

EP-PI11
Motherboard of
Pentium with MMX™
User's Manual

Order Number 41010012

January 1998

User Manual Rev 1.0

Related Motherboard: EP-PI11 P.C.B. Rev 1.X

Date: Jan. 1998

Chapter 1 INTRODUCTION

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Chapter 1 INTRODUCTION

1-1 About this Manual

This manual is arranged to help you set up and run this Motherboard of Pentium with MMX™ as soon as possible.

The information is presented in the following two chapters:

Chapter 1 Introduction:

Presents what you should receive with your motherboard, the features and specifications of the product. This chapter enclosed with a diagram showing the layout of the motherboard.

Chapter 2 Installation:

Motherboard Installation includes detailed information on how to install and configure the motherboard.

Chapter 1 INTRODUCTION

1-2 Item Checklist

This product comes with the following components:

- Motherboard x 1
- 40-pin IDE Connector Flat Cable x 1
- 34-pin Floppy Disk Drive Flat Cable x 1
- Bracket with 25-pin serial port and PS/2 Mouse ribbon cable x 1
- User's Manual x 1
- Bracket with Com Port and Printer Port Flat cable x 1
- Bus Master IDE/Ultra DMA-33 Drivers Diskette x 1 (Option)
- IrDA Module x 1 (Option)
- LDCM Diskette x 1 (Option)
- USB Connector Cable with bracket x 1 (Option)

Option : Components will be included upon customer ordering instructions per Proforma Invoice & additional external procurement cost will be included.

Chapter 1 INTRODUCTION

1-3 Specifications

- **Processor:** ZIF socket 7 support intel® Pentium MMX™; intel® P54C, P55C Series, Cyrix 6x86/M2 Series, and AMD K5/K6 Series. Supports current and future CPUs.
(Cyrix 6x86 linear burst support)
- **Chipset:** VIA VT82C598AT North Bridge for Pentium
VIA VT82C586B South Bridge with ACPI Power Management
- **BIOS:** Award BIOS With Flash ROM, support PnP, PCI 2.1, CD-ROM, ATAPI, LS-120, and any IDE Device Bootable, Virus Protection, DMI Ready
 - **System Memory:** Two 72-pin SIMMs and two 168-pin DIMM Slots supports. The system supports mixed memory technologies: Extended Data Out (EDO) RAM, Fast Page (FP) DRAM, and SDRAM (Synchronous DRAM)
- **Multi-I/O Onboard:**
 - 1 x FDD Port support up to 2.88MB
 - 1 x Parallel Port (LPT) support ECP/EPP
 - 2 x High Speed Serial (16C550 UART) Ports
 - 2 x Universal Serial Bus (USB) Ports
 - 1 x AT Keyboard Port
 - 1 x PS/2 Mouse Port
 - 1 x IrDA Infrared Interfaces

Chapter 1 INTRODUCTION

- **PCI Bus Master IDE:** PCI Enhanced IDE Interface with 4 IDE Devices
Support HDD Auto-Detect
Support up to PIO Mode 4, DMA Mode 2
Support UltraDMA-33 extensions
Support ATAPI compliant device include DVD devices
Fully compatible with PCI Local Bus Specifications V2.1
- **I/O Connector:** 2 x USB Ports, 1 x AT Keyboard Port,
1 x PS/2 Mouse Port, 1 x Parallel Port,
2 x Serial Port
- **Expansion Slots:** 3 x 16-bit ISA Slots with 100% ISA Compatible Functions
3 x 32-bit PCI Slots supporting PCI BUS Master Slots Conform with PCI Specifications Version 2.1
1 x AGP Slot supported.
- **Options:** 1 x Infrared (IrDA) Wireless Interface Kit
1 x Universal Serial Bus (USB) Connector Kit
- **Extended Features:** Advanced Configuration and Power Interface (ACPI) ready
Support Win95 Soft-Off (For ATX Power only)
Support “Programmable OnNow / Security Wake-Up” feature
Support SM-Bus
- **Dimension:** 220 mm x 230 mm
- **Form Factor:** Baby AT Form Factor

Chapter 2 INSTALLATION

2-1 Motherboard Description

The motherboard is designed with the VIA VT82C597AT PCI chipset which is developed by VIA Corporation to fully support the

Pentium Processor PCI/ISA system. The VIA VT82C597AT PCI chipset provides increased integration and improved performance designs. The chipset provides an integrated IDE controller with two high performance IDE interfaces for up to four IDE devices (hard devices, CD-ROM device, etc). The Super I/O controller provides the standard PC I/O function: floppy interface, two 16-Byte FIFO serial ports and EPP/ECP capable parallel port.

Care must be taken when inserting memory modules, inserting CPU or even plugging PCI card into associated slots to avoid damaging any circuits or sockets on board. A cooling fan is strongly recommended.

