EP-KL11

Motherboard of

Pentium II with MMX™

User's Manual

EC-Conformity Declaration

$$C\epsilon$$ (EC conformity marking)

FOR THE FOLLOWING EQUIPMENT:

Product Name　　　: 　<u>MOTHERBOARD</u>

Model　　　　　 : 　<u>EP-KL11</u>

Manufacturer Address: 　<u>6FL., No. 19, Wu Chuan 6 Rd.</u>

　　　　　　　　　　<u>Wu-Ku Industrial Park, Taipei, Taiwan, R.O.C.</u>

IS HEREWITH CONFIRMED TO COMPLY WITH THE EQUIPMENTS SET UP IN THE COUNCIL DIRECTIVE ON THE APPROXIMATION OF THE LAW OF MEMER STATES RELATING TO ELECTROMAGNETIC COMPATIBILITY (89/336/EEC) AND LOW VOLTAGE DIRECTIVE 78/28/EEC. FOR THE EVALUATION REGARDING THE ELECTROMAGNETIC COMPATIBILITY AND SAFETY, THE FOLLOWING STANDARDS WERE APPLIED:

❖ EN50081-1 (1992): GENERIC EMISSION STANDARDS
　EN550022　(1994): EMISSION
　EN60555-2 (1987): HARMONICS
　EN60555-3 (1987): VOLTAGE FLUCTUATIONS
❖ EN50082-1 (1992): GENERIC IMMUNITY STANDARD
　IEC 801-2　(1984): ELECTROSTATIC DISCHARGE IMMUNITY
　IEC 801-3　(1984): RADIATED IMMUNITY
　IEC 801-4　(1988): ELECTRICAL FAST TRANSIENT

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

<u>Manufacturer/Importer</u>

Date:

Signature: _____　 Signature: _____.

Name　　: <u>Jeff　Chang</u>　　　　　Name　　: <u>Kunnau　Chen</u>

(Project Leader)   (President)

EP-KL11

Motherboard

for

Compatible PC

> User Manual Rev 1.0
>
> Related Motherboard: EP-KL11 P.C.B. Rev 1.X
>
> Date: Jan. 1998

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FCC & DOC COMPLIANCE

Federal Communications Commission Statement

This device complies with FCC Rules Part 15. Operation is subject to the following two conditions:

- This device may not cause harmful interference, and

- This device must accept any interference received, including interference that may cause undesired operation.

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 in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with manufacturer's instructions, 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:

- Re-orient or relocate the receiving antenna.

- Increase the separation between the equipment and receiver.

- Connect the equipment to 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.

Warning: The use of shielded cables for connection of the monitor to the graphics card is required to assure compliance with FCC regulations. Changes or modifications to this unit not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

Federal Communications Commission (Continued...)

Canadian Department of Communications Statement

This digital apparatus does not exceed the Class B limits for radio noise emissions from digital apparatus set out the Radio Interference Regulations for the Canadian Department of Communications.

Chapter 1 INTRODUCTION

1-1   About this Manual

This manual is arranged to help you set up and run this Motherboard of Pentium II 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

☑　CPU Retention Mechanism Kit 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:**   Slot 1 support Intel® Pentium II with MMX™ Series CPU's, CPU Clock Select support for 66 MHz CPU Bus speed configuration.

- **Chipset:**   Intel® 82443LX System Controller

    Intel® 82371AB PCI/ISA IDE Accelerator

- **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:**   3 x 168-pin DIMM Slots Support Mixed Memory Technologies: Extended Data Output (EDO), Fast Page (FP) DRAM), Synchronous DRAM (SDRAM)

- **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 Ultra DMA/33 mode

  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 Com 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 (Front & Rear)
  Universal Serial Bus (USB) Connector Kit

  LM78 Hardware Monitor Circuit Design and LM75 CPU Temperature reading, LDCM for system Voltage, System Temperature, Fan Speed detect.

Chapter 1 INTRODUCTION

- **Extended Features:**   Advanced Configuration and Power Interface (ACPI) ready
CPU Temperature detect

  Support System Power Monitor

  Support Win95 Soft Power Off (For ATX Power only)

  Support SM-Bus

- **Dimension:**   220 mm x 240 mm

- **Form Factor:**   Baby AT Form Factor

Chapter 2 INSTALLATION

2-1   Motherboard Description

The motherboard is designed with the Intel 82440LX PCI chipset which is developed by Intel Corporation to fully support the

Pentium II Processor PCI/ISA system. The Intel 82440LX 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 16Byte 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 of 512MB SDRAM, 1GB EDO RAM.

