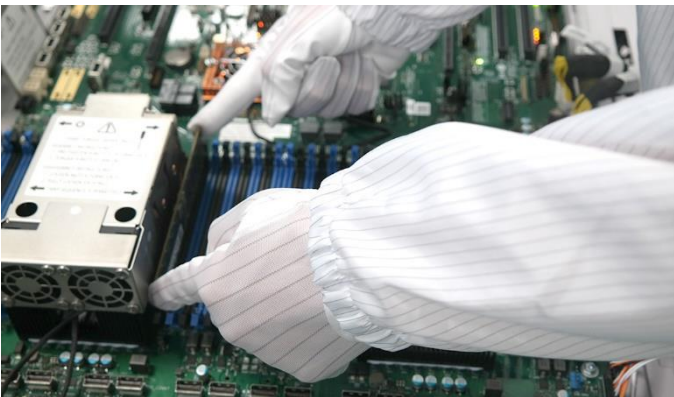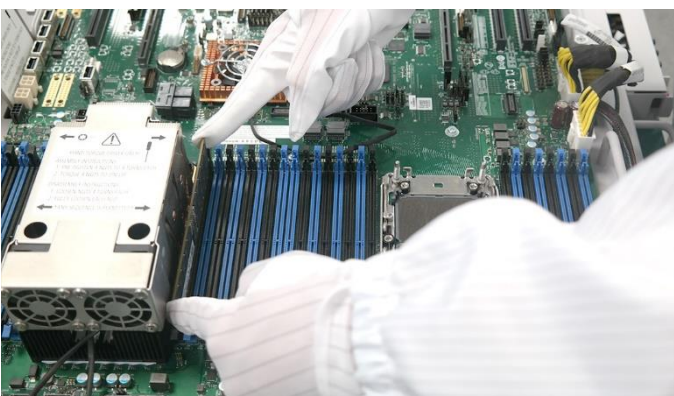
SAMSUNG

Proper Socketing Process

5. Press down both edges of the module at the same time.

6. Make sure to check that the latch ejectors are closed properly.

7. Do not remove module before the power is turned off.

8. Remove module after the power has been turned off and sufficient time has passed.

SAMSUNG

Conclusion

We examined cracking tendencies of certain modules through various tests. Product types, external environments and characteristics of tools used may have caused errors and/or affected test results. However, the most important conclusion that can be deduced from the tests is that special caution against mechanical damage and handling errors should be taken from the moment a module is unpacked to inserting it into the sockets on system boards.

Recent memory module products are structurally weak to external damage due to the increasing numbers of ICs and passive components as well as the unit's diminishing size.
Given such factors and other circumstances, it is difficult to predict and identify clear root causes of failures in connection with BOC PKG passive components. Nevertheless, the above guidelines for memory module handling based on test results could possibly help the user prevent crack-related problems.

About Samsung Electronics Co., Ltd.

Samsung inspires the world and shapes the future with transformative ideas and technologies. The company is redefining the worlds of TVs, smartphones, wearable devices, tablets, digital appliances, network systems, and memory, system LSI and LED solutions. For the latest news, please visit the Samsung Newsroom at **news.samsung.com.**

SAMSUNG