- **The author assumes no responsibility for any errors or omissions that may appear in this document nor does the author make a commitment to up date the information contained herein.**

- **Third-party brands and names are the property of their respective owners.**

- **Please do not remove any labels on motherboard, this may void the warranty of this motherboard.**

- **Due to rapid change in technology, some of the specifications might be out of date before pwblicution of this booklet.**

Intel 845GV

Pentium® 4 Processor Motherboard

USER'S MANUAL

Pentium® 4 Processor Motherboard

Rev. 1.0 First Edition

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WARNING!

Computer motherboards and expansion cards contain very delicate Integrated Circuit (IC) chips. To protect them against damage from static electricity, you should follow some precautions whenever you work on your computer.

1. Unplug your computer when working on the inside.
2. Use a grounded wrist strap before handling computer components. If you do not have one, touch both of your hands to a safely grounded object or to a metal object, such as the power supply case.
3. Hold components by the edges and try not touch the IC chips, leads or connectors, or other components.
4. Place components on a grounded antistatic pad or on the bag that came with the components whenever the components are separated from the system.
5. Ensure that the ATX power supply is switched off before you plug in or remove the ATX power connector on the motherboard.

Installing the motherboard to the chassis…

If the motherboard has mounting holes, but they don't line up with the holes on the base and there are no slots to attach the spacers, do not become alarmed you can still attach the spacers to the mounting holes. Just cut the bottom portion of the spacers (the spacer may be a little hard to cut off, so be careful of your hands). In this way you can still attach the motherboard to the base without worrying about short circuits. Sometimes you may need to use the plastic springs to isolate the screw from the motherboard PCB surface, because the circuit wire may be near by the hole. Be careful, don't let the screw contact any printed circuit write or parts on the PCB that are near the fixing hole, otherwise it may damage the board or cause board malfunctioning.

Chapter 1 Introduction

Summary of Features

Form Factor	• 16.98cm x 18.01cm Flex ATX size form factor, 4 layers PCB.
Motherboard	• Motherboard
CPU	• Socket 478 for Intel® Micro FC-PGA2 Pentium® 4 processor • Support Intel ® Pentium ® 4 (Northwood, 0.13μm) processor • Support Intel ® Pentium ® 4 Processor with HT Technology • Intel Pentium®4 400/533MHz FSB • 2nd cache depends on CPU
Chipset	• Chipset Intel 845GE HOST/AGP/Controller • ICH4 I/O Controller Hub
Memory	• 2 184-pin DDR DIMM sockets • Supports DDR333/DDR266 DIMM • Supports up to 2GB DRAM (Max) • Supports only 2.5V DDR DIMM
I/O Control	• IT8712
Slots	• 1 PCI slot supports 33MHz & PCI 2.2 compliant
On-Board IDE	• 2 IDE bus master (UDMA33/ATA66/ATA100) IDE ports for up to 4 ATAPI devices • Supports PIO mode3,4 (UDMA 33/ATA66/ATA100) IDE & ATAPI CD-ROM
On-Board Peripherals	• 1 Parallel port supports Normal/EPP/ECP mode • 1 Serial port (COMA) • 1 VGA port • 4 USB ports (Rear USB x 2, Front USB x 2) • 1 Front Audio connector

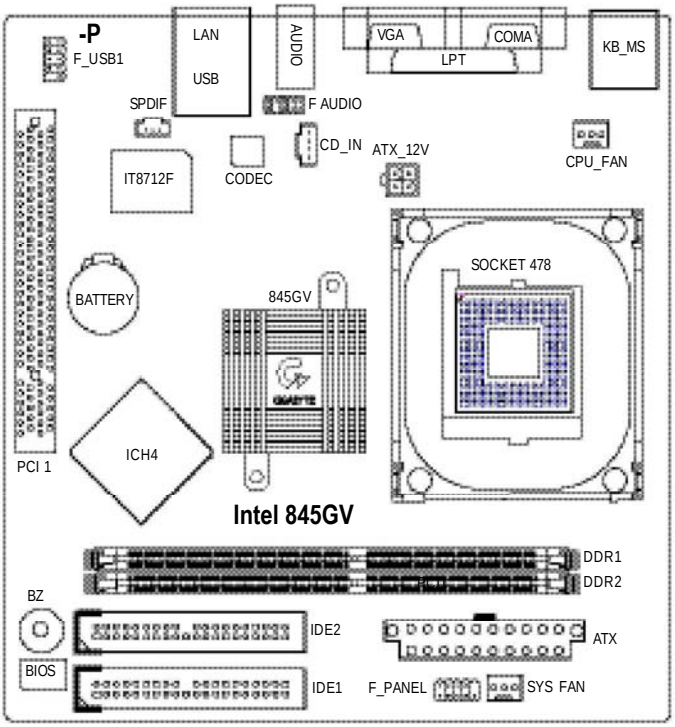
Due to (Intel 845PE/GE/GV) chipset architecture limitation, DDR 333 memory module is only supported when using FSB 533 Pentium 4 processor. A FSB 400 Pentium 4 processor .. will only support DDR 266 memory module

