MXM IPC-H110

User Manual

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(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"

ASRock Website: http://www.asrock.com

Contents

Chapter 1: Introduction

Thank you for purchasing ASRock ***MXM IPC-H110*** 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 ***MXM IPC-H110*** Motherboard
(Micro-STX Form Factor: 5.8-in x 7.4-in)
ASRock ***MXM IPC-H110*** Driver CD
ASRock ***MXM IPC-H110*** Jumper setting instruction
1 x I/O Panel Shield

1.2 Specifications

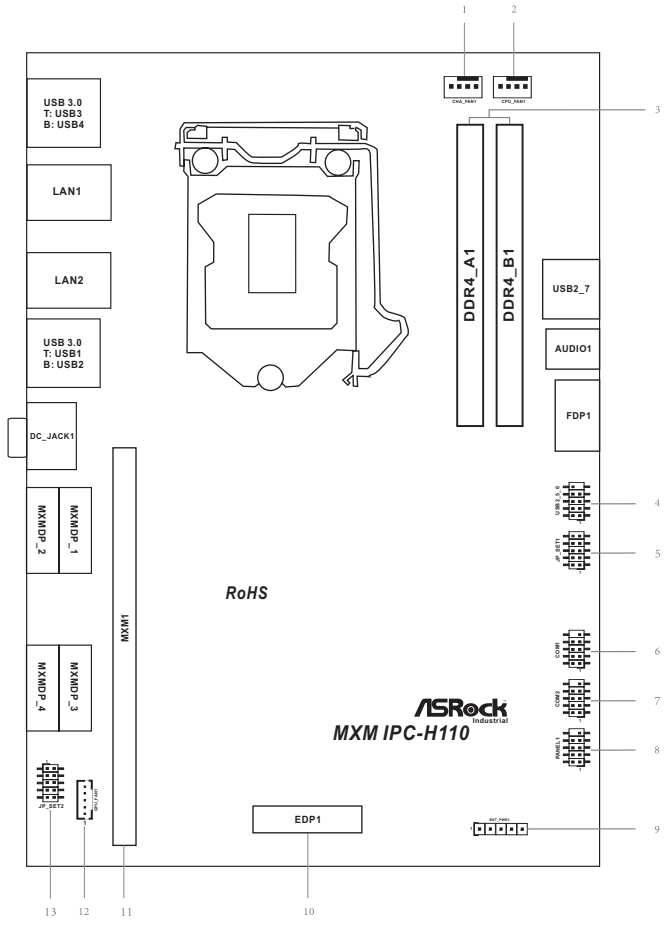
Form Factor	Dimensions	Micro-STX (5.8-in x 7.4-in)
Processor System	CPU	Supports 7th/6th Generation Core™ i7/Core™ i5/Core™ i3/Pentium®/Celeron® Processors (LGA1151, Kaby Lake / Skylake)
	Core Number	(By CPU, Max 4)
	Max Speed	(By CPU)
	L3 Cache	(By CPU)
	Chipset	Intel® H110
	BIOS	UEFI
Expansion Slot	PCIe	0
	Mini-PCIe	0
	MXM	1
	M.2	- 1 x M.2 (KEY E, 2230) with PCIe x1 and USB 2.0 for Wireless - 1 x M.2 (KEY M, 2242/2260/2280) with PCIe x4 and SATA3 for SSD
Memory	Technology	Dual Channel DDR4 2400 MHz
	Max.	32GB
	Socket	2 x SO-DIMM
Graphics	Controller	- CPU integrated graphics to support 1 x DP + 1 x eDP (Gen9 Intel® Graphics, Support for DirectX 11/12, OpenCL 2.0) - Add on MXM Graphic Card (Type B) to support 4 x DP NVIDIA® GeForce GTX 1060/1070/1080
	VRAM	Shared Memory
	VGA	No
	DVI	No
	LVDS	No
	HDMI	No
	DisplayPort	1 x supports max resolution up to 4K@60Hz (CPU integrated graphics), 4 x supports max resolution up to 4K@60Hz (MXM Graphics Card)
	MultiDisplay	Hexa Display
Ethernet	Ethernet	10/100/1000 Mbps
	Controller	1 x Intel® I219V + 1 x Intel® I210
	Connector	2 x RJ-45

