



# LPC-2CxM Series P-cap Panel PC LGA1151 9<sup>th</sup>/8<sup>th</sup> Gen., Core-i7/5/3 User Manual

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# Warning!

This equipment generates, uses and can radiate radio frequency energy and if not installed and used in accordance with the instruction manual, it may cause interference to radio communications. It has been tested and found to comply with the limits for a Class A computing device pursuant to FCC Rules, which are designed to provide reasonable protection against such interference when operated in a commercial environment. Operation of this equipment in a residential area is likely to cause interference in which case the user at his own expense will be required to take whatever measures may be required to correct the interference.

Electric Shock Hazard – Do not operate the machine with its back cover removed. There are dangerous high voltages inside.

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### **Packing List**



### **Safety Precautions**

Follow the messages below to avoid your systems from damage:

- Avoid your system from static electricity on all occasions.
- Prevent electric shock. Don't touch any components of this card when the card is power-on. Always disconnect power when the system is not in use.
- Disconnect power when you change any hardware devices. For instance, when you connect a jumper or install any cards, a surge of power may damage the electronic components or the whole system.

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# Chapter 1 Getting Started

## 1.1 Brief Description of LPC P-cap 2CxM Series

The LPC P-cap 2CxM series is a power-optimized and delivers robust performance-per-watt for embedded HMI, powered by an up to TDP 35W Intel 9<sup>th</sup>/8<sup>th</sup> Gen., Core-i7/5/3/Celeron processors with Q370 PCH. It comes with a Bezel-Free design, M.2 Key-M slot and an Internal 2.5-inch storage bay, up to 64GB DDR4-2666 memory, 1 PCIex16 slot, 3 DP1.2 ports, audio jack, 2 Ethernet, and 4 USB 3.1 ports. The unit supports Windows 10 operation system.

The Elgens' fanless touch panel computer is ideal for use as Web Browser, Terminal, HMI at all levels of automation control or a high-performance system that working on rash environment.

Model Number	LPC-P150S-2CxM
Max Resolution	1024*768
Color	16.7M
Luminance	400 nits
View Angle (H/V)	160/140
Contrast Ratio	800
Computing	
Processor	Socket LGA 1151 for 9th/8th Intel <sup>®</sup> Core i7/i5/i3/Celeron (Supports up to
	35W)
System Memory	2 x SO-DIMM, up to 64 GB DDR4-2666
	Intel <sup>®</sup> Core i3/Pentium <sup>®</sup> /Celeron <sup>®</sup> CPUs support up to 32GB (16GB per
	DIMM)
Storage	1 x Internal 2.5" Storage Bay
	1 x M.2 Key-M slot
External I/O	4 x USB 3.1 Gen1
Port	2 x GbE LAN ( Intel <sup>®</sup> I219LM & Intel <sup>®</sup> I210 )
	3 x Display Port
	2 x RS-232
	1 x Audio out
	1 x Mic in
	1 x Power press button
	1 x 3-Pin Power Input
Expansion Slots	1 x PCIe x16 Slot
OS support	Windows 10
Touch Screen	
Туре	USB P-cap Touch

## **1.2 System Specifications**

Light	Up to 90%	
Transmission		
Power Supply		
Power Input	DC12V or DC19V~28V Power Input	
	3-Pins Terminal Block or 4-Pins DC Jack	
Mechanical		
Construction	Aluminum Heatsink and Metal Case	
IP Rating	Front Panel compliant IP65	
Mounting	Panel Mount & VESA	
Environmental		
Operating	20~70 °C	
Temperature		
Storage	20~70 °C	
Temperature		
Storage	10~00% @40 °C pap condensing	
Humidity		

# 1.3 Naming Rule



#### **Order Code**

## LPC-PxxxS/W

P = P-Cap touch

B = Glass without touch

xxx = size, For example, 10.1" = 101

S = Dimension Ratio Square = 4:3 or 5:4

W= Dimension Ration Wide = 16:9 or 16:10

H = High Brightness 1000 nits LED backlight (Optional, up to 1600 nits backlight, by LCD limited)

OB = Optical Bonding (Optional)

AG = Anti-Glare (Optional)

AR = Anti-Reflection (Optional)

V = Vandal Proof Glass (Optional)

