



IMB-171-D

IMB-171-L

IMB-161-D

IMB-161-L

User Manual

Version 1.0

Published February 2013

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- (1) this device may not cause harmful interference, and
- (2) this device must accept any interference received, including interference that may cause undesired operation.

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The Lithium battery adopted on this motherboard contains Perchlorate, a toxic substance controlled in Perchlorate Best Management Practices (BMP) regulations passed by the California Legislature. When you discard the Lithium battery in California, USA, please follow the related regulations in advance.

“Perchlorate Material-special handling may apply, see

www.dtsc.ca.gov/hazardouswaste/perchlorate”

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Chapter 1: Introduction

Thank you for purchasing ASRock **IMB-171-D / IMB-171-L / IMB-161-D / IMB-161-L** motherboard, a reliable motherboard produced under ASRock's consistently stringent quality control. It delivers excellent performance with robust design conforming to ASRock's commitment to quality and endurance.

In this manual, chapter 1 and 2 contain introduction of the motherboard and step-by-step guide to the hardware installation. Chapter 3 and 4 contain the configuration guide to BIOS setup and information of the Support CD.



Because the motherboard specifications and the BIOS software might be updated, the content of this manual will be subject to change without notice. In case any modifications of this manual occur, the updated version will be available on ASRock website without further notice. You may find the latest VGA cards and CPU support lists on ASRock website as well. ASRock website <http://www.asrock.com>

If you require technical support related to this motherboard, please visit our website for specific information about the model you are using. www.asrock.com/support/index.asp

1.1 Package Contents

ASRock **IMB-171-D / IMB-171-L / IMB-161-D / IMB-161-L** Motherboard

(Mini-ITX Form Factor: 6.7-in x 6.7-in, 17.0 cm x 17.0 cm)

ASRock **IMB-171-D / IMB-171-L / IMB-161-D / IMB-161-L** Driver CD

ASRock **IMB-171-D / IMB-171-L / IMB-161-D / IMB-161-L** Jumper setting instruction

2 x Serial ATA (SATA) Data Cables

1 x Serial ATA (SATA) HDD Power Cable

2 x COM Port Cables

1 x I/O Panel Shield

1.2 Specifications (IMB-171-D)

Form Factor	Dimensions	Mini-ITX (6.7-in x 6.7-in)
Processor System	CPU	Socket LGA1155 for Intel® Core i7/i5/i3/Celeron (Sandy Bridge and Ivy Bridge)
	Core Number	(By CPU, Max 4)
	Max Speed	(By CPU)
	L3 Cache	(By CPU)
	Chipset	Q77
	BIOS	UEFI
Expansion Slot	PCI	0
	Mini-PCIe	1 (Half Size)
	mSATA	0
	PCIe	1 (x16) (IVY Bridge: Gen3; Sandy Bridge: Gen2)
	CFast Card Socket	0
Memory	Technology	Dual Channel DDR3 1066/1333/1600 MHz SDRAM
	Max.	16GB
	Socket	2 x SO-DIMM
Graphics	Controller	Intel® HD Graphics (By CPU)
	VRAM	Shared Memory
	VGA	No
	LVDS	No
	HDMI	Supports HDMI 1.4a, max resolution 1920x1200
	DVI	Support max resolution 1920x1200
	Display Port	Supports max resolution 2560x1600
	Multi Display	Yes
Ethernet	Ethernet	10/100/1000 Mbps
	Controller	GbE LAN1: Intel® 82583V, LAN2: Intel® 82579LM
	Connector	RJ-45 x 2 w/ LED
SATA	Max Data Transfer Rate	2 x SATA2 (3.0Gb/S), 2 x SATA3 (6.0Gb/S), Supports RAID0/1/5/10
Rear I/O	VGA	0
	DVI	1 (DVI-I)
	HDMI	1
	DisplayPort	1
	Ethernet	2

	USB	6 (2 x USB 2.0 compliant, 4 x USB 3.0 compliant)
	Audio	2 (Mic-in, Line-out)
	Serial	2 (RS-232/422/485)
	PS/2	1 (Combo)
Internal Connector	USB	4 (USB 2.0 compliant)
	LVDS/ Inverter	0
	VGA	0
	Serial	4 (RS-232)
	SATA	2 x SATA2 (3.0Gb/s), 2 x SATA3 (6.0Gb/s), Supports RAID0/1/5/10
	mPCIe	1
	Parallel	0
	mSATA	0
	IrDA	0
	GPIO 8-bit	4 x GPI + 4 x GPO
	SATA PWR Output Con	0
	Speaker Header	0
	Watchdog Timer	Output
Interval		256 Segments, 0,1,2...255 Sec/Min
Power Requirements	Input PWR	ATX PWR (24+4 pin)
	Power On	AT/ATX Supported -AT : Directly PWR on as power input ready -ATX : Press button to PWR on after power input ready
Environment	Temperature	0°C – 60°C

1.3 Specifications (IMB-171-L)

Form Factor	Dimensions	Mini-ITX (6.7-in x 6.7-in)
Processor System	CPU	Socket LGA1155 for Intel® Core i7/i5/i3/Celeron (Sandy Bridge and Ivy Bridge)
	Core Number	(By CPU, Max 4)
	Max Speed	(By CPU)
	L3 Cache	(By CPU)
	Chipset	Q77
	BIOS	UEFI
Expansion Slot	PCI	0
	Mini-PCIe	1 (Half Size)
	mSATA	0
	PCIe	1 (x16) (IVY Bridge: Gen3; Sandy Bridge: Gen2)
	CFast Card Socket	0
Memory	Technology	Dual Channel DDR3 1066/1333/1600 MHz SDRAM
	Max.	16GB
	Socket	2 x SO-DIMM
Graphics	Controller	Intel® HD Graphics (By CPU)
	VRAM	Shared Memory
	VGA	Supports max resolution 2048x1536
	LVDS	Dual Channel 24-bit, support max resolution 1920x1200
	HDMI	Supports HDMI 1.4a, max resolution 1920x1200
	DVI	No
	Display Port	No
	Multi Display	Yes
Ethernet	Ethernet	10/100/1000 Mbps
	Controller	GbE LAN1: Intel® 82583V, LAN2: Intel® 82579LM
	Connector	RJ-45 x 2 w/ LED
SATA	Max Data Transfer Rate	2 x SATA2 (3.0Gb/S), 2 x SATA3 (6.0Gb/S), Supports RAID0/1/5/10
Rear I/O	VGA	1
	DVI	1
	HDMI	1

	DisplayPort	0
	Ethernet	2
	USB	6 (2 x USB 2.0 compliant, 4 x USB 3.0 compliant)
	Audio	2 (Mic-in, Line-out)
	Serial	2 (RS-232/422/485)
	PS/2	1 (Combo)
Internal Connector	USB	4 (USB 2.0 compliant)
	LVDS/ Inverter	1/1
	VGA	0
	Serial	4 (RS-232)
	SATA	2 x SATA2 (3.0Gb/s), 2 x SATA3 (6.0Gb/s), Supports RAID0/1/5/10
	mPCIe	1
	Parallel	0
	mSATA	0
	IrDA	0
	GPIO 8-bit	4 x GPI + 4 x GPO
	SATA PWR Output Con	0
	Speaker Header	1
	Watchdog Timer	Output
Interval		256 Segments, 0,1,2...255 Sec/Min
Power Requirements	Input PWR	ATX PWR (24+4 pin)
	Power On	AT/ATX Supported -AT : Directly PWR on as power input ready -ATX : Press button to PWR on after power input ready
Environment	Temperature	0°C – 60°C