SATA	Max Data Transfer Rate	SATA3 (6.0Gb/s)
Front I/O	Front USB	1 x USB2.0 Type-A
	Front Audio	1 x Mic-In & Line-Out Combo Jack
	Front DisplayPort	1 (CPU integrated graphics)
Rear I/O	HDMI	0
	DisplayPort	4 (4K@60Hz with MXM Graphics Card)
	Ethernet	2
	USB	4 x USB 3.0 Type-A
	Audio	0
	Serial	0
	PS2	0
	Power	1 x 4-pin DC_IN Jack
Internal Connector	USB	2 x USB 1.1/2.0 (1 x 2.54 pitch header)
	LVDS/ Inverter	0/0
	eDP	1 (CPU integrated graphics)
	VGA	0
	Serial	2 x 2.00 pitch COM (support RS-232 only)
	SATA	- 2 x SATA3.0 - 1 x M.2 Key M Type 2242/ 2260/2280 (SATA shared with PCIe x4)
	mPCIe	0
	Parallel	0
	mSATA	0
	IrDA	0
	GPIO	0
	SATA PWR Output	0
	Speaker Header	0
	SPDIF	0
Watchdog Timer	Output	Output from super I/O to drag RESETCON#
	Interval	256 Segments, 0,1,2…255 Sec/Min

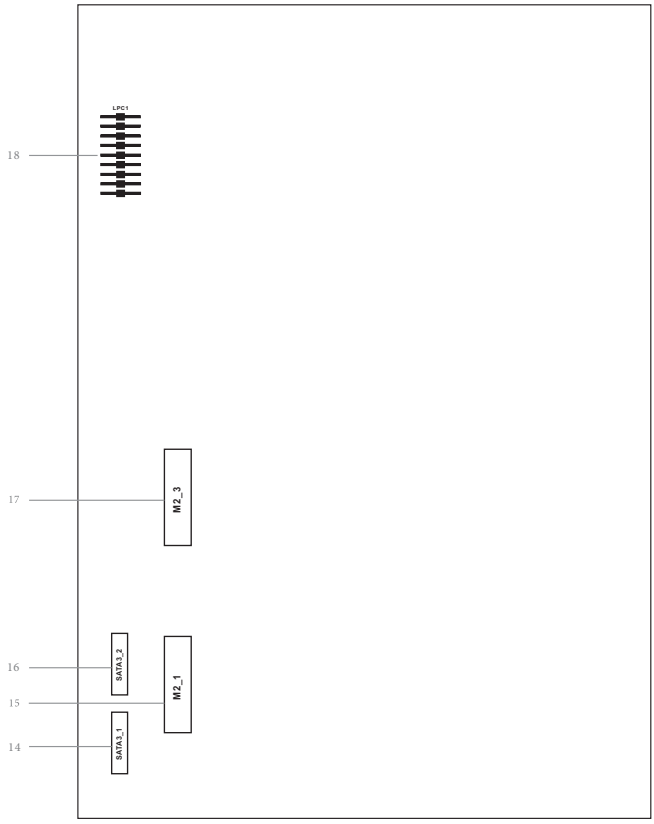
Power Requirements	Input PWR	19V DC-In Jack (220W for GTX1060/1070, 270W for GTX1080)
	Power On	AT/ATX Supported -AT : Directly PWR on as power input ready -ATX : Press button to PWR on after power input ready
Environment	Temperature	0ºC-50ºC w/GTX1060, 0ºC-45ºC w/ GTX1070, 0ºC-35ºC w/GTX1080

1.3 Motherboard Layout

Front Side View

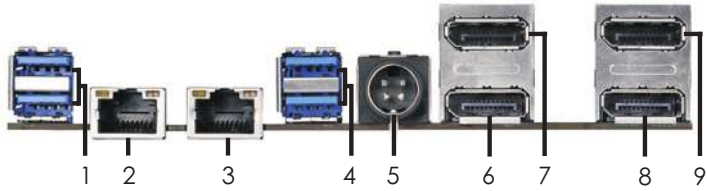


Back Side View



1 : 4-Pin Chassis FAN Connector (+12V)
2 : 4-Pin CPU FAN Connector (+12V)
3 : 2 x 260-pin DDR4 SO-DIMM Slots (DDR4_A1, DDR4_B1)
4 : USB2.0 Header (USB2_5_6)
5 : JP_SET1
6 : COM Port Header (COM1)
7 : COM Port Header (COM2)
8 : System Panel Header (PANEL1)
9 : Backlight Power Select (LCD_BLT_VCC) (BKT_PWR1)
10 : eDP Connector (EDP1)
11 : MXM Connector (MXM1)
12 : GPU FAN Connector (GPU_FAN1)
13 : JP_SET2
14 : SATA3 Connector (SATA3_1)
15 : M.2 Socket (Key-M) (M2_1)
16 : SATA3 Connector (SATA3_2)
17 : M.2 Socket (Key-E) (M2_3)
18 : LPC Header