The motherboard supports standard Fast Page (FP), EDO (Extended Data Output), or SDRAM (Synchronous DRAM). The motherboard provides three 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

AT Power Connector
Keyboard
PS/2 Mouse Connector
USB Connector
COM1
COM2
LPT
FAN Connector
IrDA
PCI Slot
BIOS

ATX Power Connector
FDD Connector
SW1 For HCLK
LM75

SEC CPU (SLOT 1)

DIMM Connector
443 LX Chipset
AGP
371AB Chipset
Clear CMOS
Primary IDE
Secondary IDE

VPP Select
ISA Slot
LM78   IrDA
Front Panel Connector
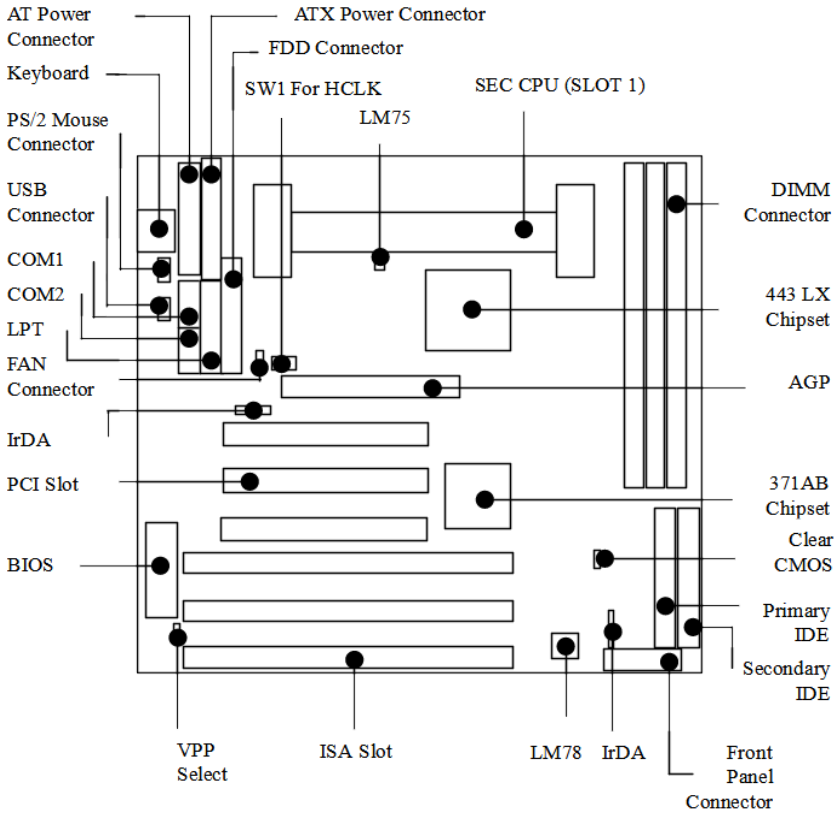
Chapter 2 INSTALLATION

2-3   System Memories

This motherboard only supports Dual Inline Memory Modules (DIMM'S), The Dual Inline Memory Module (DIMM) must be 3.3 Volt Unbuffered Synchronous DRAM (SDRAM) or Exteded Data Output (EDO) DRAM of either 16, 32, 64, or 128MB to form a memory size between 16MB to 384MB.

Note :   1.   Install memory in any combination as next page :

Chapter 2 INSTALLATION

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

DIMM 1
DIMM 2
DIMM 3
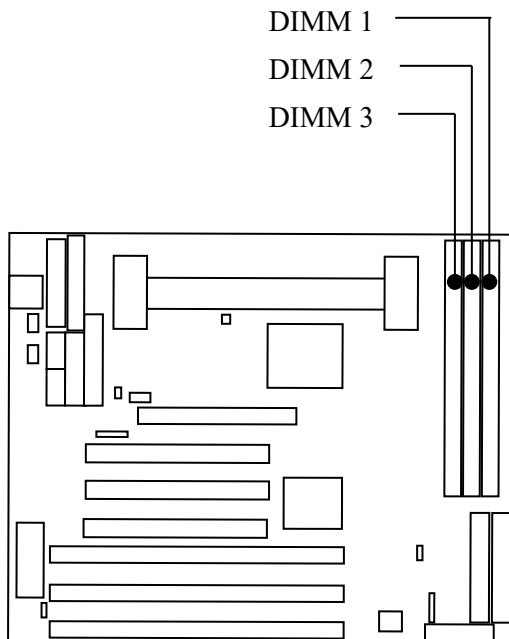
Chapter 2 INSTALLATION

