



This Technical Advisory describes an issue which may or may not affect the customer's product

Intel Technical Advisory

TA-1039-2

5200 NE Elam Young Parkway
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Unexpected system behavior exhibited with Intel servers configured with Intel® Xeon® processor E5-2600 or E5-2600 V2 product families, and LRDIMMs

Products Affected

Intel® Server Boards S2600xx product family
Intel® Server System R1000xx product family
Intel® Server System R2000xx product family
Intel® Server System P4000xx product family

Description

While performing memory validation testing of LRDIMMs, Intel experienced unexpected system behaviors on some Intel server systems configured with Intel® Xeon® processor E5-2600 or E5-2600 V2 product families:

- Some systems were seen to hang at POST or reset
- Possible SEL entries associated with this issue may indicate a power issue due to over current protection (OCP) or VR, CATERRs, and uncorrectable ECC errors. Examples of SEL entries may include:
 - CRITICAL event: Pwr Unit Status reports the power unit has suffered a failure.
 - CRITICAL event: Mmry ECC Sensor reports uncorrectable error. There has been an uncorrectable ECC or other uncorrectable memory error for the memory module RANK_2, CPU_2, Channel = F, DIMM_F1.
 - CRITICAL event: CATERR reports it has been asserted.

Systems seen to exhibit these errors were configured as follows:

Using 1066MHz, 1333MHz, 1600MHz, or 1866 MHz LRDIMMs populated as one DIMM per channel (1DPC), two DIMMs per channel (2DPC) or three DIMMs per channel (3DPC).

Note: Error symptoms may differ with systems configured using the Intel® Xeon® processor E5-2600 product family and those configured with the Intel® Xeon® processor E5-2600 V2 product family.

Root Cause

- 1) System BIOS revisions through 02.01.0002 had an internal "Phase Shedding" option, used for memory VR operation, configured as "Enabled", which could lead to system instability when the system is configured with LRDIMMs.
- 2) Some larger capacity LRDIMMs may consume higher power which exceeds the memory power current limit.

Corrective Action / Resolution

Intel will add a user configurable BIOS setting labeled as "Phase Shedding" to BIOS revisions after 02.01.0002, with the default set to "Disabled". This will provide full VR power and alleviate instability with LRDIMMs.

Customers should only "Enable" the "Phase Shedding" option for optimized power in 1DPC and 2DPC configurations and when using LRDIMMs sizes below 16GBs.

Intel Recommendations

Customers with server systems configured with LRDIMMs and are experiencing the documented error symptoms above should update the system BIOS to a revision later than 02.01.0002 when available.

Workarounds

None.

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

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