G586OPC

Rev. 0 +
System Board
User's Manual

- D28450828 -

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❖ FCC Statement on Class B

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- *Reorient or relocate the receiving antenna.*
- *Increase the separation between the equipment and the receiver.*
- *Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.*
- *Consult the dealer or an experienced radio TV technician for help.*

Notice:

1. *The changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.*

2. *Shielded interface cables must be used in order to comply with the emission limits.*

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❖ Introduction

The G586OPC system board offers several advanced features integrated into the system board. Its design is based on the new Peripheral Component Interconnect (PCI) local bus and Industry Standard Architecture (ISA) standards.

The G586OPC provides a 321-pin Zero Insertion Force (ZIF) CPU socket for Pentium™ processors running at 75MHz, 90MHz, 100MHz, 120MHz, 133MHz or 150MHz frequency. This ZIF socket allows users to easily upgrade their CPUs. It also provides a VRM (Voltage Regulation Module) header allowing you to upgrade to future low-voltage CPUs.

The G586OPC is equipped with three PCI slots, three ISA slots and one shared PCI/ISA slot.

The G586OPC board has two bus master PCI IDE connectors. Bus mastering reduces CPU use during disk transfer. The system board is also equipped with two NS16C550A-compatible serial ports, an SPP/EPP/ECP parallel port, a floppy disk drive controller, one PS/2 mouse port and one PS/2 keyboard connector.

The G586OPC can support 2MB to 128MB of memory using 256Kx36, 512Kx36, 1Mx36, 2Mx36, 4Mx36 and 8Mx36 72-pin SIM modules.

Features and Specifications

Processor

- Intel Pentium™ 75/90/100/120/133/150MHz
- Future Pentium Processor and Pentium OverDrive Processor

Chipset

- OPTI Viper-M chipset

Energy Efficient Design

- Supports System Power Management
- CPU stopped clock control
- Hardware supports SMI green mode
- Microsoft/Intel APM 1.1 compliant

Two Bus Master PCI IDE Connectors

- PIO Modes 3 & 4 Enhanced IDE (data transfer rate up to 16.6MB/sec)
- DMA Mode 2 Bus Master IDE (data transfer rate up to 22.2MB/sec)
- Bus mastering reduces CPU use during disk transfer
- ATAPI IDE CD-ROM supported

Integrated I/O

- Super I/O controller: SMC FDC37C665GT, SMC FDC37C669GT or UMC8669
- Two NS16C550A-compatible high speed UARTs
- One SPP/EPP/ECP parallel port
- One 720KB/1.2MB/1.44MB/2.88MB floppy controller
- PS/2 mouse port
- PS/2 keyboard connector or AT keyboard connector

BIOS
- Award Plug & Play BIOS
- Supports Enhanced IDE devices
- Supports Enhanced IDE HDDs larger than 528MB (LBA mode only)

Architecture
- PCI/ISA

Cache
- 256KB, 512KB or 1MB direct map write-back or write-through cache
- 32Kx8, 64Kx8 or 128Kx8 asynchronous SRAM (supports 5V/3.3V mixed voltage SRAM)
- 160-pin cache module upgrade slot for optional synchronous pipeline burst cache module

Memory
- 2MB to 128MB onboard memory
- Four 72-pin SIMM sockets
- Supports single and/or double density SIMMs
- 256Kx36, 512Kx36, 1Mx36, 2Mx36, 4Mx36 or 8Mx36 parity SIMMs
- x32 non-parity SIMMs supported
- Supports 60ns or 70ns fast page mode DRAM or EDO DRAM

Expansion Slots
- Three dedicated PCI slots
- One shared PCI/ISA slot
- Three dedicated 16-bit ISA slots

With the optional synchronous pipeline burst cache module installed in the 160-pin cache module upgrade slot, the length of the add-in card in PCI Slot 2 is limited to 124,65 mm.

VRM and ZIF Sockets

- VRM (Voltage Regulation Module) header allows upgrade to future low-voltage CPUs
- 321-pin ZIF socket (Intel Socket 7)

Board Dimensions

- 28cm (11.02") x 22cm (8.58")

Package Checklist

The G586OPC package contains the following items:

- The G586OPC system board
- The G586OPC user's manual
- One set of IDE driver diskettes
- One 34-pin floppy disk drive cable
- Two 40-pin IDE hard disk cables
- One 25-pin printer port cable for chassis mounting
- One card-edge bracket with serial and mouse port cables

If any of these items is missing or damaged, please contact your dealer or sales representative for assistance.

❖ Installation Overview

This chapter summarizes the steps in installing the G586OPC system board into your system unit. It also includes a description of the area in which you must work and directions for memory installation. Before installing the system board, obtain the memory you plan to install. Please refer to the memory chart, on pages 8 and 9, for the number and type of SIM modules needed for the amount of memory you require.

Preparing the Area

Before unpacking the system board, make sure the location you have selected is relatively free of dust and static electricity. Excessive exposure to dust, static electricity, direct sunlight, excessive humidity, extreme cold, and water can damage the operational capabilities of your system board. Avoid placing the unit on surfaces such as carpeted floors. These areas attract static electricity which can damage some circuits on your system board.

Make sure the power source has a properly grounded, three-pronged socket. It is essential that the power connection be properly grounded for correct functioning of your system board. For further protection, we recommend that you use a surge suppressor. This will protect the system board from damage that may result from a power surge on the electrical line.

Move items that generate magnetic fields away from your system board, since magnetic fields can also damage your system board. Once you have selected the

ideal location, unpack the G586OPC system board carefully.

Handling the System Board

It is quite easy to inadvertently damage your system board even before installing it to your system unit. Static electrical discharge can damage computer components without causing any signs of physical damage. You must take extra care in handling the system board to ensure against electrostatic build-up.

Tips in Handling the System Board

1. To prevent electrostatic build-up, leave the board in its anti-static bag until you are ready to install it.

2. Wear an antistatic wriststrap.

3. Do all preparation work on a static-free surface with components facing up.

4. Hold the system board by its edges only. Be careful not to touch any of the components, contacts or connections, especially gold contacts on the board.

5. Avoid touching the pins or contacts on all modules and connectors. Hold modules and connectors by their ends.

Warning:
Electrostatic discharge (ESD) can damage your upgrade processor, disk drives, add-in boards, and other components. Perform the upgrade instruction procedures described at an ESD workstation only. If such a station is not available, you can provide some

ESD protection by wearing an antistatic wrist strap and attaching it to a metal part of the system chassis. If a wrist strap is unavailable, establish and maintain contact with the system chassis throughout any procedures requiring ESD protection.

Hardware Installation

Memory Installation

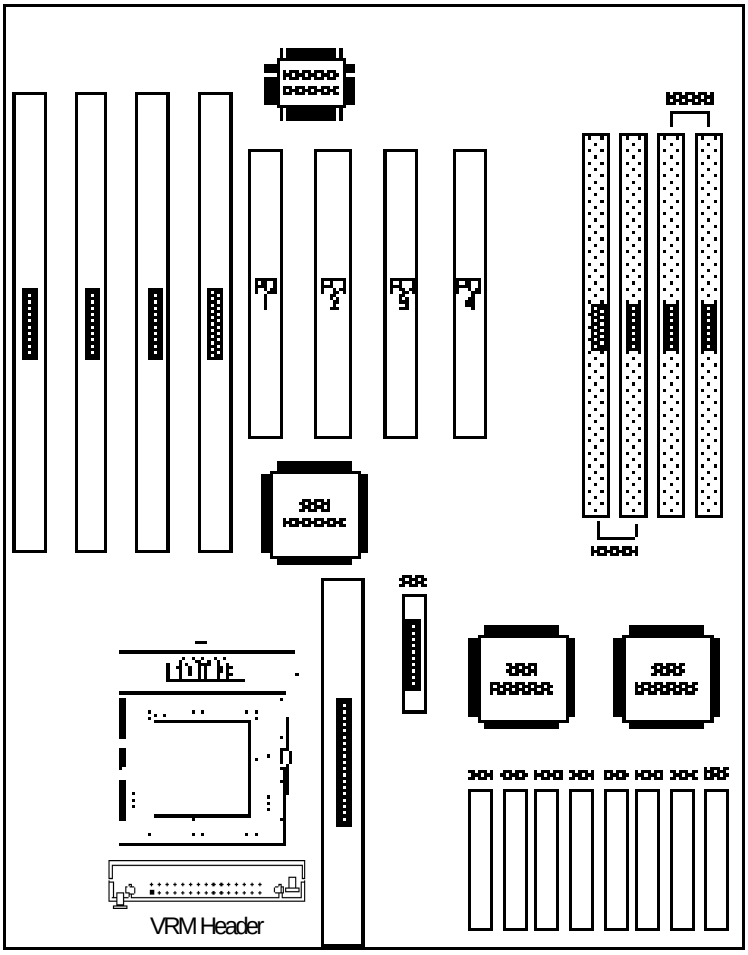
The G586OPC system board can support 2MB to 128MB of memory using 72-pin SIMMs (Single In-Line Memory Module).

The SIMM sockets are divided into two banks on the system board. The G586OPC system board uses 256Kx36, 512Kx36, 1Mx36, 2Mx36, 4Mx36 and 8Mx36 SIMMs. Non-parity (x32) SIMMs can also be used if parity checking is turned off in CMOS setup. You will need 2 or 4 pieces of SIMMs, depending on the amount of memory you intend to install.

To install the SIM modules, first populate Bank 0 and then Bank 1, or the system will not work.

The table on the next page summarizes the bank locations and modules needed for the corresponding memory sizes. Each bank consists of 2 SIMM sockets.

MemorySize	Bank0	Bank1
2MB	256Kx36	-
4MB	256Kx36	256Kx36
4MB	512Kx36	-
8MB	512Kx36	512Kx36
8MB	1Mx36	-
16MB	1Mx36	1Mx36
16MB	2Mx36	-
32MB	2Mx36	2Mx36
32MB	4Mx36	-
48MB	2Mx36	4Mx36
64MB	4Mx36	4Mx36
64MB	8Mx36	-
68MB	512Kx36	8Mx36
72MB	1Mx36	8Mx36
80MB	2Mx36	8Mx36
96MB	4Mx36	8Mx36
128MB	8Mx36	8Mx36

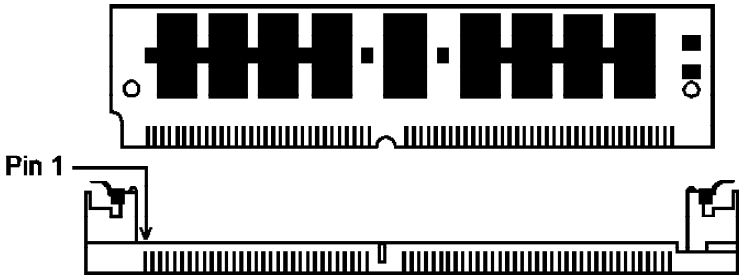


- Pin 1 of the SIMM socket

Locations of the SIM Sockets on the System Board

Installing the Modules

A SIMM simply snaps into a socket on the system board. Pin 1 of the SIMM must correspond with Pin 1 of the socket.