2-4   Central Processing Unit (CPU)

The motherboard provides a SLOT 1 for Pentium II 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.

> NOTE: Without a fan, the CPU can overheat and cause damage to both the CPU and the motherboard.
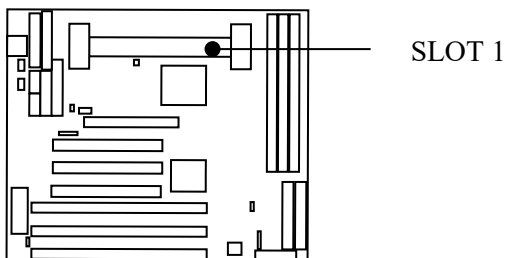
SLOT 1

Chapter 2 INSTALLATION

To install a CPU, locate the SLOT 1. Insert the CPU with the correct orientation. you should have a CPU fan that will cover the face of the CPU.

SW1 : (Use pin header)

CPU Bus Clock Select
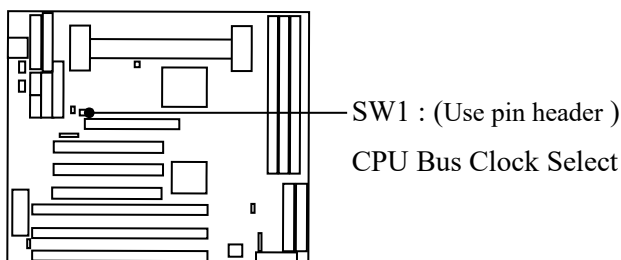
Chapter 2 INSTALLATION

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: 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.

3 x PCI SLOTS

3 x ISA SLOTS
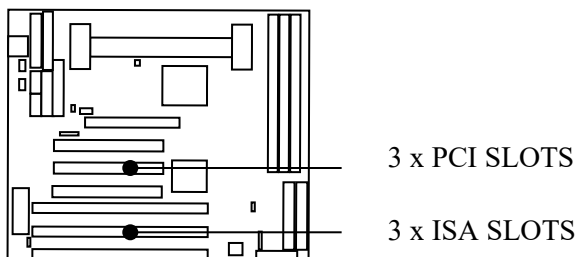
Chapter 2 INSTALLATION

2-6   External Connectors

1.   Keyboard Connector and USB Port (K/B, 5-pin female connector and USB, 8-pin Pin header)

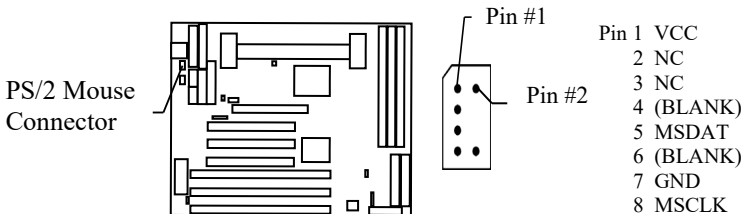This K/B connection is for a standard AT Keyboard connector

USB Pinout

1 USBV0
2 USBV1
3 USBD0-
4 USBD1-
5 USBD0+
6 USBD1+
7 USBG0
8 USBG1

K/B: Keyboard Port

Pin #1

Pin #2
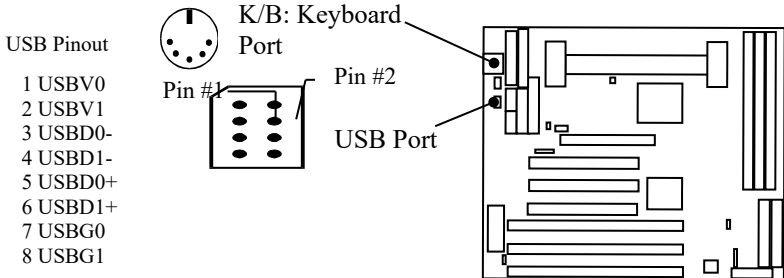
USB Port

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 (PS/2, 6-pin Pin header)

