TECHNICAL MANUAL

Of

Intel Pine Trail D & NM10 Chipset

Based

Mini-ITX M/B for ATOM Processor

NO. G03-NC9E-F

Revision: 1.0

Release date: February, 2012

Environmental Protection Announcement

Do not dispose this electronic device into the trash while discarding. To minimize pollution and ensure environment protection of mother earth, please recycle.

TABLE OF CONTENT

⚠ CAUTION   Environmental Safety Instruction

- Avoid the dusty, humidity and temperature extremes. Do not place the product in any area where it may become wet.

- 0 to 60 centigrade is the suitable temperature. (The figure comes from the request of the main chipset)

- Generally speaking, dramatic changes in temperature may lead to contact malfunction and crackles due to constant thermal expansion and contraction from the welding spots' that connect components and PCB. Computer should go through an adaptive phase before it boots when it is moved from a cold environment to a warmer one to avoid condensation phenomenon. These water drops attached on PCB or the surface of the components can bring about phenomena as minor as computer instability resulted from corrosion and oxidation from components and PCB or as major as short circuit that can burn the components. Suggest starting the computer until the temperature goes up.

- The increasing temperature of the capacitor may decrease the life of computer. Using the close case may decrease the life of other device because the higher temperature in the inner of the case.

- Attention to the heat sink when you over-clocking. The higher temperature may decrease the life of the device and burned the capacitor.

USER'S NOTICE

COPYRIGHT OF THIS MANUAL BELONGS TO THE MANUFACTURER. NO PART OF THIS MANUAL, INCLUDING THE PRODUCTS AND SOFTWARE DESCRIBED IN IT MAY BE REPRODUCED, TRANSMITTED OR TRANSLATED INTO ANY LANGUAGE IN ANY FORM OR BY ANY MEANS WITHOUT WRITTEN PERMISSION OF THE MANUFACTURER.

THIS MANUAL CONTAINS ALL INFORMATION REQUIRED TO USE THIS MOTHER-BOARD SERIES AND WE DO ASSURE THIS MANUAL MEETS USER'S REQUIREMENT BUT WILL CHANGE, CORRECT ANY TIME WITHOUT NOTICE. MANUFACTURER PROVIDES THIS MANUAL "AS IS" WITHOUT WARRANTY OF ANY KIND, AND WILL NOT BE LIABLE FOR ANY INDIRECT, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES (INCLUDING DAMAGES FOR LOSS OF PROFIT, LOSS OF BUSINESS, LOSS OF USE OF DATA, INTERRUPTION OF BUSINESS AND THE LIKE).

PRODUCTS AND CORPORATE NAMES APPEARING IN THIS MANUAL MAY OR MAY NOT BE REGISTERED TRADEMARKS OR COPYRIGHTS OF THEIR RESPECTIVE COMPANIES, AND THEY ARE USED ONLY FOR IDENTIFICATION OR EXPLANATION AND TO THE OWNER'S BENEFIT, WITHOUT INTENT TO INFRINGE.

Manual Revision Information

Reversion	Revision History	Date
1.0	First Edition	February, 2012

Item Checklist

☑ Motherboard
☑ User's Manual
☑ DVD for motherboard utilities
☑ Cable(s)
☑ I/O Back panel shield

Chapter 1

Introduction of the Motherboard

1-1   Feature of Motherboard

● Intel Pine Trail-D and NM10 chipset, with low power consumption never denies high performance

● Support two DDRIII SODIMM 800 MHz up to 4GB

● Support 4 * Serial ATAII (3Gb/s) Devices

● Onboard dual Realtek RTL 8111EVL Gigabit Ethernet LAN chips

● Integrated ALC662 6-channel HD audio CODEC

● Support USB 2.0 data transport demands

● Support RS232/422/485

● Support PCI slot and Mini-PCIE slot

● Support CPU Smart FAN

● Supports ACPI S3 Function

● Support Watchdog function
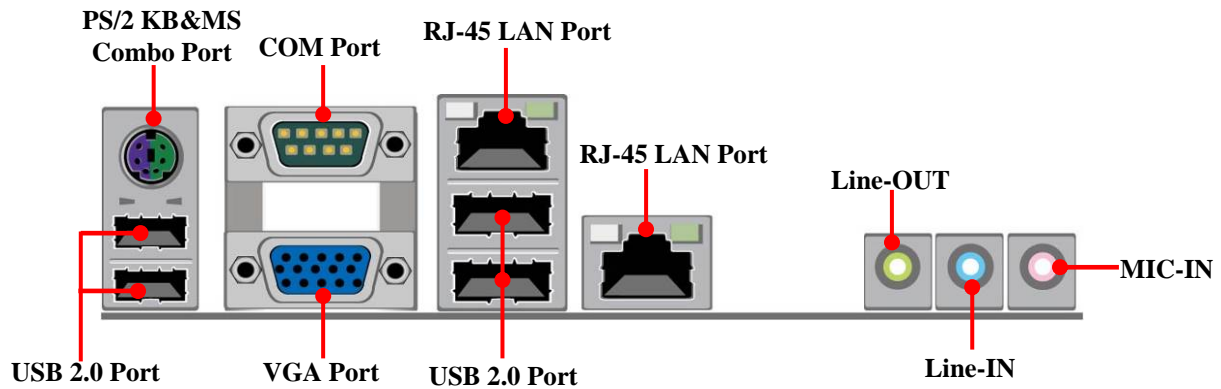
● Support daughter board expansion

1-2　　Specification

Spec	Description
Design	● Mini-ITX form factor; PCB size: 17.0x17.0cm
Chipset	● Intel® NM10 Express chipset
Embedded CPU	● Intel Atom CPU
Memory Slot	● DDRIII SODIMM slot x2 ● Support two un-buffered Single Channel DDRIII 800 MHz SO-DIMM with memory capacity expandable to 4GB
Expansion Slot	● 32-bit PCI slot x 1 ● Mini-PCIE slot x1
Dual LAN　Chip	● Integrated with two Realtek RTL8111EVL PCI-E Gigabit LAN chips ● Support Fast Ethernet LAN function of providing 10/100/1000Mbps Ethernet data transfer rate
Audio Chip	● Realtek ALC662 6-channel Audio Codec integrated ● Audio driver and utility included
BIOS	● AMI 8MB DIP Flash ROM
Multi I/O	● PS/2 keyboard & Mouse combo port x1 ● Serial port x1 ● VGA port x1 ● RJ-45 LAN connector x2 ● USB 2.0 port x4 ● Audio connector x3 (Line-in, Line-out, MIC) ● ATX power connector x 1 ● SATAII x4 ● Front panel audio header x1 ● CDIN header x1 ● Serial port header x1 ● RS422/RS485 header x1 ● 4-pin USB 2.0 header x1 ● 9-pin USB 2.0 header x1 ● Speaker header x1

	● PWRLED header x1
	● Front panel header x1
	● LVDS header x1 and LVDS inverter x1
	● GPIO header x1
	● Parallel header x1
	● IDE hard disk header x1
	● Expansion daughter board header x2

1-3 Layout Diagram

Rear IO Diagram

PS/2 KB&MS
Combo Port COM Port   RJ-45 LAN Port

RJ-45 LAN Port

Line-OUT

MIC-IN

USB 2.0 Port   VGA Port   USB 2.0 Port

Line-IN

Motherboard Internal Diagram

- Parallel Header
- *SYSFAN1 Header*
- DDRIII SODIMM Slot (SODIMM2)
- PS/2 KB & MS over USB 2.0 Port
- ATX Power Connector
- Serial Port over VGA Port
- LVDS Inverter
- DDRIII SODIMM Slot (SODIMM1)
- *CPUFAN Header*
- RJ-45 LAN Port over USB 2.0 Ports
- LVDS Header
- **Intel CPU**
- RJ-45 LAN port
- Mini-PCIE Slot
- Intel NM 10 Chipset
- IDE Hard disk Header
- *TX-RX COM Header*
- Line-OUT
- Line-IN
- COM2 Header
- MIC-IN
- USB 2.0 Header (USB3)
- SATAII Ports
- Front Panel Audio Header
- PWRLED Header
- Front Panel Header
- CDIN Header
- USB 2.0 Header (USB2)
- *SYSFAN2 Header*
- PCI slot
- GPIO Header
- Speaker Header
- Daughter Board Connectors

