



IMB-142

# User Manual

Version 1.0

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

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

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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

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# Chapter 1: Introduction

Thank you for purchasing ASRock **IMB-142** 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.



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](http://www.asrock.com/support/index.asp)

## 1.1 Package Contents

ASRock **IMB-142** Motherboard

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

ASRock **IMB-142** Driver CD

ASRock **IMB-142** Jumper setting instruction

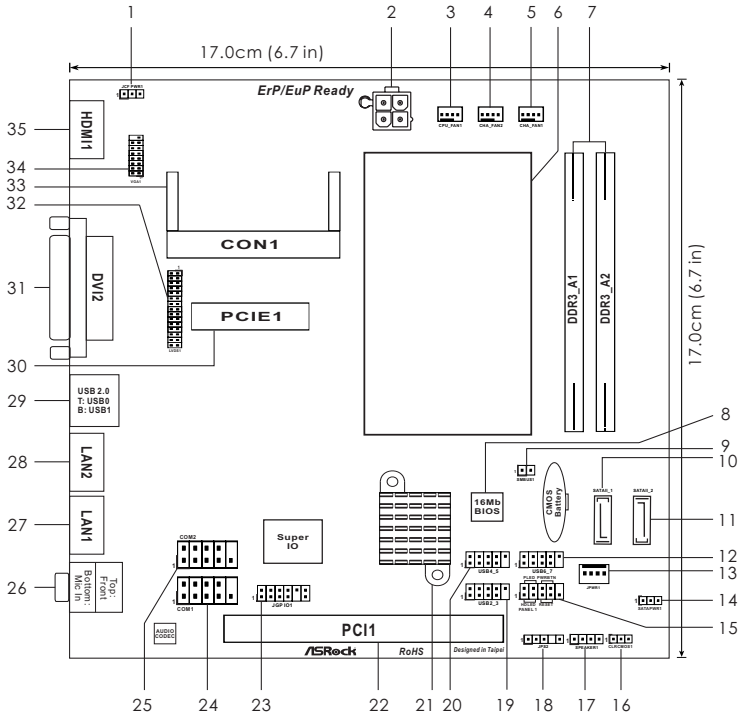
1 x I/O Panel Shield

## 1.2 Specifications

<b>Form Factor</b>	Dimensions	- Mini-ITX (6.7-in x 6.7-in)
<b>Processor System</b>	CPU	- Intel® Dual-Core Atom™ CedarView Processor D2550/N2600/N2800 - Supports Hyper-Threading Technology
	Core Number	- 2
	Max Speed	- D2550/N2800: 1.86 GHz - N2600: 1.6GHz
	L3 Cache	- N/A
	Chipset	- NM10
	BIOS	- UEFI
<b>Expansion Slot</b>	PCI	- 1
	Mini-PCIe	- 1 (Full Size)
	mSATA	- 0
	PCIe	- 0
	CFast Card Socket	- 0
<b>Memory</b>	Technology	- Single Channel DDR3 800/1066 MHz SDRAM
	Max.	- D2550/N2800: 4GB - N2600: 2GB
	Socket	- D2550/N2800: 2 x SO-DIMM - N2600: 1 x SO-DIMM
<b>Graphics</b>	Controller	- Intel® PowerVR SGX545, Support Directx9 compliant Pixel Shader v3.0 and OGL 3.0
	VRAM	- Shared Memory
	VGA	- By Header, supports max resolution 1920x1200
	LVDS	- Single Channel 18bits, max resolution 1440x900
	HDMI	- Supports HDMI 1.3a, max resolution 1920x1200
	DVI	- Yes, supports max resolution 1920x1200
	Display Port	- No
	Multi Display	- Yes
<b>Ethernet</b>	Ethernet	- 10/100/1000 Mbps
	Controller	- GbE LAN: 2 x Intel® WG82574L
	Connector	- 2 x RJ-45

