



N440BX Chassis Test Report Test Summary



*Revision 1.5
Sept 1998*

Revisions:

Revision Level	Notes
0.5	Draft Copy For Review Only
1.0	TME edits
1.1	MINOR WORD EDITS
1.2	REMOVAL OF AXXION CHASSIS
1.3	ADDITION OF EMC REPORT INFORMATION FOR CE MARK
1.4	CHANGED MACASE P/N KA-P20WP TO KI-P20
1.5	CORRECTED TYPO ANTEC IPC2840 TO IPC2480

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Overview

The purpose of this report is to facilitate the identification of third party ATX compliant chassis that are mechanically and thermally compatible with the N440BX server baseboard. The areas of focus for this testing were chassis mechanical fit, chassis thermal performance, and power supply support of 800mA on the 5volt standby line.

Intel's extensive computer system and chassis design experience has shown that the thermal characteristics of a server chassis design 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 choosing chassis that can reliably support their targeted server configurations.

In addition, Electromagnetic Compatibility (EMC) testing for CE Mark Declaration of Conformity (DOC) was accomplished for selected chassis. For further details on the EMC testing conducted, link to the appropriate reports from the summary table in this document.

Chassis Testing Premise

Mechanical Testing – The chassis were tested for ATX Specification 2.01 compliance at the I/O opening and for physical fit with the N440BX server baseboard.

Thermal Testing – The chassis were tested to see if they provided adequate cooling airflow so as to keep critical server components within the individual manufacturer's temperature specifications. Components specifically targeted for thermal monitoring were the Pentium® II processor(s), the Intel 82440BX PCIset host bridge chip, the PC/100 100MHz SDRAM DIMMs, and the hard disk drive(s). The table below briefly describes the tested server configurations.

Test Configuration Summary

Test Level	Processor(s)	Memory	HW RAID	Hard Disk	RPM	Disk Type
1	1 x 400Mhz	64MB	No	1 x 4.5GB	7,200	Seagate Barracuda ST34572W
2	2 x 400Mhz	128MB	No	1 x 9GB	7,200	Seagate Barracuda ST19171W
3*	2 x 400Mhz	256MB	Yes	3 x 9GB	7,200	Seagate Barracuda ST19171W
3*	2 x 400Mhz	256MB	Yes	3 x 9GB	10,000	Seagate Cheetah ST39102LW/LC

*level 3 testing was completed with both Seagate® Barracuda® and Cheetah® drives. The Cheetah LVDS drives exhibited similar thermal characteristics as the Barracuda drives, therefore both are compatible in a level 3 chassis configuration.

The next table illustrates the results of all the individual chassis tested for compatibility with the N440BX Server Board.

N440BX - Chassis Compatibility List

Supplier*	Model#	Type (1)	Dimensions (2)	P/S Capacity (3)	P/S Type (4)	WOL/EMP Support (5)	Thermal Test Level (6)	5.25 Bays (7)	3.5 Bays (7)	HotSwap Drives	EMC Emissions Report for CE Mark (8)	EMC Immunity Report for CE Mark (8)	Comments
Antec	KS-011	FS	19x11x27	300	RD	tbd	3	8	3	No			
Antec	IPC2480	Rack	20x17x7	300	S	tbd	2	2	2	No			
Chenbro	A9661	FS	27x15x27	300	RD	Yes	3	24	8	No	Yes	Yes	
Chenbro	A9881	FS	20x15x18	300	S	Yes	3	8	6	No	Yes	Yes	
Chieftec	AA-02W	FS	21x31x27	300	RD	Yes	3	11	3	No			
Chieftec	FT01W	FT	18x8x25	300	S	Yes	2	6	4	No	Yes	Yes	
Enlight	EN8910	FS	21x8x25	300	RD	Yes	3	5	5	No	Yes	Yes	
GodSpeed	GS130L	MT	17x9x17	300	S	Yes	1	3	2	No			
Intel	Astor	FT	18x8x19	300	S	Yes	3	2	5	Yes			FCC B, CE Mark
Intel	Columbus-II	FT	18x8x19	300	S	Yes	3	3	6	No			FCC B, CE Mark
In-Win	Q500I	FT	17x8x24	300	S	Yes	3	5	5	No	Yes	Yes	
MaCase	KA-580WP	MT	17x10x15	300	S	Yes	2	3	6	No	Yes	Yes	
MaCase	KS-030	FS	20x11x26	300	RD	Yes	3	8	4	No	Yes	Yes	
MaCase	KI-P20	Rack	18x17x7	300	S	Yes	2	2	2	No			
Schaefer/CED	ATX-ATW	FT	17"x21.5x8.5	300	S	Yes	3	5	8	No	Yes	Yes	
Shin-G	GT312ATX	FT	17x9x24	300	S	Yes	2	4	5	No	Yes	Yes	
Yeong Yang	YY-1240	FT	17x8x23	300	S	Yes	2	5	4	No	Yes	Yes	
Yeong Yang	Champ-201B	FS	19x8x27	300	RD	Yes	3	5	5	No			

Notes:

- (1) Chassis Type: MT = Mid Tower, FT = Full Tower, FS = File Server, Rack = Standard 19" Rack Mount
- (2) Dimensions in Inches
- (3) Power supply output capacity in watts (w)
- (4) Power Supply: S=Single, H/S = Hot Swap, RD = Redundant,
- (5) All vendors project providing a minimum of 800mA of 5V Standby current required for Wake on Lan (WOL) and Emergency Management Port (EMP) support. Customers should refer to the individual chassis specification to assure the new power supply has been upgraded in the chassis.
- (6) Thermal test level refers to the highest level of testing that was successfully completed.
Refer to the table on the previous page for a description of each system configuration level.
- (7) Drive Bay data provided as rough estimate of chassis capacity.
Please refer to the individual chassis specifications for detailed information on peripherals support.
- (8) The EMC tests conducted are those required for presumption of conformity with the EMC Directive which is required for CE marking. The EMC test reports for those systems that have completed testing are the Emissions and Immunity reports and can be obtained from the links above.

Known Incompatible Chassis

Supplier*	Model #	Type	Incompatibility
Fong Kai	FK-319S	MT	Mechanical fit - I/O not ATX 2.01 compliant
Antec	IPC-2480	Rack	Mechanical fit - I/O not ATX 2.01 compliant
Yeong Yang	YY0210	FS(cube)	Mechanical fit - I/O not ATX 2.01 compliant

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 N440BX server baseboard 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. Testing 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 WOL and EMP on the N440BX server baseboard.

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