1.4 Specifications (IMB-161-D)

Form Factor	Dimensions	Mini-ITX (6.7-in x 6.7-in)
Processor System	CPU	Socket LGA1155 for Intel® Core i7/i5/i3/Celeron (Sandy Bridge and Ivy Bridge)
	Core Number	(By CPU, Max 4)
	Max Speed	(By CPU)
	L3 Cache	(By CPU)
	Chipset	H61
	BIOS	UEFI
Expansion Slot	PCI	0
	Mini-PCIe	1 (Half Size)
	mSATA	0
	PCIe	1 (x16) (IVY Bridge: Gen3; Sandy Bridge: Gen2)
	CFast Card Socket	0
Memory	Technology	Dual Channel DDR3 1066/1333/1600 MHz SDRAM
	Max.	16GB
	Socket	2 x SO-DIMM
Graphics	Controller	Intel® HD Graphics (By CPU)
	VRAM	Shared Memory
	VGA	No
	LVDS	No
	HDMI	Supports HDMI 1.4a, max resolution 1920x1200
	DVI	Support max resolution 1920x1200
	Display Port	Supports max resolution 2560x1600
	Multi Display	Yes
Ethernet	Ethernet	10/100/1000 Mbps
	Controller	GbE LAN1: Intel® 82583V, LAN2: Intel® 82579V
	Connector	RJ-45 x 2 w/ LED
SATA	Max Data Transfer Rate	4 x SATA2 (3.0Gb/S)
Rear I/O	VGA	0
	DVI	1 (DVI-I)
	HDMI	1
	DisplayPort	1
	Ethernet	2

	USB	6 (2 x USB 2.0 compliant)
	Audio	2 (Mic-in, Line-out)
	Serial	2 (RS-232/422/485)
	PS/2	1 (Combo)
Internal Connector	USB	2 (USB 2.0 compliant)
	LVDS/ Inverter	0
	VGA	0
	Serial	4 (RS-232)
	SATA	4 x SATA2 (3.0Gb/s)
	mPCIe	1
	Parallel	0
	mSATA	0
	IrDA	0
	GPIO 8-bit	4 x GPI + 4 x GPO
	SATA PWR Output Con	0
	Speaker Header	0
	Watchdog Timer	Output
Interval		256 Segments, 0,1,2...255 Sec/Min
Power Requirements	Input PWR	ATX PWR (24+4 pin)
	Power On	AT/ATX Supported -AT : Directly PWR on as power input ready -ATX : Press button to PWR on after power input ready
Environment	Temperature	0°C – 60°C

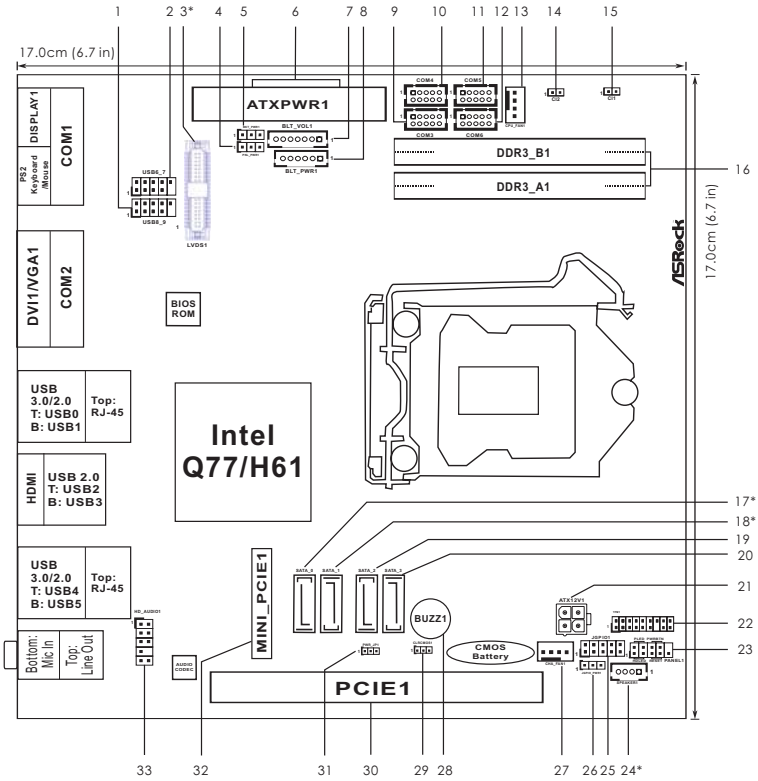
1.5 Specifications (IMB-161-L)

Form Factor	Dimensions	Mini-ITX (6.7-in x 6.7-in)
Processor System	CPU	Socket LGA1155 for Intel® Core i7/i5/i3/Celeron (Sandy Bridge and Ivy Bridge)
	Core Number	(By CPU, Max 4)
	Max Speed	(By CPU)
	L3 Cache	(By CPU)
	Chipset	H61
	BIOS	UEFI
Expansion Slot	PCI	0
	Mini-PCIe	1 (Half Size)
	mSATA	0
	PCIe	1 (x16) (IVY Bridge: Gen3; Sandy Bridge: Gen2)
	CFast Card Socket	0
Memory	Technology	Dual Channel DDR3 1066/1333/1600 MHz SDRAM
	Max.	16GB
	Socket	2 x SO-DIMM
Graphics	Controller	Intel® HD Graphics (By CPU)
	VRAM	Shared Memory
	VGA	Supports max resolution 2048 x 1536
	LVDS	Dual Channel 24-bit, support max resolution 1920x1200
	HDMI	Supports HDMI 1.4a, max resolution 1920x1200
	DVI	No
	Display Port	No
	Multi Display	Yes
Ethernet	Ethernet	10/100/1000 Mbps
	Controller	GbE LAN1: Intel® 82583V, LAN2: Intel® 82579V
	Connector	RJ-45 x 2 w/ LED
SATA	Max Data Transfer Rate	4 x SATA2 (3.0Gb/S)
Rear I/O	VGA	1
	DVI	0
	HDMI	1

	DisplayPort	0
	Ethernet	2
	USB	6 (2 x USB 2.0 compliant)
	Audio	2 (Mic-in, Line-out)
	Serial	2 (RS-232/422/485)
	PS/2	1 (Combo)
Internal Connector	USB	2 (USB 2.0 compliant)
	LVDS/ Inverter	0
	VGA	0
	Serial	4 (RS-232)
	SATA	4 x SATA2 (3.0Gb/s)
	mPCIe	1
	Parallel	0
	mSATA	0
	IrDA	0
	GPIO 8-bit	4 x GPI + 4 x GPO
	SATA PWR Output Con	0
	Speaker Header	1
Watchdog Timer	Output	Output from super I/O to drag RESETCON#
	Interval	256 Segments, 0,1,2...255 Sec/Min
Power Requirements	Input PWR	ATX PWR (24+4 pin)
	Power On	AT/ATX Supported -AT : Directly PWR on as power input ready -ATX : Press button to PWR on after power input ready
Environment	Temperature	0°C – 60°C