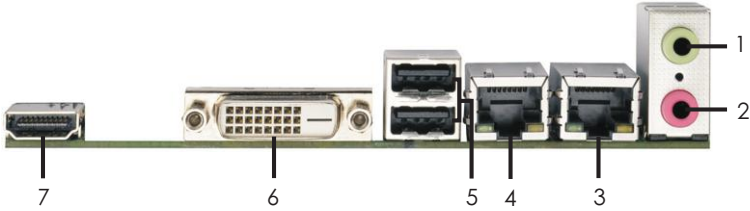
<b>SATA</b>	Max Data Transfer Rate	- SATA2 (3.0Gb/s)
<b>Rear I/O</b>	VGA	- 0
	DVI	- 1 (DVI-D)
	HDMI	- 1
	DisplayPort	- 0
	Ethernet	- 2
	USB	- 2 (USB 2.0 compliant)
	Audio	- 2 (Mic-in, Line-out)
	Serial	- 0
	PS/2	- 0
<b>Internal Connector</b>	USB	- 6 (USB 2.0 compliant)
	LVDS/ Inverter	- 1/0
	VGA	- 1
	Serial	- 2 (RS-232)
	SATA	- 2 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	- 1
	Speaker Header	- 0
	<b>Watchdog Timer</b>	Output
Interval		- N/A
<b>Power Requirements</b>	Input PWR	- 12V DC-In (4-pin ATX PWR Con)
	Power On	- ATX Supported: Press Button to PWR on after Power input ready
<b>Environment</b>	Temperature	- 0°C – 60°C

### 1.3 Motherboard Layout



- |    |                                     |    |   |
|----|-------------------------------------|----|---|
| 1  | JCF Power Connector (JCF PWR1)      | 16 | Clear CMOS Jumper (CLRCMOS1)              |
| 2  | ATX 12V Power Connector (ATX12V1)   | 17 | Chassis Speaker Header (SPEAKER 1, White) |
| 3  | CPU Fan Connector (CPU_FAN1)        | 18 | JPS Connector (JPS2)                      |
| 4  | Chassis Fan Connector (CHA_FAN2)    | 19 | USB 2.0 Header (USB2_3, Blue)             |
| 5  | Chassis Fan Connector (CHA_FAN1)    | 20 | USB 2.0 Header (USB4_5, Blue)             |
| 6  | CPU Heatsink                        | 21 | Chipset Heatsink                          |
| 7  | 2 x DDR3 DIMM Slots                 | 22 | PCI Slot (PC11)                           |
| 8  | 16Mb Flash                          | 23 | JGP IO Connector (JGP IO1)                |
| 9  | SMBUS Connector (SMBUS1)            | 24 | COM Port Header (COM1)                    |
| 10 | SATA2 Connector (SATA11_1, Blue)    | 25 | COM Port Header (COM2)                    |
| 11 | SATA2 Connector (SATA11_2, Red)     | 26 | PCI Express x1 Slot (PCIE1, White)        |
| 12 | USB 2.0 Header (USB6_7, Blue)       | 27 | LVDS Connector (LVDS1)                    |
| 13 | JPWR Connector (JPWR1)              | 28 | CON1                                      |
| 14 | SATA Power Connector (SATAPWR1)     | 29 | VGA Header (VGA1)                         |
| 15 | System Panel Header (PANEL1, White) |    |   |

## 1.4 I/O Panel



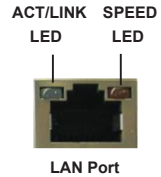
- |     |                   |   |                       |
|-----|-------------------|---|-----------------------|
| 1   | Line out (Lime)   | 5 | USB 2.0 Ports (USB01) |
| 2   | Microphone (Pink) | 6 | DVI-D Port (DVI1)     |
| * 3 | LAN RJ-45 Port    | 7 | HDMI Port (HDMI1)     |
| * 4 | LAN RJ-45 Port    |   |                       |

\* 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





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# 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.

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## 2.3 Installation of Memory Modules (SO-DIMM)

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



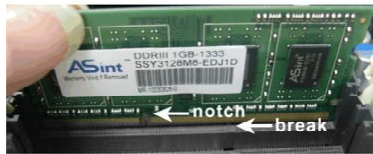
It is not allowed to install a DDR or DDR2 memory module into DDR3 slot; otherwise, this motherboard and SO-DIMM may be damaged.

### 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.

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

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

**PCI Slot:** PCI slot is used to install expansion cards that have the 32-bit PCI interface.

**PCIe Slot:** MINI\_PCIE1 (mini-PCIe slot) is used for PCI Express mini cards.

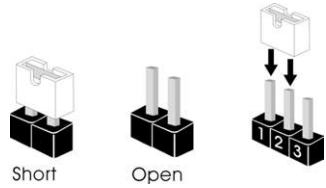
### Installing an expansion card



- 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.

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## 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 (CLRCMOS1) (see p.7, No. 16)	<b>1_2</b>  Default	<b>2_3</b>  Clear CMOS

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.

## 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!

### SATAII Connectors

(SATAII\_1: see p.7, No. 10)

(SATAII\_2: see p.7, No. 11)

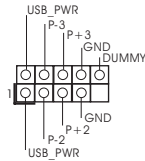


These two Serial ATAII (SATAII) connectors support SATA data cables for internal storage devices. The current SATAII interface allows up to 3.0 Gb/s data transfer rate.

