

# IBM 6x86 P200+ Microprocessor Performance Solution



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## *Application Note*

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Revision Summary: This is the initial release of this document



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## Introduction

This document is intended to serve as a step by step guideline to set up and run the IBM 6x86 P200+ microprocessor on the Diamond Flower, Inc. (DFI)\*\* Screamer Pro Rev. B+\*\* system board. It includes the recommendations for the hardware configuration and installation. Additional information regarding the microprocessor is available from the related application notes on IBM 6x86 microprocessors (see the chapter *How to Order the IBM 6x86 P200+ Microprocessor Performance Solution.*).

The DFI Screamer Pro Rev. B+ system board was chosen for this applications note because it is currently able to support the IBM 6x86 P200+ processor solution. In the future, other system boards will be available that support the IBM 6x86 P200+ microprocessor.

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## Features and Specifications

- *Microprocessor:* IBM 6x86 P200+ microprocessor, which operates at 150 MHz and is performas at a P-rating equivalent to or better than the Intel\*\* Pentium\*\* 200 MHz processor. These results were measured by an independent laboratory, MDR Labs, Sebastopol, CA (<http://www.chipanalyst.com>). For a complete benchmark result, please access our website at <http://www.chips.ibm.com/products/x86>.
- *System Board:* Screamer Pro Rev. B+. The board uses VLSI\*\* Lynx\*\* chipset. It supports P120+, P133+, P150+, P166+ and P200+ CPUs, and 256KB or 512KB pipeline burst SRAM. **Consult Screamer Pro Rev. B+ User's Manual for detailed information.**
- *System Memory:* 72-pin SIMM, 8-256MB on board memory using EDO or fast page mode x36 (parity) DRAM, 50ns, 60ns or 70ns, 5V.

# Microprocessor Installation

## Board Layout

Figure 1 shows the schematic of the DFI Screamer Pro Rev. B+ system board layout.