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

PS/2 Mouse Connector

Pin #1

Pin #2

Pin 1 VCC
     2 NC
     3 NC
     4 (BLANK)
     5 MSDAT
     6 (BLANK)
     7 GND
     8 MSCLK

Chapter 2 INSTALLATION

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

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

Parallel Port

Pin #1
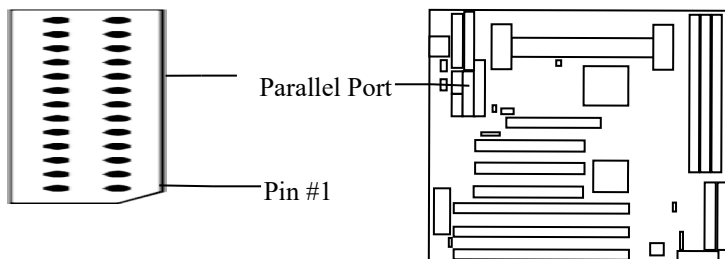
4. **Serial Ports** (COM1, COM2, 10-pin Pin header).

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.
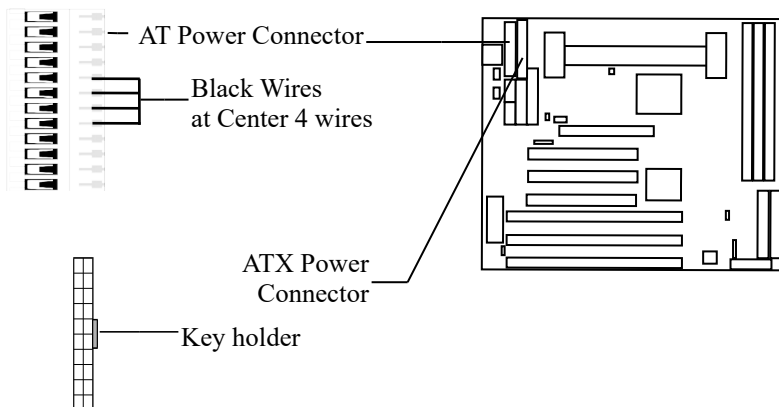

COM1 Port

Pin #1

Pin #2

COM2 Port

Pin #1

Pin #2
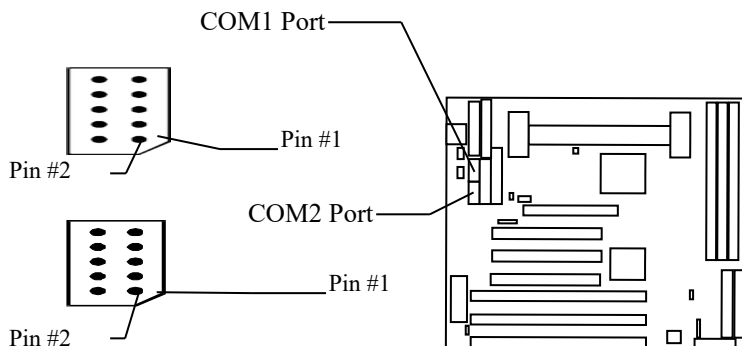
Chapter 2 INSTALLATION

5. AT & ATX Power Supply Connectors

AT is a standard 12-pin AT-type or PS/2 type connector. <u>Be sure to attach the two connectors with the two black wires next to each other, at the center</u>. ATX 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.

