

MODULE HANDLING GUIDE

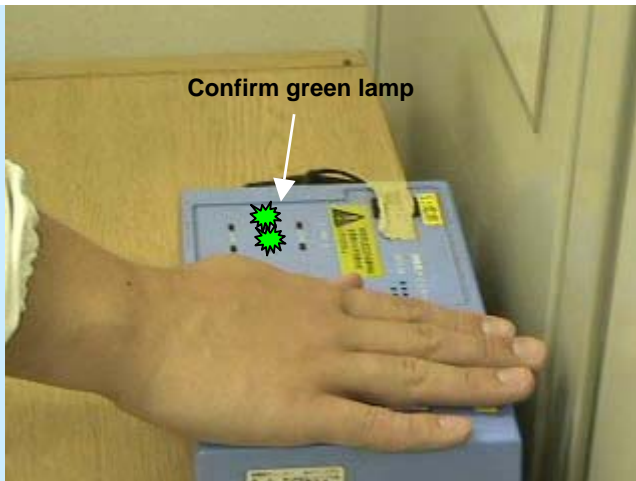
CAUTION

This document describes general handling method of DRAM module.
For details about the handling method, please contact to sales office.

1 Check before it works

1.1 Anti-ESD check

Proper checking



- “Anti-ESD wrist strap” should be applied.
- You must check the ESD.
- Ground your strap at the machine.

Wrong checking

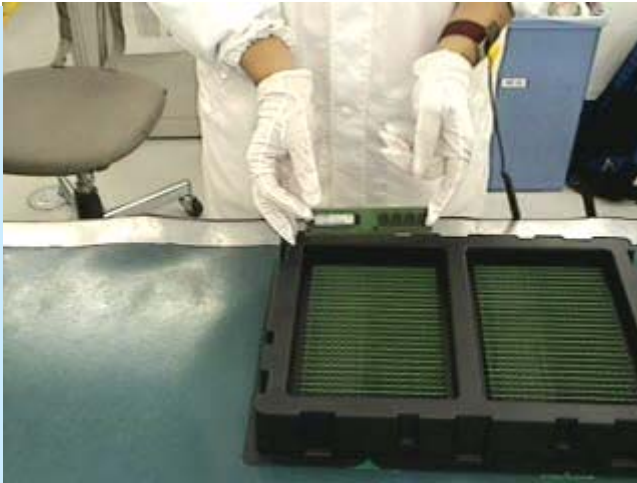


- ESD check : NG.

2 Module Handling

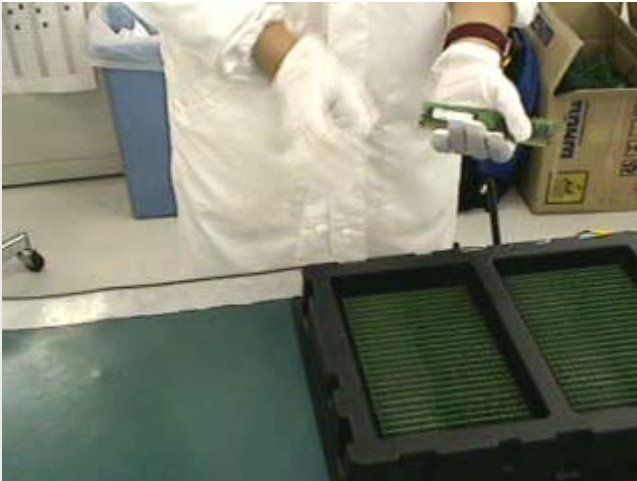
2.1 Handling one module at a time.

Proper handling



- Please handle only one module at a time.

Wrong handling

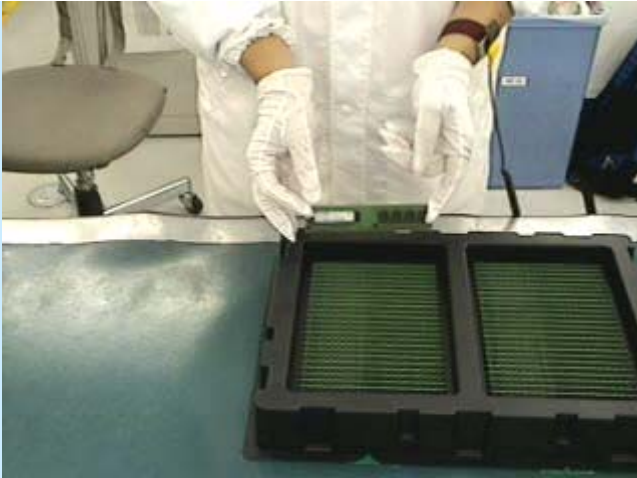


- Do not grab two or more modules at one time.
- Reject mode :
Component crack, Tab scratch.



