intel® Technical Advisory

TA-0285-3

5200 NE Elam Young Parkway
Hillsboro, OR 97124

March 29, 2001

SKA4 DIMM SPD Data Overwritten

Products Affected

Product Type	Product Code
SKA4 Memory Module	BKOSDMEM
SRKA4 Server Platform	SKODVHI SKODVBK SKODVBS SKODVBKHI ISP4400
SPKA4 Server Platform	SKOC2HI SKOC2BS SKOC2BSxx

Description

Sightings have been reported of corrupted DIMM EEPROM SPD (Serial Presence Detect) data on the SKA4 products. The sightings report some bits of the 256-byte SPD data have been overwritten, and thus the SPD data corrupted on the DIMM EEPROM. The corruption is only to the SPD data area and not to main memory.

If a DIMM's SPD data is corrupted, the bank of memory that contains the DIMM will be disabled. This will result in a failure symptom as follows:

- If only one bank of memory is installed the system will not boot (all memory in the system has been disabled).
- If more than one bank is installed, memory will be reduced by the number of banks disabled up to and including all memory.

Root Cause Investigation

Intel has investigated the issue but has not been able to duplicate the sighting nor confirm the cause of the corrupted SPD data.

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As a result of the investigation, Intel has determined that the memory module board has an errata caused by un-terminated outputs on the mux that controls memory bank selection. Intel has determined that there is a slight possibility that un-terminated mux outputs could cause EEPROM SPD corruption. Intel has not been able to induce SPD data corruption through lab testing, nor has Intel been able to confirm any correlation between the sighting of SPD data corruption and the improper terminations on the memory board.

The potential for overwriting EEPROM SPD data only exists on unlocked (write-enabled) DIMM EEPROMs since data can be written to the unprotected 256 byte SPD data area. "Locked" EEPROM SPD memory is not exposed to this problem since it is write-protected. Intel has determined that locking the SPD area via software (e.g. a BIOS write protect) may not be sufficient protection; therefore, hardware write protection should be enabled.

Corrective Action / Resolution

Intel has taken the following action as a result of the sightings investigation.

Intel has modified the memory module board. The board modifications include adding pull-up resistors (and associated pads) to the I2C bus. These pull-up resistors terminate the I2C signals on the memory module. In addition, pads and pull-up resistors were added to the write protect pin of the DIMM EEPROM. These changes are implemented on the 751533-301 memory board, and equivalent changes are implemented on the 751533-205 memory board.

If customers observe SPD corruption, Intel will replace the 751533-204 memory board with either a 751533-205 or a 751533-301 memory board. To obtain replacements for the 751533-204 memory board please use the following procedure:

- For a quantity of 10 or fewer boards, customers should use the standard warranty replacement procedure defined for their Intel account. When requesting warranty replacements, please reference this *Technical Advisory TA-0285*.

- For a quantity of greater than 10 boards, customers should place a normal purchase order for the required quantity of 751533-xxx boards (*product code BKOSDMEM, MM# 821678*). After placing this purchase order, customers should use the standard RMA procedure defined for their Intel account to request an RMA number for the equivalent number of 751533-204 memory boards and referencing this *Technical Advisory TA-0285*. When Intel receives the 751533-204 boards as a return, a credit will be issued to the account.

Please contact your Intel Sales Representative if you require more specific information about this issue.

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