to be continued.....

Hardware Monitor	• CPU/System Fan Revolution detect • CPU/System Fan Fail Warning • CPU Overheat Warning • System Voltage Detect
On-Board Sound	• Realtek ALC202 CODEC • Line Out / 2 front speaker • Line In / 2 rear speaker(by s/w switch) • Mic In / center& subwoofer(by s/w switch) • SPDIF out • 1 Buzzer • CD In
On-Board VGA	• Built in Intel 845GV Chipset
PS/2 Connector	• PS/2 Keyboard interface and PS/2 Mouse interace
BIOS	• Licensed AWARD BIOS
Additional Features	• PS/2 Keyboard power on by password • PS/2 Mouse power on • External Modem wake up • STR(Suspend-To-RAM) • Wake on LAN (WOL) • AC Recovery • Poly fuse for keyboard over-current protection • USB KB/Mouse wake up from S3 • Supports @BIOS • Supports EasyTune 4

Please set the CPU host frequency in accordance with your processor's specifications. We don't recommend you to set the system bus frequency over the CPU's specification because these specific bus frequencies are not the standard specifications for CPU, chipset and most of the peripherals. Whether your system can run under these specific bus frequencies properly will depend on your hardware configurations, including CPU, Chipsets,SDRAM,Cards... .etc.

Motherboard Layout



Chapter 2 Hardware Installation Process

To set up your computer, you must complete the following setups:

Step 1- Install the Central Processing Unit (CPU)

