



Stainless-Steel P-cap Panel PC with Intel<sup>®</sup> Gen 7<sup>th</sup>/6<sup>th</sup> ULV Core<sup>™</sup> i7/i5/i3, 6 sides IP66 User Manual

Published in Taiwan Release Date : April 2021 Revision : V1.0

# Warning!

This equipment generates, uses and can radiate radio frequency energy and if not installed and used in accordance with the instructions 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.

### Disclaimer

This information in this document is subject to change without notice. In no event shall ELGENS Co., Ltd. be liable for damages of any kind, whether incidental or consequential, arising from either the use or misuse of information in this document or in any related materials.

## **Packing List**

Accessories (as ticked) in	cluded in this package are:
Panel Mounting Kits	
3 Pin Male Terminal Block	
Optional Adapter	
Other(	please specify)

## 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 Stainless steel P-cap Series

The Elgens stainless-steel P-cap Panel PC series is a power-optimized and delivers robust performance-per-watt for Chemical, Gas & Oil Critical Environment.

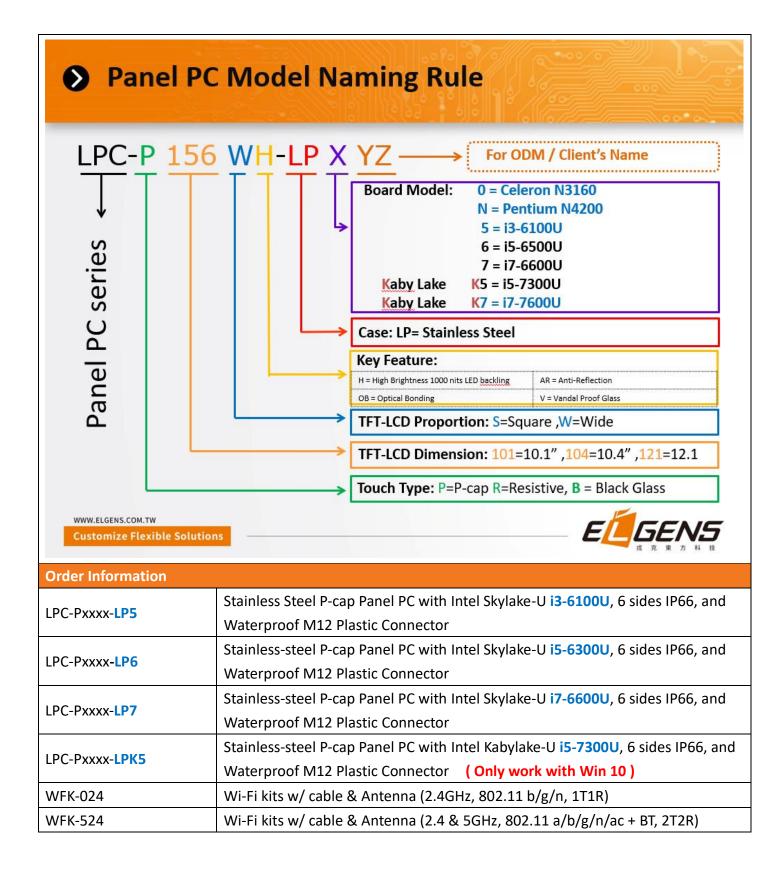
It is powered by Intel<sup>®</sup> Gen 7<sup>th</sup>/6<sup>th</sup> ULV series Core-i7/5/3 or Celeron processors, up to 16GB DDR4 memory, mSATA slot and a 2.5" HDD/SSD bay, waterproof M12 connector of HDMI, Ethernet, DC input, COM port and USB port. The unit supports Win 7 Pro/ WES7 / Win 8 / Win 10. (Gen 7<sup>th</sup> CPU is only for Win10).

The Elgens stainless-steel touch panel computer is ideal for Food & Beverage Processing, Hospitality and Catering Service, Animal Feed Production Facility applications.

Model Number	LPC-P150S-LPX	LPC-P156W-LPX	LPC-P170S-LPX	LPC-P173W-LPX
LCD Size	15"	15.6"	17"	17.3"
Max Resolution	1024*768	1920*1080	1280*1024	1920*1080
Color	16.2M	16.2M	16.7M	16.7M
Luminance	300 nits	450 nits	350 nits	400 nits
View Angle	176/176	170/170	170/160	160/140
Contrast Ratio	2500:1	800:1	1000:1	600:1
Model Number	LPC-P185W-LPX	LPC-P190S-LPX	LPC-P215W -LPX	
LCD Size	18.5″	19"	21.5″	
Max Resolution	1920*1080	1280*1024	1920*1080	
Color	16.7M	16.2M	16.7M	
Luminance	350 nits	250 nits	350 nits	
View Angle	178/178	170/160	178/178	
	1000:1	1000:1	3000:1	