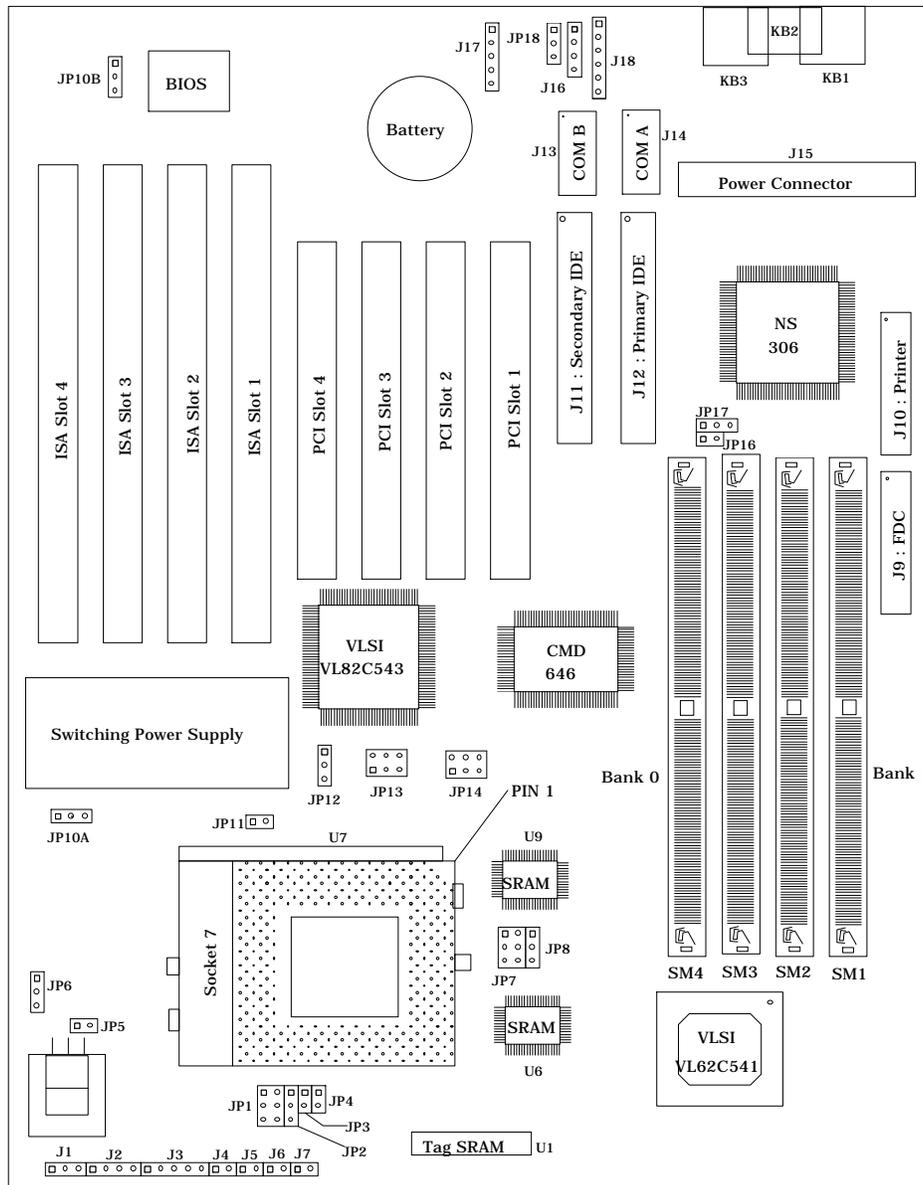


Figure 1. The DFI Screamer Pro Rev. B+ system board layout

## System Memory

<u>SIMMS</u>	<u>Memory Size(max)</u>
1MBx36	4MB
2MBx36	8MB
4MBx36	16MB
8MBx36	32MB
16MBx36	64MB

The SIMM modules must be installed in groups of two into bank 0 or bank 1. The same type of SIMM module is required in each bank. If only 2 SIMM modules are used, either bank 0 or bank 1 may be used.

## Jumper Settings

Function Control	Jumper Settings
CPU Type IBM P200+	<u>JP11</u> <u>JP1</u> <u>JP2</u> <u>JP3</u> <u>JP4</u> off        2-4 on, 3-5 on    1-2 on                off                    off
CPU Power Supply	JP10A: 1-2 on = VRE (3.5V nominal) 2-3 on = VR (3.3V nominal)
Bus Clock Frequency	JP13: 1-2 off, 3-4 on, 5-6 on for 75 MHz Bus
Factory Testing Jumpers (Defaults)	<u>JP5</u> <u>JP6</u> <u>JP10B</u> <u>JP12</u> 1-2 on        1-2 on        1-2 on            2-3 on
Master IDE Selector	JP14: 1-3 on, 2-4 on = IDE: PIO mode; PCI slot 1: Master mode 3-5, 4-6 on = IDE: Master mode; PCI slot 1: Slave mode (default)
Password Clear	JP16: off = Normal (default) on = Password clear (consult board manual for detail)
Display Type	JP17: 1-2 on = Color 2-3 on = Mono
Internal/External Battery Select	JP18: 1-2 on = Internal battery 2-3 on = external battery

*Table 1. Jumper Settings for the DFI Screamer Pro Rev. B+ system board*

## Connectors

J1: Reset Switch Connector	J2: Speaker Connector
J3: Keylock Connector	J4: Green LED
J5: TB SW	J6: IDE LED
J7: TB LED	J9: Floppy Disk Drive Connector

J10: Parallel Printer Port	J11: Secondary IDE Hard Disk Connectors
J12: Primary IDE Hard Disk Connector	J13: COM B Serial Port
J14: COM A Serial Port	J15: Power Connector
J16: External Battery Connector	J17: Infrared Connector
J18: PS/2 Mouse Connector	KB1: PS/2 Keyboard Connector
KB2: AT Keyboard Connector	