2-2. Do not drop or throw.

Proper
handling



Wrong
handling



- Do not drop or throw the modules.
- Reject mode :
Component crack, PCB damage, scratch.

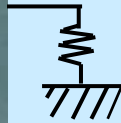


2-3. Product should be handled on a conductive mat.

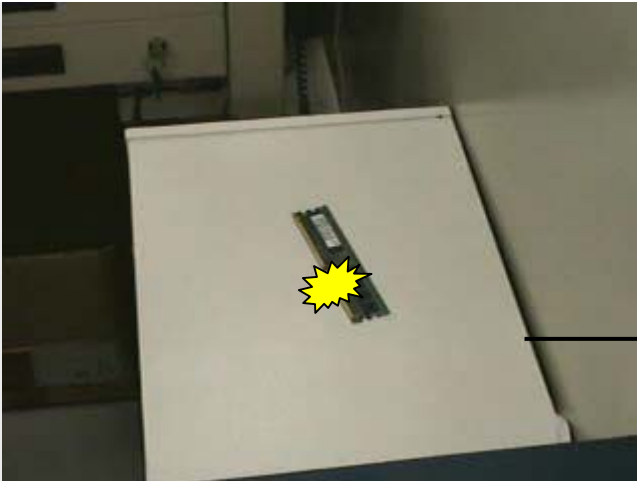
Proper handling



- All products should be handled in an anti-ESD area.
- Product should be handled at a conductive mat or grounded table.



Wrong handling

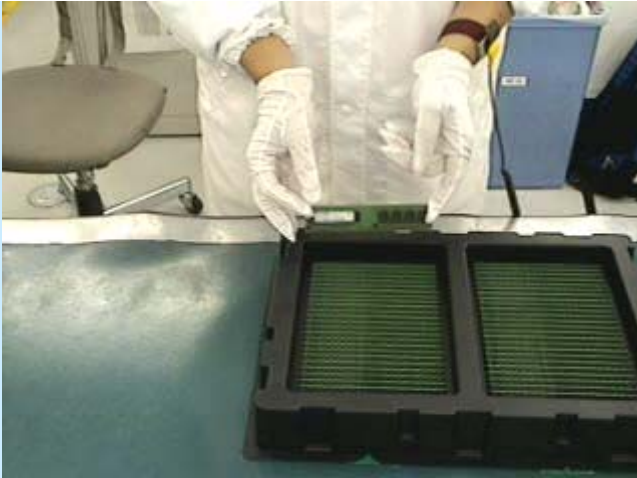


- Module is should only be placed on a Conductive mat.

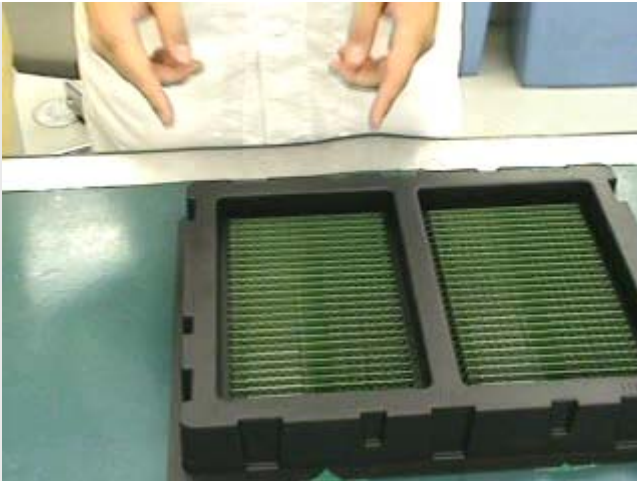


2-4. Do not work with bare hands.