# **1.4 Dimension**





# 1.5 Top / Bottom IO View



**Bottom View** 

# **1.6 Motherboard Layout**



It may cause system/board damage if change the Jumper/Connector setting. Please do NOT change the setting if you are not very clear to know the

- 1 : USB2.0 Header (USB2\_4\_5)
- 2 : USB2.0 Header (USB2\_6\_7)
- 3 : System Panel Header
- 4 : PWR\_BAT2
- 5 : Buzzer
- 6 : BLT\_PWM1
- 7 : SATA Power Output Connector
- 8 : Digital Input / Output Pin Header (JGPIO1)
- 9 : Digital Input / Output Power Select (JGPIO\_PWR1)
- 10 : Digital Input / Output Default Value Setting (JGPIO\_SET1)
- 11 : COM Port Headers (COM1, 2, 3, 4)
- 12 : COM Port PWR Setting Jumpers (SET\_CM1, 2, 3, 4)
- 13 : Backlight Power Select (LCD\_BLT\_VCC) (BKT\_PWR1)
- 14 : Backlight Power Connector (BLT\_PWR1)
- 15 : BL1
- 16\* : LVDS Panel Connector
- \* eDP Connector (on the Backside of PCB)
- 17 : LVDS Switch (LVDS\_SWITCH1)
- 18 : BL2
- 19 : ATX/AT Mode Jumper (SIO\_AT1)
- 20 : Panel Power Select (LCD\_VCC) (PNL\_PWR1)
- 21 : Backlight Volume Control (BLT\_VOL1)
- 22 : Chassis Intrusion Header (Cl2)
- 23 : Chassis Intrusion Header (CI1)
- 24 : Clear CMOS Headers (CLRMOS1, CLRMOS2)
- 25 : 4-pin UPS Module Power Input Connector (Input +12V & +19V~+28V)
- 26 : 3W Audio AMP Output Wafer
- 27 : ATX Power Connector (Input +12V & +19V~+28V)
- 28: 2-pin UPS Module Power Input Connector
- 29 : Front Panel Audio Header
- 30 : SPDIF Header
- 31 : CPU FAN Connector (+12V)
- 32 : Chassis FAN Connector (+12V)
- 33 : SATA3 Connectors (SATA3\_1, SATA3\_2)
- 34 : LPC Header

# Chapter 2 Installation

The LPC 2CxM series is a panel pc with Mini-ITX motherboard. Before you install the accessories on motherboard, study the installation guide to ensure that the accessories be secured.

# 2.1 Remove Heatsink

The heatsink cover is secured onto the chassis with 18 M3\*5 zinc-coated screws located at 4 sides. Use a Phillips screwdriver to unscrew them.

Step 1. Loosen screws as below picture



**Step 2.** You can access internal accessories while you pull the heatsink and Left/Right sides brackets.

- 1. Remove all power source before you start to remove heatsink.
- It is easy to cause damage after the heatsink had removed. Please be carefully do not drop tools and/or parts on it while heatsink had removed.
- 3. Make sure all parts and screws are secured before you cover up.

# 2.2 Installation of DRAM

Step 1. Following CH2.1 to remove heatsink.

**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.

2. Please do not intermix different voltage SO-DIMMs on this motherboard.

**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.

# 2.3 Installation of HDD

Step 1. Following CH2.1 to open case.Step 2. Screwed Storage on bracket



Step 3. Screwed the assembled parts of step2 into system





# 2.4 Installation of Low-Profile PCI-Express Cards

**Step 1.** Following CH2.1 to open case.

Step 2. Loosen screws to remove cover brackets.



Step 3. Plug Low-Profile PCI-Express cards into slot.



**Step 4.** Make sure the card's bracket had plugged into groove and screw in the three M3\*5 screws tight to secure the add-on cards.



# Chapter 3 UEFI SETUP UTILITY

This section explains how to use the UEFI SETUP UTILITY (also names BIOS) 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.



Wrong Setting values in this section may cause the system malfunctions.

# 3.1 Entering and Control

Power on the computer and the system will start POST (Power-On Self Test) process. When the message below appears on the screen, press <DEL> or <F2> key to enter Setup.

#### Press <DEL> or <F2> to enter SETUP

If the message disappears before you respond and you still wish to enter Setup, restart the system by turning it OFF and On or pressing the RESET button. You may also restart the system by simultaneously pressing <Ctrl>, <Alt>, and <Delete> keys.