1.4 I/O Panel



1 : USB3.0 Ports (USB3_3_4)
2 : RJ45 LAN Port (LAN1)*
3 : RJ45 LAN Port (LAN2)*
4 : USB3.0 Ports (USB3_1_2)
5 : DC Jack (DC_JACK1)
6 : Bottom : MXMDP Port (MXMDP_2)
7 : Top : MXMDP Port (MXMDP_1)
8 : Bottom : MXMDP Port (MXMDP_4)
9 : Top : MXMDP Port (MXMDP_3)

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

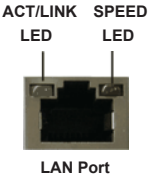
LAN Port LED Indications

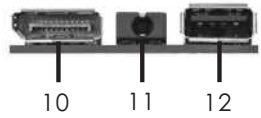
Activity/Link LED

Status	Description
Off	No Link
Blinking	Data Activity
On	Link

SPEED LED

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





10 : FDP Port (FDP1)
11 : Audio Jack (AUDIO1)
12 : USB2.0 Port (USB2_7)

Chapter 2: Installation

This is a Micro-STX form factor (5.8-in x 7.4-in) 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.

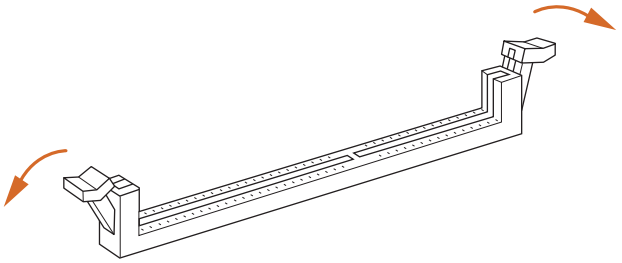
2.3 Installation of Memory Modules (SO-DIMM)

This motherboard provides two 260-pin DDR4 (Double Data Rate 4) SO-DIMM slots, and supports Dual Channel Memory Technology.

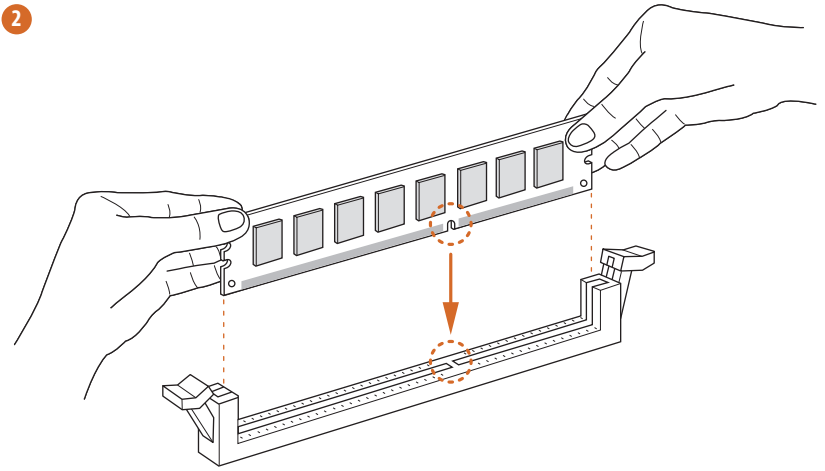
1. For dual channel configuration, you always need to install identical (the same brand, speed, size and chip-type) DDR4 SO-DIMM pairs.
2. It is unable to activate Dual Channel Memory Technology with only one memory module installed.
3. It is not allowed to install a DDR, DDR2 or DDR3 memory module into a DDR4 slot; otherwise, this motherboard and SO-DIMM may be damaged.

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 DIMM into the slot at incorrect orientation.

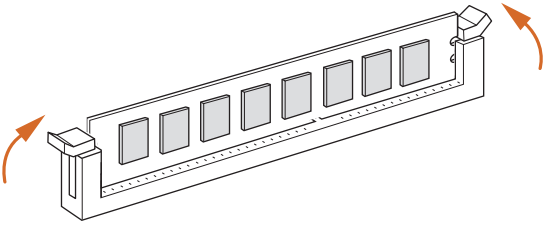
1



2



3



2.4 Expansion Slots (MXM and M.2 Slots)

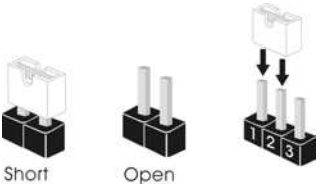
There are 2 M.2 slots and 1 MXM slot on this motherboard.

M.2 Slots: 1 x M.2 (KEY E, 2230) with PCIe x1 and USB 2.0 for Wireless.
1 x M.2 (KEY M, 2242/2260/2280) with PCIe x4 and SATA3 for SSD.