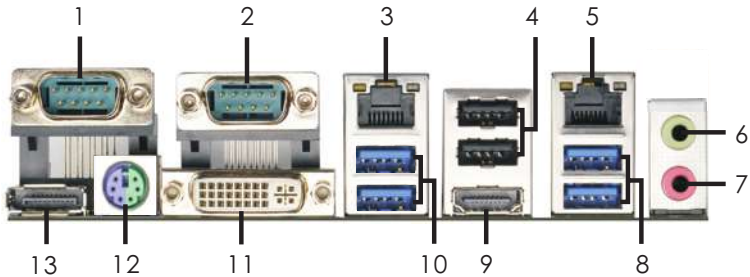
1.6 Motherboard Layout

(IMB-171-D / IMB-171-L / IMB-161-D / IMB-161-L)



1	USB2.0 Header (USB8_9)
2	USB2.0 Header (USB6_7)
3*	LVDS Panel Connector (For IMB-171-L / IMB-161-L only)
4	Panel Power Selection
5	Backlight Power Selection
6	24-pin ATX Power Input Connector
7	Backlight & Amp Volume Control
8	Inverter Power control Wafer
9	COM Port Header (COM3)
10	COM Port Header (COM4)
11	COM Port Header (COM5)
12	COM Port Header (COM6)
13	4-Pin CPU FAN Connector (+12V)
14	Chassis Intrusion Header 2
15	Chassis Intrusion Header 1
16	2 x SO-DIMM
17*	IMB-171-D / IMB-171-L: SATA3 IMB-161-D / IMB-161-L: SATA2
18*	IMB-171-D / IMB-171-L: SATA3 IMB-161-D / IMB-161-L: SATA2
19	SATA2
20	SATA2
21	4-pin ATX Power Input Connector
22	TPM Header
23	System Panel Header
24*	3W Audio AMP Output Wafer (For IMB-171-L / IMB-161-L only)
25	Digital Input / Output Pin Header
26	Digital Input / Output Power select
27	4-Pin Chassis FAN Connector (+12V)
28	Buzzer
29	Clear CMOS Header
30	PCIE1 Slot
31	ATX/AT Mode Selection
32	mini-PCIE Slot
33	Front Panel Audio Header

1.4 I/O Panel (IMB-171-D)



- | | | | |
|---|-----------------------|----|--------------------------|
| 1 | COM Port (COM1)* | 8 | USB 3.0 Ports (USB_45) |
| 2 | COM Port (COM2)* | 9 | HDMI Port (HDMI1) |
| 3 | LAN RJ-45 Port** | 10 | USB 3.0 Ports (USB_01) |
| 4 | USB 2.0 Ports (USB23) | 11 | DVI Port (DVI1) |
| 5 | LAN RJ-45 Port** | 12 | PS/2 Mouse/Keyboard Port |
| 6 | Line out (Lime) | 13 | DisplayPort (DP1) |
| 7 | Microphone (Pink) | | |

* This motherboard supports RS232/422/485 on COM1 and COM2 ports. Please refer to below table for the pin definition. In addition, COM1 and COM2 ports (RS232/422/485) can be adjusted in BIOS setup utility > Advanced Screen > Super IO Configuration. You may refer to page 42 for details.

COM1 and COM2 Ports Pin Definition

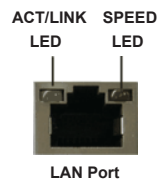
PIN	RS232	RS422	RS485
1	DCD	TX-	RTX-
2	RXD	RX+	N/A
3	TXD	TX+	RTX+
4	DTR	RX-	N/A
5	GND	GND	GND
6	DSR	N/A	N/A
7	RTS	N/A	N/A
8	CTS	N/A	N/A
9	N/A	N/A	N/A

** There are two LED next to the LAN port. Please refer to the table below for the LAN port LED indications.

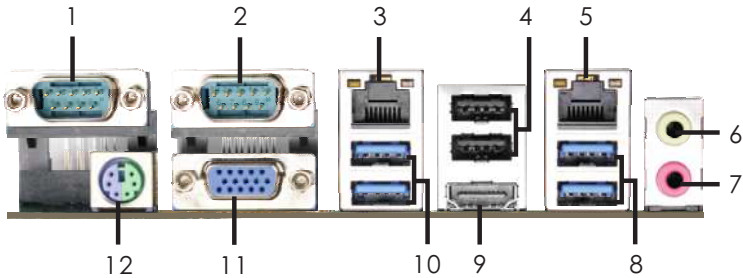
LAN Port LED Indications

Activity/Link LED	
Status	Description
Off	No Link
Blinking	Data Activity
On	Link

SPEED LED	
Status	Description
Off	10Mbps connection
Orange	100Mbps connection
Green	1Gbps connection



1.5 I/O Panel (IMB-171-L)



- | | | | |
|---|-----------------------|----|--------------------------|
| 1 | COM Port (COM1)* | 7 | Microphone (Pink) |
| 2 | COM Port (COM2)* | 8 | USB 3.0 Ports (USB_45) |
| 3 | LAN RJ-45 Port** | 9 | HDMI Port (HDMI1) |
| 4 | USB 2.0 Ports (USB23) | 10 | USB 3.0 Ports (USB_01) |
| 5 | LAN RJ-45 Port** | 11 | VGA Port (VGA1) |
| 6 | Line out (Lime) | 12 | PS/2 Mouse/Keyboard Port |

* This motherboard supports RS232/422/485 on COM1 and COM2 ports. Please refer to below table for the pin definition. In addition, COM1 and COM2 ports (RS232/422/485) can be adjusted in BIOS setup utility > Advanced Screen > Super IO Configuration. You may refer to page 42 for details.

COM1 and COM2 Ports Pin Definition

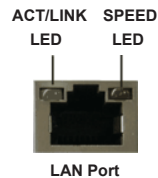
PIN	RS232	RS422	RS485
1	DCD	TX-	RTX-
2	RXD	RX+	N/A
3	TXD	TX+	RTX+
4	DTR	RX-	N/A
5	GND	GND	GND
6	DSR	N/A	N/A
7	RTS	N/A	N/A
8	CTS	N/A	N/A
9	N/A	N/A	N/A

** There are two LED next to the LAN port. Please refer to the table below for the LAN port LED indications.

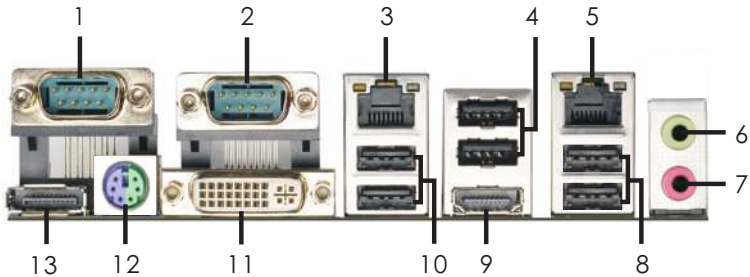
LAN Port LED Indications

Activity/Link LED	
Status	Description
Off	No Link
Blinking	Data Activity
On	Link

SPEED LED	
Status	Description
Off	10Mbps connection
Orange	100Mbps connection
Green	1Gbps connection



1.6 I/O Panel (IMB-161-D)



- | | | | |
|---|-----------------------|----|--------------------------|
| 1 | COM Port (COM1)* | 8 | USB 2.0 Ports (USB_45) |
| 2 | COM Port (COM2)* | 9 | HDMI Port (HDMI1) |
| 3 | LAN RJ-45 Port** | 10 | USB 2.0 Ports (USB_01) |
| 4 | USB 2.0 Ports (USB23) | 11 | DVI Port (DVI1) |
| 5 | LAN RJ-45 Port** | 12 | PS/2 Mouse/Keyboard Port |
| 6 | Line out (Lime) | 13 | DisplayPort (DP1) |
| 7 | Microphone (Pink) | | |

* This motherboard supports RS232/422/485 on COM1 and COM2 ports. Please refer to below table for the pin definition. In addition, COM1 and COM2 ports (RS232/422/485) can be adjusted in BIOS setup utility > Advanced Screen > Super IO Configuration. You may refer to page 42 for details.

