



# **T440BX Reference Chassis List Test Report Summary**



*Revision 2.7  
September, 1998*

<b>Revision History</b>		
<b>Date</b>	<b>Rev</b>	<b>Modifications</b>
3/25/98	0.5	Initial release
4/3/98	1.0	Legal disclaimers reviewed/changed
5/28/98	1.3	Added three new chassis and reformatted table
6/01/98	1.4	Removed Chenbro chassis and reformatted document
6/02/98	1.5	Incorporated comments from Technical Publications Group and Legal
6/09/98	2.1	Added statement regarding 82440BX heatsink
6/25/98	2.2	Minor chart changes
6/29/98	2.5	Updated chassis specifications
8/07/98	2.6	Fixed MaCase rack model number
09/10/98	2.7	Fixed Antec IPC2480 dimentions

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## Overview of Chassis Testing

The purpose of this report is to facilitate the identification of third party ATX chassis that are mechanically and thermally compatible with the purpose-built T440BX server baseboard. The areas of focus for this testing were mechanical fit, chassis thermal performance, and power supply support of 800ma of +5V stand by current

Intel's extensive computer system and chassis design experience has shown that the thermal characteristics of a server chassis are of far greater importance than commonly considered. The thermal testing information provided in this summary is intended as a guide for the integrator/reseller in selecting a chassis that can reliably support their intended server configurations.

**Note:** The term chassis is used interchangeably throughout this document to describe both pedestal mount and rack mount enclosures.

## Chassis Testing Premise

Mechanical Testing – The chassis were tested for ATX 2.01 compliance at the I/O opening and for physical fit with the T440BX server board.

Thermal Testing – The chassis were 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 were the Intel Pentium® II Processor, Intel 82440BX AGPset host bridge chip, and the hard disk drive(s). The table below briefly describes the tested server configurations.

### **Tested Server Configurations:**

Test Level	Processor <sup>1</sup>	Memory	HW RAID	Hard Disk	RPM	Disk Type
1	1x300MHz	64 MB	No	1 x 4.5GB	7,200	Seagate Barracuda ST34572W
2	1x300MHz	256 MB	No	1 x 9GB	7,200	Seagate Barracuda ST19171W
3	1x300MHz	256 MB	Yes	3 x 9GB	7,200	Seagate Barracuda ST19171W
3 <sup>2</sup>	1x300MHz	256MB	Yes	3 x 9GB	10,000	Seagate Cheetah ST39102LW/LC

<sup>1</sup> 300MHz Pentium® II Processors were used as they presented the worst case thermal characteristics at the time of testing.

<sup>2</sup> Level 3 testing was complete with both Seagate\* Barracuda\* and Cheetah\* hard drives. The Cheetah LVDS drives exhibited similar thermal characteristics as the Barracuda drives, therefore both are compatible in a level 3 chassis.

## Testing Results:

The table illustrates the results of all the individual chassis tested for compatibility with the T440BX server board:

Supplier	Model#	Type (2)	Dimensions (5)	Price (4)	P/S Size	P/S Type (3)	WOL/EMP Support (1)	Thermal Test Level (8)	EMI/CE(A/B)	5.25 Bays (6)	3.5 Bays (6)	HotSwap Drives
Antec	IPC2480	Rack	20x17x7	E	300W	SGL	tbd	2		2	2	No
Chenbro	A6711	MT	16x7x17	A	300W	SGL	Yes	2		2	4	No
Chenbro	A9661	FS	23x15x27	E	300W	RD	Yes	3	B	12	9	No
Chenbro	A9881	FS	20x15x18	D	300W	SGL	Yes	3	B	8	6	No
Chieftec	TC-01W	MT	17x8x20	A	230W	SGL	No	2		3	3	No
Chieftec	TH-01W	MT	19x7x17	A	230W	SGL	No	2		3	3	No
Chieftec	FT01W	FT	18x8x25	A	300W	SGL	Yes	2	B	6	4	No
Chieftec	AA-02W	FS	27x13x21	E	300W	RD	Yes	3		11	3	No
Enlight	EN-7100	MT	16x9x16	A	230W	SGL	No	2		3	3	No
Enlight	EN-7230	MT	19x8x17	A	230W	SGL	No	2		4	3	No
Enlight	EN8910	FS	21x8x25	C	300W	SGL	Yes	3	B	5	5	No
Enlight	EN8910	FS	21x8x25	D	300W	RD	Yes	3	B	5	5	No
GodSpeed	GS130L	MT	17x9x17	A	300W	SGL	Yes	2		3	3	No
In-Win	Q500I	FT	17x8x24	B	300W	SGL	Yes	3	B	5	5	No
InWin	IWA500	MT	18x9x16	A	235W	SGL	Yes	2		3	3	No
Macase	KA-K80	MT	17x7x18	A	250W	SGL	No	2	A	3	6	No
MaCase	KA-580WP	MT	17x10x15	A	300W	SGL	Yes	2	A	3	6	No
MaCase	KS-030	FS	20x11x26	E	300W	RD	Yes	3	A	8	4	No
MaCase	KI-P20	Rack	18x17x7	D	300W	SGL	Yes	2		2	2	No
Schaeffer/CED	ATX-ATW	FT	17x22x9	B	300w	SGL	Yes	3	B	5	8	No
Shin-G	GT-230-XC	MT	18x9x18	A	300W	SGL	Yes	2		3	5	No
Shin-G	GT-232-XC	MT	18x9x18	A	300W	SGL	Yes	2		3	5	No
Shin-G	GT-233-XC	MT	18x9x18	A	300W	SGL	Yes	2		3	5	No
Shin-G	GT312ATX	FT	17x9x24	B	300W	SGL	Yes	2		4	5	No
Yeong Yang	YY-5360ATX	MT	18x8x16	A	300W	SGL	Yes	2		3	3	No
Yeong Yang	YY-1240	FT	17x8x23	A	300W	SGL	Yes	2	A	5	4	No
Yeong Yang	Champ-201B	FS	19x8x27	E	300W	RD	Yes	3		6	4	No