**Proper
handling**



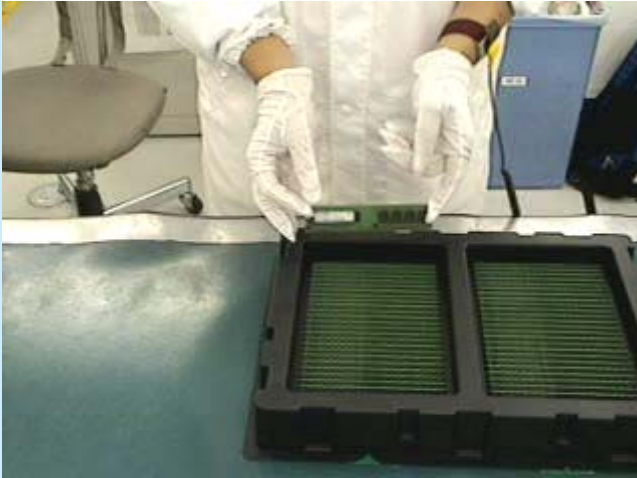
**Wrong
handling**



- Do not work with bare hands.
- Bare hands can cause Tab contamination (Fingerprint, Grease etc.).
- Reject mode :
Tab contamination.

2-5. Avoid PCB bowing.

**Proper
handling**



**Wrong
handling**



- Please avoid bowing the module as shown above.
- FBGA based module should be handled with special care.
- Reject mode :
IC ball crack.

2-6. Carrying the module tray.

Proper handling



- You must hold a module tray with both hands when moving it.

Wrong handling

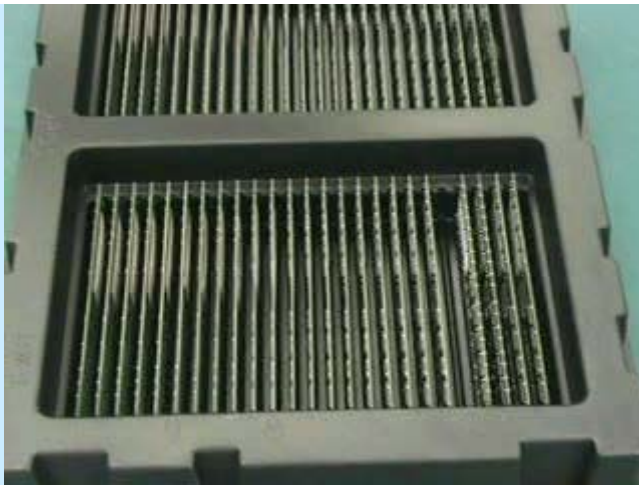


- Do not hold a tray with one hand.
- Tray should be covered.
- Hold a module tray with both hands.
- Reject mode :
Component crack, PCB damage.



2-7. Insert the module into a tray.

Proper handling



- Module lines up properly and is put in the tray.

Wrong handling

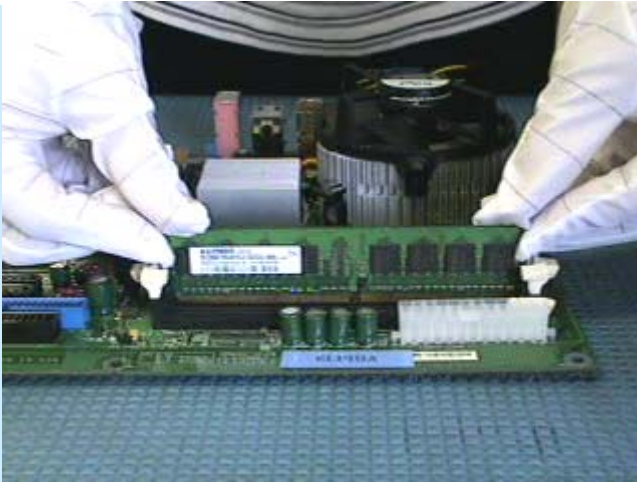


- Module is not diagonally put in the tray.
- Do not overlap the module with a neighboring module.
- Do not stack modules in a tray.
- Reject mode :
PCB damage, Component crack.