COM1 and COM2 Ports Pin Definition

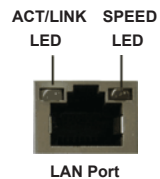
PIN	RS232	RS422	RS485
1	DCD	TX-	RTX-
2	RXD	RX+	N/A
3	TXD	TX+	RTX+
4	DTR	RX-	N/A
5	GND	GND	GND
6	DSR	N/A	N/A
7	RTS	N/A	N/A
8	CTS	N/A	N/A
9	N/A	N/A	N/A

** There are two LED next to the LAN port. Please refer to the table below for the LAN port LED indications.

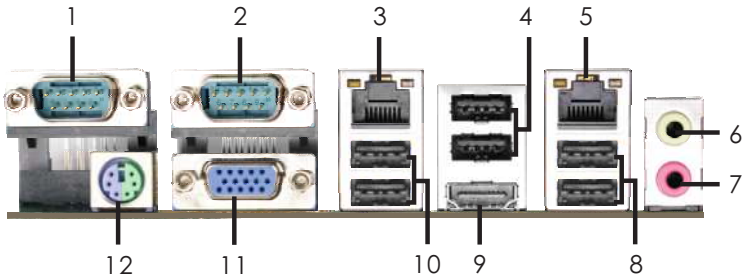
LAN Port LED Indications

Activity/Link LED	
Status	Description
Off	No Link
Blinking	Data Activity
On	Link

SPEED LED	
Status	Description
Off	10Mbps connection
Orange	100Mbps connection
Green	1Gbps connection



1.7 I/O Panel (IMB-161-L)



- | | | | |
|---|-----------------------|----|--------------------------|
| 1 | COM Port (COM1)* | 7 | Microphone (Pink) |
| 2 | COM Port (COM2)* | 8 | USB 2.0 Ports (USB_45) |
| 3 | LAN RJ-45 Port** | 9 | HDMI Port (HDMI1) |
| 4 | USB 2.0 Ports (USB23) | 10 | USB 2.0 Ports (USB_01) |
| 5 | LAN RJ-45 Port** | 11 | VGA Port (VGA1) |
| 6 | Line out (Lime) | 12 | PS/2 Mouse/Keyboard Port |

* This motherboard supports RS232/422/485 on COM1 and COM2 ports. Please refer to below table for the pin definition. In addition, COM1 and COM2 ports (RS232/422/485) can be adjusted in BIOS setup utility > Advanced Screen > Super IO Configuration. You may refer to page 42 for details.

COM1 and COM2 Ports Pin Definition

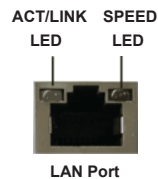
PIN	RS232	RS422	RS485
1	DCD	TX-	RTX-
2	RXD	RX+	N/A
3	TXD	TX+	RTX+
4	DTR	RX-	N/A
5	GND	GND	GND
6	DSR	N/A	N/A
7	RTS	N/A	N/A
8	CTS	N/A	N/A
9	N/A	N/A	N/A

** There are two LED next to the LAN port. Please refer to the table below for the LAN port LED indications.

LAN Port LED Indications

Activity/Link LED	
Status	Description
Off	No Link
Blinking	Data Activity
On	Link

SPEED LED	
Status	Description
Off	10Mbps connection
Orange	100Mbps connection
Green	1Gbps connection



Chapter 2: Installation

This is a Mini-ITX form factor (6.7" x 6.7", 17.0 x 17.0 cm) motherboard. Before you install the motherboard, study the configuration of your chassis to ensure that the motherboard fits into it.



Make sure to unplug the power cord before installing or removing the motherboard. Failure to do so may cause physical injuries to you and damages to motherboard components.

2.1 Screw Holes

Place screws into the holes to secure the motherboard to the chassis.



Do not over-tighten the screws! Doing so may damage the motherboard.

2.2 Pre-installation Precautions

Take note of the following precautions before you install motherboard components or change any motherboard settings.

1. Unplug the power cord from the wall socket before touching any component.
2. To avoid damaging the motherboard components due to static electricity, NEVER place your motherboard directly on the carpet or the like. Also remember to use a grounded wrist strap or touch a safety grounded object before you handle components.
3. Hold components by the edges and do not touch the ICs.
4. Whenever you uninstall any component, place it on a grounded antistatic pad or in the bag that comes with the component.



Before you install or remove any component, ensure that the power is switched off or the power cord is detached from the power supply. Failure to do so may cause severe damage to the motherboard, peripherals, and/or components.

2.3 Installation of Memory Modules (SO-DIMM)

This motherboard provides two 204-pin DDR3 (Double Data Rate 3) SO-DIMM slots.



It is not allowed to install a DDR or DDR2 memory module into DDR3 slot; otherwise, this motherboard and SO-DIMM may be damaged.

Installing a SO-DIMM



Please make sure to disconnect power supply before adding or removing SO-DIMMs or the system components.

- Step 1. Unlock a SO-DIMM slot by pressing the retaining clips outward.
- Step 2. Align a SO-DIMM on the slot such that the notch on the SO-DIMM matches the break on the slot.



The SO-DIMM only fits in one correct orientation. It will cause permanent damage to the motherboard and the SO-DIMM if you force the SO-DIMM into the slot at incorrect orientation.

- Step 3. Firmly insert the SO-DIMM into the slot until the retaining clips at both ends fully snap back in place and the SO-DIMM is properly seated.

2.4 Expansion Slots (PCI Express and mini-PCIe Slots)

There is 1 PCI Express slot and 1 mini-PCIe slot on this motherboard.

PCIe slots:

PCIe1 (PCIe x16 slot; Blue) is used for PCI Express x16 lane width graphics cards.

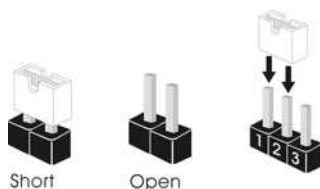
MINI_PCIE1 (mini-PCIe slot) is used for PCI Express mini cards.



Installing an expansion card

- Step 1. Before installing the expansion card, please make sure that the power supply is switched off or the power cord is unplugged. Please read the documentation of the expansion card and make necessary hardware settings for the card before you start the installation.
- Step 2. Remove the system unit cover (if your motherboard is already installed in a chassis).
- Step 3. Remove the bracket facing the slot that you intend to use. Keep the screws for later use.
- Step 4. Align the card connector with the slot and press firmly until the card is completely seated on the slot.
- Step 5. Fasten the card to the chassis with screws.
- Step 6. Replace the system cover.