Motherboard Jumper Position
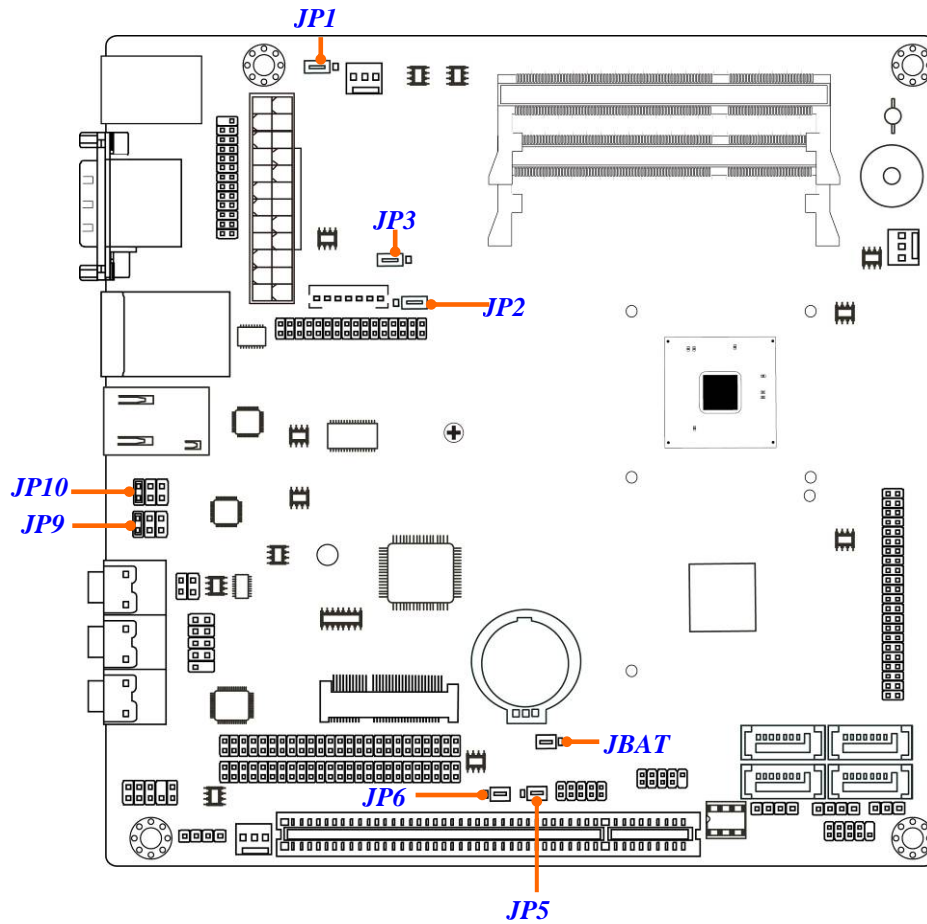
Jumper

Jumper	Name	Description
JBAT	CMOS RAM Clear Function Setting	3-pin Block
JP1	K/B, USB Power On Function Setting	3-pin Block
JP2	LVDS PVCC 5V/3.3V Select	3-pin Block
JP3	Inverter VCC 12V/5V Select	3-pin Block
JP5	USB 2/3 Header Power On Function Setting	3-pin Block
JP6	Mini PCI-E Power VCC3.3V /Dual 3.3V Select	3-pin Block
JP9	COM2 Header Power RS232 Power Function Select	6-pin Block
JP10	COM2 RS232/422/485 Function Select	6-pin Block

Connectors

| Connector	Name	Description
ATXPWR	ATX Power Connector	24-pin Connector
KB & MS combined connector from UK1	PS2 Keyboard & Mouse Combo Connector	6-pin Female
VGA	Video Graphic Attach Connector	15-pin Female
COM1	Serial Port COM Connectors	9-pin Connector
LAN from UL1,LAN1	RJ-45 LAN Connectors	8-pin Connector
USB from UK1, UL1	USB Port Connectors	4-pin Connector
LINE-OUT	Audio Line Out Connector	1 Phone JACK
LINE-IN	Audio Line In /MIC Connector	1 Phone JACK
MIC-IN	Audio MIC Audio Connector	1 Phone JACK
SATA1,2,3,4	Serial ATAII Connectors	7-pin Connector

Headers

Header	Name	Description
FP-AUDIO	Front panel audio Header	9-pin block
CDIN	CD Audio-In Header	4-pin Block
COM2	Serial Port Header	9-pin Block
TX-RXCOM	RS 422/485 port header	4-pin block
USB3	USB Header	9-pin Block
USB2	USB Header	4-pin Block
SPEAK	Speaker Header	4-pin Block
PWR LED	Power LED	3-pin Block
JW_FP	Front Panel Header(PWR LED/ HD LED/ /Power Button /Reset)	9-pin Block
CPUFAN,SYSFAN1/2	FAN Speed Headers	3-pin Block
GPIO-CON	GPIO Header	10-pin Block
INVERTER	LVDS Inverter Connector	7-pin Block
LVDS	LVDS Header	32-pin Block
IDE	IDE Hard Disk Drive header	44-pin block
PARALLEL	Parallel Port Header	25-pin Block
CN1; CN2	Jetway Daughter Card Connector	50-pin *2 Block

Chapter 2
Hardware Installation
2-1 Jumper Setting

(1) JBAT (3-pin): Clear CMOS Function Setting
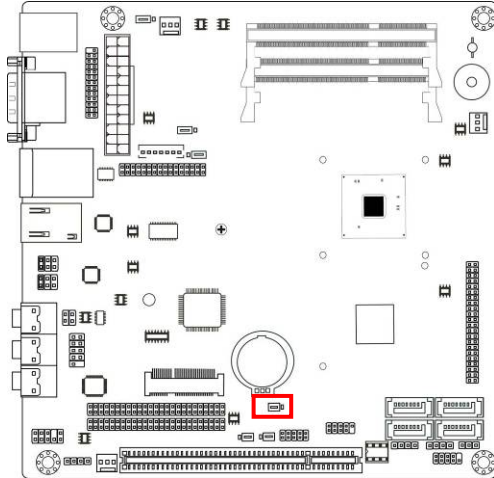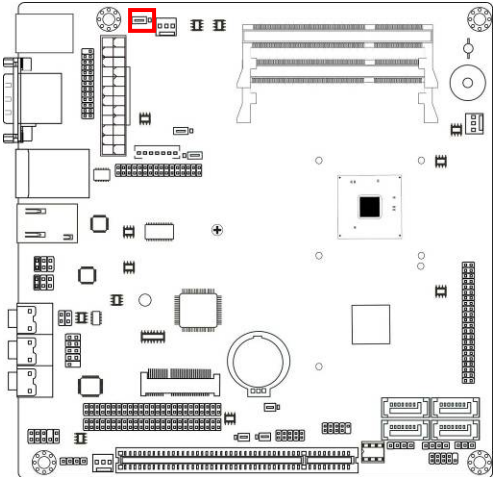

JBAT   **JBAT**

1-2 closed: Normal;   **2-3 closed : Clear CMOS**

(2) JP1 (3-pin): K/B, USB Power on Function Setting
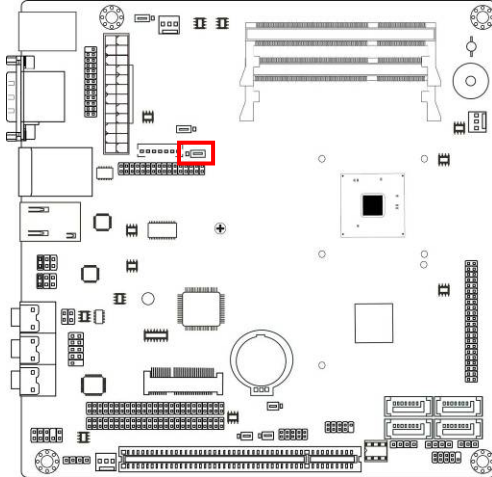

JP1

1-2 Closed: K/B, USB Power-On Disabled(default);

JP1

2-3 Closed: K/B, USB Power-On Enabled

(3) JP2 (3-pin): LVDS PVCC 5V/3.3V Select
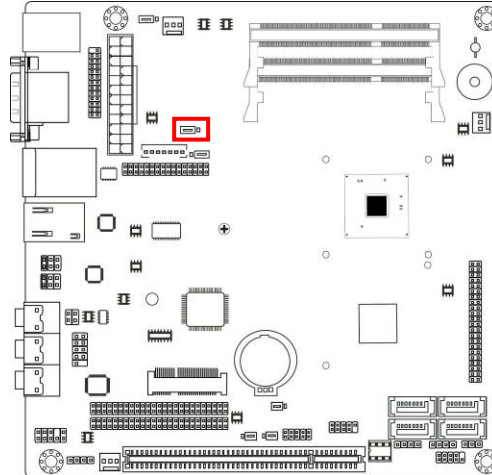

JP2

1-2 Closed: LVDS PVCC= 5V;

JP2

2-3 Cosed : LVDS PVCC=3.3V

(4) JP3 (3-pin): Inverter VCC 12V/5V select

JP3

1-2 Closed: Inverter 12V Select;

JP3

2-3 Closed : Inverter 5V Select

(5) JP5 (3-pin): USB2/3 Header Power on Function Setting

JP5

1   3
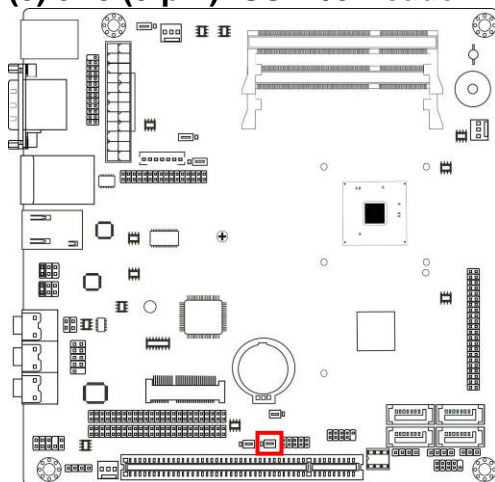
1-2 Closed: USB2/3 Header Power-On Disabled(default);