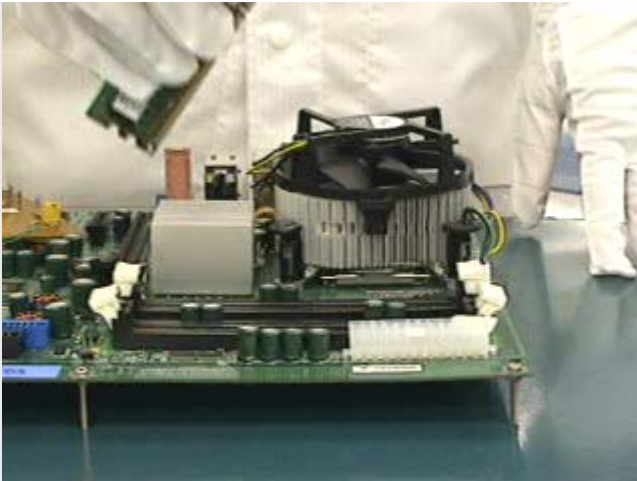
2-8. Inserting a DIMM into the socket.

Proper handling



- Insert the module by using both hands.

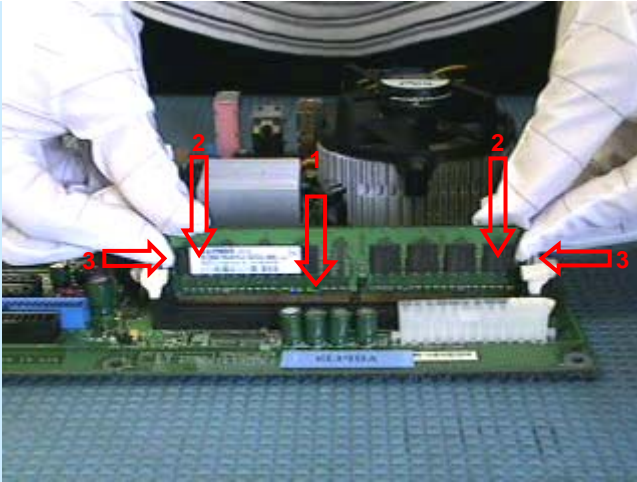
Wrong handling



- Do not insert with One hand and do not insert at an angle.
- Reject mode :
PCB damage, Scratch.

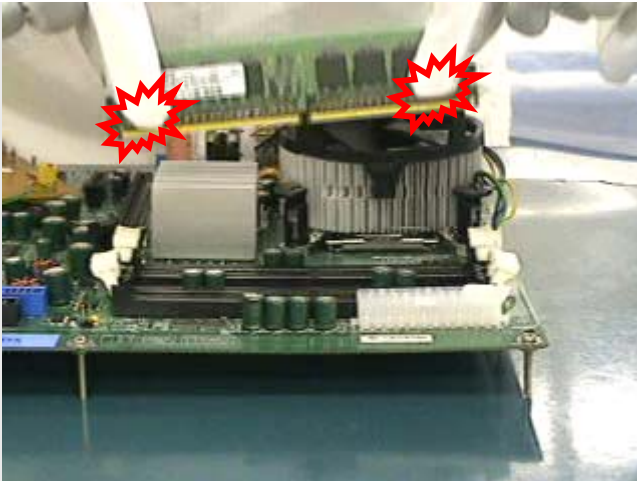
2-9. Do not touch the component or IC area and push from the top.

Proper handling

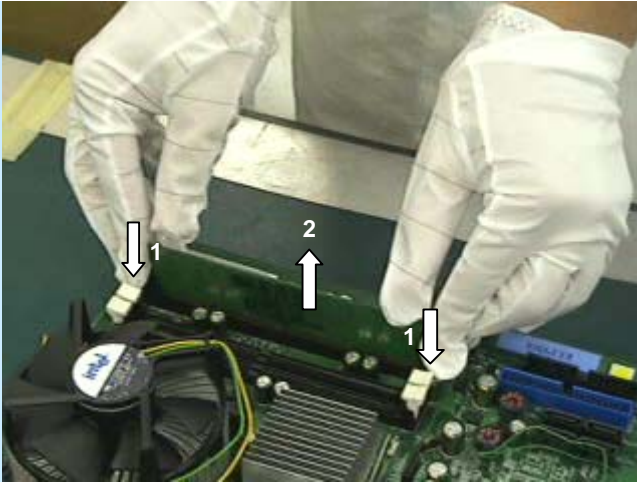


- Do not touch the component or IC area and push from the top.
 1. Insert module on socket.
 2. Push the top side of PCB.
 3. Hook side latch