2.5 Jumpers Setup

The illustration shows how jumpers are setup. When the jumper cap is placed on pins, the jumper is “Short”. If no jumper cap is placed on pins, the jumper is “Open”. The illustration shows a 3-pin jumper whose pin1 and pin2 are “Short” when jumper cap is placed on these 2 pins.



Jumper	Setting	Description
Clear CMOS Jumper (3-pin CLRCMOS1) (see p.14, No. 29)	<div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> <p>1_2</p>  <p>Default</p> </div> <div style="text-align: center;"> <p>2_3</p>  <p>Clear CMOS</p> </div> </div>	

Note: CLRCMOS1 allows you to clear the data in CMOS. To clear and reset the system parameters to default setup, please turn off the computer and unplug the power cord from the power supply. After waiting for 15 seconds, use a jumper cap to short pin2 and pin3 on CLRCMOS1 for 5 seconds. However, please do not clear the CMOS right after you update the BIOS. If you need to clear the CMOS when you just finish updating the BIOS, you must boot up the system first, and then shut it down before you do the clear-CMOS action. Please be noted that the password, date, time, user default profile and MAC address will be cleared only if the CMOS battery is removed.

Panel Power Selection (LCD_VCC) (3-pin PNL_PWR1) (see p.14, No. 4)	 <p>1 2 3</p>	1-2 : +3V 2-3 : +5V
Backlight Power Selection (LCD_BLT_VCC) (3-pin BKT_PWR1) (see p.14, No. 5)	 <p>1 2 3</p>	1-2 : +5V 2-3 : +12V
ATX/AT Mode Selection (3-pin PWR_JP1) (see p.14, No. 31)	 <p>1 2 3</p>	1-2 : AT Mode 2-3 : ATX Mode
Digital Input/Output Power Selec (3-pin JGPIO_PWR1) (see p.14, No. 26)	 <p>1 2 3</p>	1-2 : +12V 2-3 : +5V

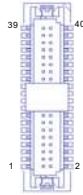
2.6 Onboard Headers and Connectors



Onboard headers and connectors are NOT jumpers. Do NOT place jumper caps over these headers and connectors. Placing jumper caps over the headers and connectors will cause permanent damage of the motherboard!

LVDS Panel Connector

(40-pin LVDS1)
(see p.14, No. 3)



PIN	Signal Name	PIN	Signal Name
2	LCD_VCC	1	LCD_VCC
4	LDDC_CLK	3	+3V
6	LVDS_A_DATA0#	5	LDDC_DATA
8	GND	7	LVDS_A_DATA0
10	LVDS_A_DATA1	9	LVDS_A_DATA1#
12	LVDS_A_DATA2#	11	GND
14	GND	13	LVDS_A_DATA2
16	LVDS_A_DATA3	15	LVDS_A_DATA3#
18	LVDS_A_CLK#	17	GND
20	GND	19	LVDS_A_CLK
22	LVDS_B_DATA0	21	LVDS_B_DATA0#
24	LVDS_B_DATA1#	23	GND
26	GND	25	LVDS_B_DATA1
28	LVDS_B_DATA2	27	LVDS_B_DATA2#
30	LVDS_B_DATA3#	29	DPLVDD_EN
32	GND	31	LVDS_B_DATA3
34	LVDS_B_CLK	33	LVDS_B_CLK#
36	CON_LBKLT_EN	35	GND
38	LCD_BLT_VCC	37	CON_LBKLT_CTL
40	LCD_BLT_VCC	39	LCD_BLT_VCC

Inverter Power Control Wafer

(6-pin BLT_PWR1)
(see p.14, No. 8)



PIN	Signal Name
1	GND
2	GND
3	CON_LBKLT_CTL
4	CON_LBKLT_EN
5	LCD_BLT_VCC
6	LCD_BLT_VCC

Backlight & Amp Volume Control

(7-pin BLT_VOL1)
(see p.14, No. 7)

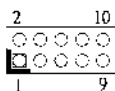


PIN	Signal Name
1	GPIO_VOL_UP
2	GPIO_VOL_DW
3	PWRDN
4	GPIO_BLT_UP
5	GPIO_BLT_DW
6	GND
7	GND

Digital Input / Output Pin Header

(9-pin JGPIO1)

(see p.14, No. 25)

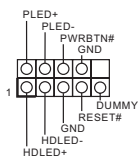


PIN	Signal Name	PIN	Signal Name
1	SIO_GP24	2	SIO_GP20
3	SIO_GP25	4	SIO_GP21
5	SIO_GP26	6	SIO_GP22
7	SIO_GP27	8	SIO_GP23
9	JGPIO_PWR1	10	GND

System Panel Header

(9-pin PANEL1)

(see p.14, No. 23)



This header accommodates several system front panel functions.



Connect the power switch, reset switch and system status indicator on the chassis to this header according to the pin assignments below. Note the positive and negative pins before connecting the cables.

PWRBTN (Power Switch):

Connect to the power switch on the chassis front panel. You may configure the way to turn off your system using the power switch.

RESET (Reset Switch):

Connect to the reset switch on the chassis front panel. Press the reset switch to restart the computer if the computer freezes and fails to perform a normal restart.

PLED (System Power LED):

Connect to the power status indicator on the chassis front panel. The LED is on when the system is operating. The LED keeps blinking when the system is in S1/S3 sleep state. The LED is off when the system is in S4 sleep state or powered off (S5).

HDLED (Hard Drive Activity LED):

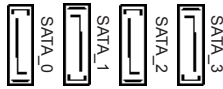
Connect to the hard drive activity LED on the chassis front panel. The LED is on when the hard drive is reading or writing data.

The front panel design may differ by chassis. A front panel module mainly consists of power switch, reset switch, power LED, hard drive activity LED, speaker and etc. When connecting your chassis front panel module to this header, make sure the wire assignments and the pin assignments are matched correctly.

IMB-171-D / IMB-171-L:

SATA2 / SATA3 Connectors

(SATA_0: see p.14, No. 17)



These two Serial ATA3 (SATA3) connectors and two Serial ATA2 (SATA2) connectors support SATA data cables for internal storage devices. The current SATA3 interface allows up to 6.0 Gb/s data transfer rate, and the current SATA2 interface allows up to 3.0 Gb/s data transfer rate .

IMB-161-D / IMB-161-L:

SATA2 Connectors

(SATA_0: see p.14, No. 17)

(SATA_1: see p.14, No. 18)

(SATA_2: see p.14, No. 19)

(SATA_3: see p.14, No. 20)

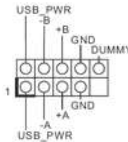


These four Serial ATA2 (SATA2) connectors support SATA data cables for internal storage devices. The current SATA2 interface allows up to 3.0 Gb/s data transfer rate.

USB 2.0 Headers

(9-pin USB6_7: see p.14, No. 2)

(9-pin USB8_9: see p.14, No. 1)



Besides the default USB 2.0 ports on the I/O panel, there are two USB 2.0 headers and one USB 2.0 port on this motherboard. Each USB 2.0 header can support two USB 2.0 ports.

Chassis Intrusion Header

(2-pin C11: see p.14, No. 15)

(2-pin C12: see p.14, No. 14)

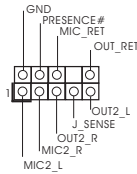


This motherboard supports CASE OPEN detection feature that detects if the chassis cover has been removed. This feature requires a chassis with chassis intrusion detection design.