**Table 1: Reference Chassis List for the T440BX Purpose Built Server Board**

- (1) All vendors project providing a minimum of 800ma of +5V standby current to support WOL and EMP capabilities
- (2) Chassis Legend:  
 FT = Full Tower, FS = File Server, MT = Mid-Tower, NT = MiniTower, Rack = Rackmount
- (3) Power Supply Legend: SGL = Single, RD = Redundant, HS = Hot Swap
- (4) Projected US Reseller Price Range. Provided by chassis manufacturer:  
 A = < \$100, B = \$101-\$150, C = \$151-\$250, D = \$251 - \$400, E = > \$400
- (5) Approximate dimensions in inches
- (6) Bay data provided as rough estimate of chassis capacity. Refer to chassis specifications for detailed peripheral support.
- (7) The T440BX server board can NOT be used in the Intel Columbus or Intel Astor Chassis
- (8) Thermal test level refers to highest level of testing that passed ESG's thermal testing
- (9) Thermal testing of the T440BX server baseboard in reference chassis was initiated in three chassis with a heat sink installed on the 802443BX bridge controller. The heat sink was latter removed from the product structure. The data collected on testing with 802443BX bridge controller heat sinks was reviewed and regression testing performed on those reference chassis with the highest measured 802443BX bridge controller temperatures (heat sink installed). Based on the results of the regression testing it is deemed that the 802443BX bridge controller temperature is not an issue on this chassis and only the 802443BX bridge controller heat sink data was reported

(repeat run without heat sink not required). The three chassis affected are the Chieftec TH-01W, MaCase KA80WDF and the Yeong Yang 5360 ATX.

## **Power Supply Testing Premise**

Wake-on-LAN\* (WOL) allows the ability of a management application to remotely power up a computer. To support this feature, it requires that the power supply have a 5V standby line (5VSB) capable of delivering >720mA. The T440BX also has a feature called the Emergency Management Port (EMP). The port, in conjunction with a modem on serial port 2 allows remote emergency management of a server – even if the server is powered down. In order to support EMP, it is required that the power supply have 5V standby line (5VSB) capable of delivering >750mA.

The only testing performed on the following power supplies was to verify if they supported 800mA on the 5VSB line. This test was performed with a moderately loaded system under normal operation. Intel has determined that the following power supplies meet minimal electrical functionality required to support server management features (WOL and EMP) on the T440BX server baseboard.

<b>Supplier</b>	<b>Model #</b>	<b>800mA +5VSB Current Support</b>
Seventeam*	ST-301HR	Yes
Sparkle*	FSP300-60GT	Yes
Seasonic*	SS-300W	Yes
Seasonic	SS250GTX	Yes
Etasis*	EPR-2305	Yes
Emac*	AP2-5300F	Yes
Emac	RPD-5300F	Yes
Enhance*	ATX730B	Yes
MaCase*	EPR-2305	Yes
Antec*	PP-303X	Yes
Channel Well Tech*	CWT-300ATX	Yes
Enlight*	EN-8309961	Yes
Symphony*	HRP-102	Yes

**Important Note**

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