#### **Important**

The items under each BIOS category described in this chapter are under continuous update for better system performance. Therefore, the description may be slightly different from the latest BIOS and should be held for reference only.

#### **Control Keys**

$\leftrightarrow$	Select Screen
$\uparrow \downarrow$	Select Item
Enter	Select
+ -	Change Option
F1	General Help
F7	Previous Values
F9	Optimized Defaults
F10	Save & Restart
F12	Print screen
Esc	Exit

#### **Getting Help**

After entering the Setup menu, the first menu you will see is the Main Menu.

#### Main Menu

The main menu lists the setup functions you can make changes to. You can use the arrow keys (  $\uparrow \downarrow$  ) to select the item. The on-line description of the highlighted setup function is displayed at the bottom of the screen.

#### Sub-Menu

If you find a right pointer symbol appears to the left of certain fields that means a sub-menu can be launched from this field. A sub-menu contains additional options for a field parameter. You can use arrow keys (  $\uparrow \downarrow$  ) to highlight the field and press <Enter> to call up the sub-menu. Then you can use the control keys to enter values and move from field to field within a sub-menu. If you want to return to the main menu, just press the <Esc >.

#### General Help <F1>

The BIOS setup program provides a General Help screen. You can call up this screen from any menu by simply pressing <F1>. The Help screen lists the appropriate keys to use and the possible selections for the highlighted item. Press <Esc> to exit the Help screen.

# 3.2 Main

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



#### System Date

This setting allows you to set the system date.

The date format is <Day>, <Month> / <Date> / <Year>.

#### System Time

This setting allows you to set the system time.

The time format is <Hour> / <Minute> / <Second>.

# 3.3 Advanced



### **Instant Flash**

Instant Flash is a UEFI flash utility embedded in Flash ROM. This convenient UEFI update tool allows you to update system UEFI BIOS without entering operating systems first like MS-DOS or Windows<sup>®</sup>. Just launch this tool and save the new UEFI BIOS 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 BIOS and reboot your system after UEFI update process completes.

### 3.3.1 CPU Configuration





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 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 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.

#### Intel SpeedStep

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<sup>®</sup> 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.

#### 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.

#### **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 Chipset Configuration



#### **Primary Graphics Adapter**

This allows you to select [Onboard] or [PCI Express] as the boot graphic adapter priority. The default value is [PCI Express].

#### **Above 4G Decoding**

Enable or disable 64bit capable Devices to be decoded in Above 4G Address Space (only if the system supports 64 bit PCI decoding).

#### VT-d

Use this to enable or disable Intel<sup>®</sup> VT-d technology (Intel<sup>®</sup> Virtualization Technology for Directed I/O).

The default value of this feature is [Disabled].

#### **PCIE1 Link Speed**

Select the link speed for PCIE1.

#### **PCIE1 Bandwidth Mode**

Select the bandwidth mode 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 be enabled at all times.

#### **Active LVDS**

Use this to enable or disable the LVDS. The default value is [Disabled].

Set the item to [enable]. Then press <F10> to save the setting and restart the system. Now the default value of Active LVDS is changed to ENABLE (F9 load default is also set to ENABLE) Change the setting from [Enable] to [Disable], and then press <F10> to save the setting and

restart the system. Likewise, the default value of Active LVDS is changed to DISABLE (F9 load default is also set to DISABLE)

#### **Panel Type Selection**

Use this to select panel type. This item appears when you enable Active LVDS.



Please do not change the Active LVDS and Panel Type Selection value to avoid the no display issue.

#### **Onboard LAN1**

This allows you to enable or disable the Onboard LAN1 feature.

#### **Onboard LAN2**

This allows you to enable or disable the Onboard LAN2 feature.

#### **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 [HD] or [AC 97] for the onboard HD Audio Front Panel.

#### **Onboard Digital Audio**

Enable or disable Onboard Digital Audio.

#### **Deep Sleep**

Mobile platforms support Deep S4/S5 in DC only and desktop platforms support Deep S4/S5 in AC only. The default value is [Disabled].

### 3.3.3 PCI/PCIE Device Configuration



#### SATA Controller(s)

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

#### **SATA Mode Selection**

Use this to select SATA mode. The default value is [AHCI Mode].