JP5

1   3

2-3 Closed: USB2/3 Header Power-On Enabled

(6) JP6 (3-pin): Mini PCI-E VCC3.3V/ Dual 3.3 V Select

JP6

1   3
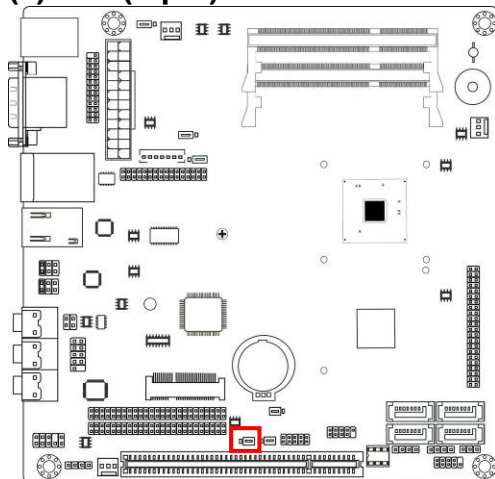
1-2 Closed ： MINI PCI-E VCC= 3.3V Select；

JP6

1   3

2-3 Closed ： MINI PCI-E VCC= Dual 3.3V Select

(7) JP9 (6-pin): COM2 Header RS232 Power Select
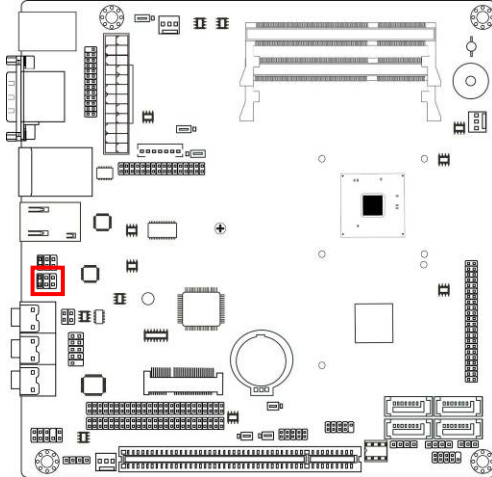
JP9

1-2 Closed: RS232;   3-4 Closed : +12V;   5-6 Closed : +5V

(8) JP10 (6-pin): COM2 Header RS232/485/422 Function Select
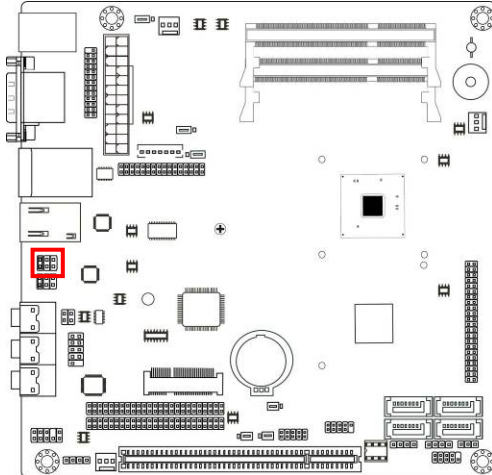
JP10
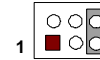
1-2 Closed: RS232;   3-4 Closed : RS485;   5-6 Closed : RS422

2-2　Connectors and Headers
2-2-1 Connectors
(1) I/O Panel Connector:
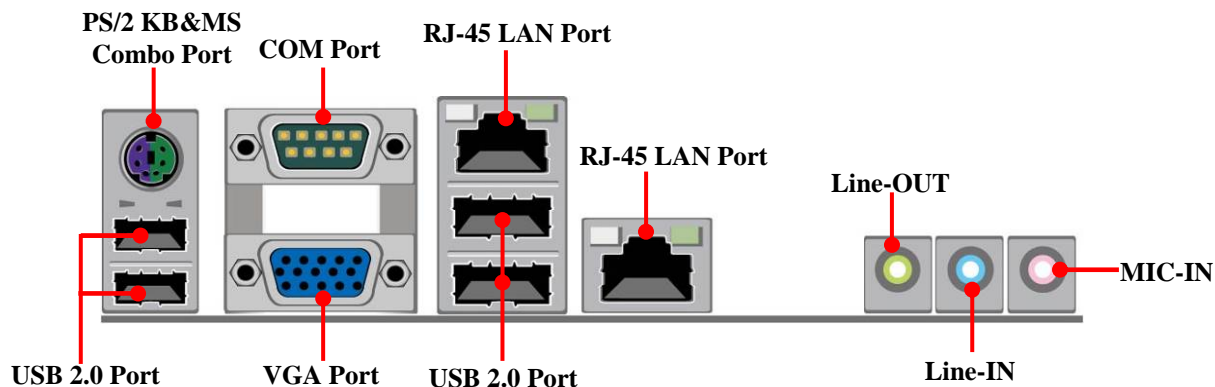
(2) SATA II Port connector: SATA1/SATA2/SATA3/SATA4

These connectors are high-speed SATAII ports that support 3 Gbps transfer rate.
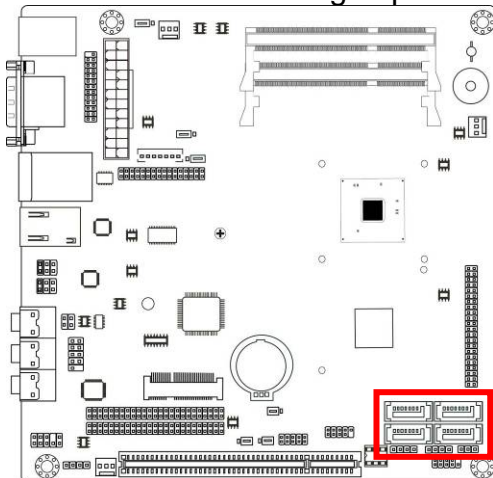
Pin No.	Definition
1	GND
2	TXP
3	TXN
4	GND
5	RXN
6	RXP
7	GND
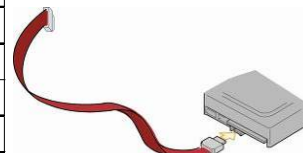
(3) Power Connector (24-pin block): ATXPWR
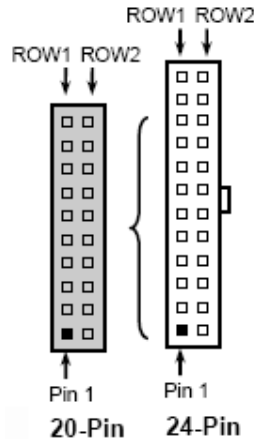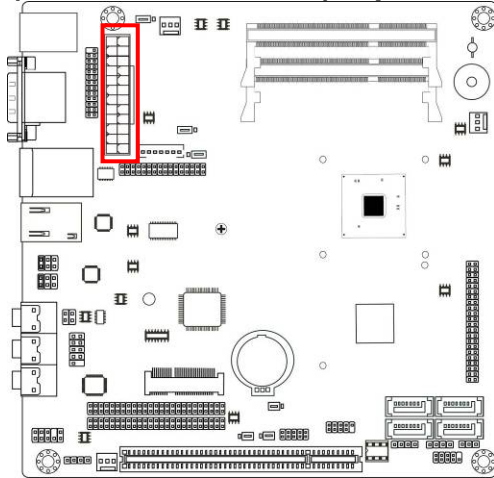
PIN	ROW1	ROW2
1	3.3V	3.3V
2	3.3V	-12V
3	GND	GND
4	5V	Soft Power On
5	GND	GND
6	5V	GND
7	GND	GND
8	Power OK	-5V
9	+5V (for Soft Logic)	+5V
10	+12V	+5V
11	+12V	+5V
12	+3V	GND

2-2-2 Headers

(1) FP_AUDIO (9-pin): Front Panel Audio Line-Out, MIC-In Header

This header connects to front panel Line-out, MIC-In connector with cable.
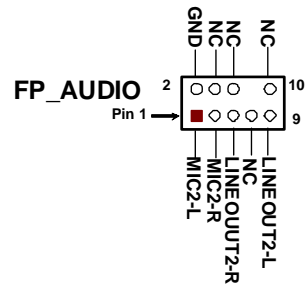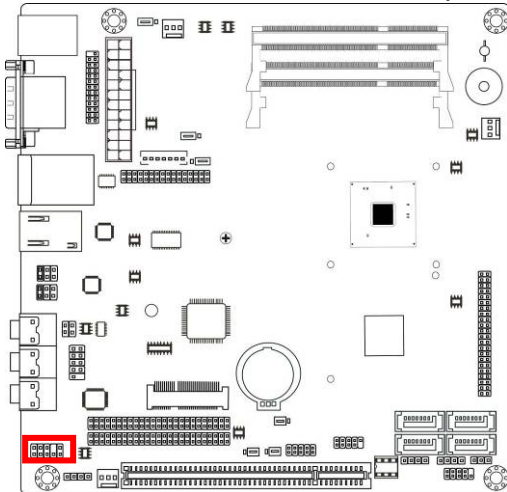
Line-Out, MIC Headers