Front Panel Audio Header

(9-pin HD_AUDIO1)

(see p.14 No. 33)

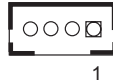


This is an interface for front panel audio cable that allows convenient connection and control of audio devices.

3W Audio Amp Output Wafer

(4-pin SPEAKER1)

(see p.14, No. 24)

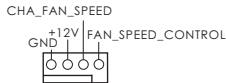


PIN	Signal Name
1	SPK L-
2	SPK L+
3	SPK R+
4	SPK R-

Chassis Fan Connector

(4-pin CHA_FAN1)

(see p.14, No. 27)



Please connect the fan cable to the fan connector and match the black wire to the ground pin.

ATX 12V Power Input Connector

(4-pin ATX12V1)

(see p.14, No. 21)

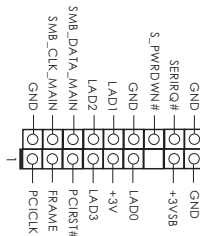


Please connect an ATX 12V power supply to this connector.

TPM Header

(17-pin TPM1)

(see p.14, No. 22)



This connector supports a Trusted Platform Module (TPM) system, which can securely store keys, digital certificates, passwords, and data. A TPM system also helps enhance network security, protects digital identities, and ensures platform integrity.

2.7 Serial ATA2 (SATA2) / Serial ATA3 (SATA3) Hard Disks Installation

IMB-171-D / IMB-171-L adopts Intel® Q77 chipset that supports Serial ATA2 (SATA2) / Serial ATA3 (SATA3) hard disks and RAID (RAID 0, RAID 1, RAID 5 and RAID 10) functions. **IMB-161-D / IMB-161-L** adopts Intel® H61 chipset that supports Serial ATA2 (SATA2) hard disks. You may install SATA2 / SATA3 hard disks on this motherboard for internal storage devices. This section will guide you to install the SATA2 / SATA3 hard disks.

STEP 1: Install the SATA2 / SATA3 hard disks into the drive bays of your chassis.

STEP 2: Connect the SATA power cable to the SATA2 / SATA3 hard disk.

STEP 3: Connect one end of the SATA data cable to the motherboard's SATA2 / SATA3 connector.

STEP 4: Connect the other end of the SATA data cable to the SATA2 / SATA3 hard disk.

2.8 Hot Plug and Hot Swap Functions for SATA2 / SATA3 HDDs

IMB-171-D / IMB-171-L supports Hot Plug for SATA2 / SATA3 in RAID / AHCI mode. **IMB-161-D / IMB-161-L** supports Hot Plug for SATA2 in AHCI mode. Intel® Q77 / H61 chipset provides hardware support for Advanced Host controller Interface (AHCI), a new programming interface for SATA host controllers developed through a joint industry effort.



NOTE

What is Hot Plug Function?

If the SATA2 / SATA3 HDDs are NOT set for RAID configuration, it is called "Hot Plug" for the action to insert and remove the SATA2 / SATA3 HDDs while the system is still power-on and in working condition.

However, please note that it cannot perform Hot Plug if the OS has been installed into the SATA2 / SATA3 HDD.

What is Hot Swap Function?

If SATA2 / SATA3 HDDs are built as RAID 1 or RAID 5 then it is called "Hot Swap" for the action to insert and remove the SATA2 / SATA3 HDDs while the system is still power-on and in working condition.

2.9 Driver Installation Guide

To install the drivers to your system, please insert the support CD to your optical drive first. Then, the drivers compatible to your system can be auto-detected and listed on the support CD driver page. Please follow the order from top to bottom to install those required drivers. Therefore, the drivers you install can work properly.

Chapter 3: UEFI SETUP UTILITY

3.1 Introduction

This section explains how to use the UEFI SETUP UTILITY to configure your system. The UEFI chip on the motherboard stores the UEFI SETUP UTILITY. You may run the UEFI SETUP UTILITY when you start up the computer. Please press <F2> or during the Power-On-Self-Test (POST) to enter the UEFI SETUP UTILITY, otherwise, POST will continue with its test routines.

If you wish to enter the UEFI SETUP UTILITY after POST, restart the system by pressing <Ctl> + <Alt> + <Delete>, or by pressing the reset button on the system chassis. You may also restart by turning the system off and then back on.



Because the UEFI software is constantly being updated, the following UEFI setup screens and descriptions are for reference purpose only, and they may not exactly match what you see on your screen.

3.1.1 UEFI Menu Bar

The top of the screen has a menu bar with the following selections:

- Main** To set up the system time/date information
- Advanced** To set up the advanced UEFI features
- H/W Monitor** To display current hardware status
- Boot** To set up the default system device to locate and load the Operating System
- Security** To set up the security features
- Exit** To exit the current screen or the UEFI SETUP UTILITY

Use < ← > key or < → > key to choose among the selections on the menu bar, and then press <Enter> to get into the sub screen. You can also use the mouse to click your required item.

3.1.2 Navigation Keys

Please check the following table for the function description of each navigation key.

Navigation Key(s)	Function Description
← / →	Moves cursor left or right to select Screens
↑ / ↓	Moves cursor up or down to select items
+ / -	To change option for the selected items
<Enter>	To bring up the selected screen
<F1>	To display the General Help Screen
<F7>	Discard changes
<F9>	To load optimal default values for all the settings
<F10>	To save changes and exit the UEFI SETUP UTILITY
<F12>	Print screen
<ESC>	To jump to the Exit Screen or exit the current screen

3.2 Main Screen

When you enter the UEFI SETUP UTILITY, the Main screen will appear and display the system overview.



Primary Plane Current Limit

Use this item to configure the maximum instantaneous current allowed for the primary plane. The default value is [Auto].

Secondary Plane Current Limit

Use this item to configure the maximum instantaneous current allowed for the secondary plane. The default value is [Auto].

Intel Hyper Threading Technology

To enable this feature, a computer system with an Intel processor that supports Hyper-Threading technology and an operating system that includes optimization for this technology, such as Microsoft® Windows® XP / Vista™ / 7 / 8 is required. Set to [Enabled] if using Microsoft® Windows® XP, Vista™, 7, 8, or Linux kernel version 2.4.18 or higher. This option will be hidden if the installed CPU does not support Hyper-Threading technology.

Active Processor Cores

Use this item to select the number of cores to enable in each processor package. The default value is [All].

Enhance Halt State (C1E)

All processors support the Halt State (C1). The C1 state is supported through the native processor instructions HLT and MWAIT and requires no hardware support from the chipset. In the C1 power state, the processor maintains the context of the system caches.

CPU C3 State Support

Use this to enable or disable CPU C3 (ACPI C2) report to OS.

CPU C6 State Support

Use this to enable or disable CPU C6 (ACPI C3) report to OS.

Package C State Support

Selected option will program into C State package limit register. The default value is [Auto].

CPU Thermal Throttling

You may select [Enabled] to enable CPU internal thermal control mechanism to keep the CPU from overheating.

No-Execute Memory Protection

No-Execution (NX) Memory Protection Technology is an enhancement to the IA-32 Intel Architecture. An IA-32 processor with "No Execute (NX) Memory Protection" can prevent data pages from being used by malicious software to execute codes. This option will be hidden if the current CPU does not support No-Execute Memory Protection.