AHCI (Advanced Host Controller Interface) supports NCQ and other new features that will improve SATA disk performance.

#### 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 Super IO Configuration



#### **COM1** Configuration

Use this to set parameters of COM1.

#### **COM2** Configuration

Use this to set parameters of COM2.

#### **COM3** Configuration

Use this to set parameters of COM3.

#### **Type Select**

Use this to select COM3 port type: [RS232], [RS422] or [RS485].

#### **COM4** Configuration

Use this to set parameters of COM4.

#### **Type Select**

Use this to select COM3 port type: [RS232], [RS422] or [RS485].

#### WDT Timeout Reset

Use this to set the Watch Dog Timer.

### 3.3.5 AMT Configuration



#### **AMT BIOS Features**

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

#### **ASF** support

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

#### **USB** Provisioning of AMT

Use this to enable or disable AMT USB Provisioning. The default is [Disabled].

#### Secure Erase mode

Change Secure Erase module behavior: Simulated: Performs SE flow without erasing SSD. Real: Erase SSD.

#### **Force Secure Erase**

Use this to enable or disable Force Secure Erase on next boot. The default

is [Disabled].

#### **MEBx hotkey Pressed**

Use this to enable or disable MEBx 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 OEM Debug Menu Enable**

Use this to enable or disable MEBx OEM Debug Menu. The default is [Disabled].

#### **Un-Configure ME**

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

#### WatchDog

Use this to enable or disable AMT WatchDog Timer. The default is [Disabled]. Activate Remote Assistance Process Trigger CIRA boot. The default is [Disabled].

#### **PET Progress**

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

#### **ASF Sensors Table**

Use this to enable or disable ASF Sensor Table. The default is [Disabled].

#### **Non-UI Mode Resolution**

Use this to set resolution for non-UI text mode.

#### **UI Mode Resolution**

Use this to set resolution for UI text mode.

#### **Graphics Mode Resolution**

Use this to set resolution for graphics mode.

### 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.

#### **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

Use this option to select legacy support for USB devices. There are two configuration options: [Enabled], 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.

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

#### **XHCI Hand-off**

This is a workaround for OSes without XHCI hand-off support. The XHCI ownership change should be claimed by XHCI driver.

### 3.3.8 Trusted Computing



#### **Security Device Support**

Enable or disable BIOS support for security device.

#### **Onboard TPM**

Use this to enable or disable onboard TPM. The default is [Enabled].

# 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.

Aptio Setup Utili Main Advanced H/W Monitor S	i <mark>ty – Copyright (C) 2018 Americ</mark> Security Boot Exit	an Megatrends, Inc.
Hardware Health Event Monitorir	ng	Quiet Fan Function Control
CPU Temperature M/B Temperature CPU_FAN1 Speed CHA_FAN1 Speed	: +66.0 °C : +39.5 °C : N/A : 5075 RPM	
+ 3.30V + 3.30VSB + VBAT + 5.00V	: +3.376 V : +3.376 V : +2.992 V : +5.280 V	
VCURE + VCCM DC_IN	: +1.024 V : +1.216 V : +11.856 V	↔: Select Screen ↑↓: Select Item Enter: Select
CPU_FAN1 Setting CHA_FAN1 Setting Case Open Feature	[Full On] [Full On] [Disabled]	+/-: Change Option F1: General Help F7: Discard Changes F9: Load UEFI Defaults F10: Save and Exit ESC: Exit
Version 2.19.126	9. Copyright (C) 2018 American	Megatrends, Inc.

#### **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].

#### **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 Security

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

Aptio Setup Utility - Main Advanced H/W Monitor Secur	- Copyright (C) 2018 American <mark>rity Boot</mark> Exit	Megatrends, Inc.
Supervisor Password	Not Installed	Set or change the password for
user rassworu	NUT INSTALLED	Only the administrator account.
Supervisor Password User Password		authority to change the settings in the UEFI Setup
▶ Secure Boot		Utility. Leave it blank and press enter to remove the password.
		↔: Select Screen
		Enter: Select
		F1: General Help
		F7: Distant changes F9: Load UEFI Defaults
		ESC: Exit
Version 2.19.1269. (	Copyright (C) 2018 American M	egatrends, Inc.