### USB 2.0 Headers

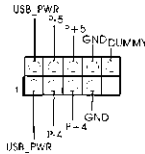
(9-pin USB2\_3)

(see p.7 No. 19)



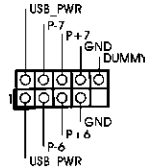
(9-pin USB4\_5)

(see p.7 No. 20)



(9-pin USB6\_7)

(see p.7 No. 12)

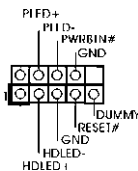


Besides two default USB 2.0 ports on the I/O panel, there are three USB 2.0 headers on this motherboard. Each USB 2.0 header can support two USB 2.0 ports.

### System Panel Header

(9-pin PANEL1)

(see p.7 No. 15)



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 sleep state. The LED is off when the system is in S3/S4 sleep state or powered off (S5).

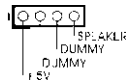
### HDLED (Hard Drive Activity LED):

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.

### Chassis Speaker Header

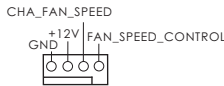
(4-pin SPEAKER 1)  
(see p.7 No. 17)



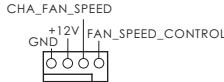
Please connect the chassis speaker to this header.

### Chassis Fan Connectors

(4-pin CHA\_FAN1)  
(see p.7 No. 5)



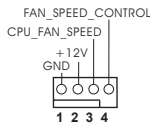
(4-pin CHA\_FAN2)  
(see p.7 No. 4)



Please connect the fan cables to the fan connectors and match the black wire to the ground pin.

### CPU Fan Connectors

(4-pin CPU\_FAN1)  
(see p.7 No. 3)



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



Though this motherboard provides 4-Pin CPU fan (Quiet Fan) support, the 3-Pin CPU fan still can work successfully even without the fan speed control function. If you plan to connect the 3-Pin CPU fan to the CPU fan connector on this motherboard, please connect it to Pin 1-3.

Pin 1-3 Connected ←  
3-Pin Fan Installation



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### ATX 12V Power Connector

(4-pin ATX12V1)

(see p.7 No. 2)



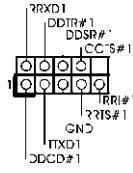
Please connect an ATX 12V power supply to this connector.

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### Serial port Headers

(9-pin COM1)

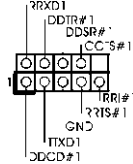
(see p.7 No. 24)



Each COM1 header supports a serial port module.

(9-pin COM2)

(see p.7 No. 25)



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### JCF Power Connector

(3-pin JCF PWR1)

(see p.7 No. 1)

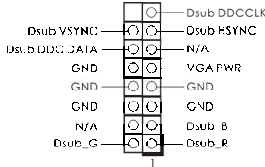


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### D-SUB VGA Connector

(15-pin VGA1)

(see p.7 No. 29)

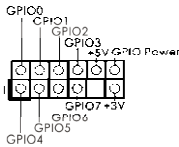


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### JGP IO Connector

(11-pin JGP IO1)

(see p.7 No. 23)

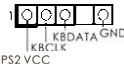


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### JPS Connector

(4-pin JPS2)

(see p.7 No. 18)

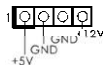


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### JPWR Connector

(4-pin JPWR\_1)

(see p.7 No. 13)



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### SATA Power Connector

(3-pin SATA PWR\_1)

(see p.7 No. 14)

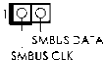


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## SMBUS Connector

(2-pin SMBUS1)

(see p.7 No. 9)

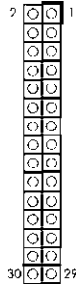


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## LVDS Connector

(30-pin LVDS1)

(see p.7 No. 27)



LVDS Connector Pin Definition
Pin 1, 2, 3, 4 : Backlight PWR
Pin 5, 6, 11, 17, 18, 29, 30 : GND
Pin 7, 9 : LCD VDD PWR Enable
Pin 8 : LCD PID1
Pin 10 : LCD PID0
Pin 12 : EDID CLK
Pin 13 : Backlight Enable
Pin 14 : EDID DATA
Pin 15 : Backlight PWM
Pin 16 : EDID CS#
Pin 19 : EDID PWR(3V)
Pin 20 : Empty
Pin 21 : LVDS CLK#
Pin 22 : LVDS CLK
Pin 23 : LVDS DATA2#
Pin 24 : LVDS DATA2
Pin 25 : LVDS DATA1#
Pin 26 : LVDS DATA1
Pin 27 : LVDS DATA0#
Pin 28 : LVDS DATA0