(2) CDIN (4-pin): CD AUDIO-In Header

CD-R
GND
GND
CD-L

Pin1
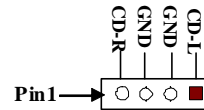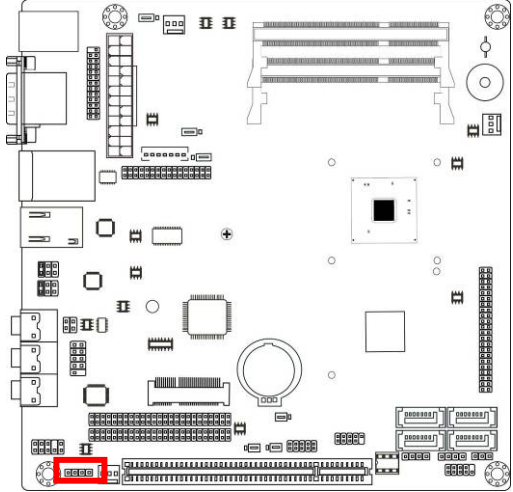
(3) COM2 (9-Pin): Serial Port Header

Pin1 Pin6

DCD — DSR
RXD — RTS
TXD — GTS
DTR — RI
GND

Pin5
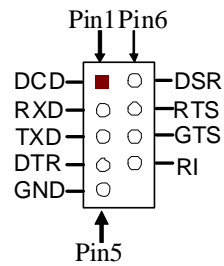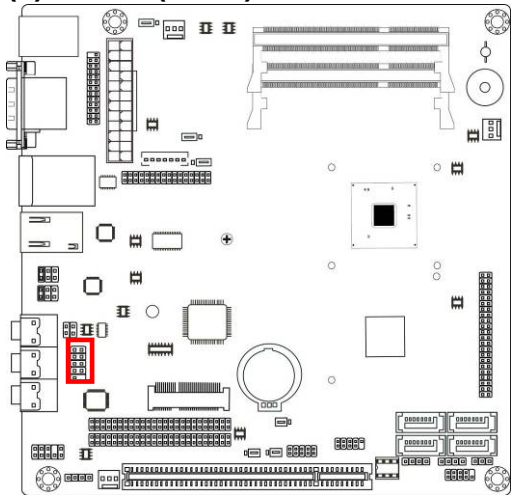
(3) TX-RXCOM (4-Pin): RS422/485 Header
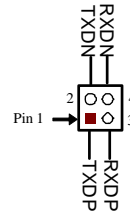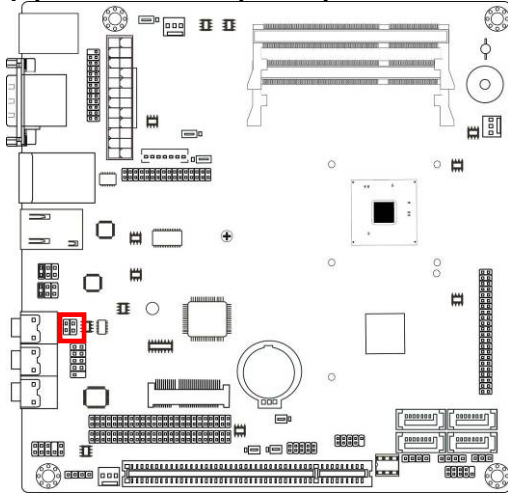
TX-RXCOM Header

(4) USB3 (9-pin): USB 2.0 Port Header
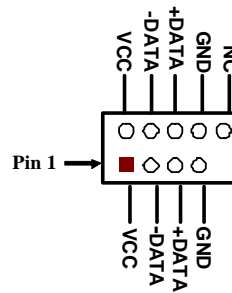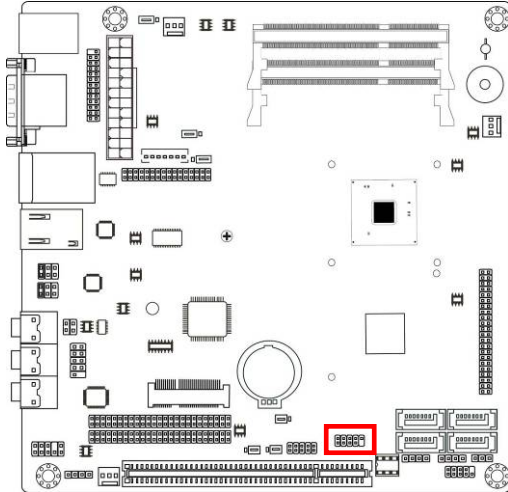
USB3 Header

(5) USB2 (4-pin): USB 2.0 Port Header

Pin 1 → VCC -DATA +DATA GND
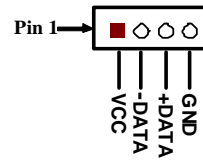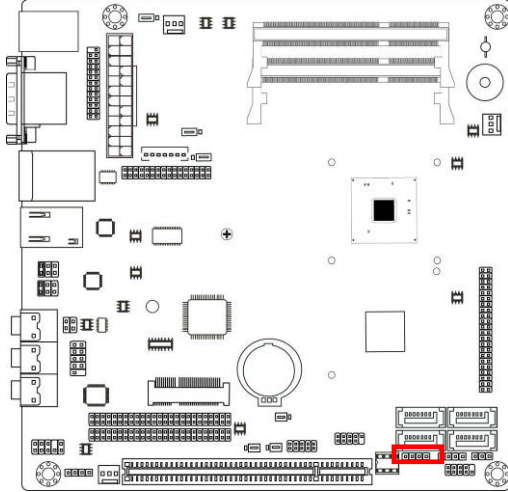
USB2 Header

(6) SPEAK (4-pin): Speaker Header
This 4-pin header is to connect the case-mounted speaker. See the figure below.

(7) PWRLED(3-pin): Power LED Header
The Power LED is light on while the system power is on. Connect the Power LED from the system case to this pin.

SPEAK

Pin 1 → VCC NC NC SPEAK

PWRLED

Pin 1 → VCC GND GND
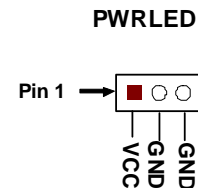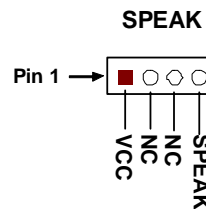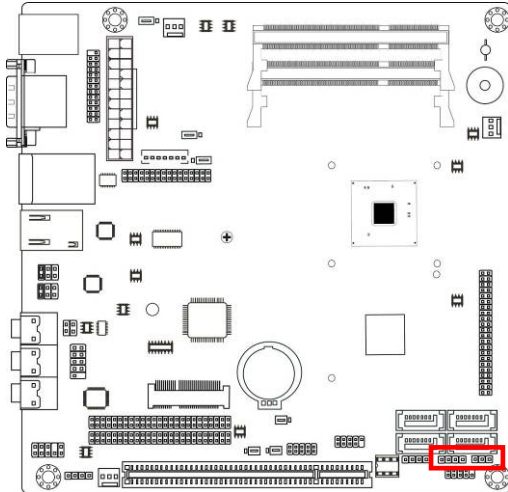
(8) JW-FP (9-pin): Front Panel Header
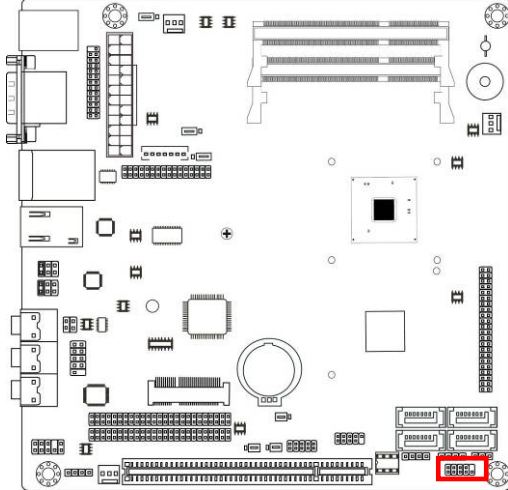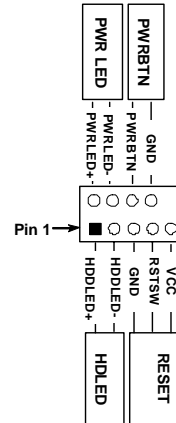
(9) CPUFAN1, SYSFAN1, and SYSFAN2 (3-pin): FAN Speed Headers

Pin1: GND

Pin2: +12V fan power

Pin3: Fan Speed Detect
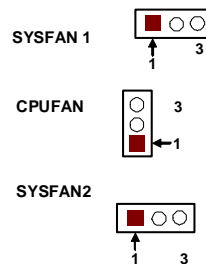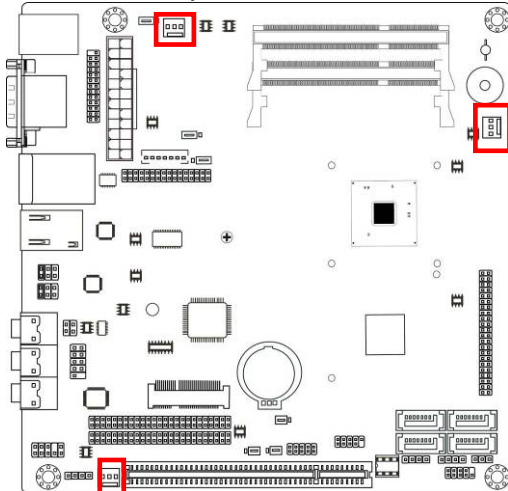
(10) GPIO_CON(10-pin): GPIO Header