FDD
Connector

1
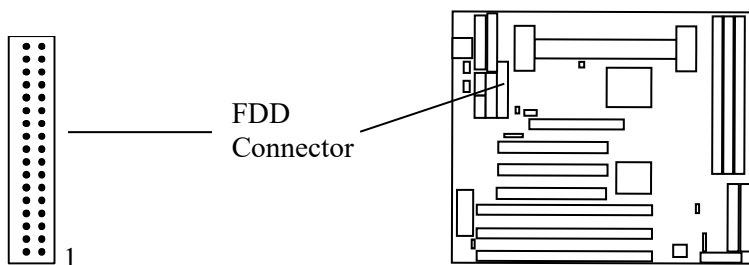
Chapter 2 INSTALLATION

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.
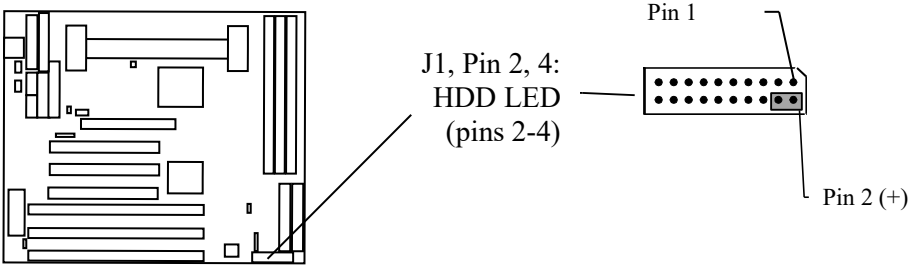
IDE 2 : Secondary HDD

IDE 1 : Primary HDD

1

1
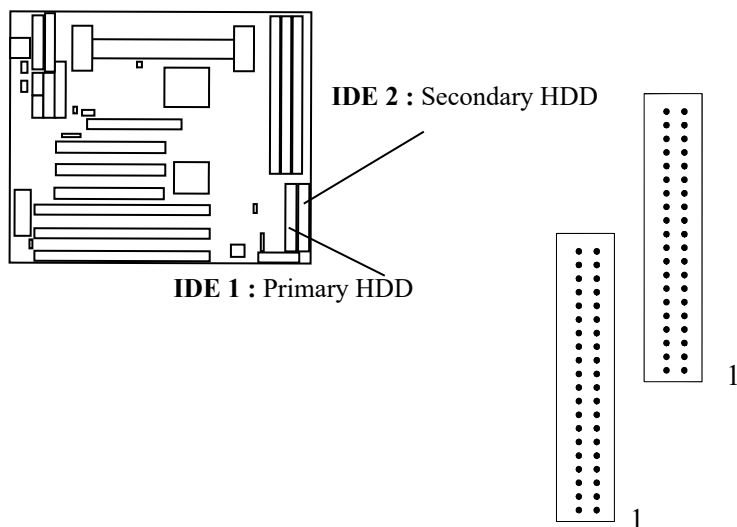
8. a. **IDE Activity LED** (J1, Pin 2, 4)

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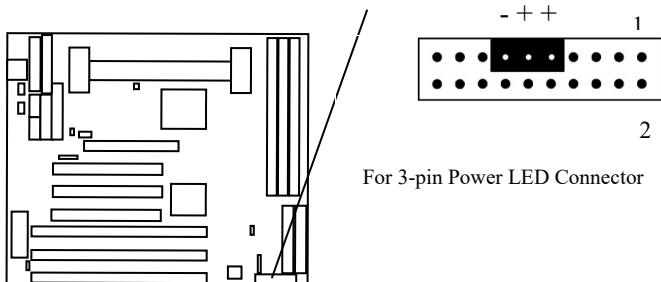

J1, Pin 2, 4:
HDD LED
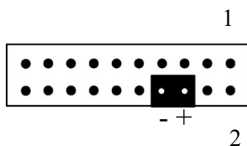(pins 2-4)

Pin 1

Pin 2 (+)

Chapter 2 INSTALLATION

b. **System Power LED** (J1, Pin 9, 11, 13)
This 3-pin connector lights the system power LED when the motherboard has power.

J1, Pin 9, 11, 13: System Power LED

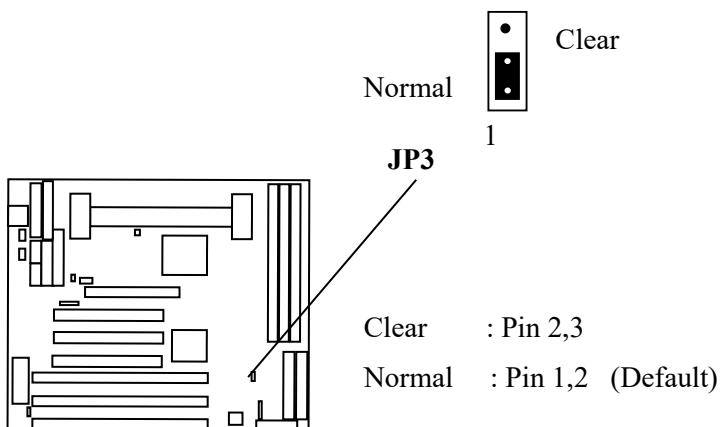For 3-pin Power LED Connector

c. **Turbo LED** (J1, 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 (** JP3)

Clear

Normal

1

JP3

Clear   : Pin 2,3

Normal   : Pin 1,2   (Default)

Chapter 2 INSTALLATION

e. **ATX Power Switch Lead** (J1, 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.