Wrong handling



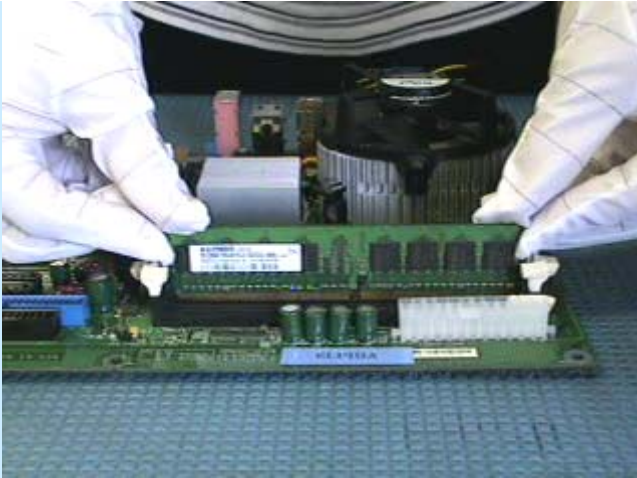
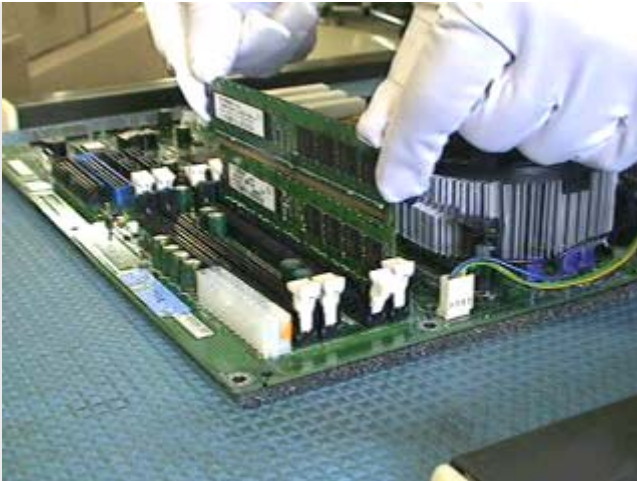
- Don't touch the IC or component.
- Reject mode :
 - IC ball crack, Component crack.

2-10. Do not extract with one hand or at an angle.**Proper handling**

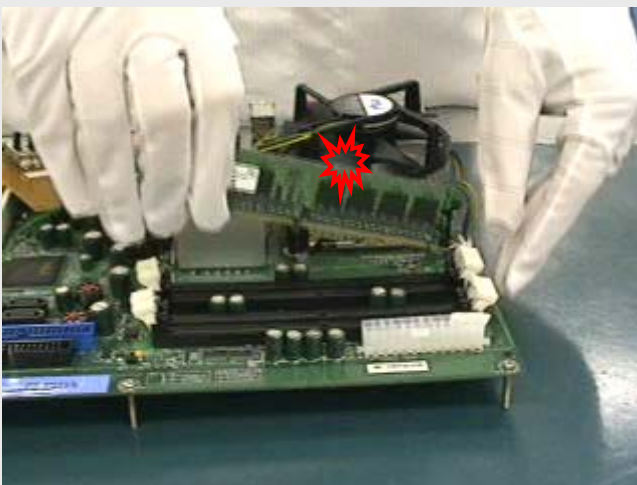
- Extracting operation order:
 1. Unhook the latch.
 2. Extract module in socket.(Attention : When unhooking the latch, module push slowly latch not to bound.)

Wrong handling

- Do not extract with one hand and do not extract at an angle.
- Reject mode :
IC ball crack, Tab damage.