Intel Virtualization Technology

When this option is set to [Enabled], a VMM (Virtual Machine Architecture) can utilize the additional hardware capabilities provided by Vanderpool Technology. This option will be hidden if the installed CPU does not support Intel Virtualization Technology.

Hardware Prefetcher

Use this item to turn on/off the MLC streamer prefetcher.

Adjacent Cache Line Prefetch

Use this item to turn on/off prefetching of adjacent cache lines.

3.3.2 North Bridge Configuration



PCIe1 Link Speed

This allows you to select PCIe 1 Link Speed. The default value is [Auto].

Share Memory

This allows you to set onboard VGA share memory feature. The default value is [Auto].

IGPU Multi-Monitor

This allows you to enable or disable IGPU Multi-Monitor. The default value is [Disabled]. If you wish to install a PCI Express card under Windows® XP / Vista™ OS, please disable this option.

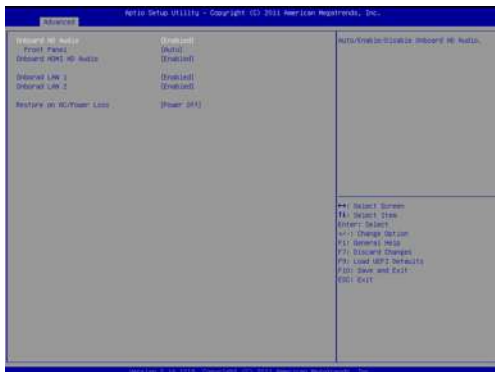
Render Standby

Use this to enable or disable Render Standby by Internal Graphics Device. The default value is [Enabled].

Deep Render Standby

This allows you to enable or disable Deep Render Standby. The default value is [Enabled].

3.3.3 South Bridge Configuration



Onboard HD Audio

Select [Auto], [Enabled] or [Disabled] for the onboard HD Audio feature. If you select [Auto], the onboard HD Audio will be disabled when PCI Sound Card is plugged.

Front Panel

Select [Auto] or [Disabled] for the onboard HD Audio Front Panel.

Onboard HDMI HD Audio

This allows you to enable or disable the Onboard HDMI HD Audio feature.

Onboard LAN 1

This allows you to enable or disable the Onboard LAN 1 feature.

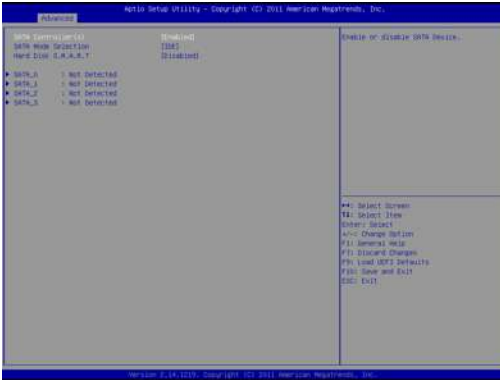
Onboard LAN 2

This allows you to enable or disable the Onboard LAN 2 feature.

Restore on AC/Power Loss

This allows you to set the power state after an unexpected AC/power loss. If [Power Off] is selected, the AC/power remains off when the power recovers. If [Power On] is selected, the AC/power resumes and the system starts to boot up when the power recovers.

3.3.4 Storage Configuration



SATA Controller(s)

Use this item to enable or disable the SATA Controller feature.

SATA Mode Selection

Use this to select SATA mode. Configuration options: [IDE Mode], [AHCI Mode] and [RAID Mode]. The default value is [IDE Mode].

* IMB-161-D / IMB-161-L does not support RAID mode.



AHCI (Advanced Host Controller Interface) supports NCQ and other new features that will improve SATA disk performance but IDE mode does not have these advantages.

Hard Disk S.M.A.R.T.

Use this item to enable or disable the S.M.A.R.T. (Self-Monitoring, Analysis, and Reporting Technology) feature. Configuration options: [Disabled] and [Enabled].

3.3.5 Intel(R) Rapid Start Technology



Intel(R) Rapid Start Technology

Use this item to enable or disable Intel(R) Rapid Start Technology. Intel(R) Rapid Start Technology is a new zero power hibernation mode which allows users to resume in just 5-6 seconds. The default is [Disabled].

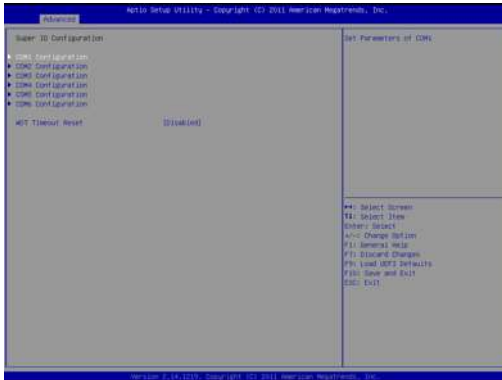
3.3.6 Intel(R) Smart Connect Technology



Intel(R) Smart Connect Technology

Use this item to enable or disable Intel(R) Smart Connect Technology. Intel(R) Smart Connect Technology keeps your e-mail and social networks, such as Twitter, Facebook, etc. updated automatically while the computer is in sleep mode. The default is [Enabled].

3.3.7 Super IO Configuration



COM1 Configuration

Use this to set parameters of COM1. Select COM1 port type: [RS232], [RS422] or [RS485].

COM2 Configuration

Use this to set parameters of COM2. Select COM2 port type: [RS232], [RS422] or [RS485].

COM3 Configuration

Use this to set parameters of COM3.

COM4 Configuration

Use this to set parameters of COM4.

COM5 Configuration

Use this to set parameters of COM5.

COM6 Configuration

Use this to set parameters of COM6.

WDT Timeout Reset

This allows users to enable/disable the Watch Dog Timer timeout to reset system. The default value is [Disabled].

3.3.8 ACPI Configuration



Suspend to RAM

Use this item to select whether to auto-detect or disable the Suspend-to-RAM feature. Select [Auto] will enable this feature if the OS supports it.

Check Ready Bit

Use this item to enable or disable the feature Check Ready Bit.

ACPI HPET Table

Use this item to enable or disable ACPI HPET Table. The default value is [Enabled]. Please set this option to [Enabled] if you plan to use this motherboard to submit Windows® certification.

PS/2 Keyboard Power On

Use this item to enable or disable PS/2 keyboard to turn on the system from the power-soft-off mode.

PCI Devices Power On

Use this item to enable or disable PCI devices to turn on the system from the power-soft-off mode.

RTC Alarm Power On

Use this item to enable or disable RTC (Real Time Clock) to power on the system.

USB Keyboard/Remote Power On

Use this item to enable or disable USB Keyboard/Remote to power on the system.

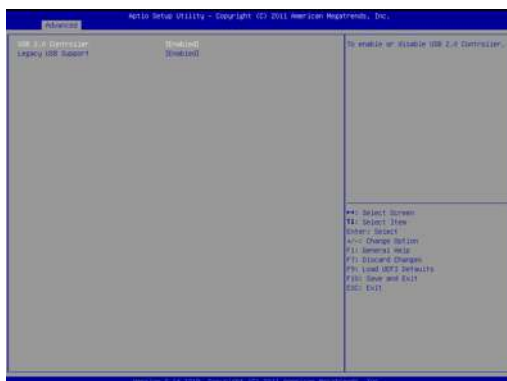
USB Mouse Power On

Use this item to enable or disable USB Mouse to power on the system.