J1, Pin 10, 12:
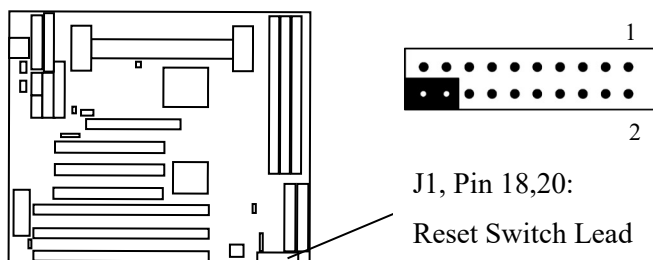
ATX Power Switch On/ Off Lead
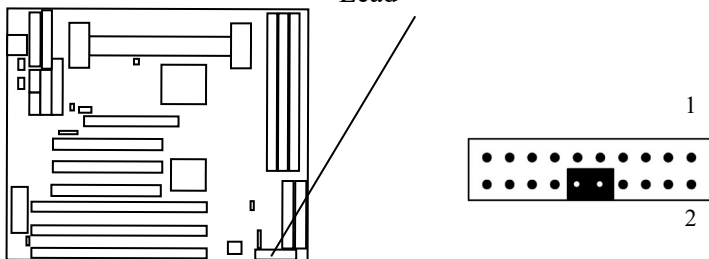
f.   **Reset Switch Lead** (J1, Pin 18, 20)
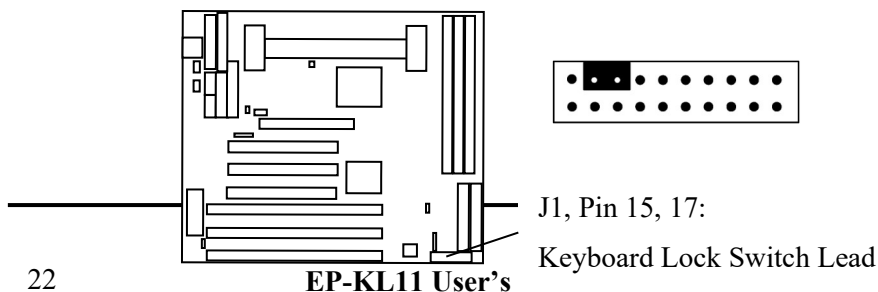This 2-pin connector connects to the

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.

J1, Pin 18,20:

Reset Switch Lead

g.   **Keyboard Lock Switch Lead**
(J1, Pin 15, 17)

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

J1, Pin 15, 17:

Keyboard Lock Switch Lead

Chapter 2 INSTALLATION

1

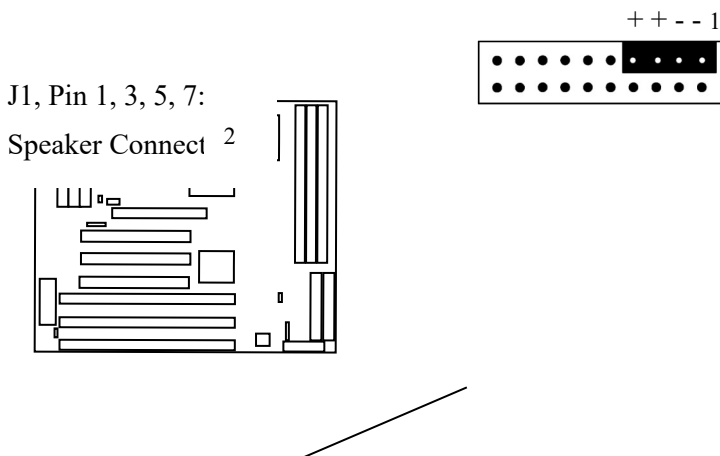2   **J1, Pin 2,4,6 :** KEYLOCK

Chapter 2 INSTALLATION

9.   Speaker Connector (J1, Pin 1, 3, 5, 7)

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

+ + - - 1

J1, Pin 1, 3, 5, 7:

Speaker Connect   2

10.   CPU Cooling Fan Connector (FAN : support fan detect)

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, while the black should be ground. Connect the fan's plug to the board taking into consideration the polarity of the connector.

