



Intel[®] Xeon[®] 5600 Series Processors—Information Update

Important Information

- Your system requires a BIOS and iDRAC firmware upgrade to support Intel Xeon 5600 series processor (less than 130 W). You can download the BIOS and iDRAC firmware for the Intel Xeon 5600 series processor at support.dell.com.



NOTE: A BIOS and iDRAC firmware update only supports a limited feature set of the Intel Xeon 5600 series processor.

- The following new Dell™ PowerEdge™ systems marked with the Roman Numeral II on the chassis support the complete feature set of Intel Xeon 5600 series processors:

- R410
- R510
- R610
- R710
- T410
- T610
- T710
- M610
- M710



NOTE: The PowerEdge R410, T410, and R510 systems do not support 130 W Intel Xeon 5600 series processors.



NOTE: The modular systems, PowerEdge M610 and M710, support the 130 W Intel Xeon X5680 only in the 130 W processor category.



NOTE: The PowerEdge R610 and M710 systems need specific heat sinks to support the 130 W Intel Xeon 5600 series processors.

- Mixing of Intel Xeon 5500 and 5600 series processors is not supported.
- Systems with the Intel Xeon 5600 series processors support memory sparing.

Low Voltage Memory Modules (DDR3L DIMMs)

Intel Xeon 5600 series processors support DDR3L DIMMs enabling a lower operating voltage (1.35 V) that ensures memory power savings up to 20% per DIMM. DDR3L memory is backward-compatible to Intel Xeon 5500 series and operates at standard voltage (1.5 V) without any limitations.

Operating the system memory at a lower voltage may cause restrictions to additional frequency and memory population capabilities. For example, populating three memory modules per channel is not supported at 1.35 V.

Systems with 1.35 V DDR3L memory operates the memory modules at 1.5 V if any of the following conditions exist:

- Intel Xeon 5500 series processors
- Two 1333 MHz DIMMs per channel
- A combination of both standard and low voltage memory modules

For information on the memory configuration guidelines, see your system's *Hardware Owner's Manual* at support.dell.com/manuals.



NOTE: BIOS setup options allow the user to control frequency and voltage configuration within allowable limits.

New BIOS Setup Options

Memory Settings Screen

Option	Description
System Memory Voltage	Displays the system memory voltage.
Memory Operating Voltage (Auto Default)	Sets the system memory voltage selection.
Memory Operating Mode	Displays the type of memory operation if a valid memory configuration is installed. When set to Optimizer Mode , the memory controllers run independent of each other for improved memory performance. When set to Mirror Mode , memory mirroring is enabled. When set to Advanced ECC Mode , two controllers are joined in 128-bit mode running multi-bit advanced ECC. The Spare Mode option is present on systems with the Intel Xeon 5600 series processors only.

Processor Settings Screen

Option	Description
CIE (Enabled default)	Sets the processor performance state to minimum when the system is idle.
Intel® QPI Bandwidth Priority (Compute default)	Sets the bandwidth priority to compute or I/O. Recommended for HPC applications.
Adjacent Cache Line Prefetch (Enabled default)	Enables high utilization of sequential memory access. NOTE: Disable this option for applications that require high utilization of random memory access.
Hardware Prefetcher (Enabled default)	Enables or disables the hardware prefetcher.
DCU Streamer Prefetcher (Enabled default)	Enables Data Cache Unit streamer prefetcher. Recommended for HPC applications.
Data Reuse (Enabled default)	Enables or disables data reuse. Recommended for HPC applications.

New POST Messages

The following are the new POST messages for the Intel Xeon 5600 series launch.

Message	Description
System Memory Size: X.X GB, System Memory Speed: XXX MHz, Voltage: 1.5V or 1.35V	Displays the amount of system memory, system memory speed, and current system memory operating voltage.
This CPU power rating is not supported	This message displays when either of the following occurs: <ul style="list-style-type: none">• The Intel Xeon 5600 130 W series processor is detected on an old system board (systems not marked with roman numeral II). For a list of the supported systems, see "Important Information" on page 1.• The Intel Xeon X5677 130 W series quad-core processor is detected on PowerEdge M610 and M710.
Non-ECC DIMM detected on DIMM XX	Displays when the system detects a non-ECC memory module.

Enabling Dell BIOS Intelligent Turbo Mode

The Dell BIOS Intelligent Turbo Mode feature allows the operating system to set the processor performance in the turbo mode. Based on the processor utilization, this feature delays the processor turbo mode initiation for better power management. When the turbo mode is enabled in the **Processor Settings** screen of the system setup, the feature can be enabled or disabled using the following BIOS setup options:



NOTE: The Dell BIOS Intelligent Turbo Mode is disabled when the turbo mode is disabled in the processor system setup screen.

Setup Screen	Field	Field value	Intelligent Turbo
Power Management	CPU Power and Performance Management	OS DBPM	Enabled
Power Management	CPU Power and Performance Management	System DBPM	Disabled
Power Management	CPU Power and Performance Management	Maximum Performance	Disabled

Information in this document is subject to change without notice.

© 2010 Dell Inc. All rights reserved.

Reproduction of these materials in any manner whatsoever without the written permission of Dell Inc. is strictly forbidden.

Trademarks used in this text: *Dell*, and the *DELL* logo are trademarks of Dell Inc.; Intel and Xeon are registered trademarks of Intel Corporation in the U.S. and other countries;

Other trademarks and trade names may be used in this document to refer to either the entities claiming the marks and names or their products. Dell Inc. disclaims any proprietary interest in trademarks and trade names other than its own.