GPIO_31 GPIO_33 GPIO_35 GPIO_37 VCC

2 ○ ○ ○ ○ ○ 10
Pin 1 ► ■ ○ ◇ ○ ○ 9

GPIO_30 GPIO_32 GPIO_34 GPIO_36 GND
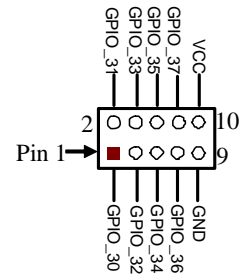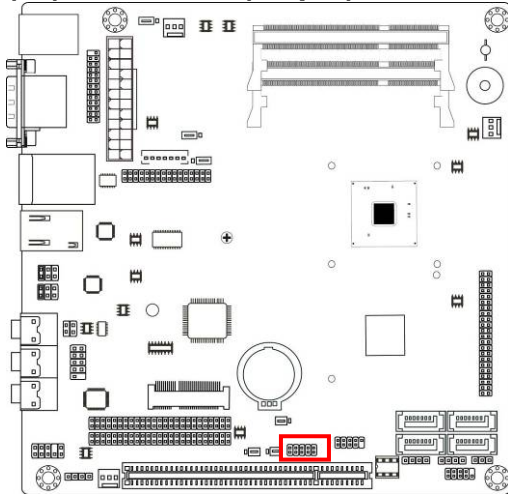
GPIO_CON Header

(11) INVERTER (7-Pin): LVDS Inverter

Pin 1

○ ○ ○ ○ ○ ○ ○
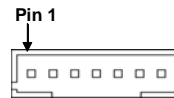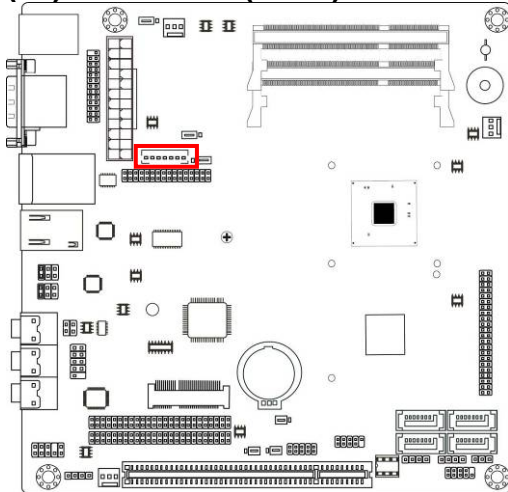
INVERTER

Pin No.	Definition
1	VCC
2	VCC
3	GND
4	GND
5	Backlight
6	GND
7	Brightness

(12) LVDS (32 Pin): LVDS Header
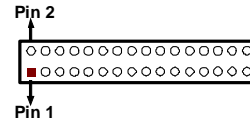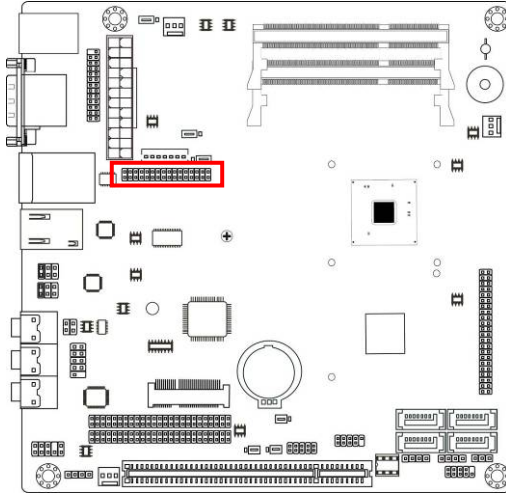
Pin 2

Pin 1

LVDS Header

Pin NO.	Pin Define	Pin NO.	Pin Define
Pin 1	NC	Pin 2	NC
Pin 3	NC	Pin 4	NC
Pin 5	NC	Pin 6	NC
Pin 7	NC	Pin 8	NC
Pin 9	NC	Pin 10	NC
Pin 11	LVDS_DDC_DATA	Pin 12	LVDS_DDC_CLK
Pin 13	GND	Pin 14	GND
Pin 15	GND	Pin 16	GND
Pin 17	NC	Pin 18	NC
Pin 19	LVDS_CLKAP	Pin 20	LVDS_CLKAN
Pin 21	LVDSA_DATAP2	Pin 22	LVDSA_DATAN2
Pin 23	LVDSA_DATAP1	Pin 24	LVDSA_DATAN1
Pin 25	LVDSA_DATAP0	Pin 26	LVDSA_DATAN0
Pin 27	PVDD	Pin 28	PVDD
Pin 29	PVDD	Pin 30	PVDD
Pin 31	GND	Pin 32	GND

(13) IDE Header (44-pin)：IDE1
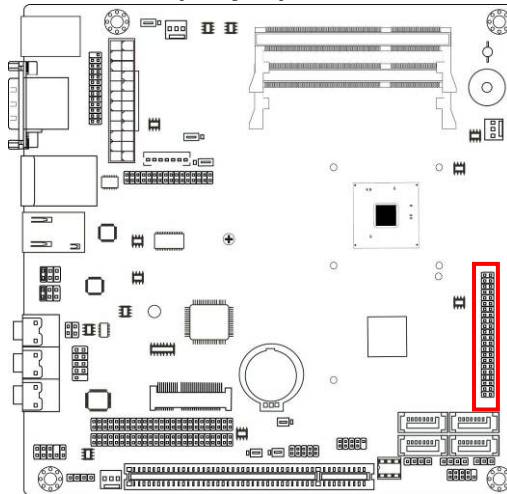
IDE1 Header
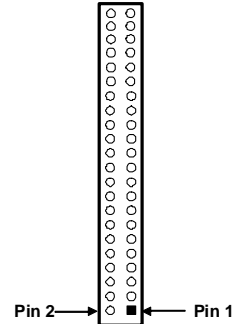
Pin 2 → Pin 1

Pin	Definition	Pin	Definition
Pin 1	Reset	Pin 2	GND
Pin 3	DD7	Pin 4	DD8
Pin 5	DD6	Pin 6	DD9
Pin 7	DD5	Pin 8	DD10
Pin 9	DD4	Pin 10	DD11
Pin 11	DD3	Pin 12	DD12
Pin 13	DD2	Pin 14	DD13
Pin 15	DD1	Pin 16	DD14
Pin 17	DD0	Pin 18	DD15
Pin 19	GND	Pin 20	NC
Pin 21	DMARQ	Pin 22	GND
Pin 23	IOW	Pin 24	GND
Pin 25	IOR	Pin 26	GND
Pin 27	IORDY	Pin 28	CSELA
Pin 29	DMACK	Pin 30	GND
Pin 31	JINTRQ	Pin 32	NC
Pin 33	DA1	Pin 34	PDIAG
Pin 35	DA0	Pin 36	DA2

Pin 37	CS	Pin 38	CS1
Pin 39	PRI_ACT	Pin 40	GND
Pin 41	+5V	Pin 42	+5V
Pin 43	GND	Pin 44	NC

(14) PARALLEL (25-pin): Parallel Port Header

Parallel Port Header
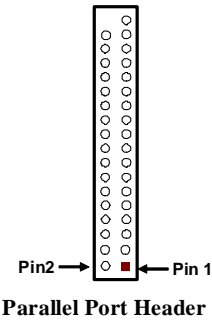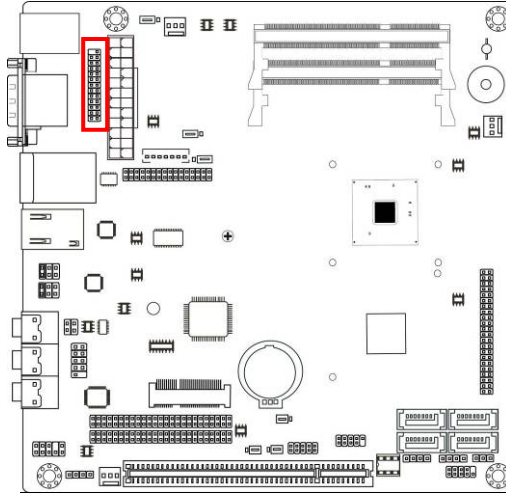
Pin NO.	Pin Definition	Pin NO.	Pin Definition
Pin 1	STB-	Pin 2	AFD-
Pin 3	PD0	Pin 4	ERR-
Pin 5	PD1	Pin 6	INIT-
Pin 7	PD2	Pin 8	SLIN-
Pin 9	PD3	Pin 10	GND
Pin 11	PD4	Pin 12	GND
Pin 13	PD5	Pin 14	GND
Pin 15	PD6	Pin 16	GND
Pin 17	PD7	Pin 18	GND
Pin 19	ACK-	Pin 20	GND
Pin 21	BUSY	Pin 22	GND
Pin 23	PE	Pin 24	GND
Pin 25	SLCT		

Chapter 3
Introducing BIOS

Notice!	The BIOS options in this manual are for reference only. Different configurations may lead to difference in BIOS screen and BIOS screens in manuals are usually the first BIOS version when the board is released and may be different from your purchased motherboard. Users are welcome to download the latest BIOS version form our official website.