#### **Supervisor Password**

Set or change the password for the administrator account. Only the administrator has authority to change the settings in the UEFI Setup Utility. Leave it blank and press enter to remove the password.

#### **User Password**

Set or change the password for the user account. Users are unable to change the settings in the UEFI Setup Utility. Leave it blank and press enter to remove the password.

#### **Secure Boot**

Use this item to enable or disable support for Secure Boot.

# 3.6 Boot

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.

#### **Full Screen Logo**

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

### **3.6.1 CSM (Compatibility Support Module)**

	Aptio Setup Utility -	Copyright (C) Boot	2018 American	Megatrends, Inc.
CSM		(Disabled)		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.
				<pre>↔: Select Screen f↓: Select Item Enter: Select +/-: Change Option F1: General Help F7: Discard Changes F9: Load UEFI Defaults F10: Save and Exit ESC: Exit</pre>
	Version 2.19.1269. C	opyright (C) 2	018 American M	egatrends, Inc.

#### CSM

Use this to enable or disable Compatibility Support Module. The default value is [Disabled]. Launch PXE OpROM Policy

Select UEFI only to run those that support UEFI option ROM only. Select Legacy only to run those that support legacy option ROM only. Select Do not launch to not execute both legacy and UEFI option ROM.

#### Launch Storage OpROM Policy

Select UEFI only to run those that support UEFI option ROM only. Select Legacy only to run those that support legacy option ROM only. Select Do not launch to not execute both legacy and UEFI option ROM.



#### 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** Installation Drivers

## 4.1 Chipset Driver Installation

4.1.1 Select "INF(v10.1.17968.8131\_Public) " folder and execute

"Setupchipset.exe"

4.1.2 Please follow the red blank.

ntel(R) Chipset Device Software	(intel)
Readme File Information	
<ul> <li>Product: Intel(R) Chipset Device Software</li> <li>Version: 10.1.1</li> <li>Target PCH/Chipset: Client Platforms</li> <li>Date: 2015-06-03</li> </ul>	*******
NOTE: For the list of supported chipset to the Release Notes	s, please refer
* CONTENTS OF THIS DOCUMENT	*************
This document contains the following sections 1. Overview 2. System Requirements 3. Contents of the Distribution Package 3A. Public and NDA Configurations	
< Back Ins	stall Cancel



Intel(R) Chipset Device Software Completion	(intel)
You have successfully installed the following product: Intel(R) Chipset Device Software	
You must restart this computer for the changes to take effect.	
View Log Files Restart Now	Restart Later

# 4.2 Graphics Driver Setup

## 4.2.1 Select "VGA(v25.20.100.6617)" folder and execute "igxpin.exe"

## 4.2.2 Please follow the red blank.

	Question		×
	This computer currently cont the versions you are about t to overwrite the following dri	ains driver versions newer tha o install. Are you sure you wa vers with the older versions?	an Int
	Intel(R) Display Audio (10.24 Intel(R) HD Graphics 520 (24	.0.3) .20.100.6229)	
	Yes	No	
Intel® Installation Fi	ramework	<u>610</u>	□ X
Intel® G	raphics Drive	r	(intel)
This setup program - Intel® Graphics Dr - Intel® Display Auc	will install the following compone iver dio Driver	nts:	
It is strongly recomm	nended that you exit all program	ns before continuing. Click Nex	kt to continue.
Automatically rur	n WinSAT and enable the Windo	ws Aero desktop theme (if sup	ported).
		< Back Next >	<u>C</u> ancel

Intel® Installation Framework	<u>114</u> 8		×
Intel® Graphics Driver			
License Agreement		(int	el
You must accept all of the terms of the license agreement in order to o program. Do you accept the terms?	continue the	setup	
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Please Also Note: * If you are an Original Equipment Manufacturer (OEM), Independent (IHV), or Independent Software Vendor (ISV), this complete LICENSE * If you are an End-User, then only Exhibit A, the INTEL SOFTWARE	t Hardware V AGREEMEN LICENSE AG	Vendor T applies; REEMENT,	v
< <u>B</u> ack	Yes Intel® Inst	No allation Fra	mework