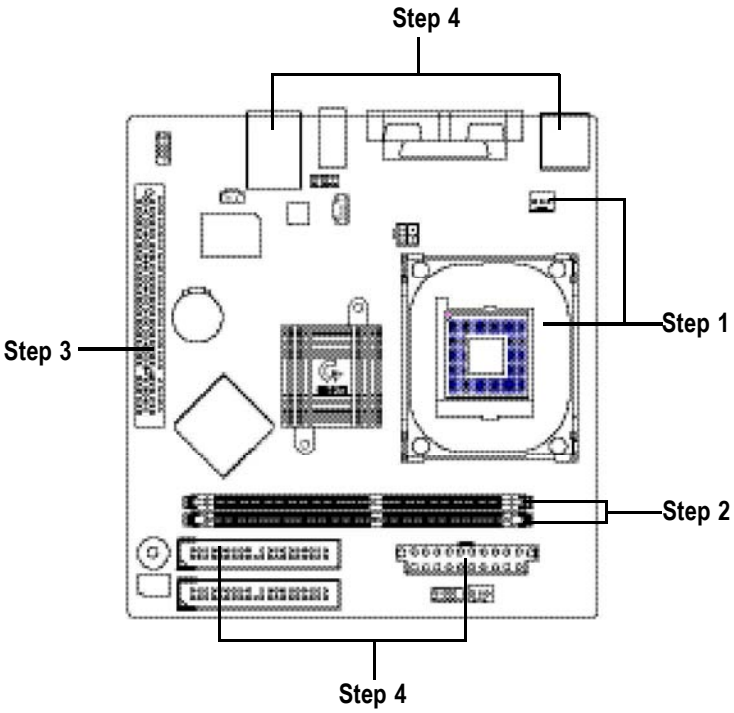
Step 2- Install memory modules

Step 3- Install expansion cards

Step 4- Connect ribbon cables, cabinet wires, and power supply

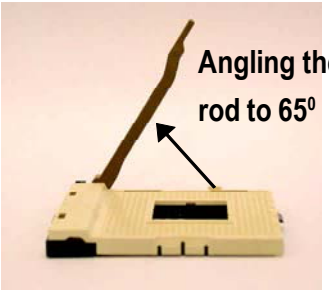
Step 5- Setup BIOS software

Step 6- Install supporting software tools

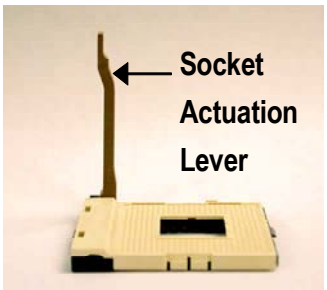


Step 1: Install the Central Processing Unit (CPU)

Step1-1: CPU Installation

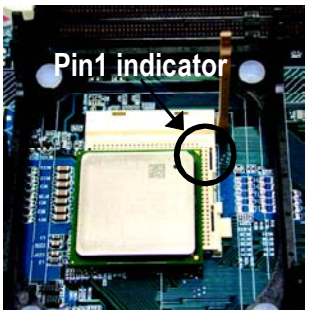


1. Angling the rod to 65-degree maybe feel a kind of tight, and then continue pull the rod to 90-degree when a noise "cough" made.



2. Pull the rod to the 90-degree directly.

3. CPU Top View

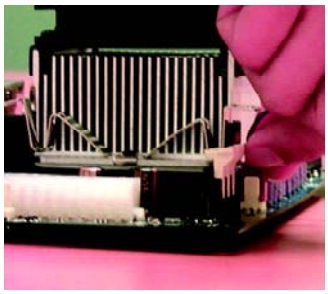


4. Locate Pin 1 in the socket and look for a (golden) cut edge on the CPU upper corner. Then insert the CPU into the socket.

- **Please make sure the CPU type is supported by the motherboard.**
- **If you do not match the CPU socket Pin 1 and CPU cut edge well, it will cause improper installation. Please change the insert orientation.**

Step1-2:CPU Heat Sink Installation

1. Hook one end of the cooler bracket to the CPU socket first.



2. Hook the other end of the cooler bracket to the CPU socket.

- **Please use Intel approved cooling fan.**
- **We recommend you to apply the thermal tape to provide better heat conduction between your CPU and heatsink.**
  (The CPU cooling fan might stick to the CPU due to the hardening of the thermal paste. During this condition if you try to remove the cooling fan, you might pull the processor out of the CPU socket alone with the cooling fan, and might damage the processor. To avoid this from happening, we suggest you to either use thermal tape instead of thermal paste, or remove the cooling fan with extreme caution.)
- **Make sure the CPU fan power cable is plugged in to the CPU fan connector, this completes the installation.**
- **Please refer to CPU heat sink user's manual for more detail installation procedure.**

Step 2: Install memory modules

The motherboard has 2 dual inline memory module (DIMM) sockets. The BIOS will automatically detects memory type and size. To install the memory module, just push it vertically into the DIMM socket .The DIMM module can only fit in one direction due to the notch. Memory size can vary between sockets.

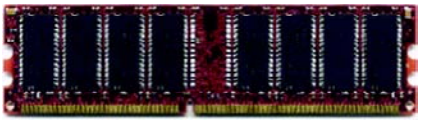
Total Memory Sizes With Unbuffered DDR DIMM

Devices used on DIMM	1 DIMM x 64 / x 72	2 DIMMs x 64 / x 72
64 Mbit (2Mx8x4 banks)	128 MBytes	256 MBytes
64 Mbit (1Mx16x4 banks)	32 MBytes	64 MBytes
128 Mbit(4Mx8x4 banks)	256 MBytes	512 MBytes
128 Mbit(2Mx16x4 banks)	64 MBytes	128 MBytes
256 Mbit(8Mx8x4 banks)	512 MBytes	1 GBytes
256 Mbit(4Mx16x4 banks)	128 MBytes	256 MBytes
512 Mbit(16Mx8x4 banks)	1 GBytes	2 GBytes
512 Mbit(8Mx16x4 banks)	256 MBytes	512 MBytes

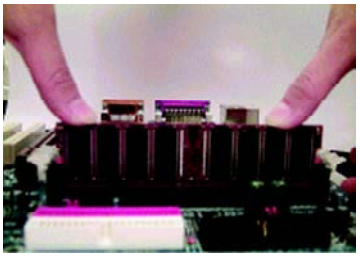
DDR1	DDR2
S	S
D	S
D	D
D	X
S	D
S	X

D:Double Sided DIMM S:Single Sided DIMM

X:Not Use



DDR



1. The DIMM socket has a notch, so the DIMM memory module can only fit in one direction.
2. Insert the DIMM memory module vertically into the DIMM socket. Then push it down.
3. Close the plastic clip at both edges of the DIMM sockets to lock the DIMM module.
   Reverse the installation steps when you wish to remove the DIMM module.

