intel.

B440FX DP Server Baseboard Specification Update

Release Date: July 1998

Order Number 282976-011

The B440FX DP Server Baseboard may contain design defects or errors known as errata that may cause the product to deviate from published specifications. Current characterized errata are documented in this Specification Update.

CONTENTS

REVISION HISTORY

Date of Revision	Description
January, 1997	This document is the first Specification Update for the Intel B440FX DP Server Baseboard.
March, 1997	Addition of two errata issues.
April, 1997	Updated errata issues and added a documentation change.
May, 1997	Closed several errata issues, updated pedigree.
June, 1997	Updated several errata issues and added one errata issue.
July, 1997	Updated several errata issues and updated the Identification Information Table.
August, 1997	Updated several issues.
September, 1997	Added several issues, updated the summary table.
October, 1997	Updated one issue, updated summary table.
November, 1997	Added processor/BIOS compatibility tables.
December, 1997	No changes.
January, 1998	No changes.
February, 1998	No changes.
March, 1998	No changes.
April, 1998	Added EOL information to Preface section.
May, 1998	Formatting fixes.
June, 1998	No changes.
July, 1998	No changes.

PREFACE

The B440FX DP Server baseboard product has been discontinued. In accordance with Intel's Product Discontinuance announcement for the B440FX DP Server, the last date to order this product was February 28, 1998 and the last shipment date is June 30, 1998.

The Specification Update should be publicly available following the last shipment date for a period of time equal to the specific product's warranty period. Hard copy Specification Updates will be available for one (1) year following End of Life (EOL). Web access will be available for three (3) years following EOL.

This document is an update to the specifications contained in the *B440FX DP Server Baseboard Technical Product Specification* (Order Number 282968). It is intended for hardware system manufacturers and software developers of applications, operating systems, or tools. It will contain Specification Changes, Specification Clarifications, Errata, and Document Changes.

Refer to the *Pentium® Pro Processor Specification Update* (Order Number 242689) for specification updates concerning the Pentium Pro processor. Items contained in the Pentium Pro Processor Specification Update that either do not apply to the B440FX DP Server Baseboard or have been worked around are noted in this document. Otherwise, it should be assumed that any processor errata for a given stepping are applicable to the Printed Board Assembly (PBA) revisions(s) associated with that stepping.

Refer to the *Intel 82440FX PCIset Specification Update* (Order Number 297654) for specification updates concerning the Intel 82440FX PCIset. Items contained in the *Intel 82440FX PCIset Specification Update* that either do not apply to the B440FX DP Server Baseboard or have been worked around are noted in this document. Otherwise, it should be assumed that any PCIset errata for a given stepping are applicable to the Printed Board Assembly (PBA) revisions(s) associated with that stepping.

Nomenclature

Specification Changes are modifications to the current published specifications. These changes will be incorporated in the next release of the specifications.

Specification Clarifications describe a specification in greater detail or further highlight a specification's impact to a complex design situation. These clarifications will be incorporated in the next release of the specifications.

Documentation Changes include typos, errors, or omissions from the current published specifications. These changes will be incorporated in the next release of the specifications.

Errata are design defects or errors. These may cause the B440FX DP Server's behavior to deviate from published specifications. Hardware and software designed for use with any given stepping must assume that all errata documented for that stepping are present on all devices.

**Specification Update for the
B440FX DP Server Baseboard**

GENERAL INFORMATION

Identification Information

Below are the specific boards, BIOS and components covered by this update

Bd Fab #	Bd PBA #	Processor Bd PBA #	BIOS	SCU	Processor Stepping	440FX Stepping
2.1	645520-304	645524-304	1.00.03.DA0	3.50 OVL 1.00	sB1	A1
2.1	645520-306	645524-304	1.00.04.DAO	3.60 OVL 1.10	sB1	A1
2.1	645520-307	645524-304	1.00.04.DA0	3.60 OVL 1.10	sB1	A1
2.1	645520-308	645524-304	1.00.05.DA0	3.70 OVL 1.2	sB1	A1
2.1	645520-308	645524-304	1.00.06.DA0	3.70 OVL 1.2	sB1	A1

3

Supported Combinations

- **Pentium Pro processor**

The following chart shows the processor stepping combinations supported in B440FX DP.