MXM slot: 1 x MXM slot.

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
Backlight Power Select (LCD_BLT_VCC) (5-pin BKT_PWR1) (see p.11, No. 9)	1	1-2 : LCD_BLT_VCC : +5V 2-3 : LCD_BLT_VCC : +12V 4-5 : LCD_BLT_VCC : DC_IN

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!

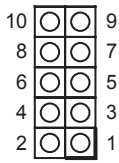
eDP Connector

(40-pin EDP1)
(see p.11, No. 10)

PIN	Signal Name
40	NA
39	LCD_BLT_VCC
38	LCD_BLT_VCC
37	LCD_BLT_VCC
36	LCD_BLT_VCC
35	SMB_CLK
34	SMB_DATA
33	CON_LBKLT_CTL
32	CON_LBKLT_EN
31	GND
30	GND
29	GND
28	GND
27	eDP_HPD_CON
26	GND
25	GND
24	GND
23	GND
22	NA
21	LCD_VCC
20	LCD_VCC
19	LCD_VCC
18	LCD_VCC
17	GND
16	eDP_AUX#_CON
15	eDP_AUX_CON
14	GND
13	eDP_TX0_CON
12	eDP_TX#0_CON
11	GND
10	eDP_TX1_CON
9	eDP_TX#1_CON
8	GND
7	eDP_TX2_CON
6	eDP_TX#2_CON
5	GND
4	eDP_TX3_CON
3	eDP_TX#3_CON
2	GND
1	NA

JP_SET

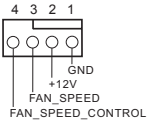
(10-pin JP_SET1)
(see P. 11, No. 5)



1-2	Open	ATX Mode
	Close	AT Mode
3-4	Close	Clean CMOS
3-5	Close	Auto Clear CMOS (Power Off)
7-8	Close	When Using Rechargeable Battery
9	BUZZER + (+5V)	
10	BUZZER -	

CPU Fan Connector

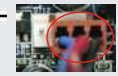
(4-pin CPU_FAN1)
(see p.11, No. 2)



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

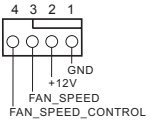


3-Pin Fan Installation

Chassis Fan Connector

(4-pin CHA_FAN1)

(see p.11, No. 11)

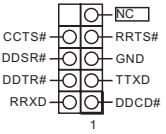


Please connect the fan cable to the fan connector and match the black wire to the ground pin.

COM Port Headers (RS232)

(9-pin COM1: see p.11, No. 6)

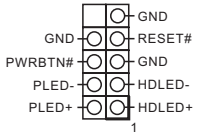
(9-pin COM2: see p.11, No. 7)



System Panel Header

(9-pin PANEL1)

(see p.11, No. 8)



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 assign-ments are matched correctly.

SATA3 Connectors

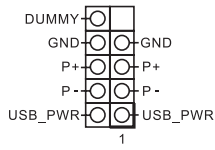
(SATA3_1: see p.11, No. 14)

(SATA3_2: see p.11, No. 16)

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

USB 2.0 Header

(9-pin USB2_5_6: see p.11, No. 4)

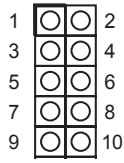


This USB 2.0 header can support two ports.

JP_SET

(10-pin JP_SET2)

(see P. 11, No. 13)



Chassis Intrusion Headers		
1-2 CI1	Open	Normal
	Close	Active Case Open
3-4 CI2	Open	Active Case Open
	Close	Normal

GPU Fan Connector

(5-pin GPU_FAN1)

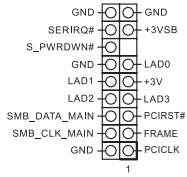
(see p.11, No. 12)

PIN	Signal Name
5	FAN_SPEED_CONTORL
4	FAN_SPEED
3	+12V
2	GND
1	GND

LPC Header

(17-pin LPC1)

(see p.11, No. 18)



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.