The BIOS is a program located on a Flash Memory on the motherboard. This program is a bridge between motherboard and operating system. When you start the computer, the BIOS program will gain control. The BIOS first operates an auto-diagnostic test called POST (power on self test) for all the necessary hardware, it detects the entire hardware device and configures the parameters of the hardware synchronization. Only when these tasks are completed done it gives up control of the computer to operating system (OS). Since the BIOS is the only channel for hardware and software to communicate, it is the key factor for system stability, and in ensuring that your system performance as its best.

In the BIOS Setup main menu of Figure 3-1, you can see several options. We will explain these options step by step in the following pages of this chapter, but let us first see a short description of the function keys you may use here:

● Press <Esc> to quit the BIOS Setup.

● Press ↑↓←→ (up, down, left, right) to choose, in the main menu, the option you want to confirm or to modify.

● Press <F10> when you have completed the setup of BIOS parameters to save these parameters and to exit the BIOS Setup menu.

- Press +/– keys when you want to modify the BIOS parameters for the active option.

3-1   Entering Setup

Power on the computer and by pressing <Del> immediately allows you to enter Setup. If the message disappears before your respond and you still wish to enter Setup, restart the system to try again by turning it OFF then ON or pressing the "RESET" button on the system case. You may also restart by simultaneously pressing <Ctrl>, <Alt> and <Delete> keys.   If you do not press the keys at the correct time and the system does not boot, an error message will be displayed and you will again be asked to

Press <Del> to enter Setup

3-2   Getting Help

Main Menu

The on-line description of the highlighted setup function is displayed at the bottom of the screen.

Status Page Setup Menu/Option Page Setup Menu

Press F1 to pop up a small help window that describes the appropriate keys to use and the possible selections for the highlighted item.   To exit the Help Window, press <Esc>.

3-3   The Main Menu

Once you enter AMI ® BIOS CMOS Setup Utility, the Main Menu (Figure 3-1) will appear on the screen.   The Main Menu allows you to select from fourteen setup functions and two exit choices.   Use arrow keys to select among the items and press <Enter> to accept or enter the sub-menu.

Figure 3-1

Standard BIOS Features

Use this Menu for basic system configurations.

Advanced BIOS Features

Use this menu to set the Advanced Features available on your system.

Advanced Chipset Features

Use this menu to change the values in the chipset registers and optimize your system's performance.

Integrated Peripherals

Use this menu to specify your settings for integrated peripherals.

Power Management Setup

Use this menu to specify your settings for power management.

PnP/PCI Configurations

Use this menu to specify your settings for PnP and PCI configurations.

PC Health Status

This entry shows your PC health status.

Miscellaneous Control

Use this menu to specify your settings for Miscellaneous Control.

Load Optimized Defaults

Use this menu to load the BIOS default values these are setting for optimal performances system operations for performance use.

Load Standard Defaults

Use this menu to load the BIOS default values for the minimal/stable performance system operation

Set Supervisor Password

Use this menu to set supervisor password.

Set User Password

Use this menu to set user password.

Save & Exit Setup

Save CMOS value changes to CMOS and exit setup.

Exit Without Saving

Abandon all CMOS value changes and exit setup.

3-4   Standard BIOS Features

The items in Standard CMOS Setup Menu are divided into several categories.   Each category includes no, one or more than one setup items.   Use the arrow keys to highlight the item and then use the <PgUp> or <PgDn> keys to select the value you want in each item.

```
              Copyright (C) 1985-2009, American Megatrends, Inc.
                          Standard BIOS Features

     System Date                  Mon 02/06/2012           Help Item
     System Time                  00:01:32
                                                      Use [ENTER], [TAB]
                                                      or [SHIFT-TAB] to
     ▶ SATA Channel 1 Master      Not Detected         select a field.
     ▶ SATA Channel 2 Master      Not Detected
     ▶ SATA Channel 3 Master      Not Detected         Use [+] or [-] to
     ▶ SATA Channel 4 Master      Not Detected         configure system Date.
     ▶ JMicron IDE Channel Master Not Detected
     ▶ JMicron IDE Channel Slave  Not Detected




     System Memory
     Size     : 2048MB




     ↑↓←→:Move  Enter:Select  +/-/:Value  F10:Save  ESC:Exit  F1:General Help
            F5:Previous Values    F6:Optimized Defaults    F7:Standard Defaults
```

System Date

Use [Enter], [TAB] or [SHIFT+TAB] to select setting filed. Then use [+] or [-] to configure system date.

The date format is <day><month><date><year>.

    Day   Day of the week is from Sun to Sat, determined by BIOS. Read-only.

    Month   The month is from Jan. through Dec.

    Date   The date from 1 to 31 can be keyed by numeric function keys.

    Year   The year depends on the year of the BIOS.

System Time

Use [Enter], [TAB] or [SHIFT+TAB] to select setting filed. Then use [+] or [-] to configure system time.

The time format is <hour><minute><second>.

SATA Channel 1/2/3/4 Master

JMicron IDE Channel Master/Slave

While entering setup, BIOS auto detects the presence of hard disk devices. This displays the status of auto detection of hard disk devices.

Type: The optional settings are: [Not Installed]; [Auto]; [CD/DVD] and [ARMD] (This item is only optional for **SATA Channel 1 Master** and **SATA Channel 2 Master**).

LBA/Large Mode: The optional settings are [Auto]; [Disabled].

[Disabled]: disables LBA mode.

[Auto]: enables LBA Mode if the devices support it and the device is not already formatted with LBA Mode disabled.

Block (Multi-Sector Transfer): The optional settings are: [Disabled] and [Auto].

[Disabled]: The Data transfer from and to the device occurs one sector at a time.

[Auto]: The Data transfer from and to the device occurs multiple sectors at a time if the device supports it.

32 Bit Data Transfer: the optional settings are: [Disabled] and [Enabled].

DMA Mode: Use this item to select DMA Mode (Optional for **JMicron IDE Channel Master/Slave**).

3-5 Advanced BIOS Features

Virus Warning

The selection Allow you to choose the VIRUS Warning feature for IDE Hard Disk boot sector protection. If this function is enabled and someone attempt to write data into this area, BIOS will show a warning message on screen and alarm beep.

Disabled (default) No warning message to appear when anything attempts to access the boot sector or hard disk partition table.

Enabled Activates automatically when the system boots up causing a warning message to appear when anything attempts to access the boot sector of hard disk partition table.

Quick Power On Self Test

This item allows BIOS to skip certain tests while booting. This will decrease the time needed to boot the system. The optional settings: [Disabled]; [Enabled].

Boot Up NumLock Status

Use this item to select power-on state for Numlock key.

On: Keypad is numeric keys.

Off: Keypad is arrow keys.

APIC Mode

Use this item to include ACPI APIC table pointer to RSDT pointer list. The optional settings are: [Disabled]; [Enabled].

MPS Version Control for OS

This option is only valid for multiprocessor motherboards as it specifies the version of The Multiprocessor Specification (MPS) that the motherboard will use.

3-5-1 CPU Feature
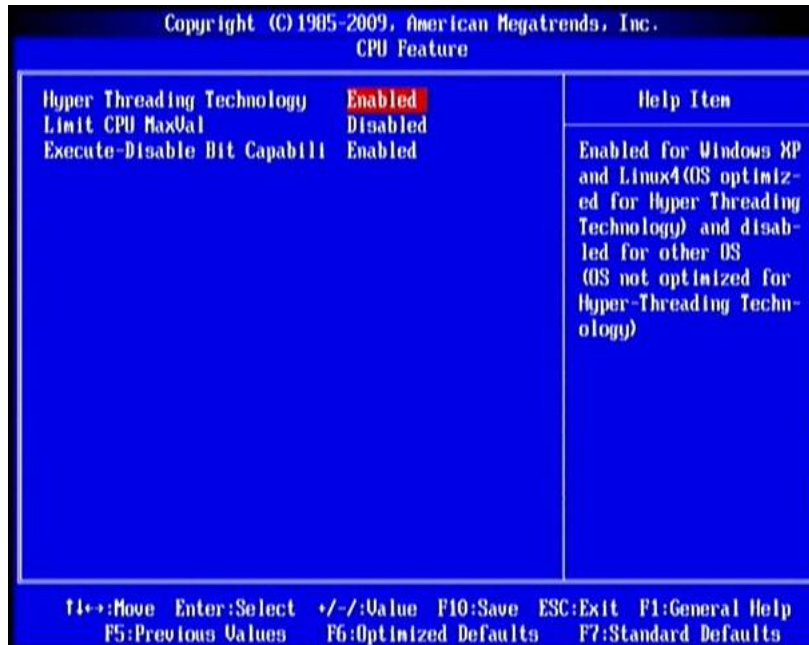
```
         Copyright (C)1985-2009, American Megatrends, Inc.
                            CPU Feature

 Hyper Threading Technology    Enabled          Help Item
 Limit CPU MaxVal              Disabled
 Execute-Disable Bit Capabill  Enabled      Enabled for Windows XP
                                            and Linux4(OS optimiz-
                                            ed for Hyper Threading
                                            Technology) and disab-
                                            led for other OS
                                             (OS not optimized for
                                            Hyper-Threading Techn-
                                            ology)




 ↑↓←→:Move  Enter:Select  +/-/:Value  F10:Save  ESC:Exit  F1:General Help
         F5:Previous Values    F6:Optimized Defaults    F7:Standard Defaults
```

Hyper Threading Technolegy
Enabled for Windows XP and Linux4(OS optimized for Hyper Threading Technology)
and disabled for other OS (OS not optimized for Hyper –Threading Technology)
Limit CPU MaxVal
The optional settings are: [Disabled]; [Enabled].
Execute-Disable Bit Capabill
The optional settings are: [Disabled]; [Enabled]. When disabled, force the XD feature
Flag to always return 0.