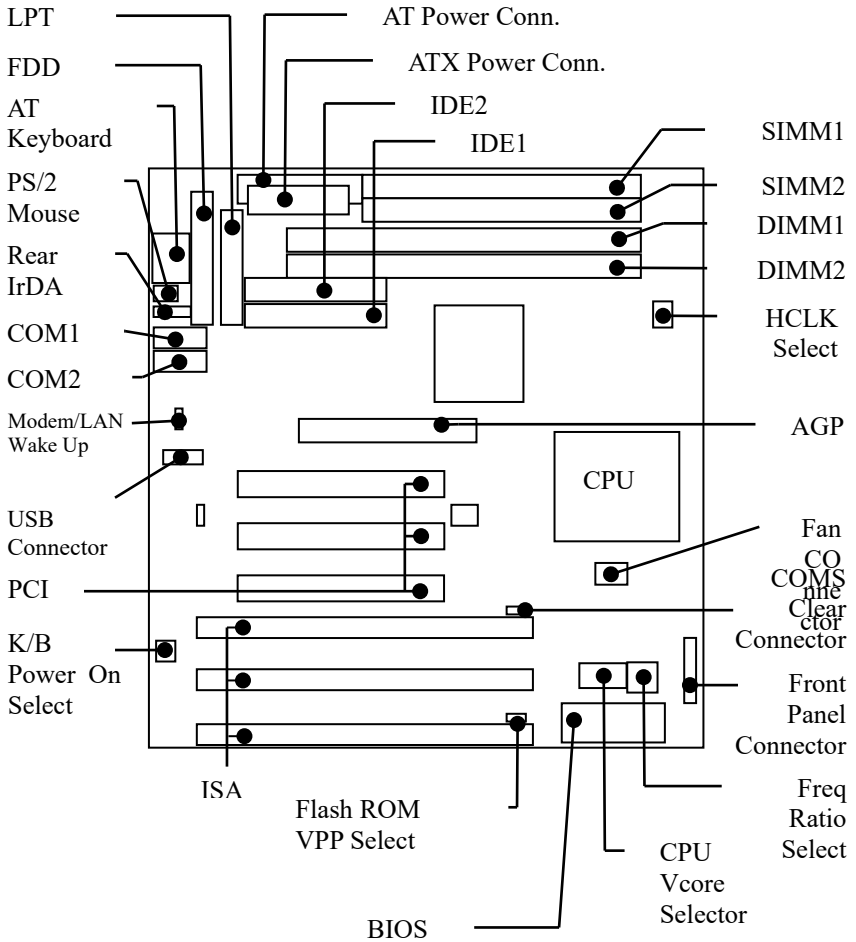
The motherboard supports minimum of 8MB of system memory and a maximum 1GB RAM.

The motherboard supports standard Fast Page (FP), EDO (Extended Data Output), or SDRAM (Synchronous DRAM). The motherboard provides two 168-pin DIMM.

The board also supports onboard two PCI IDE connectors, and detects the IDE hard disk type by the BIOS utility which is automatic. The system also supports Award Plug & Play BIOS for the ISA and PCI cards.

Chapter 2 INSTALLATION

2.2 Motherboard Layout



Chapter 2 INSTALLATION

2-3 System Memories

This motherboard supports two 72-pin Single Inline Memory Modules (SIMM) of 4MB, 8MB, 16MB, 32MB, and/or 64MB to form a memory size between 8MB to 256MB. The DRAM can be either 60ns or 70ns Fast Page Mode (FPM, Asymmetric or Symmetric), Extended Data Output (EDO). SIMMs must be installed in pairs so that each bank contains two of the same size and same model memory modules.

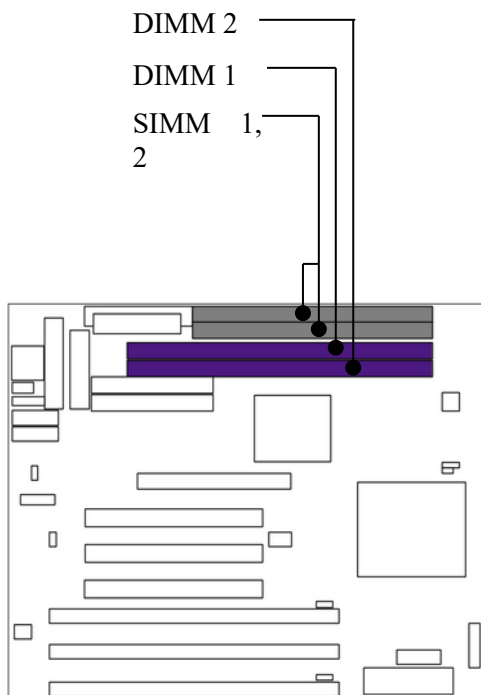
This motherboard also supports two Dual Inline Memory Modules (DIMM'S), The Dual Inline Memory Module (DIMM) must be 3.3 Volt Unbuffered Synchronous DRAM (SDRAM) or Extended Data Output (EDO) DRAM of either 16, 32, 64, or 128MB to form a memory size between 16MB to 256MB.