M.2 Socket (Key-M)

(M2_1: see P. 11, No. 15)

PIN	Signal Name	PIN	Signal Name
1	GND	2	+3V
3	GND	4	+3V
5	PCIE_RXN3	6	NC
7	PCIE_RXP3	8	NC
9	GND	10	M2_LED
11	PCIE_TXN3	12	+3V
13	PCIE_TXP3	14	+3V
15	GND	16	+3V
17	PCIE_RXN2	18	+3V
19	PCIE_RXP2	20	NC
21	GND	22	NC
23	PCIE_TXN2	24	NC
25	PCIE_TXP2	26	NC
27	GND	28	NC
29	PCIE_RXN1	30	NC
31	PCIE_RXP1	32	NC
33	GND	34	NC
35	PCIE_TXN1	36	NC
37	PCIE_TXP1	38	DEVSLP
39	GND	40	SMB_CLK
41	PCIE_RXN0/SATA_RXP	42	SMB_DATA
43	PCIE_RXP0/SATA_RXN	44	NC
45	GND	46	NC
47	PCIE_TXN0/SATA_TXN	48	NC
49	PCIE_TXP0/SATA_TXP	50	PLT_RST#
51	GND	52	CLKREQ#
53	PCIE_CLKN	54	WAKE#
55	PCIE_CLKP	56	NC
57	GND	58	NC
59	NC	60	NC
61	NC	62	NC
63	NC	64	NC
65	NC	66	NC
67	NC	68	SUSCLK
69	PCIE_SATA_SEL	70	+3V
71	GND	72	+3V
73	GND	74	+3V
75	GND		

M.2 Socket (Key-E)

(M2_3: see P. 11, No. 17)

PIN	Signal Name	PIN	Signal Name
1	GND	2	+3V
3	USB2_P	4	+3V
5	USB2_N	6	NC
7	GND	8	NC
9	NC	10	NC
11	NC	12	NC
13	NC	14	NC
15	NC	16	NC
17	NC	18	GND
19	NC	20	NC
21	NC	22	NC
23	NC	24	NC
25	NC	26	NC
27	NC	28	NC
29	NC	30	NC
31	NC	32	NC
33	GND	34	NC
35	PCIE_TXP	36	NC
37	PCIE_TXN	38	NC
39	GND	40	NC
41	PCIE_RXP	42	NC
43	PCIE_RXN	44	NC
45	GND	46	NC
47	PCIE_CLKP	48	NC
49	PCIE_CLKN	50	SUSCLK
51	GND	52	PLT_RST#
53	CLKREQ#	54	BT_DISABLE#
55	WAKE#	56	WLAN_DISABLE#
57	GND	58	SMB_DATA
59	NC	60	SMB_CLK
61	NC	62	NC
63	GND	64	NC
65	NC	66	NC
67	NC	68	NC
69	GND	70	NC
71	NC	72	+3V
73	NC	74	+3V
75	GND		

2.7 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 <Del> 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.

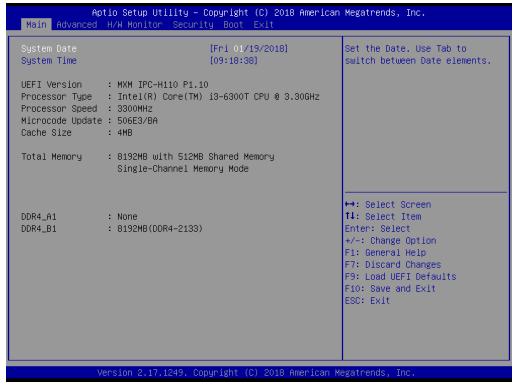
3.1.2 Navigation Keys

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

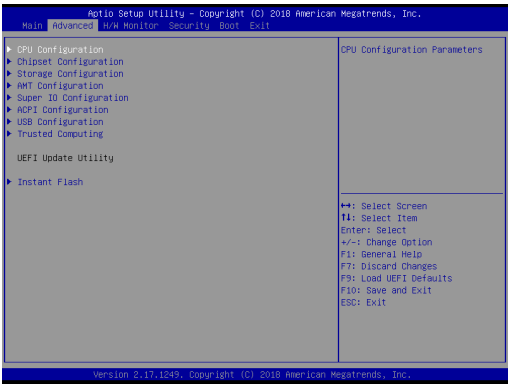
3.2 Main Screen

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



3.3 Advanced Screen

In this section, you may set the configurations for the following items: CPU Configuration, Chipset Configuration, Storage Configuration, AMT Configuration, Super IO Configuration, ACPI Configuration, USB Configuration and Trusted Computing.

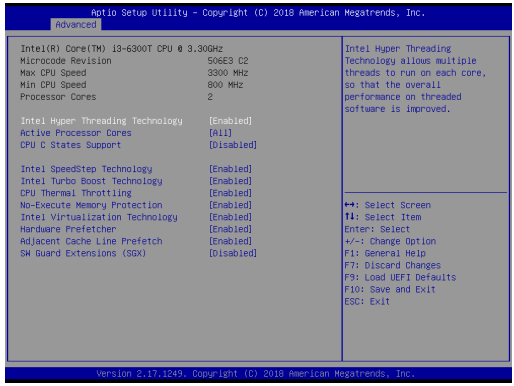


Setting wrong values in this section may cause the system to malfunction.