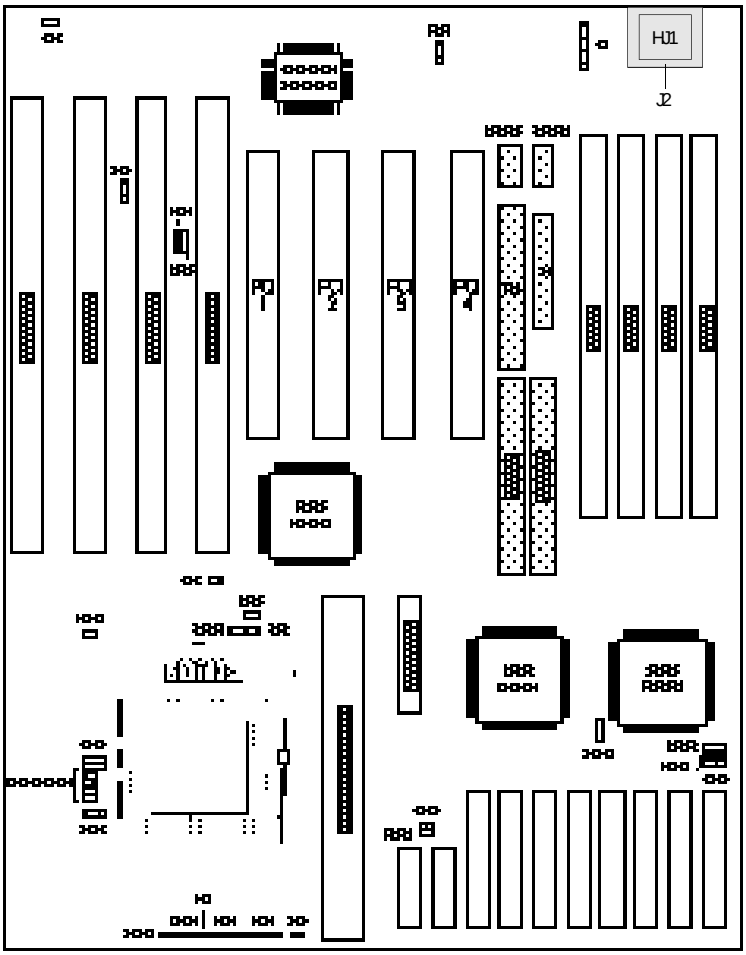


1. Position the SIMM above the socket with the "notch" in the module aligned with the "key" on the socket.

2. Seat the module at a 45° angle into the bank. Make sure it is completely seated. Tilt the module upright until it locks in place in the socket.

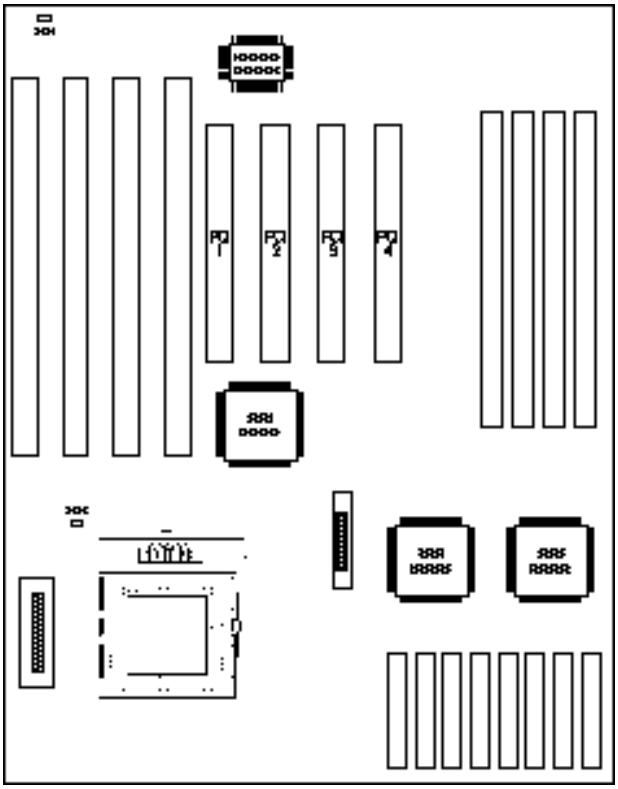
Board Configuration

The G586OPC has jumpers and connectors onboard. Make sure the jumpers are set correctly before installing the system board into your system unit.



Jumper Settings

Jumper Settings for Display Type and CMOS Clean



Locations of Jumpers JP1 and JP11 on the G586OPC System Board

Jumper JP1
Display Type Select

Jumper JP1 sets the display adapter to color or mono. This jumper must match the type of display adapter installed. If you change your video adapter, make sure this jumper is changed accordingly.

JP1 Off: Color (Default)

JP1 On: Mono

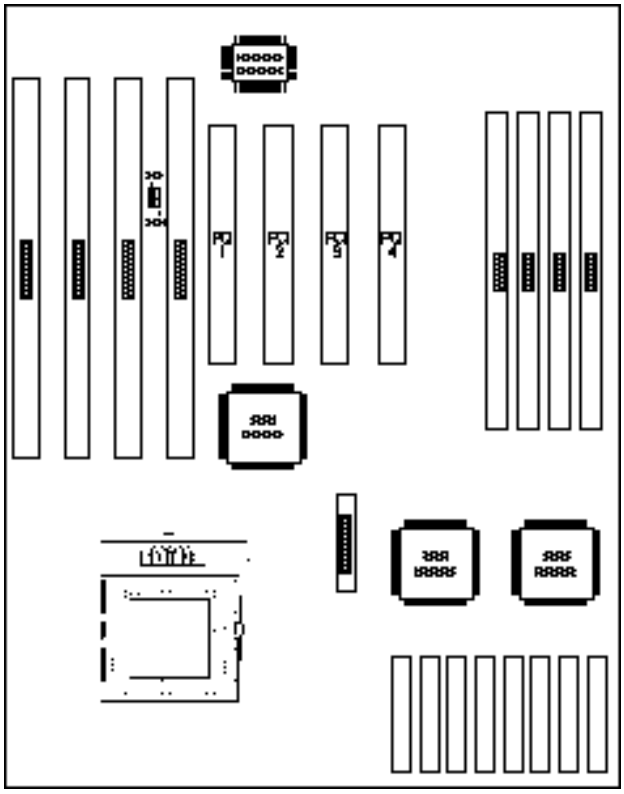
Jumper JP11
CMOS Clean Select

If, for some reason, the CMOS becomes corrupted, the system can be reconfigured with the default values stored in the ROM BIOS. To load the default values, switch off your computer and remove the cover. Touch the power supply box to discharge any static electric buildup in your body. Set JP11 to On for approximately 5 seconds, then return to the default position (Off). Put the cover back and power up your system.

JP11 Off: Normal (Default)

JP11 On: CMOS Clean

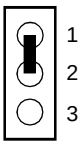
Jumper Settings for Super I/O Setting



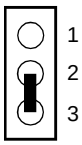
Locations of Jumpers JP5 and JP6 on the G586OPC System Board

Jumper JP5
ECP DRQ Select

The G586OPC system board supports an ECP parallel port that allows you to use DMA Request (DRQ) Channel 1 or 3. Set Jumper JP5 so the ECP port does not conflict with an add-on card's DMA channel.



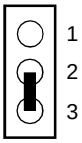
1-2 On: ECP DRQ 3
(Default)



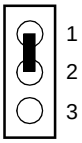
2-3 On: ECP DRQ 1

Jumper JP6
ECP DACK Select

The G586OPC system board supports an ECP parallel port that allows you to use DMA Acknowledge (DACK) Channel 1 or 3. Set Jumper JP6 so the ECP port does not conflict with an add-on card's DMA channel.



2-3 On: ECP DACK 3
(Default)



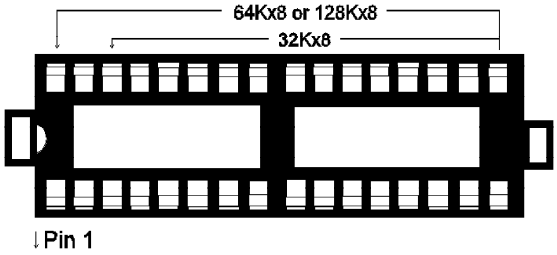
1-2 On: ECP DACK 1

Cache Configuration

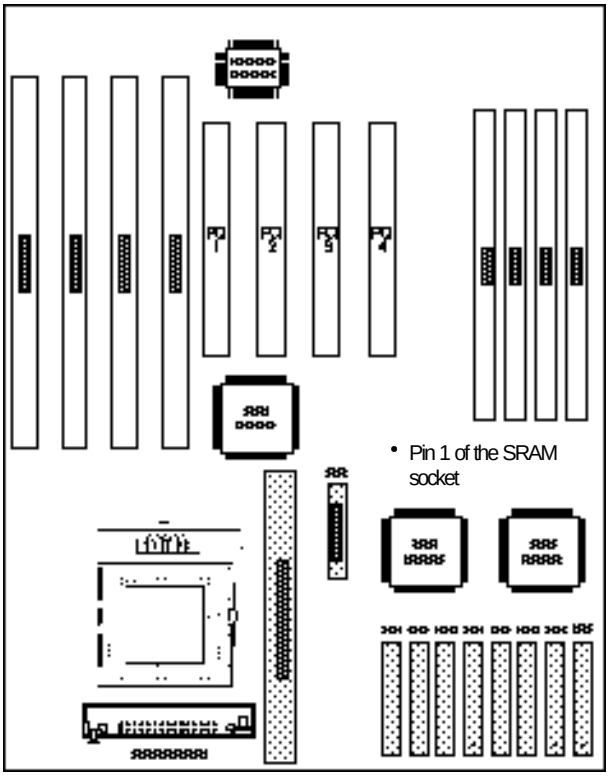
The G586OPC system board can support either asynchronous cache SRAM or synchronous (pipelined burst) cache SRAM. Three cache sizes are supported: 256KB, 512KB and 1MB. 256KB is the default size.

Installing Asynchronous Cache SRAM

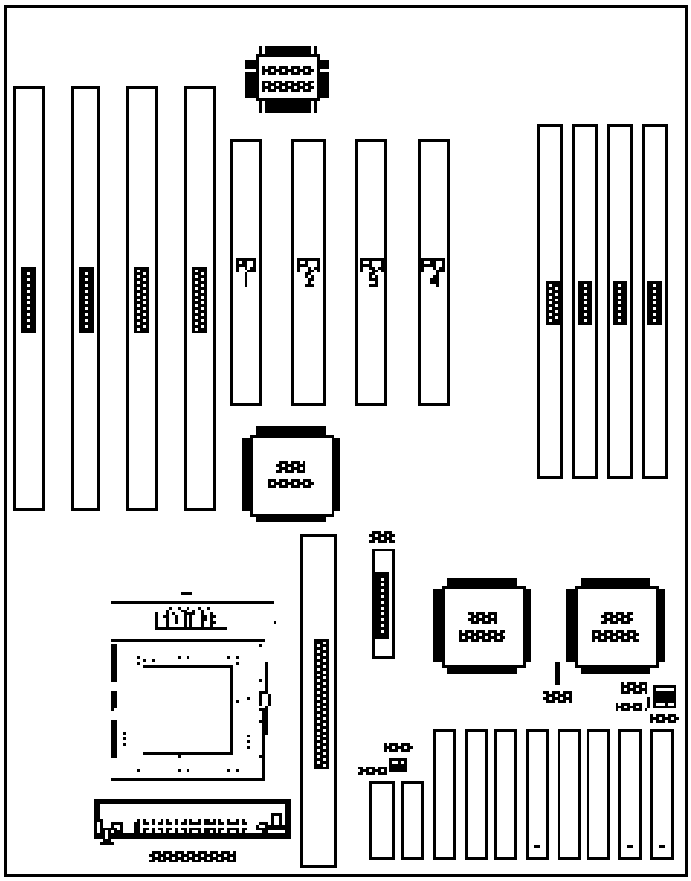
The SRAM sockets allow you to install either 32Kx8, 64Kx8 or 128Kx8 SRAM. Regardless of the amount of cache memory installed, one 32Kx8 (U23) is needed for tag RAM to store the cacheable addresses. The locations of the SRAM sockets on the system board are shown on the next page.