Note :

1. Install memory in any combination as next page :
2. Do not mixed use SIMM and DIMM

Chapter 2 INSTALLATION

Item	Bank	Memory Module
1	DIMM 1	16~128MB
2	DIMM 1, 2	16~128MB
3	DIMM 1, 2 SIMM 1, 2	16~128MB 8~64 MB



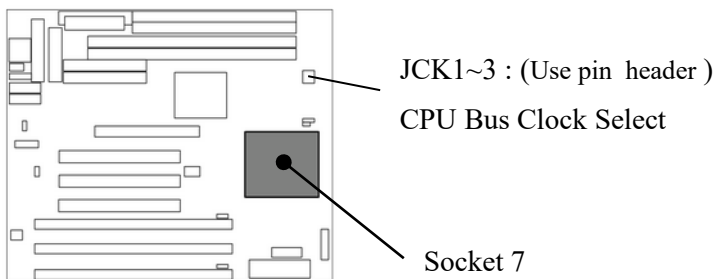
Chapter 2 INSTALLATION

2-4 Central Processing Unit (CPU)

The motherboard provides a Socket 7 for Pentium CPU. The CPU should have a fan attached to it to prevent overheating. If your CPU did not come with a fan, then purchase a fan before you turn on your system.

To install a CPU, locate the Socket 7 (U14). Insert the CPU with the correct orientation. you should have a CPU fan that will cover the face of the CPU.

NOTE: Without a fan, the CPU can overheat and cause damage to both the CPU and the motherboard.



Chapter 2 INSTALLATION

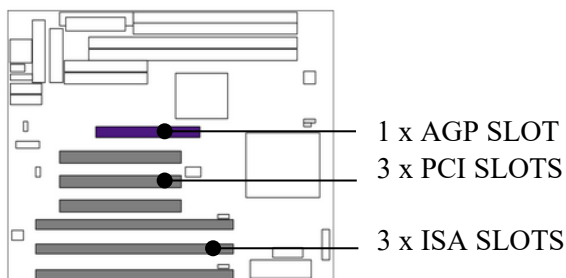
2-5 Expansion Cards & Slots

Assigning DMA Channels for ISA Cards:

Some ISA cards, both Legacy and PnP may also need to use a DMA (Direct Memory Access) channel. DMA assignments for this motherboard are handled the same way as the IRQ assignment process . You can select a DMA channel in the PCI and PnP configuration section of the BIOS Setup utility.

NOTE: 1, Choose “Legacy ISA” for those IRQ’s and DMA’s you wish to reserve for Legacy (Non-PnP) ISA expansion cards in “IRQ xx Used by ISA” and “DMA x Used By ISA” of the PnP and PCI Setup in the BIOS Software section, otherwise conflicts may occur.

This motherboard provide an AGP (Accelerated Graphics Port) slot to support a new generation of graphics cards with ultra-high memory bandwidth. (Note : For the detail of AGP to see appendix)

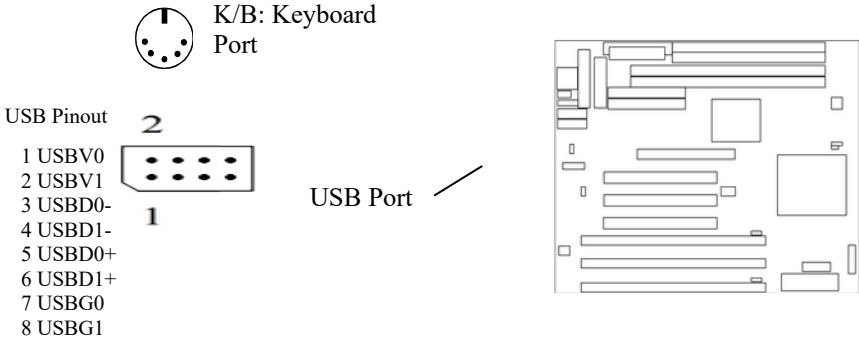


Chapter 2 INSTALLATION

2-6 External Connectors

1. Keyboard Connector and USB Port (CN1, 5-pin female connector and JUSB, 10-pin Pin header)

This K/B connection is for a standard AT Keyboard connector



Note : The USB Port Support Standard USB Spec.

This USB connector will use USB connector kit. You may order from your distribute.

2. PS/2 Mouse Connector (J4, 6-pin Pin header)

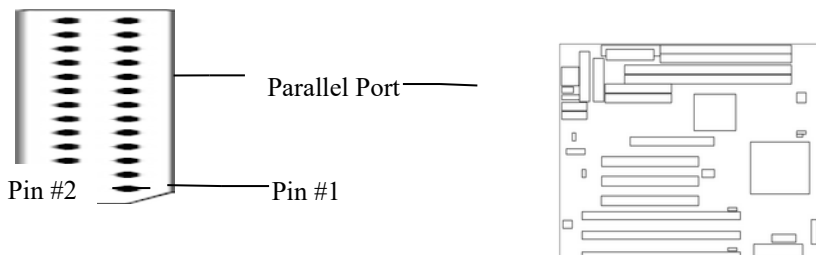
If you are using a PS/2 mouse, you must enable the PS/2 port in the BIOS Setup.