CSM

Please disable CSM when you enable Fast Boot option. The default value is [Enabled].

3.3.9 USB Configuration



USB 2.0 Controller

Use this item to enable or disable the use of USB 2.0 controller.

USB 3.0 Controller

Use this item to enable or disable the use of USB 3.0 controller.

Legacy USB Support

Use this option to select legacy support for USB devices. There are four configuration options: [Enabled], [Auto], [Disabled] and [UEFI Setup Only]. The default value is [Enabled]. Please refer to below descriptions for the details of these four options:

[Enabled] - Enables support for legacy USB.

[Auto] - Enables legacy support if USB devices are connected.

[Disabled] - USB devices are not allowed to use under legacy OS and UEFI setup when [Disabled] is selected. If you have USB compatibility issues, it is recommended to select [Disabled] to enter OS.

[UEFI Setup Only] - USB devices are allowed to use only under UEFI setup and Windows / Linux OS.

Legacy USB 3.0 Support

Use this option to enable or disable legacy support for USB 3.0 devices. The default value is [Enabled].

* USB 3.0 is supported by IMB-171-D / IMB-171-L only.

3.3.10 Trusted Computing



Configuration

Security Device Support

Use this item to enable or disable BIOS support for security device. OS will not show security device. TCG EFI protocol and INT1A interface will not be available.

Current Status Information

Use this item to see TPM current status information, such as TPM enabled status, TPM active status and TPM owner status.

3.4 Hardware Health Event Monitoring Screen

In this section, it allows you to monitor the status of the hardware on your system, including the parameters of the CPU temperature, motherboard temperature, CPU fan speed, chassis fan speed, and the critical voltage.



CPU_FAN1 Setting

This allows you to set CPU fan 1's speed. Configuration options: [Full On] and [Automatic Mode]. The default value is [Full On].

CHA_FAN1 Setting

This allows you to set chassis fan 1's speed. Configuration options: [Full On] and [Automatic Mode]. The default value is [Full On].

Over Temperature Protection

Use this to enable or disable Over Temperature Protection. The default value is [Enabled].

Case Open Feature

This allows you to enable or disable case open detection feature. The default is value [Disabled].

Clear Status

This option appears only when the case open has been detected. Use this option to keep or clear the record of previous chassis intrusion status.

3.5 Boot Screen

In this section, it will display the available devices on your system for you to configure the boot settings and the boot priority.



Fast Boot

Fast Boot minimizes your computer's boot time. There are three configuration options: [Disabled], [Fast] and [Ultra Fast]. The default value is [Disabled]. Please refer to below descriptions for the details of these three options:

[Disabled] - Disable Fast Boot.

[Fast] - The only restriction is you may not boot by using an USB flash drive.

[Ultra Fast] - There are a few restrictions.

1. Only supports Windows® 8 UEFI operating system.
2. You will not be able to enter BIOS Setup (Clear CMOS or run utility in Windows® to enter BIOS Setup).
3. If you are using an external graphics card, the VBIOS must support UEFI GOP in order to boot.

Boot From Onboard LAN

Use this item to enable or disable the Boot From Onboard LAN feature.

Setup Prompt Timeout

This shows the number of seconds to wait for setup activation key. 65535(0XFFFF) means indefinite waiting.

Bootup Num-Lock

If this item is set to [On], it will automatically activate the Numeric Lock function after boot-up.

Full Screen Logo

Use this item to enable or disable OEM Logo. The default value is [Enabled].

AddOn ROM Display

Use this option to adjust AddOn ROM Display. If you enable the option "Full Screen Logo" but you want to see the AddOn ROM information when the system boots, please select [Enabled]. Configuration options: [Enabled] and [Disabled]. The default value is [Enabled].

Boot Failure Guard

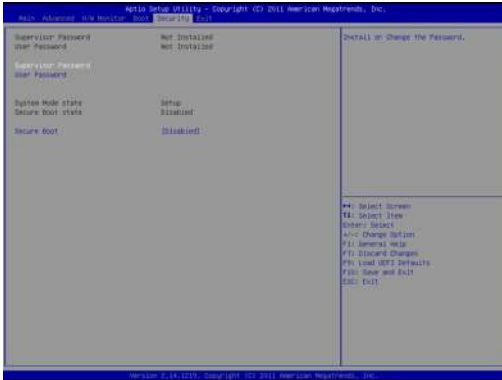
Enable or disable the feature of Boot Failure Guard.

Boot Failure Guard Count

Use this item to configure Boot Failure Guard Count.

3.6 Security Screen

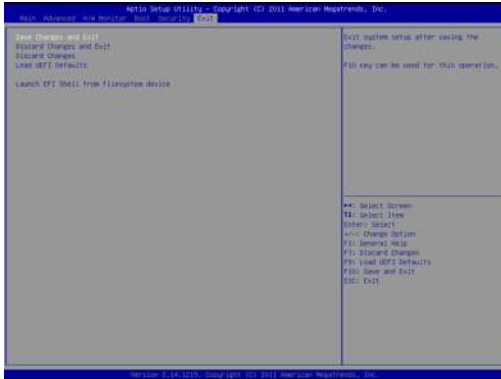
In this section, you may set, change or clear the supervisor/user password for the system.



Secure Boot

Use this to enable or disable Secure Boot. The default value is [Disabled].

3.7 Exit Screen



Save Changes and Exit

When you select this option, it will pop-out the following message, “Save configuration changes and exit setup?” Select [OK] to save the changes and exit the UEFI SETUP UTILITY.

Discard Changes and Exit

When you select this option, it will pop-out the following message, “Discard changes and exit setup?” Select [OK] to exit the UEFI SETUP UTILITY without saving any changes.

Discard Changes

When you select this option, it will pop-out the following message, “Discard changes?” Select [OK] to discard all changes.

Load UEFI Defaults

Load UEFI default values for all the setup questions. F9 key can be used for this operation.

Launch EFI Shell from filesystem device

Attempts to Launch EFI Shell application (Shell64.efi) from one of the available filesystem devices.

Chapter 4: Software Support

4.1 Install Operating System

This motherboard supports various Microsoft® Windows® operating systems: 8 / 8 64-bit / 7 / 7 64-bit / Vista™ / Vista™ 64-bit / XP / XP 64-bit. Because motherboard settings and hardware options vary, use the setup procedures in this chapter for general reference only. Refer your OS documentation for more information.

4.2 Support CD Information

The Support CD that came with the motherboard contains necessary drivers and useful utilities that enhance the motherboard's features.

4.2.1 Running The Support CD

To begin using the support CD, insert the CD into your CD-ROM drive. The CD automatically displays the Main Menu if "AUTORUN" is enabled in your computer. If the Main Menu did not appear automatically, locate and double click on the file "ASSETUP.EXE" from the BIN folder in the Support CD to display the menus.

4.2.2 Drivers Menu

The Drivers Menu shows the available device's drivers if the system detects installed devices. Please install the necessary drivers to activate the devices.

4.2.3 Utilities Menu

The Utilities Menu shows the application software that the motherboard supports. Click on a specific item then follow the installation wizard to install it.

4.2.4 Contact Information

If you need to contact ASRock or want to know more about ASRock, you're welcome to visit ASRock's website at <http://www.asrock.com>; or you may contact your dealer for further information.