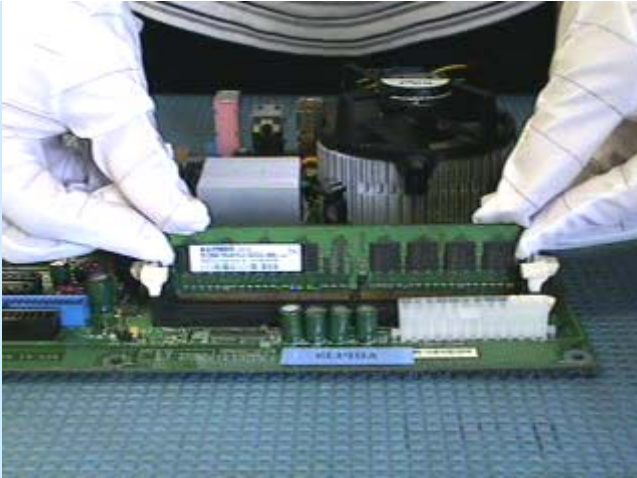
2-11. Be careful not to touch any neighboring module.**Proper
handling****Wrong
handling**

- When inserting/extracting the module, be careful not to touch any neighboring modules.
- Do not drop the module on the motherboard or on neighboring components.
- Reject mode :
Component crack, Scratch, Damage.

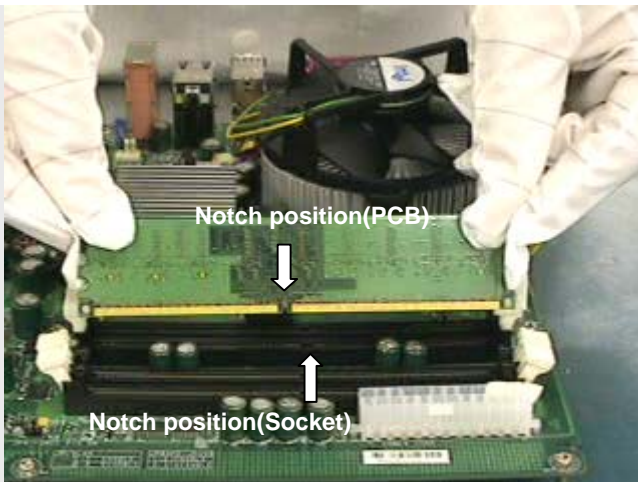


2-12. Check the PCB notch position

**Proper
handling**



**Wrong
handling**



- Check the PCB notch position prior to inserting the module.
- Reject mode :
Tab damage.

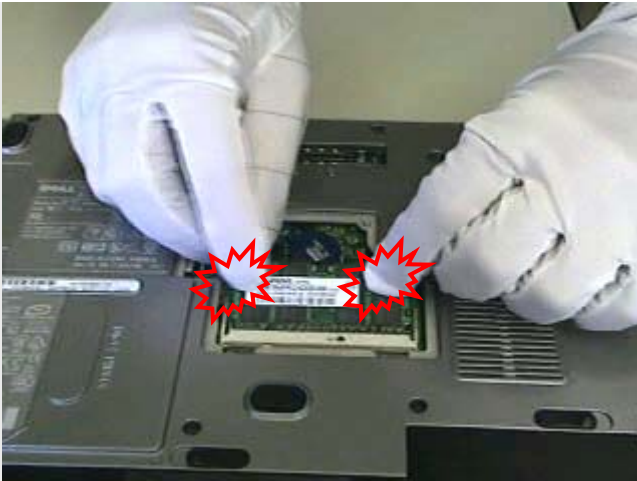
2-13. Inserting module. (SO-DIMM)

Proper handling



- Insert the module by holding both the top and the side as shown above.

Wrong handling



- Be careful of component damage when inserting the module.
- FBGA IC can be easily damaged by improper handling.
- Reject mode :
IC ball crack, component crack.

2-14. Do not insert with one hand (SO-DIMM)

Proper handling



- Insert the module by using both hands.

Wrong handling



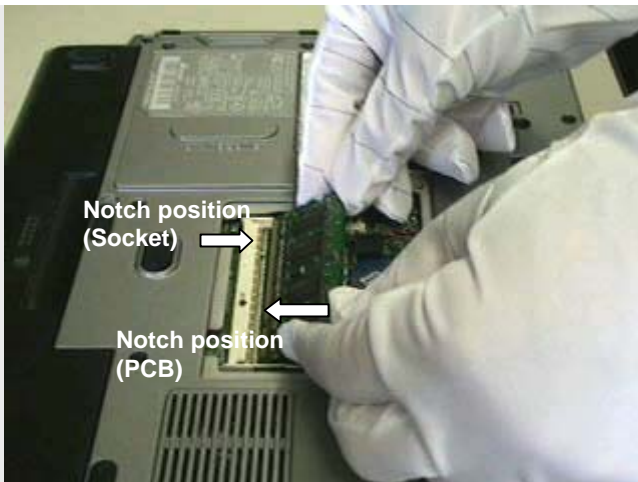
- Do not insert with one hand and do not insert at a steep angle.
- Reject mode :
PCB damage, Scratch.