Chapter 2 INSTALLATION

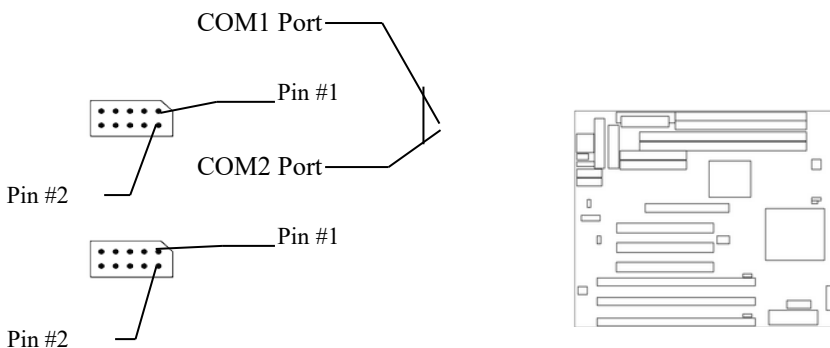
3. Parallel Port (LPT, 26-pin Pin header)

You can enable the parallel port (LPT1) and choose the IRQ through BIOS Setup on ***Onboard Parallel Port***.



4. Serial Ports (COM1, COM2, 10-pin Pin header).

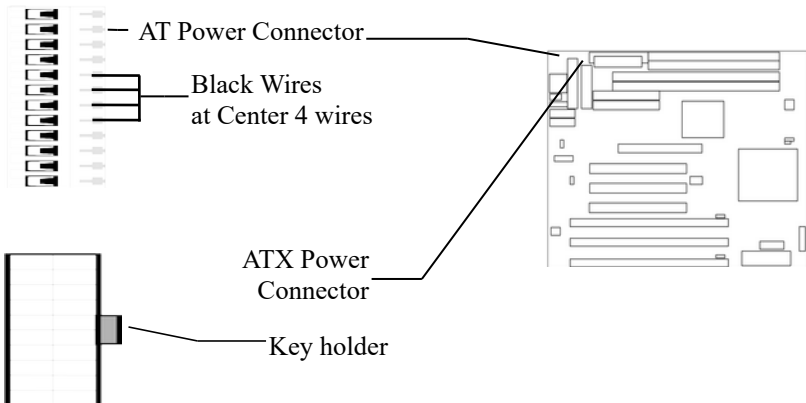
The two serial (COM1 & COM2) ports can be used for pointing devices or other serial devices. See “Onboard Serial Port” in Chipset Features Setup of the BIOS Software.



Chapter 2 INSTALLATION

5. AT & ATX Power Supply Connectors

CN3 is a standard 12-pin AT-type or PS/2 type connector. Be sure to attach the two connectors with the two black wires next to each other, at the center. CN4 is a standard ATX-type power connector. (The ATX power connector can *only* be inserted the correct way.)



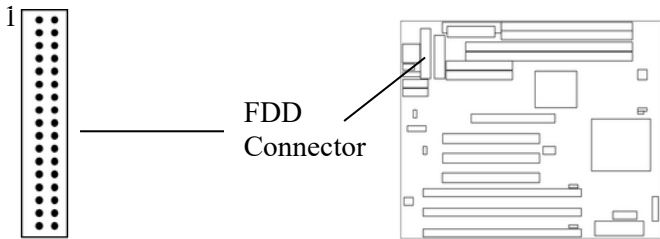
NOTE:

To prevent electrical spikes, make sure that the power supply is not connected to an outlet when making or removing connections. Power supplies contain power reserves which can damage electrical components.

Chapter 2 INSTALLATION

6. Floppy Drive Connector (FDD, 34-pin Pin header)

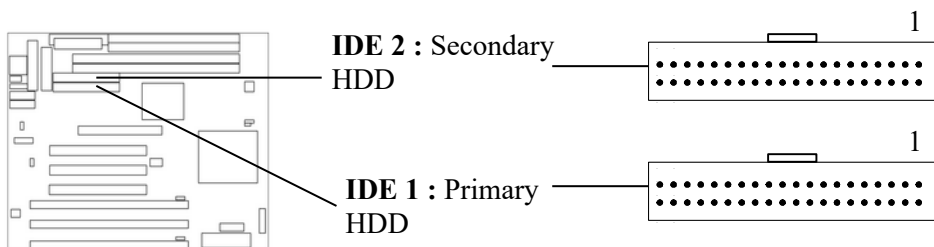
This connector supports the provided floppy disk drive ribbon cable. After connecting the single end to the board, connect the plugs on the other end to one or two floppy drives. The motherboard provides a standard floppy disk (FDD) connector that supports 360K, 720K, 1.2M, 1.44M and 2.88M floppy disk types. You can attach a floppy disk cable directly to this connector.



Chapter 2 INSTALLATION

7. Primary/Secondary IDE connectors (IDE1 & IDE2: Two 40-pin Pin header)

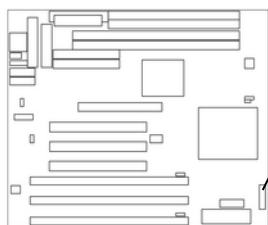
These connectors support the provided IDE hard disk ribbon cable. After connecting the single end to the board, connect the two plugs at the other end to your hard disk(s). If you install two hard disks, you must configure the second drive to Slave mode by setting its jumper accordingly. Please refer to the documentation of your hard disk for the jumper settings.