Processor	sA1	sB1
sA1	Supported	Supported
sB1	Supported	Supported

- **BIOS/Processor compatibility combinations**

The following chart shows the processorsteppings supported under the released BIOS versions in B440FX DP.

BIOS Version	Processor Stepping SA1	Processor Stepping sB1
1.00.03.DA0	Compatible	Compatible
1.00.04.DA0	Compatible	Compatible
1.00.05.DA0	Compatible	Compatible
1.00.06.DA0	Compatible	Compatible

ERRATA

The following table indicates the Errata, Specification Changes, Specification Clarifications, and documentation changes which apply to the B440FX DP Server Baseboard Intel intends to fix some of the errata in the future, and to account for the other outstanding issues through documentation or specification changes as noted. This table uses the following notations:

CODES USED IN SUMMARY TABLE

Doc:	Document change or update that will be implemented.
Fix:	This erratum is intended to be fixed in a future revision of the hardware or software associated with the B440FX DP Server.
Fixed:	This erratum has been previously fixed.
NoFix:	There are no plans to fix this erratum.
Shaded:	This erratum is either new or modified from the previous version of the document.

#	Status	Summary
1	Fix	The SCSI chip does not negotiate for fast track transfers on the boot disk.
2	Fix	The BMC event messages are reported due to an inability to read temperature sensors.
3	Fix	Windows NT* v4.0 fails to boot when connected to the onboard controller with add-in SCSI controllers installed in PCI slots 1-1 or 1-2.
4	Fix	IMB events that occur during POST may not be logged in the critical event log.
5	Fix	The PBC fails to enable a processor if the FRB disable jumper is in the ON position.
6	Fix	If the system is configured with a SCSI HDD and no IDE CD-ROM, enabling the IDE CD-ROM boot option in setup causes the system to hang after the onboard SCSI scan.
7	NoFix	When running a program like (Microsoft's Fury3* or Monster Truck Madness*) the system will hang.
8	Fix	The Voltage Regulator Module (VRM) used in the dual, Pentium Pro processor 200 MHz/512 KB configuration is out of specification.
9	Doc	The B440FX DP Server board set Technical Product Specification (page 24, section 2.6.7.1.1) had an inaccurate table (2-4) detailing the PCI interrupt sharing process for the baseboard. This table has been corrected in the Rev. 2.7 version of the Technical Product Specification.
10	NoFix	Onboard LAN speed option for 100Mb will not function in SCO OpenServer* 5.0.
11	Fix	SMM feature conflicts with ATI Graphics Turbo Pro 1600*.
12	NoFix	Server hangs when issued a remote reset via add-in server management device.
13	Fix	Mylex DAC960PG Hangs or reboots in NetWare 4.11 and 4.10.
14	Fix	Mylex GAM Utilities Report Erroneous Power Supply Failure.

intel.

1. The onboard SCSI controller does not negotiate for fast transfers on the boot disk

PROBLEM: The onboard SCSI chip does not negotiate for fast transfers on the boot disk.

IMPLICATION: This problem may result in low performance results. This causes the system bus to run below the normal bus speed of 20MHz.

WORKAROUND: Do not configure boot device as SCSI ID8.

STATUS: This issue is fixed in BIOS 1.00.05.DA0, which was released on July 16, 1997.

2. The Baseboard Management Controller (BMC) reports event messages due to an inability to read temperature sensors

PROBLEM: The BMC reports event messages due to an inability to read temperature sensors. Two or four event messages were reported at a time during testing instances and the temperature value was always reported as being 80°C hex.

IMPLICATION: This issue implies that the baseboard is unable to read the baseboard temperature sensor.