SRAM Socket

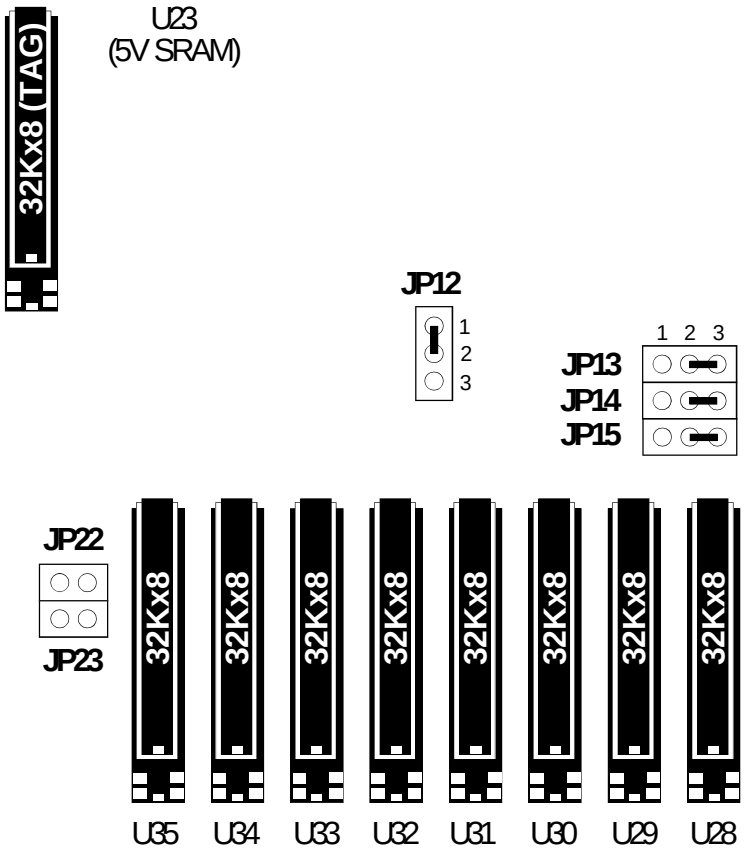

• Pin 1 of the SRAM socket

Jumper Settings for Cache Memory



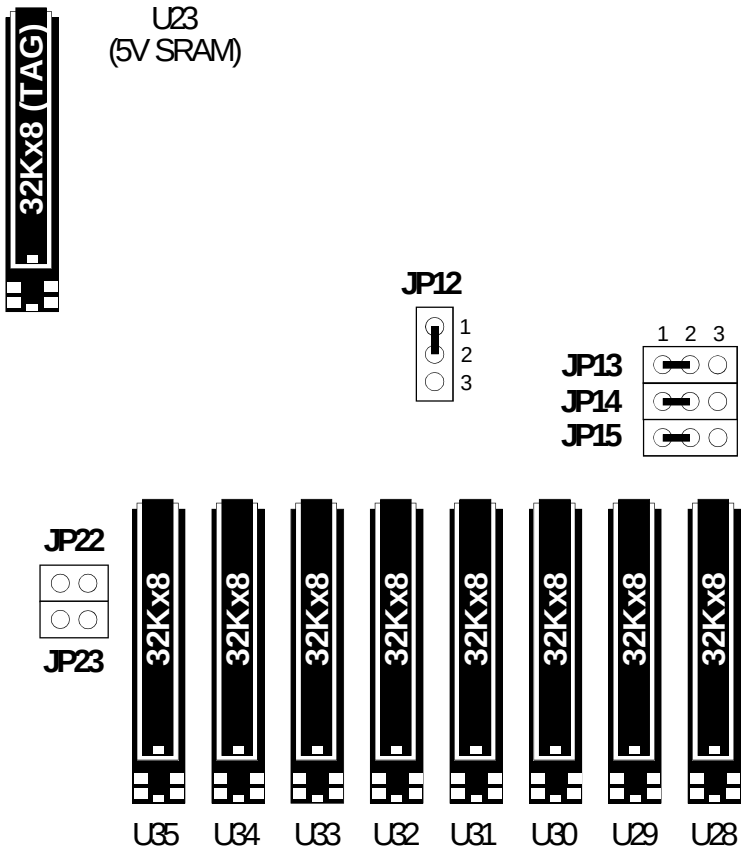
Locations of Jumpers JP12, JP13, JP14, JP15, JP22 and JP23 on the G586OPC System Board

256KB Cache SRAM *
5V/3V Mixed Voltage SRAM

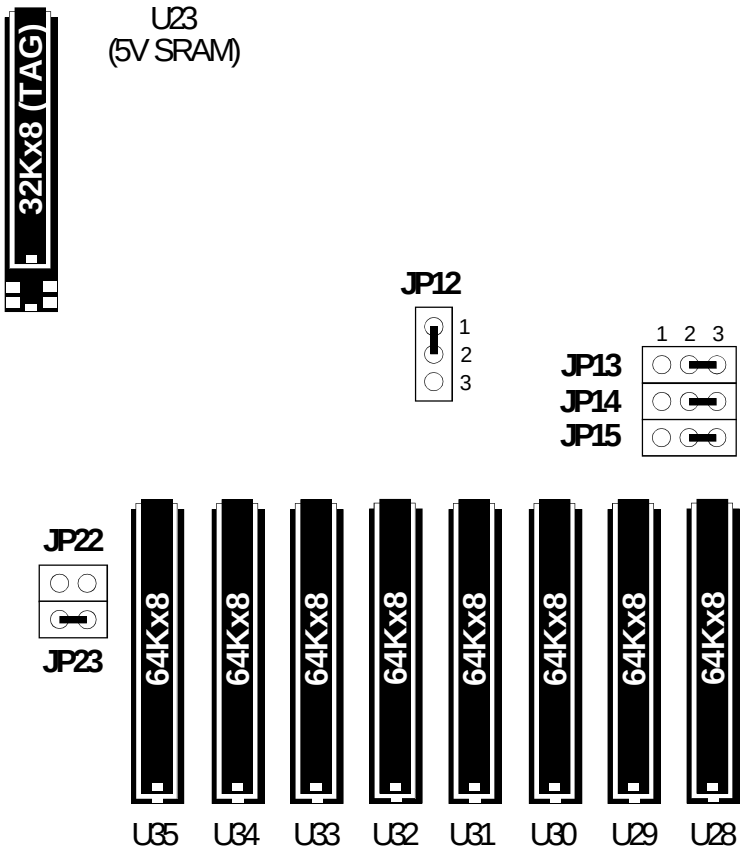


* Default Setting

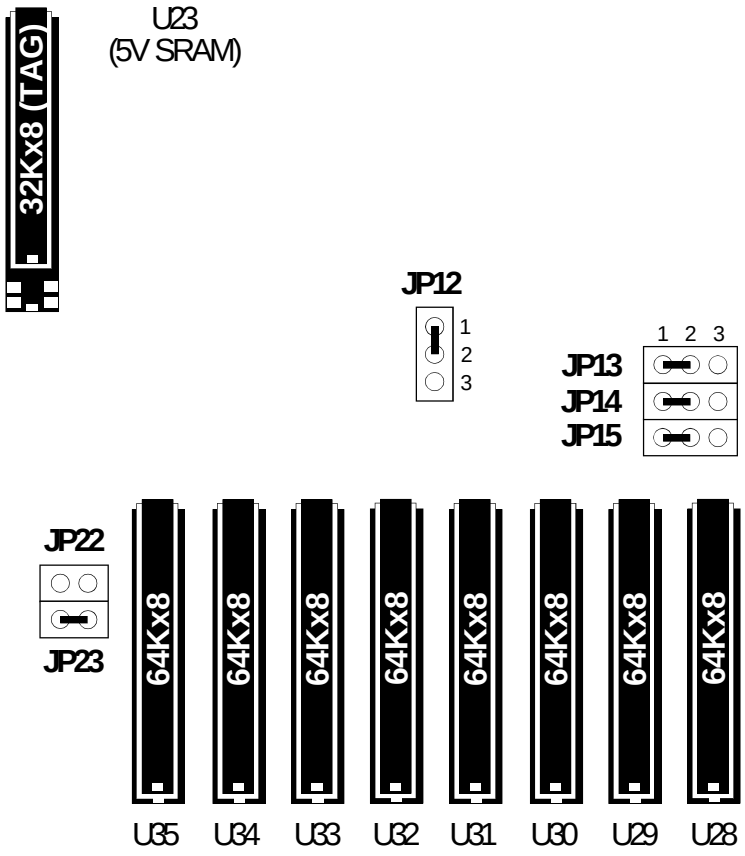
256KB Cache SRAM
3.3V SRAM



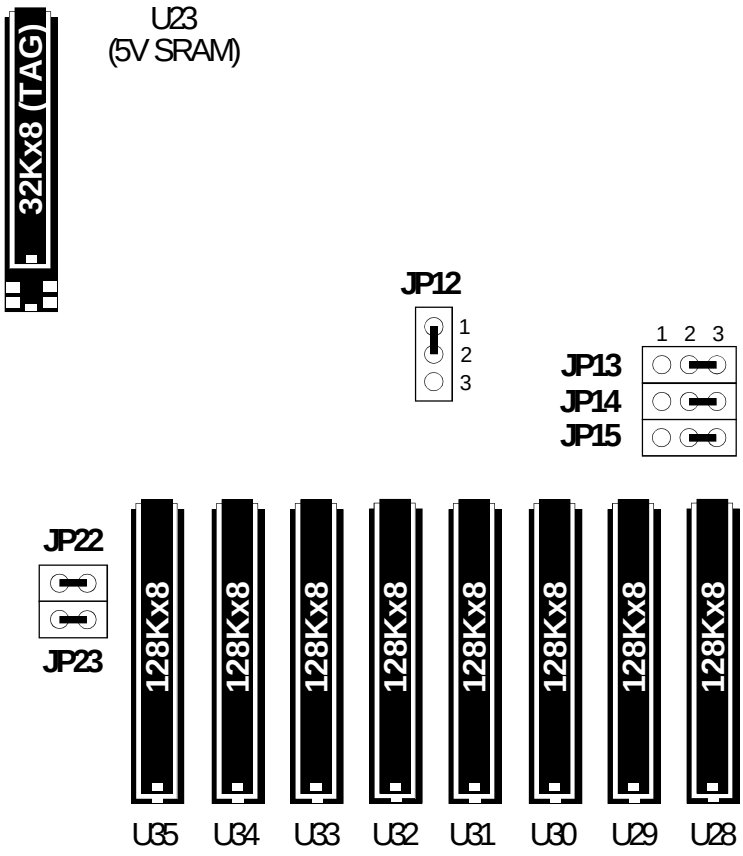
512KB Cache SRAM
5V/3.3V Mixed Voltage SRAM