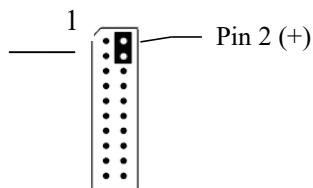
Chapter 2 INSTALLATION

8. a. IDE Activity LED (JP4, Pin 2, 4)

This connector connects to the IDE (hard disk) activity indicator light on the system cabinet.



Pin 2,4 : HDD
LED

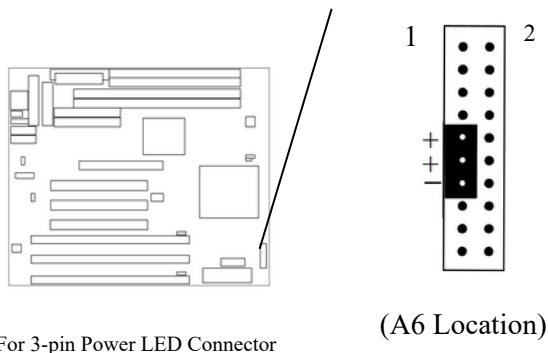


(A1 Location)

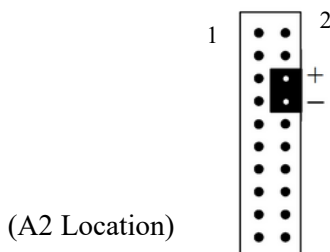
Chapter 2 INSTALLATION

- b. **System Power LED (JP4, Pin 9, 11, 13)**
This 3-pin connector lights the system power LED when the motherboard has power.

JP4, Pin 9, 11, 13: System Power LED



- c. **Turbo LED (JP4, Pin 6, 8)**



If the cabinet provide the turbo LED cable, connect the cable to this two pin connector to turn on the LED on the front panel.

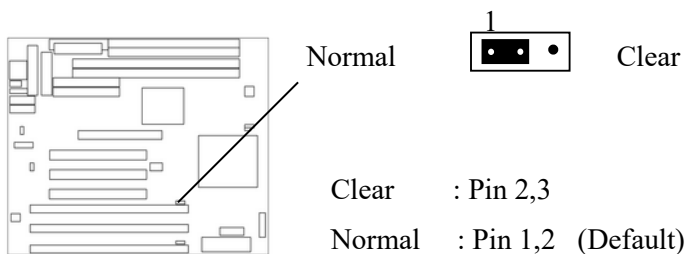
Chapter 2 INSTALLATION

d. CMOS Clear Connector (JVBAT1)

The CMOS RAM is powered by the onboard button cell battery.

You can following process to clear the RTC data :

- (a) Turn-off power of computer
- (b) To put the pin cap locate at “Clear” for a while
- (c) Reput the pin cap locate at “Normal”, and turn-on computer power
- (d) Hold down key during the system booting and enter BIOS setup screen to re-keyin the users setting.



Chapter 2 INSTALLATION

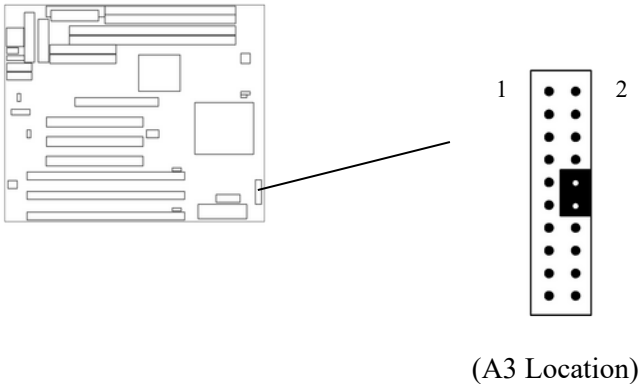
e. **ATX Power Switch Lead (JP4, Pin 10, 12)**

The system power is controlled by a push-switch, connected to this lead. Pushing the button once will turn on the power and pushing again will turn off the power. The system power LED shows that status of the system's power. This connection does not have a function when a standard power supply is used.

NOTE: If the power to the ATX power supply is interrupted while the motherboard is on, standby power will remember that the motherboard should be on and boot the computer when power is reapplied to the ATX power supply.

JP4, Pin 10, 12:

ATX Power Switch On /
Off Lead

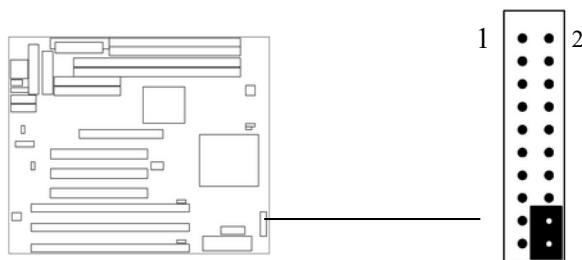


Chapter 2 INSTALLATION

f. Reset Switch Lead (JP4, Pin 18, 20)

This 2-pin connector connects to the

case-mounted reset switch for rebooting your computer without having to turn off your power switch. This is a preferred method of rebooting in order to prolong the life of the system's power supply.