WORKAROUND: None identified.

STATUS: This issue is fixed in current release of B440FX firmware In order to determine the BMC version, enter BIOS settings. Select Advanced Chipset menu option and then select Server Management and Info. option. The BMC Device ID string should end in 42. If the final byte of the string is 42 or greater, the firmware is production release and has corrected the above errata. If you find that your Device ID string does not match the 42 end string, then you have a pre-production system and it is not upgradeable. If you feel that you have a production system and the end string does not match, please contact your Intel field representative for further details.

3. Microsoft Windows NT v4.0 fails to boot when connected to the onboard controller with add-in SCSI controllers installed in PCI slots 1-1 or 1-2

PROBLEM: Windows NT v4.0 fails to boot when connected to the onboard controller with add-in SCSI controllers installed in PCI slots 1-1 or 1-2.

IMPLICATION: There may be a failure to boot the system under Windows NT v4.0 using the above configuration.

WORKAROUND: Do not attempt to install Windows NT v4.0 with add-in SCSI controllers in PCI slots 1-1 or 1-2.

STATUS: This issue is fixed in BIOS 1.00.05.DA0, which was released on July 16, 1997.

4. Intelligent Management Bus (IMB) events which occur during POST may not be logged in the Critical Event Log

PROBLEM: IMB events that occur during POST may not be logged in the critical event log.

IMPLICATION: Under certain conditions, the critical event log will not correctly report any disturbances in the system.

WORKAROUND: None identified.

STATUS: This issue is fixed in the current release of B440FX firmware. Please see item 2 for further details on identification of firmware version.

5. The Processor Board Controller (PBC) fails to enable a processor if the Fault Resilient Boot (FRB) disable jumper is in the ON position

PROBLEM: The PBC fails to enable a processor if the FRB disable jumper is in the ON position.

IMPLICATION: The PBC fails to enable a processor if the FRB disable jumper is in the ON position.

WORKAROUND: None identified.

STATUS: This issue is fixed in current release of B440FX firmware. Please see item 2 for further details on identification of firmware version.

6. Enabling IDE CD-ROM boot option without IDE CD-ROM installed causes system to hang

PROBLEM: If the system is configured with a SCSI HDD and no IDE CD-ROM, enabling the IDE CD-ROM boot option in setup causes the system to hang after the onboard SCSI scan.

IMPLICATION: This problem will result in a hung system if configured as above.

WORKAROUND: None identified.

STATUS: This issue has been fixed in release 1.00.06.DA0 of the BB440FX DP Server BIOS.

7. Using Windows 95* and joystick in game will result in hung system

PROBLEM: When running a game and using a joystick will cause the system to hang. The screen freezes, sound stops and all system activity halts or the system produced a Blue Screen calling out an error with the Vjoy.VXD file. These programs operate with no issues if no joystick is used.

This issue was repeated on multiple systems with different Sound Blaster* sound cards and different joysticks. Three separate Joystick VXD drivers were used (From original Win95 disks, Directx2 and Directx3). Duplicated on BIOS 1.00.03.DA0 and 1.00.04.DA0. Duplicated with add-in video cards as well as with the onboard video controller.

IMPLICATION: This problem will result in a hung system if configured as above.

WORKAROUND: None identified.

STATUS: Will not fix.

8. CPU module VRM does not meet maximum current specification

PROBLEM: The board set was qualified with the VXI VRM part # 073-20691-07 which has a maximum output current rating of 11.2 amps. MD6 released Pentium Pro Family Developer's Manual, Volume 1: Specifications which now documents the 200 MHz/512 KB part as requiring a max current draw of 12.4 amps (Table 11-5 on page 11-15).

IMPLICATION: This problem does not affect customers using the 200 MHz/256 KB or 166 MHz/512 KB Pentium Pro processors. The 200 MHz/512 KB Pentium Pro processor, in a dual processor configuration, does not meet these new specifications. System testing indicates there is no loss of functionality and the 200MHz/512KB Pentium Pro processor, in a dual processor configuration was fully qualified with the 11.2 amp part.