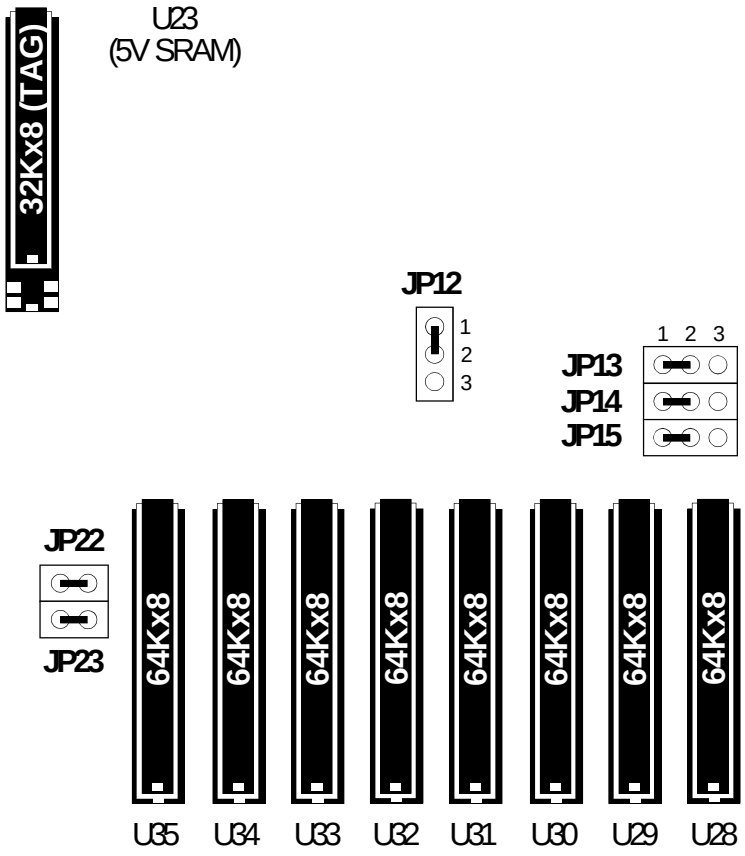
512KB Cache SRAM
3.3V SRAM



1MB Cache SRAM
5V/3.3V Mixed Voltage SRAM



1MB Cache SRAM
3.3V SRAM

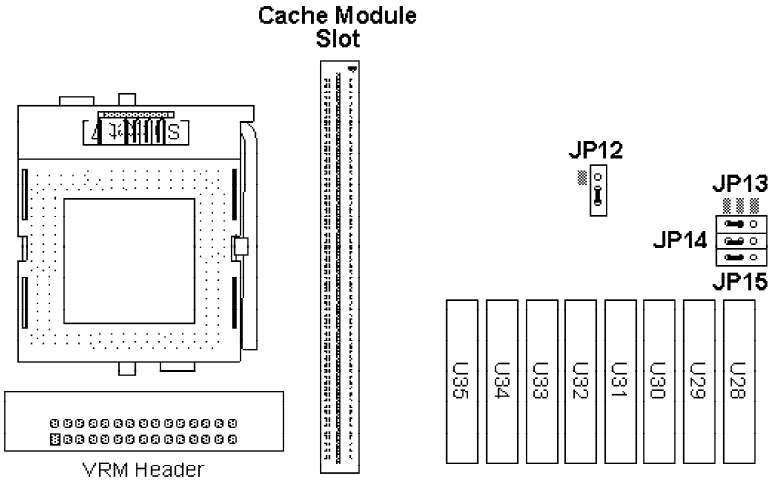


Installing the Synchronous Cache Module

Jumper Settings

JP12	JP13	JP14	JP15

Note:
Jumpers JP22 and JP23 are used to select the Level 2 asynchronous cache size. These two jumpers can be ignored when installing the optional synchronous cache module.



Installation

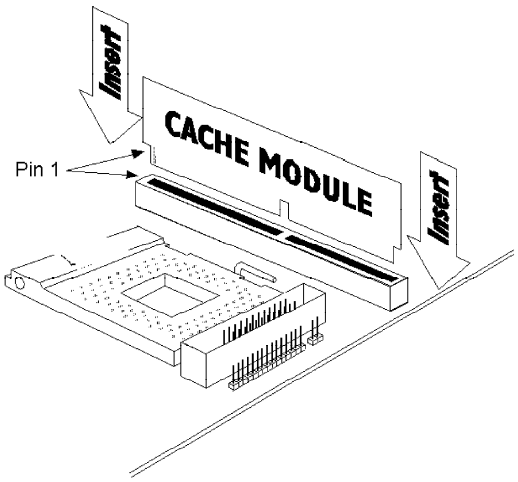
1. Before installing the optional synchronous pipeline burst cache module, make sure that:

   - the cache chips have been removed from the SRAM sockets U23 (Tag RAM) and U28-U35;

   - Jumpers JP12-JP15 have been set properly (page 26).

2. Locate the 160-pin cache module slot on the system board. Position the cache module above the slot. Make sure pin 1 of the cache module is aligned with pin 1 of the slot. Carefully slide the module into the slot. Press firmly on the top of it to seat it properly.

Note:
With the optional synchronous pipeline burst cache module installed in the cache module slot, the length of the add-in card in PCI Slot 2 is limited to 124,65 mm.

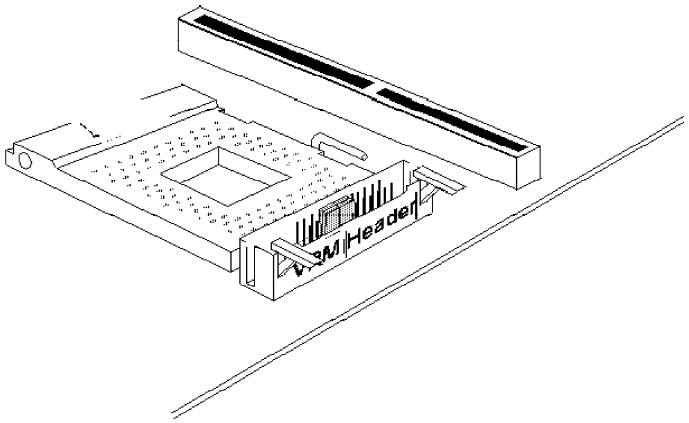


3. Once the synchronous cache module has been installed, you should make the following modifications in the "Chipset Features Setup" menu of the Award BIOS CMOS Setup Utility.

1.	**SRAM Type:**	Sync
2.	**SYNC SRAM Support:**	Pipeline
3.	**Cache Read Burst:**	3-1-1-1
4.	**Cache Write Burst:**	3-1-1-1 or 4-1-1-1

VRM Header

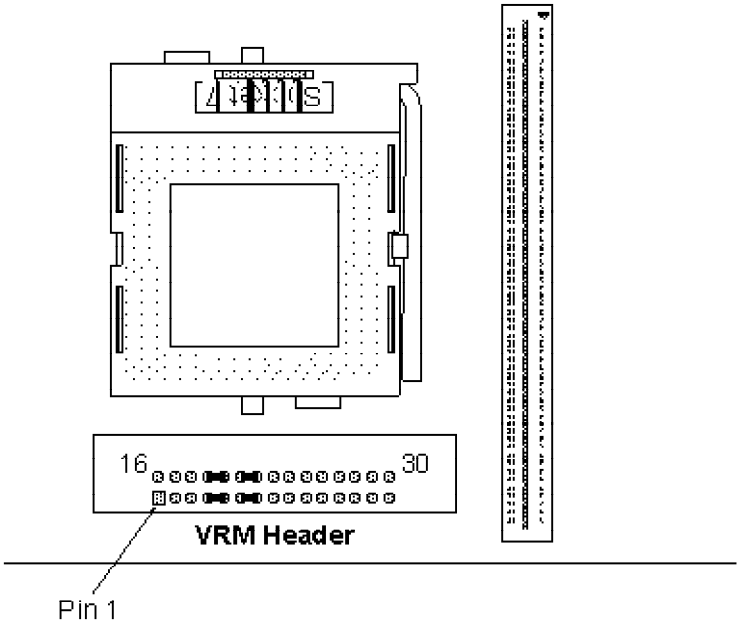
Your G586OPC system board is equipped with a VRM (Voltage Regulation Module) header shown below. It allows you to upgrade to future low-voltage CPUs by installing a Voltage Regulation Module.



VRM Header on the System Board

VRM Header and 3.3V Pentium Processor

When using a 3.3V Pentium processor, pins 4-5, 6-7, 19-20 and 21-22 of the VRM header must be set to On. These settings are presented on the next page.



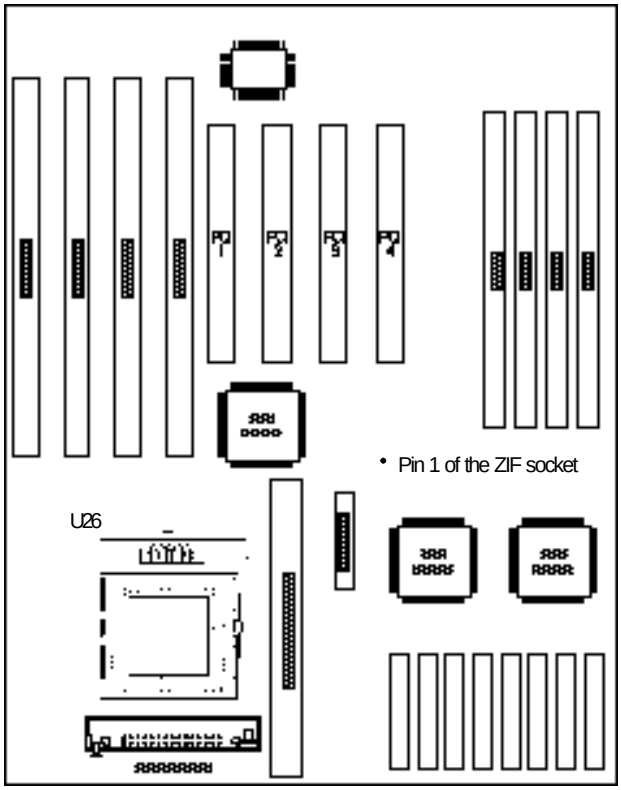
Pins 4-5, 6-7, 19-20 and 21-22 are set to On

VRM Header and Future Low-Voltage CPUs

The types of VRM supported and installation procedures will be described in a future edition of the G586OPC manual.

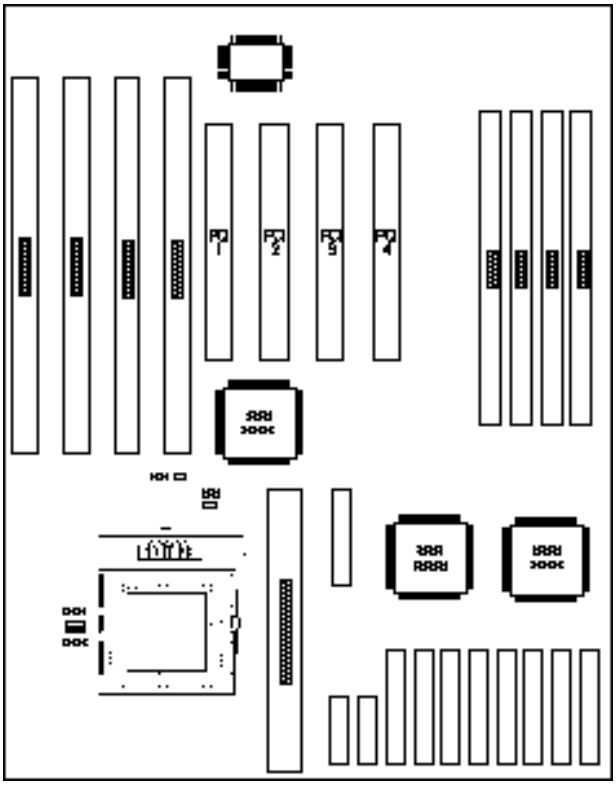
CPU Installation

The G586OPC is equipped with a 321-pin Zero Insertion Force (ZIF) socket at location U26 of the system board. The ZIF socket allows for easy installation of upgrade CPUs as your system needs grow. Make sure all jumpers are set correctly before applying power, or you may damage the CPU or system board.