1   Fan Detect
+12V
GND

JP8, FAN Connector
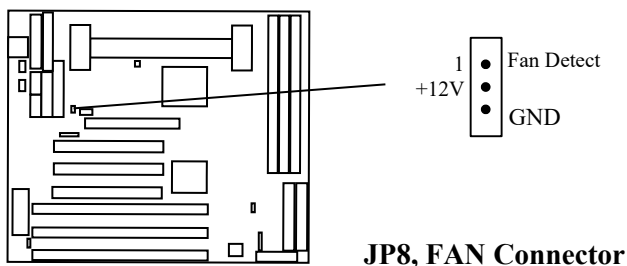
Chapter 2 INSTALLATION

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 (IR1, IR2)

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.
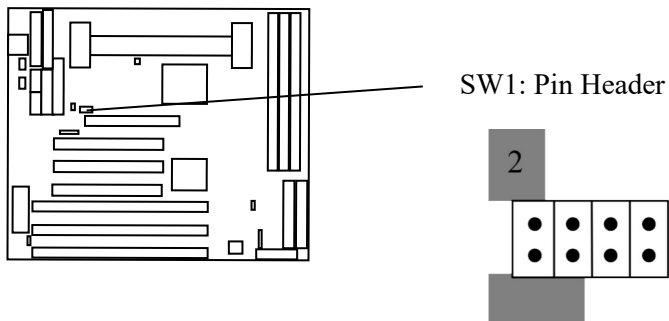
```
Pin 6  NC
   5  IRTX
   4  GND
   3  IRRXL
   2  IRRXH
   1  +5V
```

Pin #1

IR2
"REAR IR"

Pin #1

IR1 "FRONT IR"
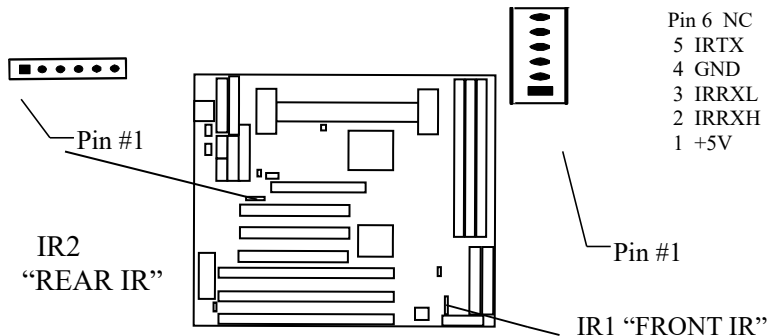
Chapter 2 INSTALLATION

2-7   Hardware Jumper/Switch Setup

12. External HCLK Frequency Setup (Fixed to 66 MHz)

SW1: Pin Header

The setting : To see next page

Chapter 2 INSTALLATION

13. Frequency Ratio Select Table (SW1)

CPU SPEED	SW 1			
	1-2	3-4	5-6	7-8
233	ON	OFF	OFF	ON
266	OFF	ON	ON	ON
300	OFF	ON	OFF	ON
333	OFF	OFF	ON	ON

NOTE :

   1. The CPU Speed is in MHz.

   2. On : Install, Off : Uninstall

Default setting : Set to 266 MHz

Chapter 2 INSTALLATION

14. Flash ROM Vpp Select Jumper (JP1)

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.

Pin # 3 (+12V)

Pin # 1
(+5V)

JP1, Flash BIOS Vpp
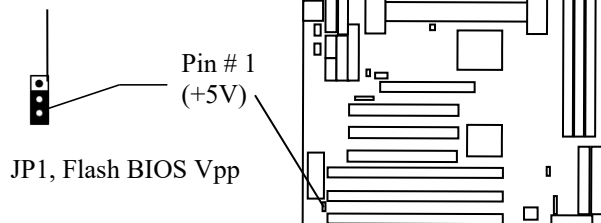
100 POST-CONSUMER
RECYCLED PAPER

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User's Manual