- **When STR/DIMM LED is ON, do not install/remove DIMM from socket.**
- **Please note that the DIMM module can only fit in one direction due to the two notches. Wrong orientation will cause improper installation. Please change the insert orientation.**

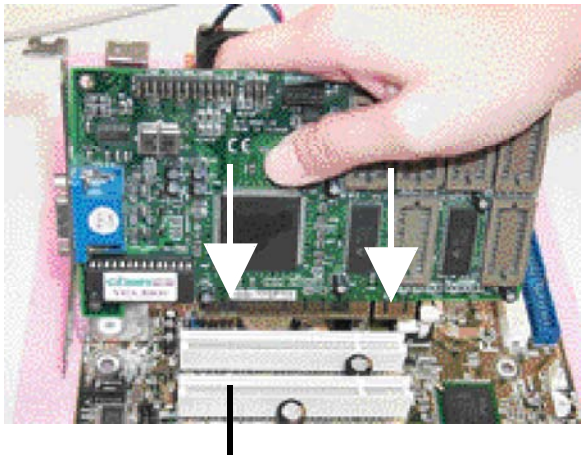
DDR Introduction

Established on the existing SDRAM industry infrastructure, DDR (Double Data Rate) memory is a high performance and cost-effective solution that allows easy adoption for memory vendors, OEMs and system integrators.

DDR memory is a sensible evolutionary solution for the PC industry that builds on the existing SDRAM infrastructure, yet makes awesome advances in solving the system performance bottleneck by doubling the memory bandwidth. DDR SDRAM will offer a superior solution and migration path from existing SDRAM designs due to its availability, pricing and overall market support. PC2100 DDR memory (DDR266) doubles the data rate through reading and writing at both the rising and falling edge of the clock, achieving data bandwidth 2X greater than PC133 when running with the same DRAM clock frequency. With peak bandwidth of 2.664GB per second, DDR memory enables system OEMs to build high performance and low latency DRAM subsystems that are suitable for servers, workstations, high-end PC's and value desktop SMA systems. With a core voltage of only 2.5 Volts compared to conventional SDRAM's 3.3 volts, DDR memory is a compelling solution for small form factor desktops and notebook applications.

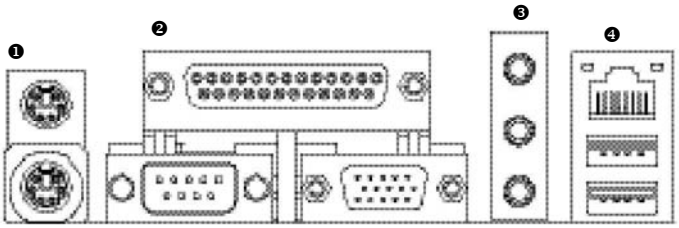
Step 3: Install expension cards

1. Read the related expansion card's instruction document before install the expansion card into the computer.
2. Remove your computer's chassis cover, necessary screws and slot bracket from the computer.
3. Press the expansion card firmly into expansion slot in motherboard.
4. Be sure the metal contacts on the card are indeed seated in the slot.
5. Replace the screw to secure the slot bracket of the expansion card.
6. Replace your computer's chassis cover.
7. Power on the computer, if necessary, setup BIOS utility of expansion card from BIOS.
8. Install related driver from the operating system.

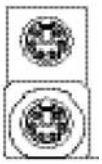


Step 4: Connect ribbon cables, cabinet wires, and power supply

Step4-1:I/O Back Panel Introduction



❶ PS/2 Keyboard and PS/2 Mouse Connector



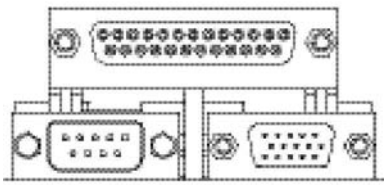
PS/2 Mouse Connector
(6 pin Female)

PS/2 Keyboard Connector
(6 pin Female)

➢This connector supports standard PS/2 keyboard and PS/2 mouse.

