Intel® Real Server Boxed Board Reference Chassis Enabling Program

Guidelines for Submission
of
3rd Party Reference Chassis

Revision 1.0
Jan. 2000

intel®

Revision History

Revision	Revision History	Date
0.5	Initial release	11/15/1999
0.6	Wordsmithing	11/18/1999
0.9	Editorial	12/1999
1.0	Changed Copyright information	1/2000

Table of Contents

1. Introduction

The information provided in this document is intended as a quick reference guide to the reference chassis enabling processes pertinent to Intel's® Real Server Boxed Board product line and is provided as a convenience to our customers. The information contained in this document is subject to change at any time. Changes in testing procedure may occur including the addition of new equipment, safety regulations, Electro-Magnetic Compatibility (EMC), operating system vendor requirements, or alterations in the configuration of product and operating system.

Chassis passing this process will then be listed on the Intel® reference chassis listing for the specific Real Server Boxed Board Product.

2. Reference Chassis Enabling Process Overview

Each chassis is tested with the server board for mechanical fit, thermal specifications, and power supply functional compatibility. The three test criteria areas are as follows:

Mechanical fit. – Ensure the server board fits properly into the chassis. Checking for proper alignment with I/O back panel and server board mounting holes. Measure chassis I/O panel for ATX 2.XX[1] compliance. Verify that no mechanical interference issues exist between the server board and any installed system device.

Thermal Support. - Assure processor(s), chip sets, and hard drive(s) stay within manufacturer's published thermal specifications when tested to a given level of configuration.

Adequate power support. - The power supply wattage required to support the server board being evaluated is specified in the Technical Product Summary, (TPS) for each product. During the thermal verification process, ensure that the integrated system under test "powers on" correctly and functions normally through all phases of testing. Also verify that the power supply provides adequate 5 volt standby power to support the Wake On LAN (WOL) requirements of the server board being tested. This should be accomplished by verifying the specified 5 volt standby current is available and by insuring proper "power on" of the server board with the WOL feature jumper enabled on the server board. If the system will not "power on" with the WOL enabled, inadequate 5Vsb from the power supply may be the cause.

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[1] At the time of this documentation, ATX 2.03 is the current specification revision.

3. Mechanical Fit

The initial step in the reference chassis evaluation is to verify that the chassis is compliant with key sections of the ATX 2.XX specification including.

1) Mounting hole placement must conform to all ATX defined locations. It is also important for immunity and EMI that the mounting points provide electrical path to chassis ground.

2) The chassis must not violate any of the ATX board component keep out zones or Mechanical Specification component height for individual server boards. Test to ensure there are no interference issues between chassis, server board and peripherals. It may be necessary to install the server board and any peripherals that may protrude into the area directly above the server board to verify fit.

3) Specifically make sure that the mounting pads/holes and/or permanent stand offs align with the baseboard mounting holes. Some chassis that have permanent stand offs will short the baseboard if not aligned with a mounting hole.

> **Note:**
> It may be necessary to physically install a suitable peripheral in a chassis to verify that proper clearance exists. An example would be to load an internal 5.25 inch drive bay with a CD-ROM drive or tape drive to ensure that there is no mechanical interference with the server board and any plug in module on the server board such as processor(s), memory or VRM's.
>
> All cables should also be checked to ensure proper fit in the chassis and that adequate clearance exists between the cable and chassis structure/add-in components (power supply, drives, etc.).

4. Thermal Testing

Chassis will be tested to determine whether they provide adequate airflow to keep critical server components within the individual manufacturer's temperature specifications. Components specifically targeted for the thermal monitoring are processors, chipsets, and hard disk drives.

Each of the Intel's Real Server Boxed Baseboard's components will have different thermal limits as defined in the Chassis Thermal Test Overview for the specific product.

Example of Thermal test matrix:

Test Points	Max Specified Temp Limit (°C)	Measurements @ 35°C	Margin (°C)
Processor Test			
Primary Processor	75		
Secondary Processor	75		
Chip Set Test			
FW82443GX	85		
Disk Stress Test			
Disk#1 ID 0			
Test Point 5-HDA	60.0		
(For Level 2 tests, Delete Drive ID 1 & ID 2 from Table)			
Disk#2 ID 1			
Test Point 5-HDA	60.0		
Disk#3 ID 2			
Test Point 5-HDA	60.0		

5. Power Supply Review

Power supply testing is performed with a moderately loaded system. Make sure to review the power supply voltage specification found in the Technical Product Specification for the specific product.

Example: Table 4-5. L440GX+ Power Supply Voltage Specification within the **L440GX+ Technical Product Specification.**

Note:
Future products will be migrating to the Server System Infrastructure, (SSI) power supply standard. The SSI standards are currently being developed and/or in the process of being ratified. Going forward with the Build Your Own, (BYO) program, SSI compatible designs will become available in late 1999-2000 time frame. Reference the most recent released version of the SSI specification to perform mechanical verification for all future SSI compliant server boards/ chassis designs.

6. Vendors Preparation.

It is recommended that Vendors perform the following action prior to submitting their chassis for testing.
1. Obtain the current ATX specification and review for mechanical fit.
2. Obtain the current System Server Infrastructure, (SSI) specification and verify conformance.
3. Obtain the current Technical Product Specification for the product to be tested.

7. Northwest Environmentals Test Lab, (NWETL).

NWETL is a leading testing organization authorized by Intel to test server chassis. Chassis tested by NWETL must undergo a rigorous battery of tests to ensure that the product will perform the intended server functions. Stringent standards with regard to manufacturing procedures and quality must be met to pass the exacting tests required for qualification. Testing is performed with equipment and procedures that are defined by Intel.

Testing can be handled directly by NWETL.   Please contact them at the following address.

Point of Contact.

Will Brokaw   Northwest Environmental Test Lab (NWETL)
503-844-4100 (voice)   5289 NE Elam Young Parkway
503-844-3800 (fax)   Suite G-950
                                               Hillsboro, Oregon 97124-6431

Toll Free
1-877-385-2269   WWW.NWETL.COM