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## Thermal Solution

The following table lists several fan/heatsink solutions for the IBM 6x86 P200+ microprocessor. These solutions can be employed for the system ambient environment up to 45 °C. Make sure thermally conductive interface material, such as thermal grease, is applied between the heatsink bottom surface and the top of the microprocessor package to create a proper thermal path. It may also be noted that the fan connector is connected to 12 V power supply (or specified by the fan manufacturer) and polarity is maintained (fan rotates counter clockwise when looked at from the top). For detailed information, consult the following application notes:

#40209 "Selection of Appropriate Thermal Solution for the IBM 6x86 Microprocessor"

#40214 "Heatsink and Fan/Heatsink for IBM 6x86 Microprocessor"

#40216 "System Level Design Considerations for the IBM 6x86 Microprocessor Thermal Management"

Details on where to find these application notes can be found in the next chapter *How to Order the IBM 6x86 P200+ Microprocessor Performance Solution*.

Overall Size of Heatsink in Inches (LxWxH)	Vendor	Part Number	Minimum Required Air Flow over Heatsink in ft/min
2.484 x 2.66 x 1.5	WAKEFIELD	779L-150AB	300
2.536 x 2.536 x 0.785	AAVID	353155B	FAN/HEATSINK
2.185 x 2.138 x 1.0	IERC	PS520CB/F01	FAN/HEATSINK
2.46 x 2.54 x 1.02	WAKEFIELD	979L-100AB121	FAN/HEATSINK
2.46 x 2.66 x 1.31	WAKEFIELD	879Z-130AB121	FAN/HEATSINK
1.96 x 1.96 x 1.01	ORIX INT. LTD	T15-4515S7BC2	FAN/HEATSINK
2.0 x 2.0 x 1.18	SANYO DENKI	109P5412H2026	FAN/HEATSINK

**Table 2. Thermal Solutions for the IBM 6x86 P200+ Microprocessor**

Please check our website for additional updates at <http://www.chips.ibm.com/products/x86>.

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# How to Order the IBM 6x86 P200+ Microprocessor Performance Solution

## ◆ IBM 6x86 Microprocessor:

IBM Part Numbers:	Description:
IBM266x86-2V2P200GC	IBM 6x86 P200+ 3.3V PGA
IBM266x86-2V7P200GC	IBM 6x86 P200+ 3.5V PGA

For list of IBM 6x86 processor distributors and manufacturer's reps on WWW:  
<http://www.chips.ibm.com/orders/index.html>

For applications notes on the IBM 6x86 processor:  
On the WWW: <http://www.chips.ibm.com/products/x86/doclist.html>  
By the IMD Fast Fax Service: 415-855-4121

## ◆ DFI Screamer Pro Rev. B+ System Board:

DFI Part Numbers:	Description:
G586VPS PRO	P120+-P200+, AT K/B on board, PS/2 mouse connector
G586VPS PRO/P	P120+-P200+, PS/2 K/B on board, PS/2 mouse connector

DFI Distributors:  
SCOTT COURTE  
SED  
4916 N. ROYAL ATLANTA DR  
TUCKER, GEORGIA 30084  
PHONE: 770-491-8962  
FAX: 770-493-9481

PETER J. BASES  
DIRECTOR OF SALES & MARKETING  
FIRSTOP COMPUTER DISTRIBUTORS  
29001 SOLON ROAD  
SOLON, OHIO 44139  
PHONE: 216-349-9310  
FAX: 216-498-5238

DFI UK  
UNIT 1  
KANGLEY BUSINESS CENTER  
KANGLEY BRIDGE ROAD  
LONDON, SE 26 5AQ  
PHONE: 44-181 776-5555  
FAX: 44-181 778-8777

DFI TAIWAN  
100 HUAN-HO STREET  
HSI-CHIH TOWN  
TAIPEI HSIEN, TAIWAN  
PHONE: 886-2-694-5234  
FAX: 886-2-694-3221

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## Reference

- Screamer Pro Rev. B+ System Board User's Manual, DFI Corporation, 1996

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