3-6 Advanced Chipset Features

The Advanced Chipset Features Setup option is used to change the values of the
chipset registers. These registers control most of the system options in the computer.

```
 DRAM Timing Settings by SPD    Enabled              Help Item

 Initate Graphic Adapter        PCI/IGD                Options
 IGD Mode Select                Enabled, 8MB
 LVDS/ADDON-CARD Support        Disabled             Enabled
 Backlight Control Support      VBIOS-Default        Disabled








 ↑↓←→:Move  Enter:Select  +/-/:Value  F10:Save  ESC:Exit  F1:General Help
        F5:Previous Values    F6:Optimized Defaults    F7:Standard Defaults
```

DRAM Timing Settings by SPD

The optional settings are: [Disabled]; [Enabled].

Initate Graphic Adapter

The optional settings are: [IGD]; [PCI/IGD]. Select which graphic controller to use as the primary boot device.

IGD Mode Select

Use this item to select the amount of system memory used by the internal graphics device. The optional settings: [Disabled]; [Enabled, 8MB].

LVDS/ADDON-CARD Support

The optional settings are: [Enabled]; [Disabled].

When set as [Enabled], the following setting items will appear:

Boot Display Device

The optional settings are: [VBIOS Default]; [CRT]; [LVDS/ADDON-CARD]; [CRT+LVDS].

Flat Panel Type

Use this item to select flat panel resolution.

The optional settings are: [640X 480]; [800X 600];[1024X768]; [800X480]; [1024X600]; [1366X768]; [1280X768];[1280X800];[1280X600]; [1280X1024].

Backlight Control Support

The optional settings are: [VBIOS Default];[Both BLC & BIA Disabled];[BLC Enabled].

3-7 Integrated Peripherals

3-7-1 Onboard SATA Function

```
           Copyright (C) 1985-2009, American Megatrends, Inc.
                        Onboard SATA Function

   Configure SATA as              IDE              Help Item
   SATA Run Mode Configuration    Compatible

                                                   Options

                                                   IDE
                                                   AHCI




   ↑↓→:Move  Enter:Select  +/-/:Value  F10:Save  ESC:Exit  F1:General Help
        F5:Previous Values    F6:Optimized Defaults    F7:Standard Defaults
```
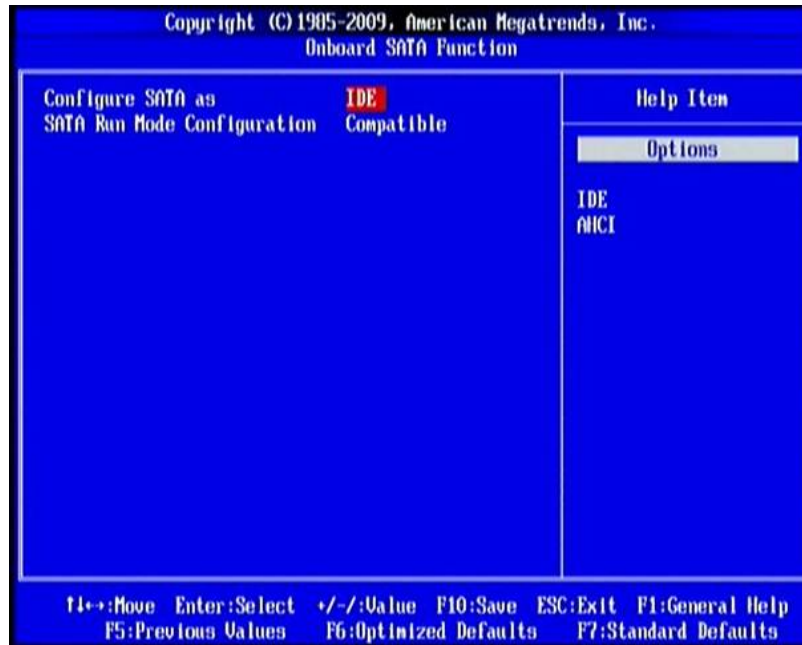
Configure SATA as
The optional settings are: [IDE]; [AHCI].
SATA Run Mode Configuration
The optional settings are: [Compatible];[Enhanced].

3-7-2 Onboard Device Function

Onboard LAN1 Controller/ Onboard LAN2 Controller
The optional settings are: [Enabled]; [Disabled].

Onboard LAN1 Boot ROM/ Onboard LAN2 Boot ROM
The optional settings are: [Enabled]; [Disabled].

JMicron 36x ATA Controller
The optional settings are: [Disabled]; [IDE Mode]; [RAID+IDE Mode]; [AHCI+IDE Mode].

High Definition Audio
This item allows you to decide to auto /disable the chipset family to support HD Audio.
The settings are: [Auto];[Disabled].

USB Host Controller
The optional settings: [Enabled]; [Disabled].

USB 2.0 Operation Mode

Use this item to configure the USB 2.0 controller in HiSpeed(480Mbps) or FullSpeed(12Mbps).

The settings are: [FullSpeed]; [HiSpeed].

USB 2.0 Function/ USB Keyboard Legacy/USB Mouse Legacy /USB Storage Legacy Support

Select enabled if your system contains a Universal Serial Bus (USB) controller and you have a USB mouse /keyboard/ storage device. The settings are: Enabled, Disabled.

3-7-3 Onboard Super IO Function
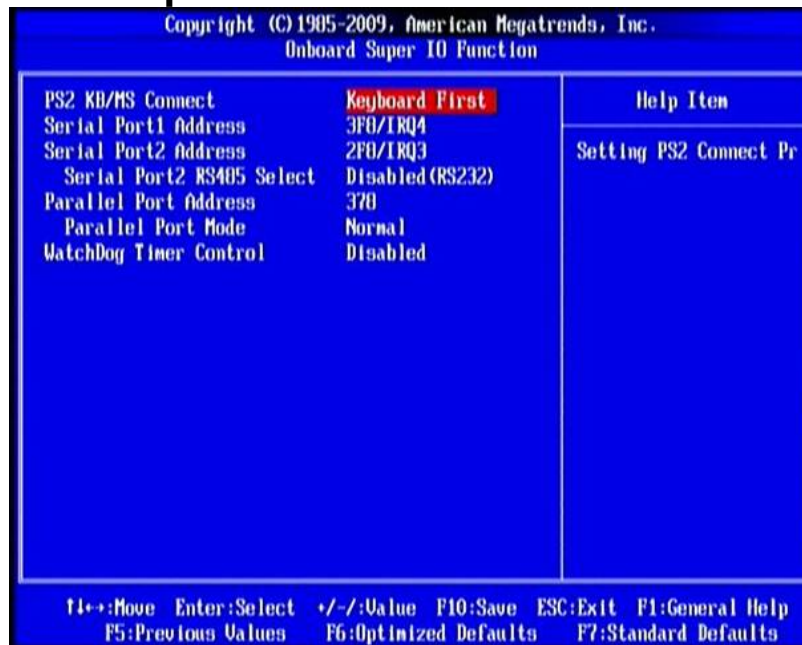
PS2 KB/MS Connect

The optional settings: [Keyboard First]; [Mouse First].

Serial Port 1 Address

The optional settings are：[Disabled], [3F8/IRQ4], [3E8/IRQ4]，[2E8/IRQ3].

Serial Port 2 Address

The optional settings are：[Disabled], [2F8/IRQ3], [3E8/IRQ4],[2E8/IRQ3].

Serial Port 2 RS485 Select

The optional settings are：[Disabled(RS232)]; [Enabled(RS485)].

Parallel Port Address

Use this item to allow BIOS to select parallel port base addresses.
The optional settings are: [Disabled]; [378]; [278]; [3BC].

Parallel Port Mode

The optional settings are: [Normal]; [Bi-Directional]; [ECP]; [EPP]; [ECP & EPP].

Watchdog Timer Select

This item is used to activate the watchdog function. The optional settings are: [Enabled];
[Disabled].

When set as [Enabled], The following sub-items shall appear:

WatchDog Timer Val

User can type a number in the range of 4 to 255.