❷ Parallel Port , Serial Port and VGA Port (LPT / COMA / VGA)

Parallel Port
(25 pin Female)

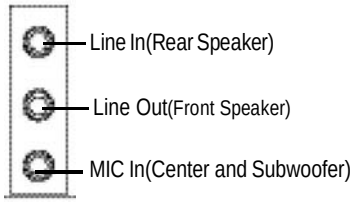


COMA
Serial Port
(9 pin Male)

VGA
VGA Port
(15 pin Female)

➢This connector supports 1 standard COM port ,1 Parallel port and 1 VGA port. Device like printer can be connected to Parallel port ; mouse and modem etc can be connected to Serial ports.

❸ Audio Connector

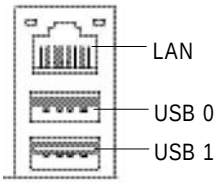


➢ After install onboard audio driver, you may connect speaker to Line Out jack, micro phone to MIC In jack.
Device like CD-ROM , walkman etc can be connected to Line-In jack.
Please note:
You are able to use 2-/4-/6- channel audio feature by S/W selection.
If you want to enable 6-channel function, you have 2 choose for hardware connection.

Method1:

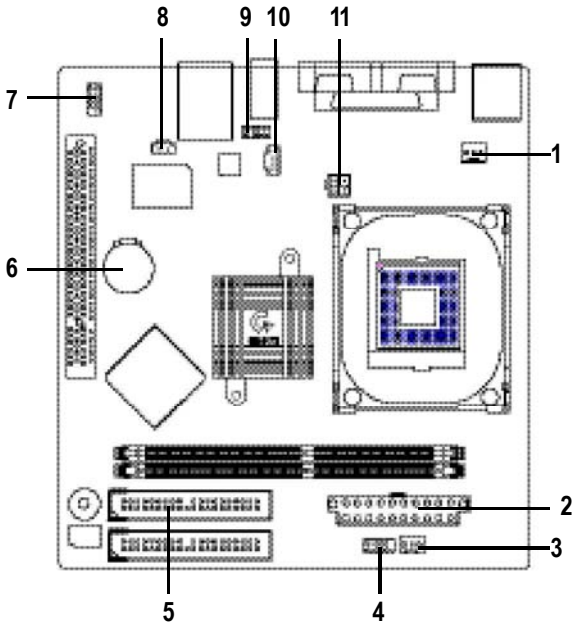
Connect "Front Speaker" to "Line Out"
Connect "Rear Speaker" to "Line In"
Connect "Center and Subwoofer" to "MIC Out".

❹ USB & LAN Connector



➢Before you connect your device(s) into USB connector(s), please make sure your device(s) such as USB keyboard,mouse, scanner, zip, speaker..etc. Have a standard USB interface. Also make sure your OS supports USB controller. If your OS does not support USB controller, please contact OS vendor for possible patch or driver upgrade. For more information please contact your OS or device(s) vendors.

Step4-2: Connectors Introduction

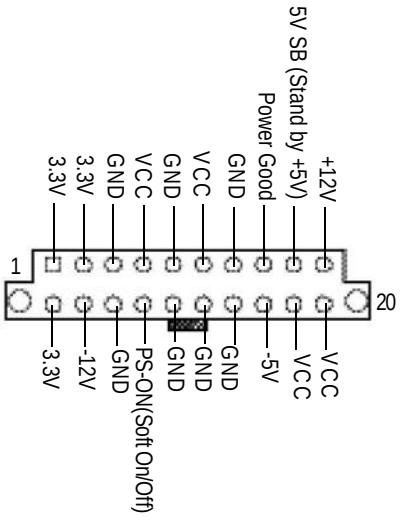


1) CPU FAN	7) F_AUDIO
2) ATX	8) SPDIF
3) SYS FAN	9) F_AUDIO
4) F_PANEL	10) CD_IN
5) IDE1_IDE2	11) ATX_12V
6) BATTERY	

1) CPU_FAN (CPU_FAN Connector)

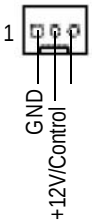
➢ Please note, a proper installation of the CPU cooler is essential to prevent the CPU from running under abnormal condition or damaged by overheating.The CPU fan connector supports Max. current up to 600 mA.