(A4 Location)

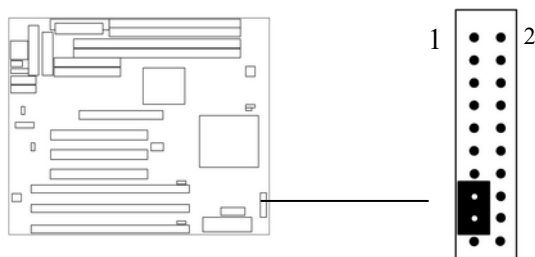
JP4, Pin 18,20:

Reset Switch Lead

g. Keyboard Lock Switch Lead

(JP4, Pin 15, 17)

This 3-pin connector connects to the case-mounted keyboard lock switch for locking the keyboard.



(A7 Location)

JP4, Pin 15, 17 : KEYLOCK

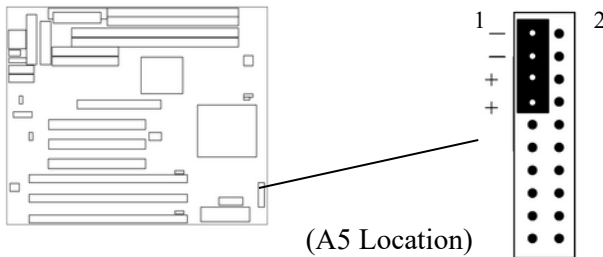
Chapter 2 INSTALLATION

9. Speaker Connector (JP4, Pin 1, 3, 5, 7)

This 4-pin connector connects to the case-mounted speaker.

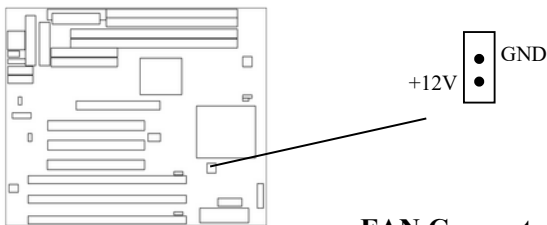
JP4, Pin 1, 3, 5, 7:

Speaker Connector



10. CPU Cooling Fan Connector (FAN)

This connector support a CPU cooling fan of 500 mA (6WATT, +12V) or less. Orient the fan so that the heat sink fins allow airflow to go across the onboard heat sink(s). Depending on the fan manufacturer, the wiring and plug may be different. The red wire should be positive (+12V), while the black should be ground. Connect the fan's plug to the board taking into consideration the polarity of the connector.



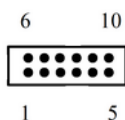
FAN Connector

Chapter 2 INSTALLATION

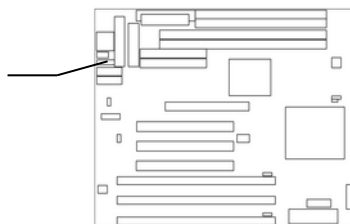
NOTE: The CPU and/or motherboard will overheat if there is no airflow across the CPU and onboard heat sinks. Damage may occur to the motherboard and/or the CPU fan if these pins are incorrectly used. These are not jumpers, do not place jumper caps over these pins.

11. IrDA Compliant Infrared Module Connector (J5)

This connector support the optional wireless transmitting and receiving infrared module. This module mounts to a small opening on system cases that support this feature. You must also configure UART 2. Use Infrared in Chipset Features Setup to select whether UART 2 is directed for use with COM2 or IrDA. When IrDA is selected in BIOS, COM2 will be disabled. Use the five pins or six pins as shown and connect a ribbon cable from the module to the motherboard to the pin definitions.



J5: Rear IR



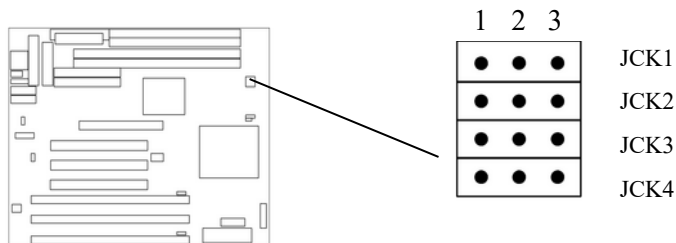
Pin :

1 VCC	6 NC
2 IRRXH	7 CIRRX
3 IRRX	8 VSB
4 GND	9 NC
5 IRTX	10 NC

Chapter 2 INSTALLATION

2-7 Hardware Jumper/Switch Setup

12. External HCLK Frequency Setup (JCK1~4)



JCK3	JCK2	JCK1	CPU (MHz)	PCI (MHz)	AGP (MHz)
1-2	1-2	1-2	100	33.3	66.6
1-2	1-2	2-3	90	30	60
1-2	2-3	1-2	83.3	33.3	66.6
1-2	2-3	2-3	75	30	60
2-3	1-2	1-2	75	37.5	75
2-3	1-2	2-3	68.5	34.25	68.5
2-3	2-3	1-2	66.8	33.4	66.8
2-3	2-3	2-3	60	30	60

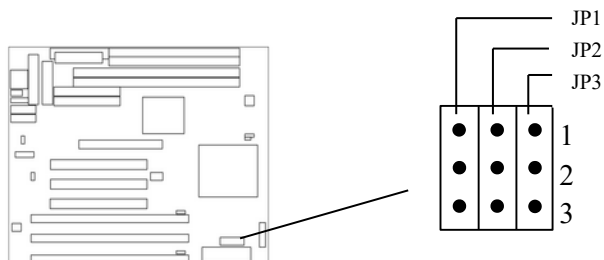
Note :