Instant Flash

Instant Flash is a UEFI flash utility embedded in Flash ROM. This convenient UEFI update tool allows you to update system UEFI without entering operating systems first like MS-DOS or Windows®. Just launch this tool and save the new UEFI file to your USB flash drive, floppy disk or hard drive, then you can update your UEFI only in a few clicks without preparing an additional floppy diskette or other complicated flash utility. Please be noted that the USB flash drive or hard drive must use FAT32/16/12 file system. If you execute Instant Flash utility, the utility will show the UEFI files and their respective information. Select the proper UEFI file to update your UEFI, and reboot your system after UEFI update process completes.

3.3.1 CPU Configuration



Intel Hyper Threading Technology

Intel Hyper Threading Technology allows multiple threads to run on each core, so that the overall performance on threaded software is improved.

Active Processor Cores

Select the number of cores to enable in each processor package.

CPU C States Support

Enable CPU C States Support for power saving. It is recommended to keep C3, C6 and C7 all enabled for better power saving.

Intel SpeedStep Technology

Intel SpeedStep technology is Intel's new power saving technology. Processors can switch between multiple frequencies and voltage points to enable power saving. The default value is [Enabled]. Configuration options: [Enabled] and [Disabled]. If you install Windows® OS and want to enable this function, please set this item to [Enabled]. This item will be hidden if the current CPU does not support Intel SpeedStep technology.

Please note that enabling this function may reduce CPU voltage and lead to system stability or compatibility issues with some power supplies. Please set this item to [Disabled] if above issues occur.

Intel Turbo Boost Technology

Use this item to enable or disable Intel Turbo Boost Mode Technology. Turbo Boost Mode allows processor cores to run faster than marked frequency in specific conditions. The default value is [Enabled].

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-Excute 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.

Software Guard Extensions (SGX)

Intel SGX is a set of new CPU instructions that can be used by applications to set aside private regions of code and data.

3.3.2 Chipset Configuration

Primary Graphics Adapter

This allows you to select the boot graphic adapter priority. The default value is [Onboard]. If you select [PCI Express], CPU integrated graphics will not function under UEFI SETUP UTILITY and OS. If you select [Onboard], MXM graphics will not function under UEFI SETUP UTILITY.

Top Of Lower Usable Dram

Maximum Value of TOLUD. Dynamic assignment would adjust TOLUD automatically based on largest MMIO length of installed graphic controller.

VT-d

Use this to enable or disable Intel® VT-d technology (Intel® Virtualization Technology for Directed I/O). The default value of this feature is [Disabled].

PCIE1 Link Speed

Select the link speed for PCIE1.

Share Memory

Configure the size of memory that is allocated to the integrated graphics processor when the system boots up.

IGPU Multi-Moniter

Select disable to disable the integrated graphics when an external graphics card is installed. Select enable to keep the integrated graphics enabled at all times.

Onboard LAN1

Enable or disable the onboard network interface controller.

Onboard LAN2

Enable or disable the onboard network interface controller.

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.

Deep S5

Mobile platforms support Deep S5 in DC only and desktop platforms support Deep S5 in AC only. The default value is [Disabled].

eDP Panel BackLight Brightness

The default value is [Level 5].

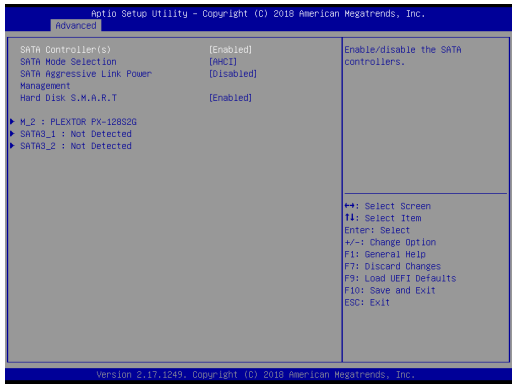
Primary IGFX Boot Display

Select the Video Device which will be activated during POST. This has no effect if external graphics present. Secondary boot display selection will appear based on your selection. VGA modes will be supported only on primary display. The default value is [VBIOS Default].

USB Power

The default value is [5VSB].

3.3.3 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] and [AHCI Mode]. The default value is [AHCI 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.