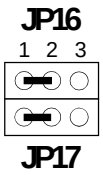
Location of the ZIF Socket on the System Board

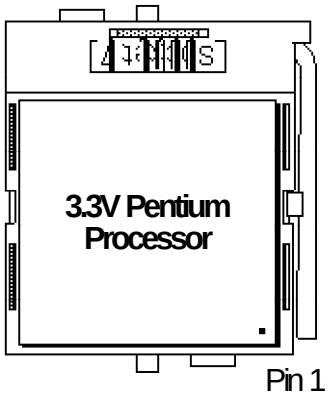
Jumper Settings for CPU



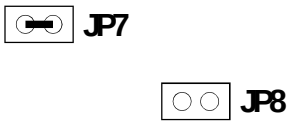
Locations of Jumpers JP7, JP8, JP16 and JP17 on the G586OPC System Board

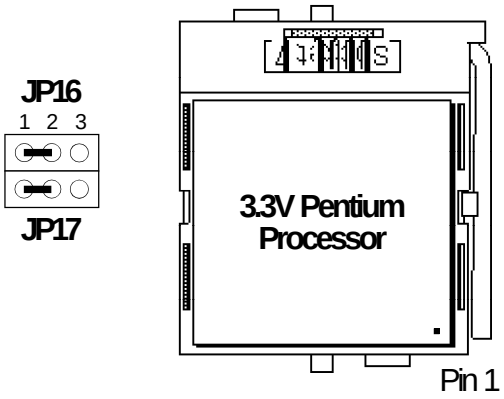
3.3V Pentium Processor (75MHz)
System (External) Bus Speed: 50MHz





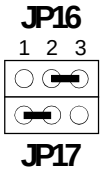
3.3V Pentium Processor (90MHz) *
System (External) Bus Speed: 60MHz

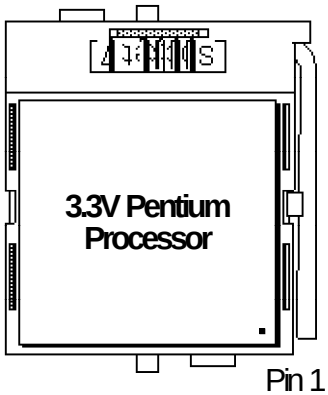




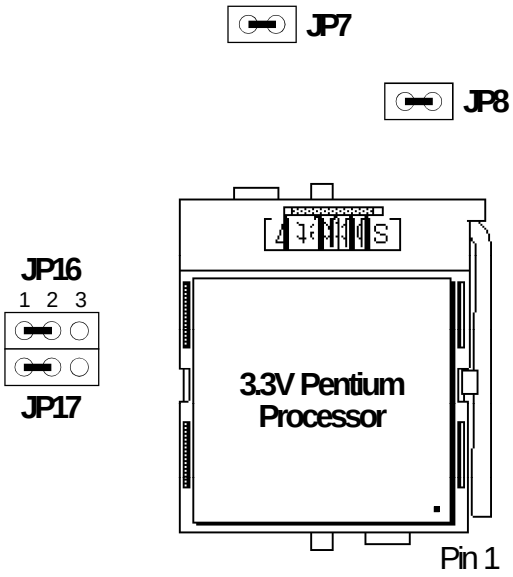
* Default Setting

3.3V Pentium Processor (100MHz)
System (External) Bus Speed: 50MHz

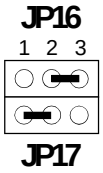


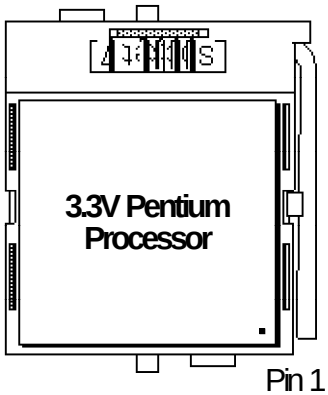


3.3V Pentium Processor (100MHz)
System (External) Bus Speed: 66MHz

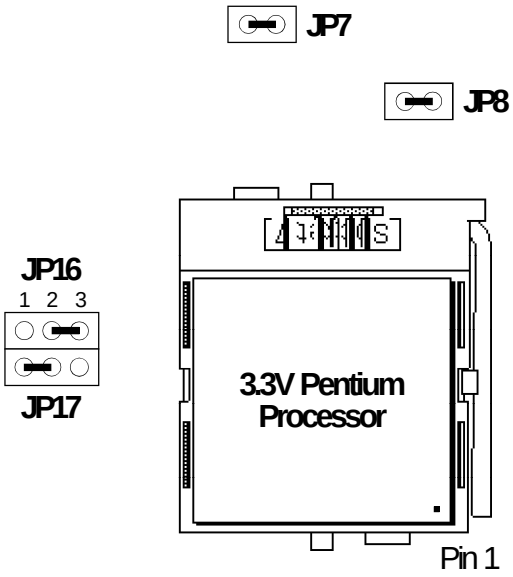


3.3V Pentium Processor (120MHz)
System (External) Bus Speed: 60MHz

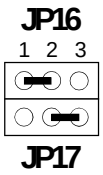


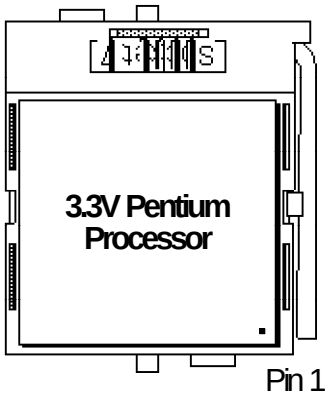


3.3V Pentium Processor (133MHz)
System (External) Bus Speed: 66MHz

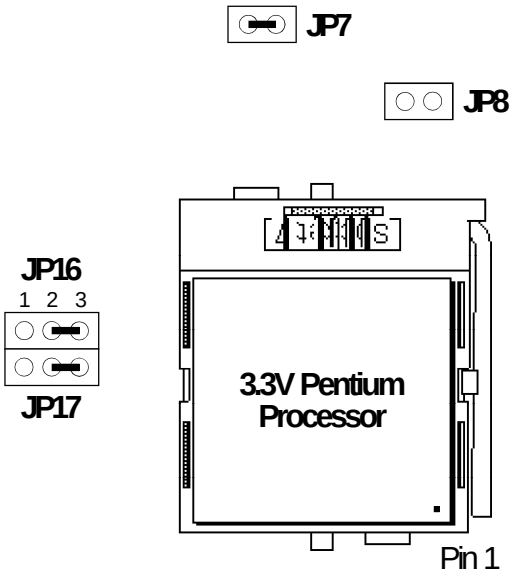


3.3V Pentium Processor (150MHz)
System (External) Bus Speed: 50MHz

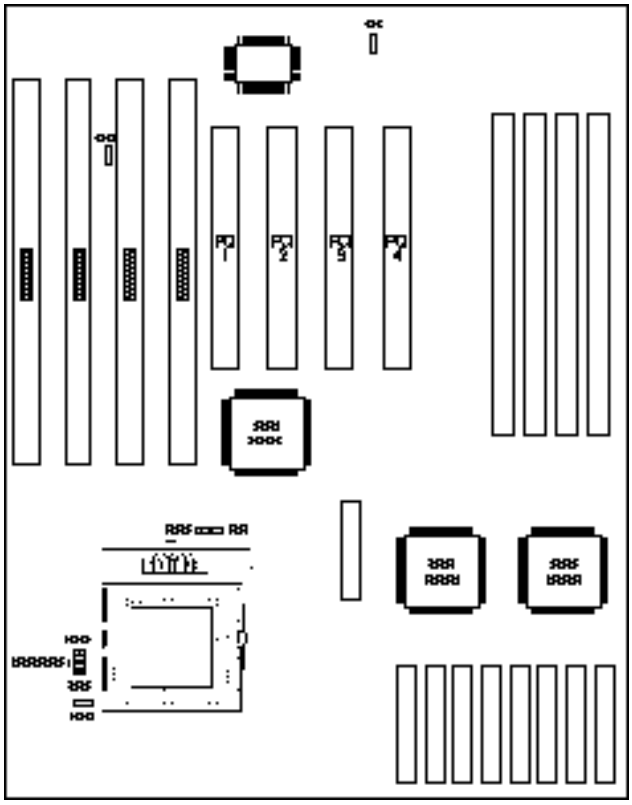




3.3V Pentium Processor (150MHz)
System (External) Bus Speed: 60MHz



Jumpers JP3, JP4, JP9, JP10, JP18, JP19, JP20, JP21 and JP24



The following jumpers are for factory testing only and should always be set to their default configurations. Reconfiguring these jumpers will cause problems with your system board.

JP3: Off
JP4, JP24: 1-2 On
JP9, JP10, JP18, JP19, JP20, JP21: On

Installing Upgrade CPUs

The G586OPC is equipped with a 321-pin Zero Insertion Force (ZIF) socket at location U26 of the system board. This socket is designed for easy removal of the old CPU and easy insertion of the upgrade CPU. The socket allows you to carefully place the new CPU into its position. If you need to apply excessive force to insert the CPU, the installation is being done incorrectly.

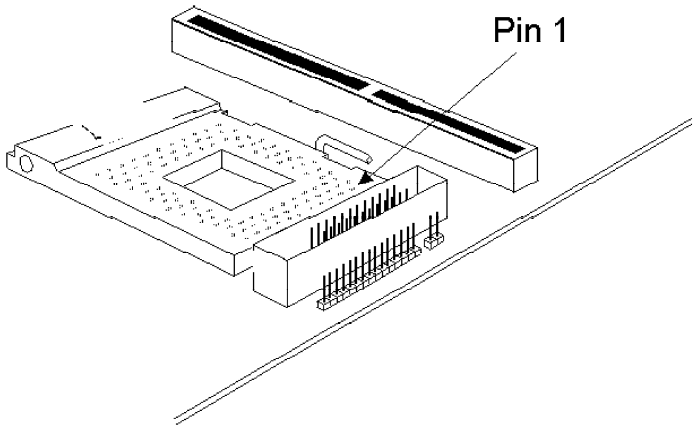
Warning:
Open the socket only if actually installing a CPU. The warranty on the original CPU will be voided if the S/N seal is broken.

Do not change any factory CPU speed jumper settings. You do not need to change any jumpers to properly install the 3.3V Pentium Upgrade Processor.

Before proceeding with the upgrade, take note of the following. The microprocessor and heat sink may be hot if the system has been running. To avoid the possibility of a burn, power the system off and let the processor and heat sink cool for 10 minutes.

The 321-pin ZIF socket consists of the four rows of pin holes on each side. To prevent improper OverDrive Processor installation, the ZIF socket has a Plug/Keying mechanism. Several holes in the socket are plugged so OverDrive Processors will go in only one way. If you cannot easily insert the OverDrive Processor, verify that pin 1 of the CPU is aligned with pin 1 of the socket. A warning note — be extremely careful to match pin 1 of the CPU with pin 1 of the socket. Only Intel's OverDrive Processor is keyed to prevent improper placement in the ZIF socket. Other Intel CPUs, as well

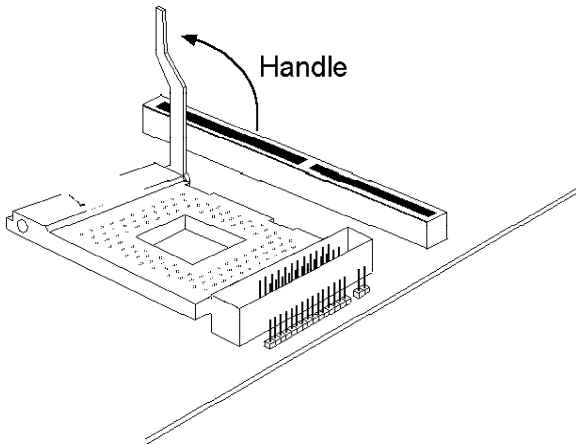
as CPUs from other vendors, can be placed incorrectly and will be permanently damaged.