Intel® Installation Framework	<u>1119</u> 5		×
Intel® Graphics Driver			
Readme File Information		(int	tel
Refer to the Readme file below to view the system requirement	ts and installation in	formation	i.
Driver Version: 21.20.16.4678			^
Release Version: Production Version			
Platforms/ Operating System(s):			
7th Gen Intel(R) Core(TM) processor family (Codename Kaby L Microsoft Windows* 10-64	.ake)		
6th Gen Intel(R) Core(TM) processor family (codename Skylake Microsoft Windows* 7-64 Microsoft Windows* 8.1-64	≡)		~
< <u>B</u> ack	<u>N</u> ext >	Canc	el
	—— Intel® Insta	lation Fra	amework

Intel® Installation Framework	
Intel® Graphics Driver	
Setup Progress	(intel)
Please wait while the following setup operations are performed:	
Creating Process: C:\Program Files (x86)\Intel\Intel\Intel(R) Processor Graphics\unins Installing Driver: Intel(R) Display Audio Version: 10.22.1.100 ••	stall\UninstallVulka
<	>
	Next >

ntel® Installation Framework	
Intel® Graphics Driver	
Setup Progress	(intel
Please wait while the following setup operations are p	performed:
Deleting File: C: \ProgramData \Microsoft\Windows \St Deleting File: C: \ProgramData \Microsoft\Windows \St Deleting File: C: \Users \Public\Desktop\Intel(R) HD Gr Deleting File: C: \Users \Public\Desktop\Intel(R) Graph Deleting File: C: \ProgramData \Microsoft\Windows \St Deleting File: C: \ProgramData \Microsoft\Windows \St Deleting File: C: \Users \Public\Desktop\Intel(R) Iris(Ti Deleting File: C: \Users \Public\Desktop\Intel(R) Iris(Ti Deleting File: C: \Users \Public\Desktop\Intel\Intel(R) Deleting Registry Key: HKLM\SOFTWARE\Intel\GFX\D Deleting Registry Key: HKLM\SOFTWARE\Intel\GFX\D	art Menu \Programs \Intel(R) Graphics and art Menu \Programs \Intel \Intel(R) Graphic aphics Control Panel.lnk nics and Media Control Panel.lnk art Menu \Programs \Intel \Intel (R) Iris(TM) art Menu \Programs \Intel(R) Iris(TM) Grap M) Graphics Control Panel.lnk Iris(TM) Graphics Control Panel.lnk Internal \AudioFix Internal \AudioFix
Click Next to continue.	~
<	>
	Next >
	Intel® Installation Framewo

Intel® Installation Framework	<u>112</u> 5		×
Intel® Graphics Driver			
Setup Is Complete		(int	el
You must restart this computer for the changes to take effect. Would computer now?	you like to r	estart the	
• Yes, I want to restart this computer now. No, I will restart this computer later.			
Click Finish, then remove any installation media from the drives.			
		Einis	h
	Intel® Inst	allation Fra	mework

# 4.3 Audio Driver Setup

4.3.1 Select "Audio 9057\_FF00" folder and execute "Setup.exe"

### 4.3.2 Please follow the red blank.



Realtek High Definition Audio Dr	iver Setup (4.54) 6.0.1.8010 x64 Edition	×
Setup Status		
	Realtek High Definition Audio Driver is configuring your new software installation.	
	C:\Program Files (x86)\Realtek\Audio\Drivers\Win64\AudysseyEfx.dll	
InstallShield		Cancel

Realtek High Definition Audio D	river Setup (4.54) 6.0.1.8010 x64 Edition
Realtek High Definition Audio D	river Setup (4.54) 6.0.1.8010 x64 Edition InstallShield Wizard Complete The InstallShield Wizard has successfully installed Realtek High Definition Audio Driver. Before you can use the program, you must restart your computer.
	<ul> <li>Yes, I want to restart my computer now.</li> <li>No, I will restart my computer later.</li> <li>Remove any disks from their drives, and then click Finish to complete setup.</li> </ul>
InstallShield	< <u>B</u> ack Finish Cancel

# 4.4 LAN Driver Setup

### 4.4.1 Go to "Intel\_LAN(v23.5.2) " folder and choose " Autorun.exe"

### 4.4.2 Please follow the red blank.

🕼 Intel(R) Network Connections Install Wizard	×
Welcome to the install wizard for Intel(R) Network Connections	(intel)
Installs drivers, Intel(R) Network Connections, and Advanced Networking Services.	
WARNING: This program is protected by copyright law and international treaties.	
< <u>B</u> ack	Cancel
Intel(R) Network Connections Install Wizard	×