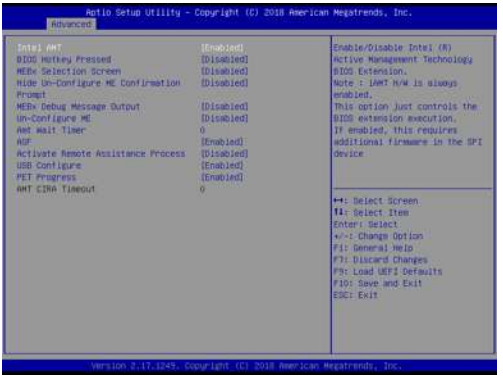
SATA Aggressive Link Power Management

Use this item to configure SATA Aggressive Link Power Management.

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].

3.3.4 AMT Technology



Intel AMT

Use this to enable or disable Intel(R) Active Management Technology BIOS Extension. The default is [Enabled].

BIOS Hotkey Pressed

Use this to enable or disable BIOS hotkey press. The default is [Disabled].

MEBx Selection Screen

Use this to enable or disable MEBx Selection Screen. The default is [Disabled].

Hide Un-Configure ME Confirmation Prompt

Hide Un-Configure ME without password confirmation prompt. The default is [Disabled].

MEBx Debug Message Output

Use this to enable or disable MEBx Debug Message Output. The default is [Disabled].

Un-Configure ME

Un-Configure ME without password. The default is [Disabled].

Amt Wait Timer

Set timer to wait before sending ASF_GET_BOOT_OPTIONS.

ASF

Use this to enable or disable Alert Specification Format. The default is [Enabled].

Activate Remote Assistance Process

Trigger CIRA boot. The default is [Disabled].

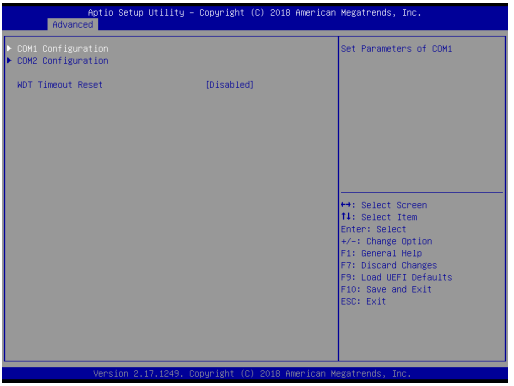
USB Configure

Use this to enable or disable USB Configure function. The default is [Enabled].

PET Progress

User can enable or disable PET Events progress to receive PET events or not. The default is [Enabled].

3.3.5 Super IO Configuration



COM1 Configuration

Use this to set parameters of COM1.

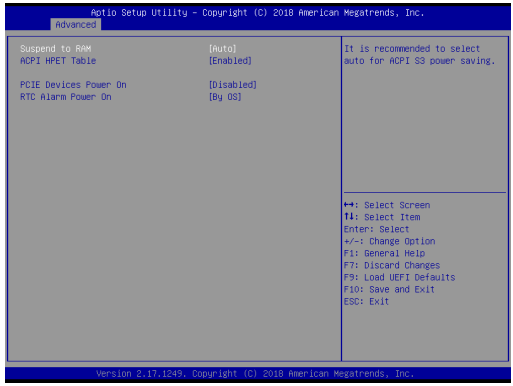
COM2 Configuration

Use this to set parameters of COM2.

WDT Timeout Reset

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

3.3.6 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.

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.

PCIE Devices Power On

Use this item to enable or disable PCIE 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.

3.3.7 USB Configuration

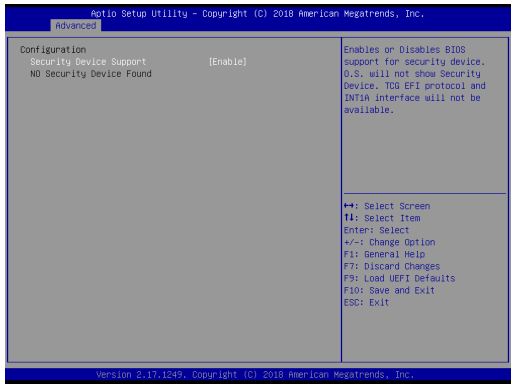
Legacy USB Support

Enable or disable Legacy OS Support for USB 2.0 devices. If you encounter USB compatibility issues it is recommended to disable legacy USB support. Select UEFI Setup Only to support USB devices under the UEFI setup and Windows/Linux operating systems only.

PS/2 Simulator

Enable PS/2 Simulator. This should be enabled for the complete USB keyboard legacy support for non-USB aware OSes.