Zero Insertion Force (ZIF) Socket

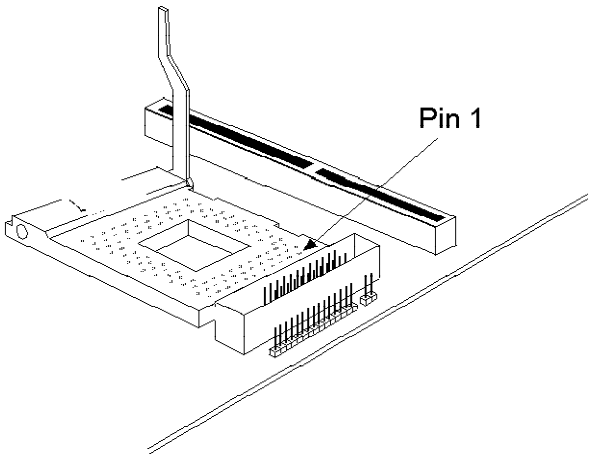
To install an upgrade CPU, do the following.

1. Make sure the handle on the side of the ZIF socket is up. To raise the handle, push down, pull it out to the side a little and raise it as far as it will go. The top plate will slide back. Do not use screwdrivers or other tools to open the socket, or damage may occur to the system or socket. It may be necessary to initially apply a small amount of sideways force to free the handle from its retaining “tab.” Once clear of the “tab,” the handle will open relatively easily.



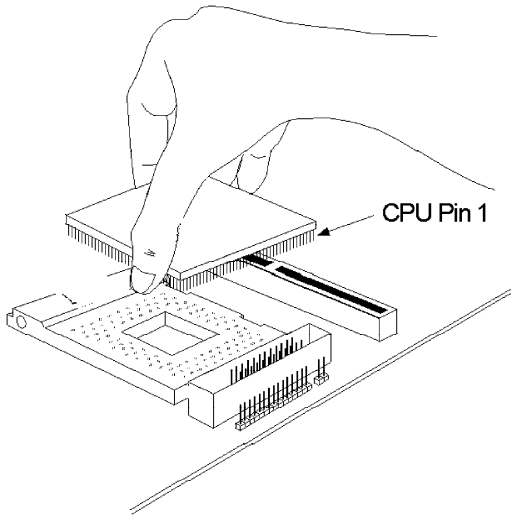
Lifting the Handle

2. Once the lever is completely up, remove the old CPU by carefully lifting it straight out of the socket. You are now ready to insert the new CPU.



Pin 1 of the ZIF Socket

3. Position the CPU above the ZIF socket. Make sure pin 1 of the CPU is aligned with pin 1 of the socket. Lower the chip until the pins are inserted properly in their corresponding holes. Remember that very little force is needed to install the CPU. If the CPU will not insert easily, verify pin 1 of the CPU is aligned with pin 1 of the socket. Applying too much pressure can damage the CPU or the socket.



Positioning the CPU Above the ZIF Socket

4. Push the handle down until the handle locks into place. The top plate will slide forward. You will feel some resistance as the pressure starts to secure the CPU in the socket. This is normal and will not damage the CPU. However, if the handle is not completely closed, damage to the CPU and/or system board may result.

Clearance Requirements

The 3.3V Pentium Upgrade Processor comes with a heat sink mounted on top. To maintain proper airflow once the upgrade is installed on the system board, the processor and sink require certain space clearances.

The clearance above 3.3V Pentium Upgrade Processor's fan/heat-sink must be at least 0.4 in. The clearance on at least 3 of 4 sides of the processor must be at least 0.2 in. The cables (for floppy drive, hard drive, CD-ROM, etc.) must be routed clear of the CPU and its airspace.

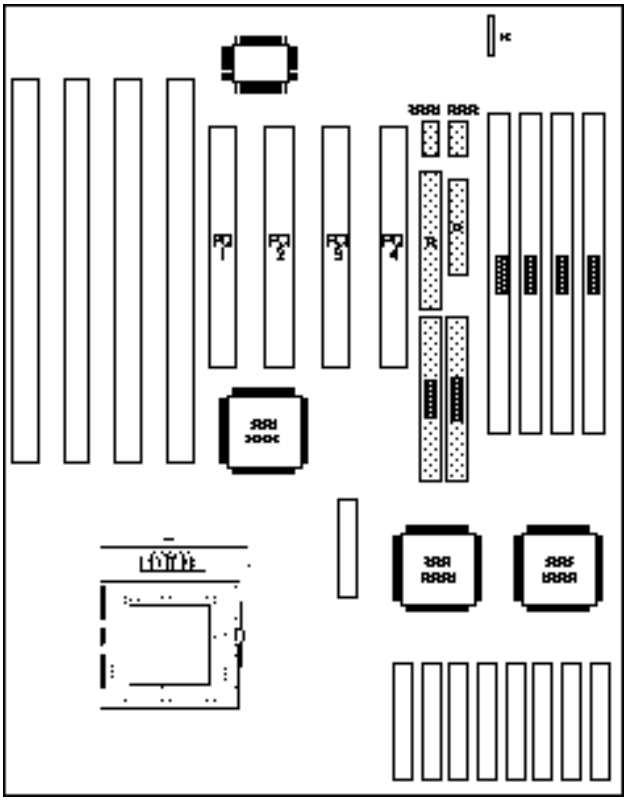
Fan Exhaust

The CPU must be kept cool by using a fan exhaust configuration in connection with the heatsink. The temperature of the air entering the fan/heatsink cannot exceed 45°C. The ambient or room temperature must be below 37°C (99°F) for a system installed with the 3.3V Pentium Upgrade Processor.

In order to provide proper airflow to the CPU, all movable obstructions (power supply cables, cards, floppy disk cables) must be clear of the CPU heatsink/ fan component in accordance with the space clearance discussed in the CPU installation section of this manual.

Built-in Ports

The G586OPC system board is equipped with two serial ports, one SPP/EPP/ECP parallel printer port, one FDD connector, one PS/2 mouse port and two IDE hard disk shrouded headers.



Locations of the Built-in Ports on the System Board

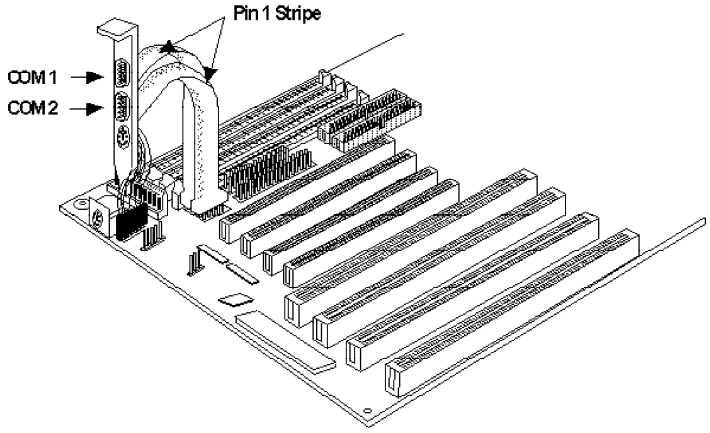
Serial Ports

The built-in serial ports are RS-232C asynchronous communication ports with 16C550A-compatible UARTs that can be used with modems, serial printers, remote display terminals, and other serial devices. They use the following system I/O addresses:

Port Configuration	I/O Address
COM1 COM2 COM3/COM4	3F8h 2F8h 3E8h/2E8h

Connecting the Serial Ports

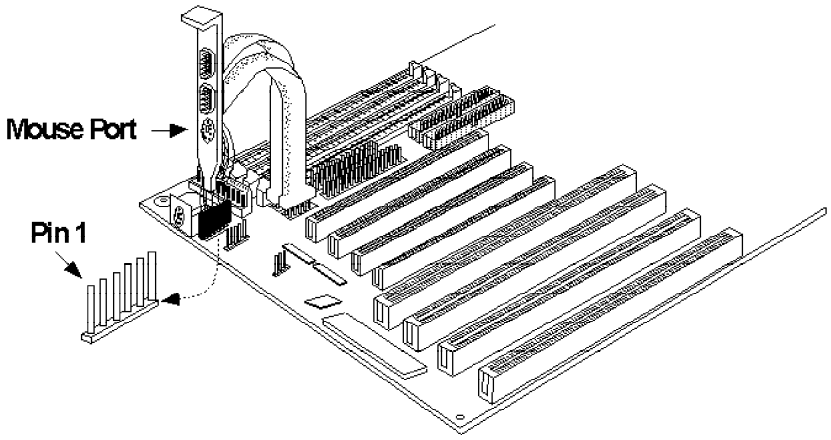
Two DB-9P serial port cables are provided with the motherboard. They are mounted on a card-edge bracket along with the PS/2 mouse cable. The upper serial port cable should be used for the COM 1 primary serial port; connect it to Connector COM 1 on the motherboard. The lower serial port cable should be used for the COM 2 secondary serial port; connect it to Connector COM 2 on the motherboard. Make sure the colored stripes on the ribbon cables align with pin 1 of Connectors COM 1 and COM 2. Mount the card-edge bracket to the system chassis.



The Primary and Secondary Serial Ports on the G586OPC System Board

PS/2 Mouse Port

The PS/2 mouse port is a 6-pin connector on the system board. Attach the 6-pin mouse port cable, which came in the G586OPC box, to Connector J1. Make sure the brown wire on the PS/2 mouse connector aligns with pin 1 of connector J1.



The PS/2 Mouse Port on the G586OPC System Board

Parallel Port

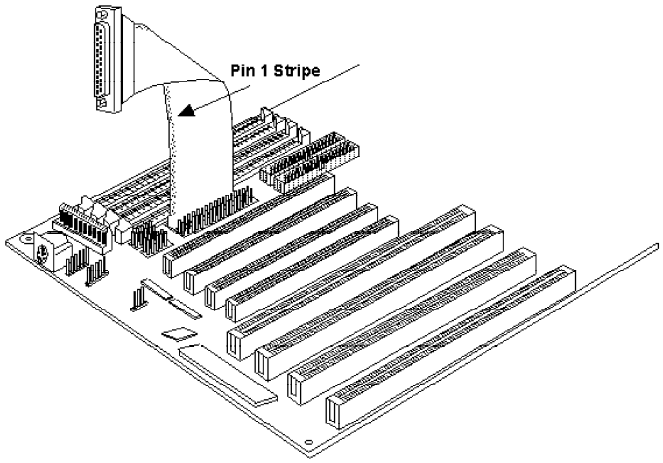
The G586OPC system board has a standard connector for interfacing your PC to a parallel printer. This port is compatible with both IBM AT printer ports and the new, high speed, bidirectional Extended Capabilities Port standard. The parallel port on your system board can be set to any of the following system I/O addresses:

I/O Address:	3BC-3BE Hex
	378-37A Hex *
	278-27A Hex

* Default setting

Connecting the Parallel Printer Port

Attach the DB-25S printer port cable, which came with the motherboard, to Connector J7 on the G586OPC system board. Make sure the colored stripe on the ribbon cable aligns with pin 1 of Connector J7. Use a small nutdriver to mount the cable into a DB-25 cutout in the system chassis.