WatchDog Timer Unit

The optional settings are: [Sec.]; [Min.].

Serial Port 2 Mode

The optional settings are: Normal, IrDA(1.6us), IrDA(3/16 bit)

3-8　Power Management Setup

The Power Management Setup allows you to configure your system to most
effectively save energy saving while operating in a manner consistent with your own
style of computer use.

```
          Copyright (C) 1985-2009, American Megatrends, Inc.
                     Power Management Setup

 ACPI Suspend Type        S1(POS)              Help Item
 Video Power Down Mode    Disabled
 Suspend Time Out         Disabled        Select the ACPI
 Power Button Mode        On/Off          state used for
 ERP Function             Enabled         System Suspend.




 ↑↓←→:Move  Enter:Select  +/-/:Value  F10:Save  ESC:Exit  F1:General Help
        F5:Previous Values    F6:Optimized Defaults    F7:Standard Defaults
```

ACPI Suspend Type
Users can select the ACPI state used for system suspend. The optional settings are:
[S1(POS)]; [S3(STR)].

Video Power Down Mode
The optional settings: [Disabled]; [Standby]; [Suspend].

Suspend Time Out
Use this item to select the specified time for system to go into suspend.

Power Button Mode
Use this item to decide whether system go into on/off or suspend when power button
is pressed. The optional settings are: [On/Off]; [Suspend].

ERP Function
The optional settings are: [Enabled]; [Disabled]. When set as [Disabled], the following
sub-items shall appear:

**Wake-Up by PCI Card; Power On by Ring; Wake Up by USB from S3(S4); PS2
KB/MS Wake-Up from S3-S5; Resume On RTC Alarm.**
User can set them as Enabled or Disable for to enable or disable respective functions.

3-9 PnP/PCI Configurations


```
          Copyright (C) 1985-2009, American Megatrends, Inc.
                       PnP/PCI Configurations

  ▶ IRQ Resources            Press Enter              Help Item

    PCI/VGA Palette Snoop     Disabled




  ↑↓←→:Move  Enter:Select  +/-/:Value  F10:Save  ESC:Exit  F1:General Help
          F5:Previous Values    F6:Optimized Defaults    F7:Standard Defaults
```

IRQ Resources

Press [Enter] to view IRQ availability.

[Available]: Specified IRQ is available to be used by PCI/PnP devices.

[Reserved]: Specified IRQ is reserved for use by legacy ISA devices.

PCI/VGA Palette Snoop

The optional settings are: [Enabled]; [Disabled].

[Enabled]: to inform the PCI devices that an ISA graphics device is installed in the system so the card will function correctly.

3-10 PC Health Status

This section shows the Status of you CPU, Fan, and Warning for overall system status.

This is only available if there is Hardware Monitor onboard.

```
          Copyright (C) 1985-2009, American Megatrends, Inc.
                      PC Health Status

  Shutdown Temperature          Disabled           Help Item
  CPU Thermal-Throttling        Disabled
▶ Smart FAN Configurations      Press Enter          Options
  CPU Temperature               41°C/105°F
  System Temperature            38°C/100°F        Disabled
                                                  60°C/140°F
  CPUFAN Speed                  6607 RPM          65°C/149°F
  SYSFAN1 Speed                 N/A               70°C/158°F
  SYSFAN2 Speed                 N/A               75°C/167°F

  Vcore                         1.160 V
  NB 1.05V                      1.064 V
  5VSB                          5.002 V
  VDIMM                         1.517 V
  + 5V                          5.002 V
  + 12V                         11.704 V
  Vcc3V                         3.216 V
  3VSB                          3.216 V
  VBat                          3.392 V

 ↑↓←→:Move  Enter:Select  +/-/:Value  F10:Save  ESC:Exit  F1:General Help
        F5:Previous Values    F6:Optimized Defaults    F7:Standard Defaults
```

Shutdown Temperature

This item can let users setting the Shutdown temperature, when CPU temperature over this setting the system will auto shutdown to protect CPU.

CPU Thermal Throttling

The optional settings are: [Disabled]; [Enabled].

When it is set as [Enabled], use can make settings for the following items that show up:

CPU Thermal-Throttling Temp.;

Use can select specific temperature for CPU Thermal Throttling function.

CPU Thermal-Throttling Duty

The optional settings are: [87.50%]; [75.00%]; [62.50%]; [50.00%]; [37.50%]; [25.00%]; [12.50%].

CPU Thermal-Throttling Beep.

The optional settings are: [Disabled]; [Enabled].

Smart Fan Configuration

CPUFAN / SYSFAN1/ SYSFAN2 Smart Mode
When set as [Enabled], the following sub-items shall appear:
CPUFAN / SYSFAN1/ SYSFAN2 Full-Speed Temp
Use this item to set a degree for CPUFAN/SYSFAN1/SYSFAN2. FAN will run at full speed when above this temperature.
CPUFAN / SYSFAN1/ SYSFAN2 Idle Temp
Use this item to set a degree for CPUFAN/SYSFAN1/SYSFAN2. FAN will idle speed when below this temperature.
CPUFAN / SYSFAN1/ SYSFAN2 Idle-Speed Duty
Use this item to set idle speed duty for CPUFAN/SYSFAN1/SYSFAN2.
CPU Temperature/ System Temperature /CPUFAN Speed / SYSFAN1 Speed /SYSFAN2 Speed/ Vcore/ /NB1.05V/5VSB/VDIMM/ +5V/+12V/Vcc3V/3VSB/VBat
This will show the CPU/FAN/System voltage chart and FAN Speed, etc.

3-11 Miscellaneous Control

```
              Copyright (C) 1985-2009, American Megatrends, Inc.
                            Miscellaneous Control

  Spread Spectrum            Disabled              Help Item
  Linear PCIEX Clock         100
  ** Current DRAM Clock is  800Mhz **              Options
  DRAM Clock at Next Boot    Auto
  ** Current Host/PCI Clock is  200/33MHz **       Disabled
  Host/PCI Clock at Next Boot  200                 Enabled
  VDIMM Select               1.52V(Default)




  ↑↓←→:Move  Enter:Select  +/-/:Value  F10:Save  ESC:Exit  F1:General Help
      F5:Previous Values   F6:Optimized Defaults   F7:Standard Defaults
```

Spread Spectrum
The optional settings are: [Enabled]; [Disabled].

Linear PCIEX Clock

The optional settings are from 100 to 200.

DRAM Clock at Next Boot

This item allows you to set DRAM clock. The optional settings are: [Auto]; [667MHz]; [800MHz].

Host/PCI Clock at Next Boot

The optional settings are from 200 to 600.

VDIMM Select

The optional settings are: [1.52V (Default)]; [1.55V]; [1.60V]; [1.65V].

3-12 Password Setting

You can set either supervisor or user password, or both of them.   The differences are:

Supervisor password: Can enter and change the options of the setup menus.

User password: Can only enter but do not have the right to change the options of the setup menus.   When you select this function, the following message will appear at the center of the screen to assist you in creating a password.

ENTER PASSWORD:

Type the password, up to eight characters in length, and press <Enter>. The password typed now will clear any previously entered password from CMOS memory. You will be asked to confirm the password.   Type the password again and press <Enter>.   You may also press <Esc> to abort the selection and not enter a password. To disable a password, just press <Enter> when you are prompted to enter the password.   A message will confirm that the password will be disabled.   Once the password is disabled, the system will boot and you can enter Setup freely.

PASSWORD DISABLED.

When a password has been enabled, you will be prompted to enter it every time you try to enter Setup. This prevents an unauthorized person from changing any part of your system configuration.

Additionally, when a password is enabled, you can also require the BIOS to request a

password every time your system is rebooted.   This would prevent unauthorized use of your computer.

You determine when the password is required within the BIOS Features Setup Menu and its Security option.   If the Security option is set to "System", the password will be required both at boot and at entry to Setup.   If set to "Setup", prompting only occurs when trying to enter Setup.

3-13 Load Optimized /Standard Defaults

Load Optimized Defaults

When you press <Enter> on this item, you get a confirmation dialog box with a message similar to:

Pressing <OK> loads the default values that are factory settings for optimal performance system operations.

Load Standard Defaults

When you press <Enter> on this item, you get a confirmation dialog box with a message similar to:
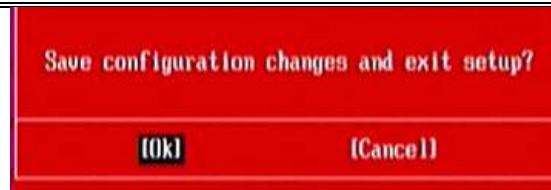

Pressing <OK> loads the default values that are factory settings for stable performance system operations.

3-14 Save & Exit Setup/ Exit Without Saving

Save and Exit Setup

When you press <Enter> on this item, you get a confirmation dialog box with a message similar to:

Save configuration changes and exit setup?

[Ok]   [Cancel]

Pressing <OK> save the values you made previously and exit BIOS setup.
Exit Without Saving
When you press <Enter> on this item, you get a confirmation dialog box with a message similar to:

Discard changes and exit setup?

[Ok]   [Cancel]

Pressing <OK> to leave BIOS setting without saving previously set values.