2-15. Be careful for inserting module

**Proper
handling**



**Wrong
handling**



- Check the PCB notch position prior to inserting the module.
- Reject mode :
IC ball crack, PCB damage.

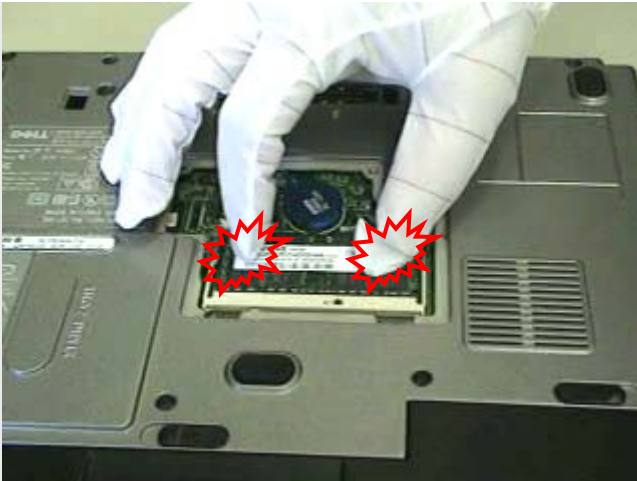
2-16. Be careful for extracting the module

Proper handling



- Extract the module by using both hands.

Wrong handling



- Do not extract with one hand or at too steep of an angle.
- Do not touch the IC's or other components on the module.
- Reject mode :
PCB damage, Scratch.

The information in this document is current as February, 2008. The information is subject to change without notice.

NOTES FOR CMOS DEVICES**① PRECAUTION AGAINST ESD FOR MOS DEVICES**

Exposing the MOS devices to a strong electric field can cause destruction of the gate oxide and ultimately degrade the MOS devices operation. Steps must be taken to stop generation of static electricity as much as possible, and quickly dissipate it, when once it has occurred. Environmental control must be adequate. When it is dry, humidifier should be used. It is recommended to avoid using insulators that easily build static electricity. MOS devices must be stored and transported in an anti-static container, static shielding bag or conductive material. All test and measurement tools including work bench and floor should be grounded. The operator should be grounded using wrist strap. MOS devices must not be touched with bare hands. Similar precautions need to be taken for PW boards with semiconductor MOS devices on it.

② HANDLING OF UNUSED INPUT PINS FOR CMOS DEVICES

No connection for CMOS devices input pins can be a cause of malfunction. If no connection is provided to the input pins, it is possible that an internal input level may be generated due to noise, etc., hence causing malfunction. CMOS devices behave differently than Bipolar or NMOS devices. Input levels of CMOS devices must be fixed high or low by using a pull-up or pull-down circuitry. Each unused pin should be connected to V_{DD} or GND with a resistor, if it is considered to have a possibility of being an output pin. The unused pins must be handled in accordance with the related specifications.

③ STATUS BEFORE INITIALIZATION OF MOS DEVICES

Power-on does not necessarily define initial status of MOS devices. Production process of MOS does not define the initial operation status of the device. Immediately after the power source is turned ON, the MOS devices with reset function have not yet been initialized. Hence, power-on does not guarantee output pin levels, I/O settings or contents of registers. MOS devices are not initialized until the reset signal is received. Reset operation must be executed immediately after power-on for MOS devices having reset function.

CME0107

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[Product applications]

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[Product usage]

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[Usage environment]

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Example:

- 1) Usage in liquids, including water, oils, chemicals and organic solvents.
- 2) Usage in exposure to direct sunlight or the outdoors, or in dusty places.
- 3) Usage involving exposure to significant amounts of corrosive gas, including sea air, CL₂, H₂S, NH₃, SO₂, and NO_x.
- 4) Usage in environments with static electricity, or strong electromagnetic waves or radiation.
- 5) Usage in places where dew forms.
- 6) Usage in environments with mechanical vibration, impact, or stress.
- 7) Usage near heating elements, igniters, or flammable items.

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