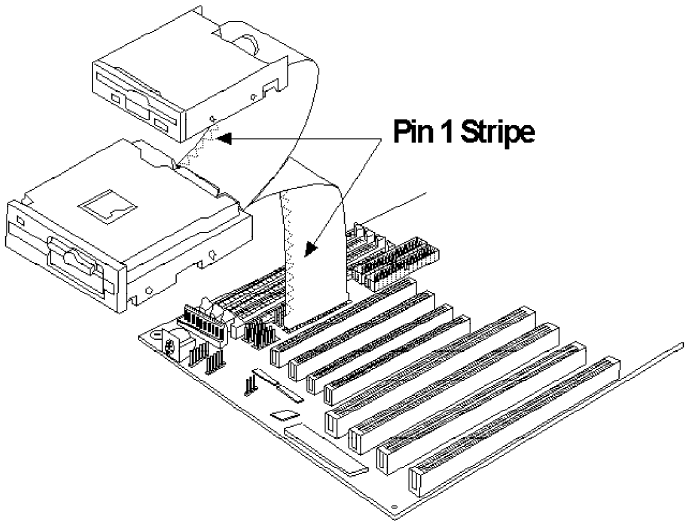


The Parallel Printer Port on the G586OPC System Board

Floppy Disk Drive Controller

The G586OPC system board has a built-in floppy disk controller that supports two standard floppy disk drives. You can install any 720KB/1.2MB/1.44MB/2.88MB floppy disk drives.

Connecting the Floppy Disk Cable



The Floppy Disk Connector on the G586OPC System Board

Step 1
Install the 34-pin header connector into the floppy disk connector (J8) on the system board. The colored edge of the ribbon should be aligned to pin 1 of the J8 connector.

Step 2
Install the other 34-pin header connector(s) into the disk drive(s) with the colored edge of the daisy chained ribbon cable aligned to pin 1 of the drive edge connector(s). The end-most connector should be attached to the drive you want to be Drive A.

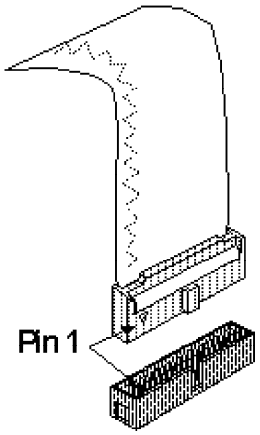
IDE Hard Disk Interface

The G586OPC system board is equipped with two PCI IDE shrouded headers that will interface four IDE (Integrated Drive Electronics) hard disk drives.

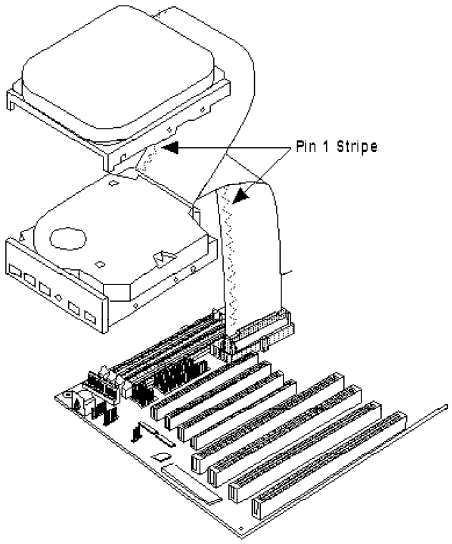
Note:
Only IDE drives can be connected to the IDE interface.

Connecting the IDE Hard Disk Interface

To prevent improper IDE cable installation, each PCI IDE shrouded header has a keying mechanism. The 40-pin connector on the IDE cable can be placed into the header only if pin 1 of the connector is aligned with pin 1 of the header.



Note:
The IDE cable with a standard 40-pin connector can be installed in the PCI IDE shrouded header. Be extremely careful to match the colored edge of the ribbon with pin 1 of the header.



The IDE Hard Disk Connector on the System Board

Step 1
If you are connecting two hard drives, install the 40-pin connector of the IDE cable into the primary IDE shrouded header (1st IDE Connector). If you are adding a third or fourth IDE device, install the 40-pin connector of the other IDE cable into the secondary IDE shrouded header (2nd IDE Connector).

Step 2
Install the other 40-pin header connector(s) into the device with the colored edge of the ribbon cable aligned to pin 1 of the drive edge connector(s).

Note:
Refer to your disk drive user's manual for information about selecting proper drive switch settings.

Adding a Second IDE Hard Drive

When using two IDE drives, one must be set as the master and the other as the slave. Follow the instructions provided by the drive manufacturer for setting the jumpers and/or switches on the drives. No changes are needed on the G586OPC system board when adding a second hard drive.

We recommend that the IDE hard drives be from the same manufacturer. In a few cases, drives from two manufacturers will not function properly when used together. The problem lies in the hard drives, not the G586OPC system board.

Preparing an IDE Drive for Use

IDE disk drives are already low-level formatted, with any bad-track errors entered, when shipped by the drive manufacturer. Do not attempt to do a low-level format, or you may cause serious damage to the drive.

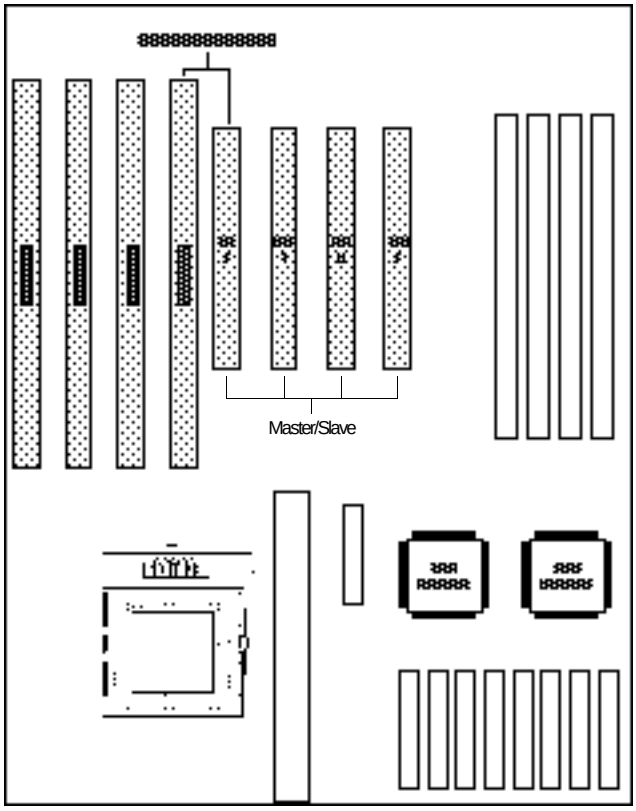
To use an IDE drive, you need to enter the drive type (this information is provided by the drive manufacturer) into the system's CMOS setup table. Then run FDISK and FORMAT provided with DOS.

Note:
Do not run FDISK and FORMAT programs on a drive that has already been formatted, or you will lose all programs and data stored on the drive.

Installing Expansion Cards

The G586OPC is equipped with three dedicated PCI and three dedicated ISA slots. One PCI slot and one ISA slot are shared. You can only install a card in one or the other of the shared slots at a time; you cannot install devices in both slots. Due to the size of the the optional synchronous pipeline burst cache module installed in the 160-pin cache module upgrade slot, the length of the card in PCI Slot 2 is limited. Refer to page 27 for limitations. The locations of the expansion slots are shown on the next page.

Note:
The BIOS needs to be configured for the PCI add-on cards installed in the PCI slots. Refer to the "PCI Configuration Setup" chapter presented in the "Initial Setup Program" section of the manual.



Expansion Slots on the G586OPC System Board

Installing the System Board

Before installing the system board into your system unit, you should prepare the tools you will need:

You will need:

- *one medium size, flat-bladed screwdriver*
- *one medium Phillips screwdriver*

Step 1

Unlock your system unit. Turn off the power and disconnect all power cords and cables.

Step 2

Remove the system unit cover. Refer to the manufacturer's instructions if necessary.

Step 3

Remove expansion cards seated in any of the expansion slots and detach all connectors from the old system board.

Step 4

Loosen the screws holding the original system board and remove the board from the system. Save the screws.

Step 5

Remove the G586OPC from its original packing box. Be careful to avoid touching all connectors and pins on the board. Please refer to the handling instructions on pages 6-8 for proper handling techniques.

Step 6

Insert the SIMMs into the SIMM banks on the G586OPC. The quantity and location of the SIMMs is dependent upon the memory configuration and type of modules you intend to use.

Step 7

Install the CPU. Be sure pin 1 of the CPU is aligned with pin 1 of the socket.

Step 8

Set the corresponding jumpers.

Step 9

Install the prepared G586OPC system board into the case and replace the screws.

Step 10

Reinstall all cards and connectors and replace the system unit cover. Reconnect all power cords and cables.

❖ IDE Device Drivers

To install the drivers supported by the system board, please refer to the "Read Me" file contained on the installation diskette.

❖ Troubleshooting Checklist

If you experience difficulty with the G586OPC system board, please refer to the checklist below. If you still cannot isolate the problem, please contact your dealer.

1) Check the jumper settings to ensure that the jumpers are properly set. If in doubt, refer to the "Board Configuration" section.

2) Verify that all SIM modules are seated securely into the bank sockets.

3) Make sure the SIM modules are in the correct locations.

4) Check that all populated memory banks are filled with valid size SIM modules.

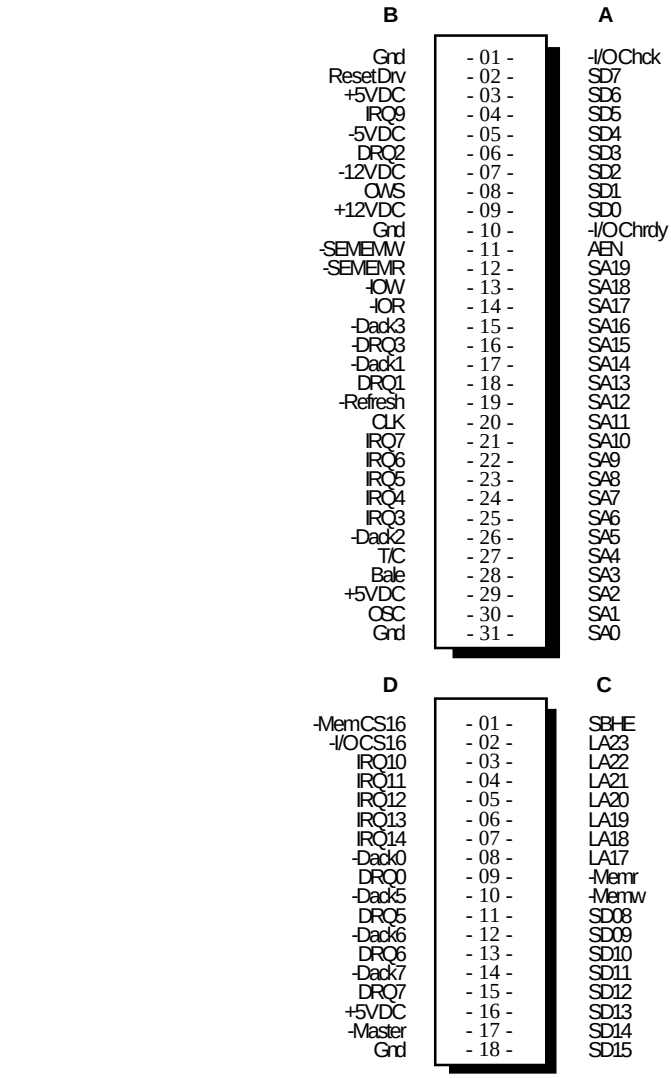
5) If your board fails to function, place the board on a flat surface and seat all socketed components (gently press each component into the socket).

