intel.Technical Advisory

TA-0341-4

5200 NE Elam Young Parkway
Hillsboro, OR 97124

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SKA4/SRKA4/SPKA4/ISP4400 Erratum Regarding 66 MHz PCI Bus Operation.

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Products Affected

Product Type	Product Code
SKA4 Server Baseboard	BKO2HE
SRKA4 Server Platform	SKODVHI, SKODVBK, SKODVBS, ISP4400
SPKA4 Server Platform	SKOC2HI, SKOC2BS, SKOC2BSxx

Description

Intel has confirmed the potential for IO errors leading to unreliable system results when the system is configured with PCI adapter cards operating at 66 MHz. These IO errors have only been observed under certain obscure stress tests and 66MHz PCI usage models in a lab environment. No end-users have reported this issue to Intel and no "real-world" applications have been reported to Intel demonstrating this sighting.

The configurations under which the IO errors could be observed are isolated only to 66 MHz operation of the two baseboard 66 MHz capable PCI slots (PCI-A) and are independent of the operating system or 66 MHz adapter used. This issue does not apply to the six 33 MHz slots (PCI-B and PCI-C) and does not apply when the two 66 MHz slots are operating at 33 MHz. Please refer to the attached *SKA4 Baseboard and MEC Block Diagram*.

If the IO errors do occur, symptoms will vary but may include system hangs or other unreliable system operation.

Root Cause

Intel has confirmed potential IO errors on multiple systems from server OEM manufactures utilizing the Serverworks* Serverset* III HE chipset leading to unreliable system results when configured with PCI adapter cards operating at 66 MHz. The SKA4 baseboard design utilizes the Serverworks Serverset III HE chipset and is affected by this issue. Other Intel designed server platforms are not affected by this issue.

Serverworks is working with its OEM customers and Intel to identify root cause.

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Workaround

In response to this IO error sighting, Intel has issued a specification update to the SKA4 751519-507 and later baseboard revisions documenting an erratum concerning 66 MHz PCI operation. All SKA4 based systems with the previously mentioned baseboard revisions are included in this Specification Update, but only systems operating PCI adapters at 66 MHz are directly affected by this erratum. Intel has determined that 66 MHz PCI operation is not a reliable SKA4 system configuration and cannot be supported at this time. Systems configured with PCI adapter cards operating at 66 MHz are deemed to be operating outside the specifications of the system.

As a workaround, Intel is providing a feature in BIOS that automatically configures the two 66 MHz capable PCI slots to run at 33 MHz. Implementing this workaround will ensure the two 66 MHz capable slots operate at 33 MHz even if populated with 66 MHz capable adapters. Extensive test results show that the IO error associated with the sighting is not exhibited when the two 66 MHz capable slots on the SKA4 server board are operated at 33 MHz. Note that workarounds are not fully validated until root-cause is determined.

In order to support both Intel Server Control (ISC) 2.3 and 3.0, two BIOS versions are available. If (ISC) 2.3 is installed on the system, BIOS 42.1 must be used. If ISC 3.0 is installed on the system, BIOS 50.1 must be used. If neither ISC 2.3 nor ISC 3.0 is installed, either BIOS 42.1 or BIOS 50.1 may be used as a workaround for this issue, however, it is recommended that BIOS 50.1 be used as additional fixes and enhancements are contained in BIOS 50 (See BIOS 50 release notes detailed in TA-0326 for additional information).
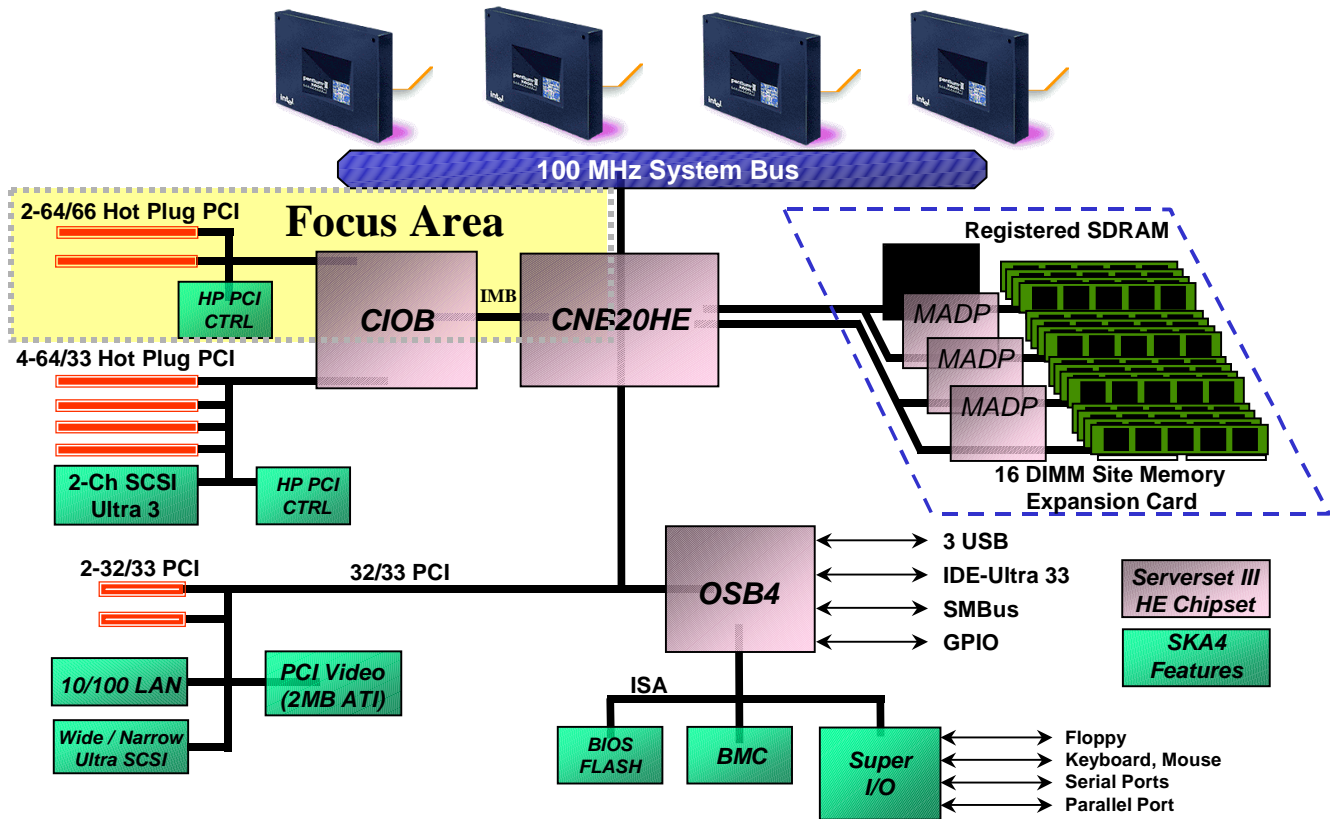
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SKA4 Baseboard and MEC Block Diagram

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

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