2) ATX PWR (ATX Power)



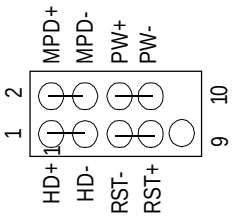
➢ AC power cord should only be connected to your power supply unit after ATX power cable and other related devices are firmly connected to the mainboard.

3) SYS_FAN (SYS_FAN Connector)



➢ This connector allows you to link with the cooling fan on the system case to lower the system temperature.

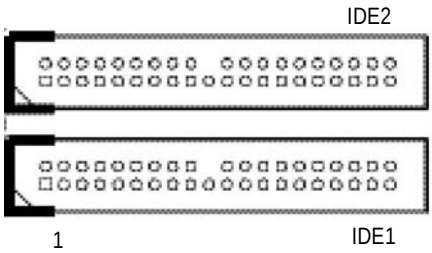
4) F_PANEL (2x5 pins jumper)



HD (IDE Hard Disk Active LED)	Pin 1: LED anode(+) Pin 2: LED cathode(-)
RST (Reset Switch)	Open: Normal Operation Close: Reset Hardware System
P+P-P-(Power LED)	Pin 1: LED anode(+) Pin 2: LED cathode(-) Pin 3: LED cathode(-)
PW (Soft Power Connector)	Open: Normal Operation Close: Power On/Off
MPD(Message LED/Power/ Sleep LED)	Pin 1: LED anode(+) Pin 2: LED cathode(-)

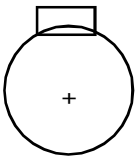
- Please connect the power LED, PC speaker, reset switch and power switch etc of your chassis front panel to the front panel jumper according to the pin assignment above.

5) IDE1 / IDE2



- Important Notice:
  Please connect first harddisk to IDE1 and connect CDROM to IDE2.
  The red stripe of the ribbon cable must be the same side with the Pin1.

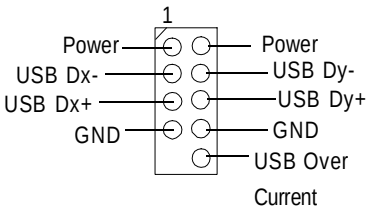
6) Battery



CAUTION

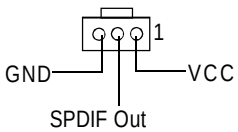
- Danger of explosion if battery is incorrectly replaced.
- Replace only with the same or equivalent type recommended by the manufacturer.
- Dispose of used batteries according to the manufacturer's instructions.

7) F_USB1



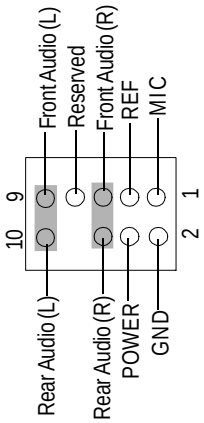
- Be careful with the polarity of the front panel USB connector. Check the pin assignment while you connect the front panel USB cable. Please contact your nearest dealer for optional front panel USB cable.

8) SPDIF (SPDIF)



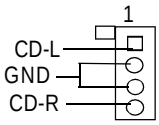
- The SPDIF output is capable of providing digital audio to external speakers or com pressed AC3 data to an external Dolby Digital Decoder. Use this feature only when your stereo system has digital input function.

9) F_AUDIO (Front Audio Connector)



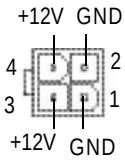
- If you want to use "Front Audio" connector, you must remove 5-6, 9-10 Jumper. In order to utilize the front audio header, your chassis must have front audio connector. Also please make sure the pin assigment on the cable is the same as the pin assigment on the MB header. To find out if the chassis you are buying support front audio connector, please contact your dealer.

10) CD_IN



- Connect CD-ROM or DVD-ROM audio out to the connector.

11) ATX_12V (+12V Power Connector)



- This connector (ATX +12V) supplies the CPU operation voltage (Vcore).
  If this " ATX+ 12V connector" is not connected, system cannot boot.