License Agreement Please read the following license agree	ement carefully.		(intel)
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LICENSES:			~
OI accept the terms in the license agree	ment		Print
I do not accept the terms in the license	agreement		
	< <u>B</u> ack	Next >	Cancel

Intel(R) Network Connections In:	stall Wizard	×
License Agreement		(intel)
Please read the following license ag	greement carefully.	inter
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IMPORTANT - READ BE	FORE COPYING, INSTALLING	OR USING.
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LICENSES:		~
I accept the terms in the license ag	reement	Print
● I accept the terms in the license ag ○ I do not accept the terms in the lice	reement nse agreement	Print

intel(ity inetwork connections instan vizara			×
Setup Options Select the program features you want insta	alled.		(intel)
Install:			
Device drivers Intel® PROSet Intel® Advanced Network Services Intel® SNMP Subagent	5		
Feature Description	< Back	Next >	Cancel

记 Intel(R) Network Connections Install Wizard	×
Ready to Install the Program	(Intal)
The wizard is ready to begin installation.	inter
Click Install to begin the installation.	
If you want to review or change any of your installation settings, die exit the wizard.	ck Back. Click Cancel to
< <u>B</u> ack <u>I</u> nst	all Cancel

👹 Intel(R) Network Connections Install Wizard	×
Install wizard Completed	(intel)
To access new features, open Device Manager, and view the properties of the network adapters.	
< <u>B</u> ack <u>Finish</u>	Cancel

# 4.5 ME Driver Setup

### 4.5.1 Go to "ME(v12.0.2.1087\_Corp)" and choose "SetupME.exe"

### 4.5.2 Please follow the red blank.

Setup			×
Intel® Management Engine Components Welcome		(inte	D
You are about to install the following product:			
Intel® Management Engine Components			
It is strongly recommended that you exit all programs before Click Next to continue, or click Cancel to exit the setup progr	continuing. am.		
Intel Corporation	< <u>B</u> ack	Next >	<u>C</u> ancel
Setup			×
Intel® Management Engine Components License Agreement		(inte	D
INTEL SOFTWARE LICENSE AGREEMENT (OEM / IHV / ISV DI	stribution & S	ingle User)	^
IMPORTANT - READ BEFORE COPYING, INSTALLING OR USI Do not use or load this software and any associated materia until you have carefully read the following terms and conditio Software, you agree to the terms of this Agreement. If you install or use the Software. Please Also Note: * If you are an Original Equipment Manufacturer (OEM), Ind (IHV), or Independent Software Vendor (ISV), this complete * If you are an End-User, then only Exhibit A, the INTEL SOf applies.	NG. Is (collectively ons. By loadin do not wish t ependent Har LICENSE AGF TWARE LICE	y, the "Softwa g or using the o so agree, do dware Vendo REEMENT appl INSE AGREEM	re") o not r lies; ENT,
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I accept the terms in the License Agreement.			
Intel Corporation	< <u>B</u> ack	Next >	<u>C</u> ancel

Setup			×
Intel® Management Engine Components License Agreement		(inte	D
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For OEMs, IHVs, and ISVs: LICENSE. This Software is licensed for use only in conj Use of the Software in conjunction with non-Intel com	unction with Intel o	component pro not licensed	oducts. 🗸
I accept the terms in the License Agreement.			

Setup		×
Intel® Management Engine Components Destination Folder	(int	el
Click Next to install to the default folder, or click Change to	choose another destination	on folder.
C:\Program Files (x86)\Intel\Intel(R) Management Engine (	Components	
	[	Change
Intel Corporation	< <u>B</u> ack <u>N</u> ext >	<u>C</u> ancel

Setup		×
Intel® Management Engine Components Completion	Q	ntel
You have successfully installed the following components:		
<ul> <li>Intel® Management Engine Interface</li> <li>Serial Over LAN</li> <li>Local Management Service</li> <li>Intel® Management and Security Status</li> </ul>		
The corporation	< Back Ne	xt> <u>F</u> inish



Revision	Date	Modification	Note
0.1	2022/11/01	1 <sup>st</sup> Release	