3.3.8 Trusted Computing

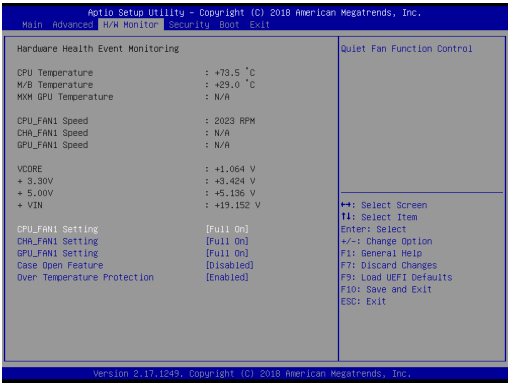


Security Device Support

Enable or disable BIOS support for security device.

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].

GPU_FAN1 Setting

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

Case Open Feature

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

Clear Status

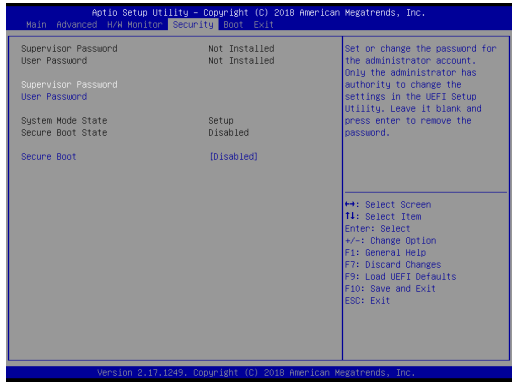
This option appears only when the case open has been detected. Use this option to keep or clear the record of previous chassis intrusion status.

Over Temperature Protection

When Over Temperature Protection is enabled, the system automatically shuts down when the motherboard is overheated.

3.5 Security Screen

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

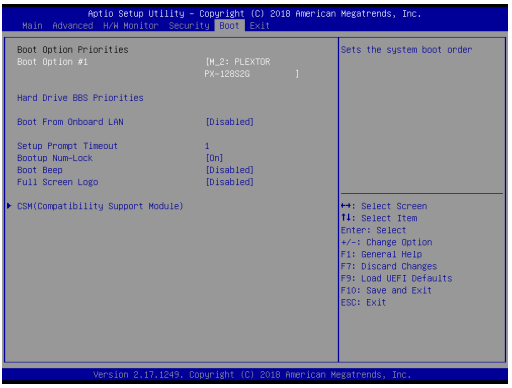


Secure Boot

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

3.6 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.



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.

Boot Beep

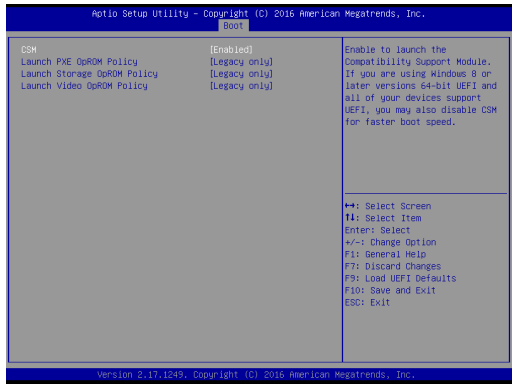
Select whether the Boot Beep should be turned on or off when the system boots up. Please note that a buzzer is needed.

Full Screen Logo

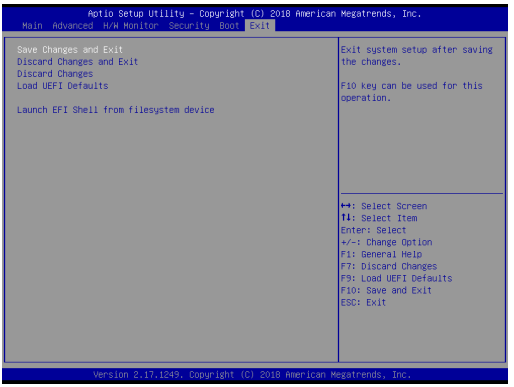
Use this item to enable or disable OEM Logo. The default value is [Enabled].

CSM

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


Aptio Setup Utility – Copyright (C) 2016 American Megatrends, Inc.
Boot
CSM [Enabled]
Launch PXE OpROM Policy [Legacy only]
Launch Storage OpROM Policy [Legacy only]
Launch Video OpROM Policy [Legacy only]
Enable to launch the Compatibility Support Module. If you are using Windows 8 or later versions 64-bit UEFI and all of your devices support UEFI, you may also disable CSM for faster boot speed.
↔: Select Screen
↑↓: Select Item
Enter: Select
+/-: Change Option
F1: General Help
F7: Discard Changes
F9: Load UEFI Defaults
F10: Save and Exit
ESC: Exit
Version 2.17.1249. Copyright (C) 2016 American Megatrends, Inc.

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: 10 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 "ASRSETUP.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.