1 - 2 → Make Pin Cap On Pin 1 & 2

2 - 3 → Make Pin Cap On Pin 2 & 3

Chapter 2 INSTALLATION

13. Frequency Ratio Select Table (JP1~3)



JP1	2-3	2-3	1-2	1-2	2-3	2-3	1-2	1-2
JP2	2-3	1-2	2-3	1-2	2-3	1-2	2-3	1-2
JP3	1-2	1-2	1-2	1-2	2-3	2-3	2-3	2-3
RATIO	2.5	3.0	2.0	1.5 3.5	4.5	5.0	4.0	5.5

Note :

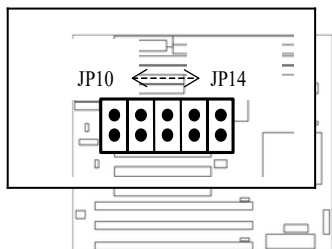
1-2 → Make Pin Cap On Pin 1 & 2

2-3 → Make Pin Cap On Pin 2 & 3

Chapter 2 INSTALLATION

14. CPU Vcore Select (JP10 – JP14)

This CPU Vcore select is 5 bit digital jumper select to fit all CPU core voltage.



VCC2	2.2V	2.5V	2.6V	2.7V	2.8V	2.9V	3.0V	3.1V	3.2V	3.3V	3.4V
JP10	OFF	ON	OFF	ON	OFF	ON	OFF	ON	OFF	ON	OFF
JP11	ON	OFF	ON	ON	OFF	OFF	ON	ON	OFF	OFF	ON
JP12	OFF	ON	ON	ON	OFF	OFF	OFF	OFF	ON	ON	ON
JP13	OFF	OFF	OFF	OFF	ON	ON	ON	ON	ON	ON	ON
JP14	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF

Note :

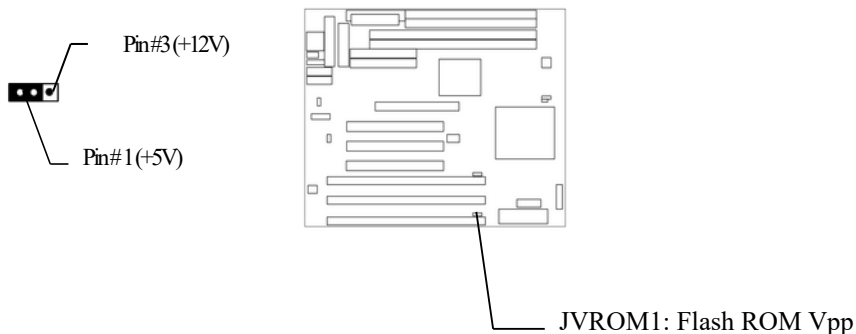
ON → Make Pin Cap

OFF → Unmake Pin Cap

Chapter 2 INSTALLATION

15. Flash ROM Vpp Select Jumper (JVROM1)

This jumper selects Vpp for the Flash ROM. By default, it's set to +5V (pins 1-2). Moving the jumper cap to pins 2-3 sets the Vpp to +12V. If you change the ROM chips, you should check the specifications to be sure you set the right value.



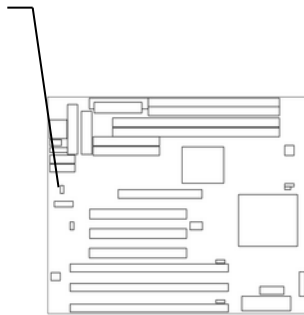
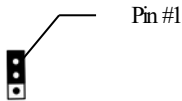
Chapter 2 INSTALLATION

16. Modem Ring / LAN Wakeup Connector (J3)

This connector was able to wake-up from Momem or LAN when the PC system was suspend to memory through ACPI but not power off. It have to choice from this jumper select Modem or LAN signal come in.

This connector (Pin 2-3) is connects to LAN card with a Wake-On LAN output feature.

J3 : Modem Ring / LAN
Wake-Up Connector



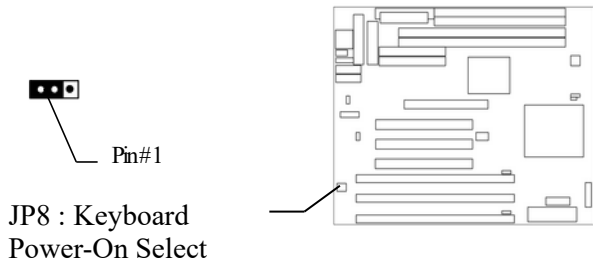
Pin 1-2 : Modem Ring Wake Up

Pin 2-3 : LAN Wake Up

Chapter 2 INSTALLATION

17. Keyboard Power-On Select (JP8)

This is new Ics whose keyboard and mouse controller (KBC) is enhanced with “Programmable OnNow / Security Wake-Up” feature. It provides the function that users can wake up a shutdown PC system simply by a keystroke or a click of mouse button. This is a perfect implement of OnNow. Users are able to program a combination of 1-5 characters as the password.