WORKAROUND: None identified.

STATUS: Intel will continue shipping with the 11.2 amp part as qualified. There have been no reported issues with the 11.2 amp part to date. This issue has been resolved by qualifying the 14.5 amp VRM and Intel is now shipping 200MHz/512KB upgrade kit with the corrected VRM.

9. B440FX DP Server Technical Product Specification updated to correct an inaccurate table.

Please see the Errata Summary table.

10. Onboard LAN speed 100Mb option will not function with SCO OpenServer 5.0

PROBLEM: When the onboard LAN controller is recognized by SCO OpenServer 5.0 the choice will default to 100Mb/s on a 100Mb/s network. However, the connection can not be made to the network. If the option choice is switched to "Auto" in the BIOS setup or SCU, then a connection can be made to the network at 100Mb/s.

IMPLICATION: Incorrect configuration may result in an inability to connect to 100Mb networks.

WORKAROUND: Configure the onboard LAN controller to use auto detection of the network speed.

STATUS: This is considered documented and Intel will not fix this.

11. Chassis intrusion alert results in system lock

PROBLEM: With an ATI Graphics Turbo Pro 1600 installed and the SMM Feature BIOS setting enabled, tripping a chassis intrusion switch will result in an unidentified NMI halt message in DOS or a blue screen with artifacts in Windows NT 4.0. This issue appears isolated to the ATI Graphics Turbo Pro 1600.

IMPLICATION: Incorrect configuration may result in a system hang.

WORKAROUND: Disable SMM Feature in BIOS setup or do not use ATI Graphics Turbo Pro 1600.

STATUS: This issue is under investigation by Intel engineering. It appears that this issue is related to a known issue with the previous generation of ATI video controllers. Intel has confirmed that this issue does not exist with the ATI 3D Pro Turbo Pc2tv. No similar issues have been reported with other graphics adapters or the on-board Cirrus Logic adapter. The Graphics Turbo Pro 1600 has been EOL'd by ATI.

12. Server hangs when issued a remote reset via add-in server management device.

PROBLEM: When a B440FX running DOS is issued a reset by a remote source via an add-in Server Management device, the system may refuse to reset or hang the remote terminal. This symptom is not exhibited on systems running Windows NT or NetWare.

IMPLICATION: It may not be possible to perform a remote reset on systems running DOS with a third party Server Management device installed.

WORKAROUND: A supported NOS (Network Operating System) such as Windows NT or NetWare should be installed.

STATUS: Intel engineering has determined that this issue is caused by a timing issue in the hardware reset signal originating from the Intel Server Monitor Module. Servers running Windows NT or NetWare will still reset remotely due to the software reset that is issued by the monitor module software. Intel engineering has determined that this is an issue that will not be fixed on B440FX DP.

intel.

13. Mylex DAC960PG hangs or reboots in NetWare 4.11 and 4.10

PROBLEM: When a system with a Mylex DAC960PG RAID controller running NetWare executes 'server.exe' from the command prompt, the monitor shows 'loading.,' begins the boot process, then reboots.

IMPLICATION: The system may hang or reboot when running with the above configuration.

WORKAROUND: Preliminary tests show that NetWare installs and functions normally when the Mylex RAID board is updated with a version of the Mylex DAC960PG BIOS greater than 4.00.00.

STATUS: This problem is currently under investigation by Intel engineering.

14. Mylex GAM Utilities report erroneous power supply failure

PROBLEM: When using the Mylex DAC960 PDU controller and the Mylex Global Array Management Utilites (GAM) ver. 2.10 to view or configure RAID array, the power supply status indicators may light up with a RED indicator, while temperature and fan would be green.

IMPLICATION: These false power supply-failure indicators have not been associated with real power-supply failures.

WORKAROUND: None identified.

STATUS: Intel is currently evaluating release 2.11 of the BIOS.