6) If you made changes to the BIOS settings, re-enter setup and load the BIOS defaults.

❖ Appendix A: PCI I/O Pin Assignments

Component Side	B		A	Solder Side
	-12V	- 01 -	TRST#	
	TCK	- 02 -	+12V	
	Ground	- 03 -	TMS	
	TDO	- 04 -	TDI	
	+5V	- 05 -	+5V	
	+5V	- 06 -	INTA#	
	INTB#	- 07 -	INTC#	
	INTD#	- 08 -	+5V	
	PRSNT1#	- 09 -	Reserved	
	Reserved	- 10 -	+5V (I/O)	
	PRSNT2#	- 11 -	Reserved	
	Ground	- 12 -	Ground	
	Ground	- 13 -	Ground	
	Reserved	- 14 -	Reserved	
	Ground	- 15 -	RST#	
	CLK	- 16 -	+5V (I/O)	
	Ground	- 17 -	GNT#	
	REQ#	- 18 -	Ground	
	+5V (I/O)	- 19 -	Reserved	
	AD[31]	- 20 -	AD[30]	
	AD[29]	- 21 -	+3.3V	
	Ground	- 22 -	AD[28]	
	AD[27]	- 23 -	AD[26]	
	AD[25]	- 24 -	Ground	
	+3.3V	- 25 -	AD[24]	
	C/BE[3]#	- 26 -	IDSEL	
	AD[23]	- 27 -	+3.3V	
	Ground	- 28 -	AD[22]	
	AD[21]	- 29 -	AD[20]	
	AD[19]	- 30 -	Ground	
	+3.3V	- 31 -	AD[18]	
	AD[17]	- 32 -	AD[16]	
	C/BE[2]#	- 33 -	+3.3V	
	Ground	- 34 -	FRAME#	
	IRDY#	- 35 -	Ground	
	+3.3V	- 36 -	TRDY#	
	DEVSEL#	- 37 -	Ground	
	Ground	- 38 -	STOP#	
	LOCK#	- 39 -	+3.3V	
	PERR#	- 40 -	SDONE	
	+3.3V	- 41 -	SBO#	
	SERR#	- 42 -	Ground	
	+3.3V	- 43 -	PAR	
	C/BE[1]#	- 44 -	AD[15]	
	AD[14]	- 45 -	+3.3V	
	Ground	- 46 -	AD[13]	
	AD[12]	- 47 -	AD[11]	
	AD[10]	- 48 -	Ground	
	Ground	- 49 -	AD[09]	
	AD[08]	- 52 -	C/BE[0]#	
	AD[07]	- 53 -	+3.3V	
	+3.3V	- 54 -	AD[06]	
	AD[05]	- 55 -	AD[04]	
	AD[03]	- 56 -	Ground	
	Ground	- 57 -	AD[02]	
	AD[01]	- 58 -	AD[00]	
	+5V (I/O)	- 59 -	+5V (I/O)	
	ACK64#	- 60 -	REQ64#	
	+5V	- 61 -	+5V	
	+5V	- 62 -	+5V	

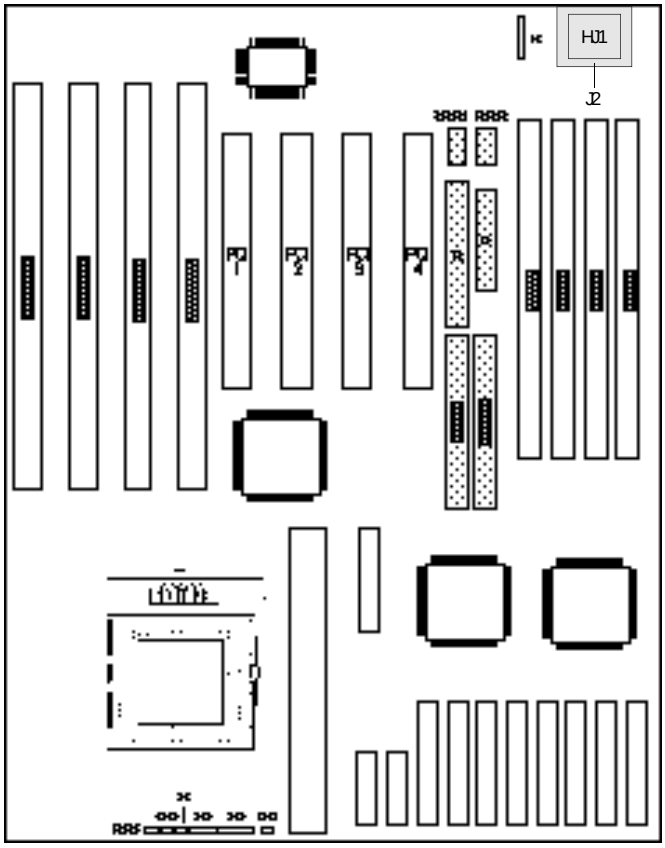
❖ Appendix B: ISA I/O Pin Assignments



B		A
Gnd	- 01 -	-I/O Chck
Reset Drv	- 02 -	SD7
+5VDC	- 03 -	SD6
IRQ9	- 04 -	SD5
-5VDC	- 05 -	SD4
DRQ2	- 06 -	SD3
-12VDC	- 07 -	SD2
OWS	- 08 -	SD1
+12VDC	- 09 -	SD0
Gnd	- 10 -	-I/O Chrdy
-SEMEMW	- 11 -	AEN
-SEMEMR	- 12 -	SA19
-IOW	- 13 -	SA18
-IOR	- 14 -	SA17
-Dack3	- 15 -	SA16
-DRQ3	- 16 -	SA15
-Dack1	- 17 -	SA14
DRQ1	- 18 -	SA13
-Refresh	- 19 -	SA12
CLK	- 20 -	SA11
IRQ7	- 21 -	SA10
IRQ6	- 22 -	SA9
IRQ5	- 23 -	SA8
IRQ4	- 24 -	SA7
IRQ3	- 25 -	SA6
-Dack2	- 26 -	SA5
T/C	- 27 -	SA4
Bale	- 28 -	SA3
+5VDC	- 29 -	SA2
OSC	- 30 -	SA1
Gnd	- 31 -	SA0

D		C
-Mem CS16	- 01 -	SBHE
-I/O CS16	- 02 -	LA23
IRQ10	- 03 -	LA22
IRQ11	- 04 -	LA21
IRQ12	- 05 -	LA20
IRQ13	- 06 -	LA19
IRQ14	- 07 -	LA18
-Dack0	- 08 -	LA17
DRQ0	- 09 -	-Memr
-Dack5	- 10 -	-Memw
DRQ5	- 11 -	SD08
-Dack6	- 12 -	SD09
DRQ6	- 13 -	SD10
-Dack7	- 14 -	SD11
DRQ7	- 15 -	SD12
+5VDC	- 16 -	SD13
-Master	- 17 -	SD14
Gnd	- 18 -	SD15

❖ Appendix C: Connector Pin Assignments



Connector J1
PS/2 Mouse Connector

Pin	Function
1	Mouse Data
2	Reserved
3	Ground
4	+5V
5	Mouse Clock
6	Reserved

Connector J7
Parallel Printer Port

Pin	Function
1	-Strobe
2	Data 0
3	Data 1
4	Data 2
5	Data 3
6	Data 4
7	Data 5
8	Data 6
9	Data 7
10	-Ack
11	Busy
12	Paper Empty
13	Select
14	-Autofd
15	-Error
16	-Init
17	-Slctin

Pin	Function
18	Ground
19	Ground
20	Ground
21	Ground
22	Ground
23	Ground
24	Ground
25	Ground

Connector J8
Floppy Disk Drive Connector

Pin	Function
1	Ground
2	DENSEL
3	Ground
4	Reserved
5	Ground
6	Drate0
7	Ground
8	Index
9	Ground
10	MTR0
11	Ground
12	DR1
13	Ground
14	DR0
15	Ground
16	MTR1
17	Drate1

Pin	Function
18	Dir
19	Ground
20	Step
21	Ground
22	Write Data
23	Ground
24	Write Gate
25	Ground
26	Track 0
27	MSEN
28	Wr Protect
29	Ground
30	Read Data
31	Ground
32	Head Select
33	Ground
34	Disk Change

1st IDE
Primary IDE Hard Disk Drive Connector

Pin	Function
1	-Reset
2	Ground
3	D7
4	D8
5	D6
6	D9
7	D5
8	D10
9	D4

Pin	Function
10	D11
11	D8
12	D12
13	D2
14	D13
15	D1
16	D14
17	D0
18	D15
19	Ground
20	Reserved
21	DRQ0
22	Ground
23	-IOW
24	Ground
25	-IOR
26	Ground
27	IOCHRDY
28	BALE
29	DACK0
30	Ground
31	IRQ14
32	IOCS16
33	SA1
34	Reserved
35	SA0
36	SA2
37	HCS0
38	HCS1
39	LED
40	Ground

2nd IDE
Secondary IDE Hard Disk Drive Connector

Pin	Function
1	-Reset
2	Ground
3	D7
4	D8
5	D6
6	D9
7	D5
8	D10
9	D4
10	D11
11	D3
12	D12
13	D2
14	D13
15	D1
16	D14
17	D0
18	D15
19	Ground
20	Reserved
21	DRQ1
22	Ground
23	-IOW
24	Ground
25	-IOR
26	Ground
27	Reserved
28	BALE
29	DACK1
30	Ground

Pin	Function
31	IRQ15
32	IOCS16
33	SA1
34	Reserved
35	SA0
36	SA2
37	HCS0
38	HCS1
39	LED
40	Ground

COM1 and COM2
Primary (COM1) and Secondary (COM2) Serial Ports

Pin	Function
1	DCD (Data Carrier Detect)
2	RX (Receive Data)
3	TX (Transmit Data)
4	DTR (Data Terminal Ready)
5	Ground (Signal Ground)
6	DSR (Data Set Ready)
7	RTS (Request to Send)
8	CTS (Clear to Send)
9	RI (Ring Indicator)

Connector J15
HD LED Connector

Pin	Function
1	IDE LED
2	VCC

Connector J17
Speaker Connector

Pin	Function
1	Data
2	NC
3	Ground
4	VCC

Connector J18
Keylock Connector

Pin	Function
1	LED Signal
2	Reserved
3	Ground
4	Keylock Signal
5	Ground

Connector JP25
Green LED/Turbo LED Connector

Pin	Function
1	LED (-)
2	LED (+)

Note:
Connector JP25 functions as Green LED Connector if the Power Management option is enabled ("Power Management Setup").

Connector JP26
Turbo Switch Connector

Pin	Function
1	Turbo
2	GND

Connector S1
Hardware Reset Connector

Pin	Function
1	GND
2	Reset

Connector HJ1
PS/2 Keyboard Connector

Pin	Function
1	Keyboard Data
2	NC
3	Ground
4	VCC
5	Keyboard CLK
6	NC

Connector J2
AT Keyboard Connector

Pin	Function
1	Keyboard CLK
2	Keyboard Data
3	NC
4	Ground
5	VCC

Note:
Your G586OPC system board is equipped only with one of these connectors: Connector HJ1 or Connector J2.

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