Pin 1-2 : Fixed on front panel power switch

Pin 2-3 : Utilize Keyboard / mouse to power-on feature
(Can be program password with BIOS)

APPENDIX A

What is the AGP (Accelerated Graphics Port) ?

The Accelerated Graphics Port (AGP) is a new port on the Host-To-PCI bridge device that supports an AGP port. The main purpose of the AGP port is to provide fast access to system memory.

The AGP port can be used either as fast PCI port (32-bits at 66MHz VS. 32-bits at 33MHz) or as an AGP port which supports 2x data rate, a read queue, and side band addressing. When the 2x data is used the port can transmit data at 533MB/sec. ($66.6 * 2 * 4$). The read-queue can be used to pipeline reads removing the effects of the reads latency. Side band addressing can be used to transmit the data address on a separate line in order to further speed the transaction.

APPENDIX B

DECLARATION OF CONFORMITY

Per FCC Part 2 Section 2. 1077(a)



Responsible Party Name: ENPC Technology Corporation

Address: 6FL, #19 Wu-Chuan 6th Rd., Wu-ku
Industrial Park, Taipei, Taiwan

Phone/Fax No: 886-2-22992161 / 886-2-22992160

hereby declares that the product:

FOR
REFERENCE
ONLY.

Product Name: Main Board
Model Number: EP-KL21

Conforms to the following specifications:

FCC Part 15, Subpart B, Section 15.107(a) and Section 15.109(a),
Class B Digital Device

Supplementary Information:

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Representative Person's Name:

Signature: 

Date: 1/21/98

APPENDIX C

Declaration of Conformity

We, Manufacturer/Importer
(full address)

(description of the product, status, system, installation to which it refers)

FOR REFERENCE ONLY.
The product is in conformity with
EN 61000-3-2*
EN 60555-2
EN 61000-3-3*
EN 60555-3
EN 60081-1
EN 50082-1
EN 55081-2
EN 55082-2
EN 50191-2
EN 50191-1
EN 50091-2
EN 50091-1

(reference to the specification under which conformity is declared)
in accordance with 89/336 EEC-EMC Directive

- | | | | |
|--|--|--|---|
| <input type="checkbox"/> EN 55011 | Limits and methods of measurement of radio disturbance characteristics of industrial, scientific and medical (ISM) high frequency equipment | <input type="checkbox"/> EN 61000-3-2* | Disturbances in supply systems caused by household appliances and similar electrical equipment "harmonics" |
| <input type="checkbox"/> EN 55013 | Limits and methods of measurement of radio disturbance characteristics of broadcast receivers and associated equipment | <input checked="" type="checkbox"/> EN 60555-2 | |
| <input type="checkbox"/> EN 55014 | Limits and methods of measurement of radio disturbance characteristics of household electrical appliances, portable tools and similar electrical apparatus | <input type="checkbox"/> EN 61000-3-3* | Disturbances in supply systems caused by household appliances and similar electrical equipment "Voltage fluctuations" |
| <input type="checkbox"/> EN 55015 | Limits and methods of measurement of radio disturbance characteristics of fluorescent lamps and luminaires | <input checked="" type="checkbox"/> EN 60081-1 | Generic emission standard Part 1: Residual, commercial and light industry |
| <input type="checkbox"/> EN 55020 | Immunity from radio interference of broadcast receivers and associated equipment | <input checked="" type="checkbox"/> EN 50082-1 | Generic immunity standard Part 1: Residual, commercial and light industry |
| <input checked="" type="checkbox"/> EN 55022 | Limits and methods of measurement of radio disturbance characteristics of information technology equipment | <input type="checkbox"/> EN 55081-2 | Generic emission standard Part 2: Industrial environment |
| <input type="checkbox"/> DIN VDE 0855 part 10 | Cabled distribution systems; Equipment for receiving and/or distribution from sound and television signals | <input type="checkbox"/> EN 55082-2 | Generic immunity standard Part 2: Industrial environment |
| <input type="checkbox"/> part 12 | | <input type="checkbox"/> EN 50191-2 | Immunity requirements for household appliances tools and similar apparatus |
| <input checked="" type="checkbox"/> CE marking | | <input type="checkbox"/> EN 50091-2 | EMC requirements for uninterruptible power systems (UPS) |



(EG conformity marking)

The manufacturer also declares the conformity of above mentioned product with the actual required safety standards in accordance with LVD 73/23 EEC

- | | | | |
|-----------------------------------|---|-------------------------------------|---|
| <input type="checkbox"/> EN 60065 | Safety requirements for mains operated electronic and related apparatus for household and similar general use | <input type="checkbox"/> EN 60950 | Safety for information technology equipment including electrical business equipment |
| <input type="checkbox"/> EN 60335 | Safety of household and similar electrical appliances | <input type="checkbox"/> EN 50091-1 | General and safety requirements for uninterruptible power systems (UPS) |

Manufacturer/Importer

Signature

Name

Terry Chung
Terry Chung

(Stamp)

Date :

Tested by: Gestek EMC Ltd. F02/0001/0000/00000000	Ref. No: 981117E Date: Jan 22, 1998	Signature: <i>Terry Chung</i> Name: Terry Chung / Manager
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EP-PI11

User's Manual