# 1.2 System Specifications

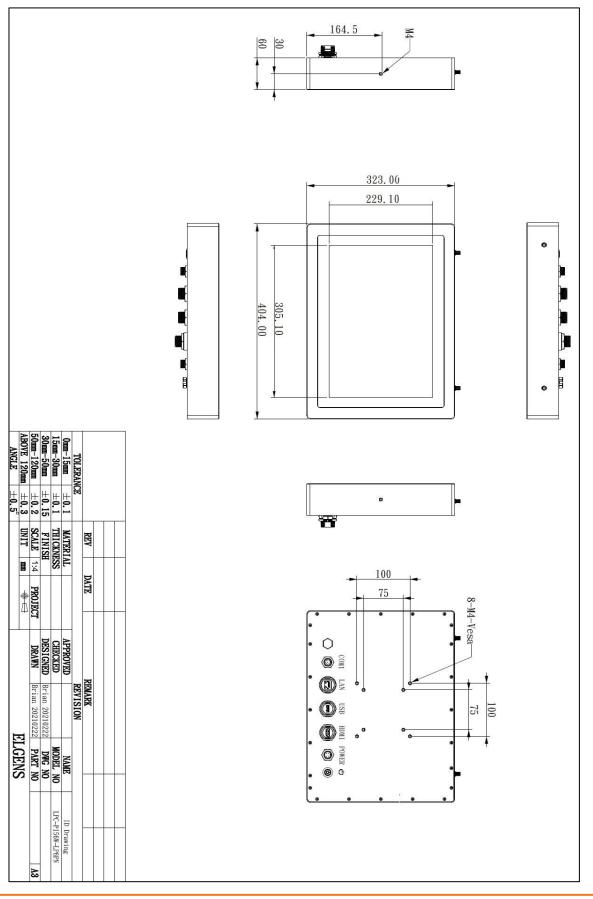
Computing	
Processor	Intel <sup>®</sup> 7 <sup>th</sup> KBL ULT i7-7600U/i5-7300U Processors
	Intel <sup>®</sup> 6 <sup>th</sup> SKL ULT i5-6300U/i3-6100U Processors
System Memory	1 x DDR4 SO-DIMM, up to 16 GB
Storage	2 x SATA 6Gb/s ports
	1 x mSATA 6Gb/s slot (shared with Mini-PCIe2, Full size)
External I/O Port	1 x GIGA LAN External Waterproof cables by 1.5 meters
	(the end side is male RJ45)
	1 x USB 2.0 External Waterproof cables by 1.5 meters
	(the end side is female USB 2.0)
	1 x Power External Waterproof cables by 1.5 meters
	(the end side is 2 wires : ground & + )
	1 x COM (1 x RS-232/422/485) External Waterproof cables by 1.5 meters
	1 x HDMI
Expansion Slots	2 x MiniPCle Slot
OS support	Windows 7 (32/64bit) (Sky Lake-ULT Only), Windows 8.1 (64bit)
	Windows 10 (64bit)
Touch Screen	
Туре	USB P-cap Touch
Light Transmission	90%
Power Supply	
Power Input	DC12~24V Wide Range Power Input
	M12 Connector
Mechanical	
Construction	Stainless Steel case
IP Rating	IP66 with 6 sides
Mounting	York / Desk / VESA Mounting
Environmental	
Operating Temperature	-20~60 °C, IEC-60068-2-1/2/14
Storage Temperature	-20~60 °C
Storage Humidity	10~90% @40 °C non-condensing



Order Code		
LPC-PxxxS/W -H/-OB/-G/-AG/-AR/-B/-V		
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		
OB = Optical Bonding		
AG = Anti-Glare		
AR = Anti-Reflection		
V = Vandal Proof Glass		

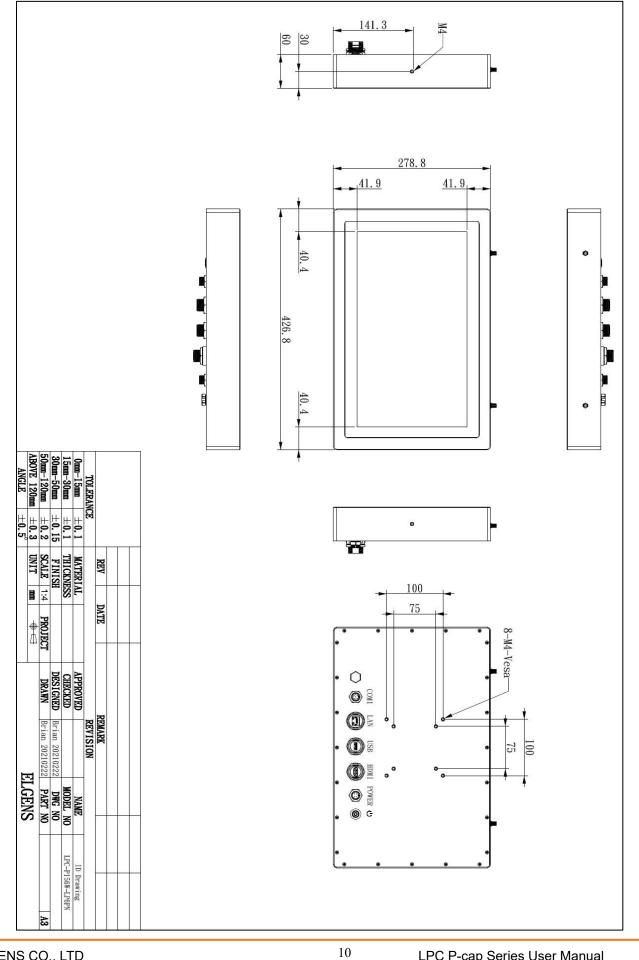
# 1.3 Dimensions

### 1.3.1 LPC-P150S-LPX Drawing



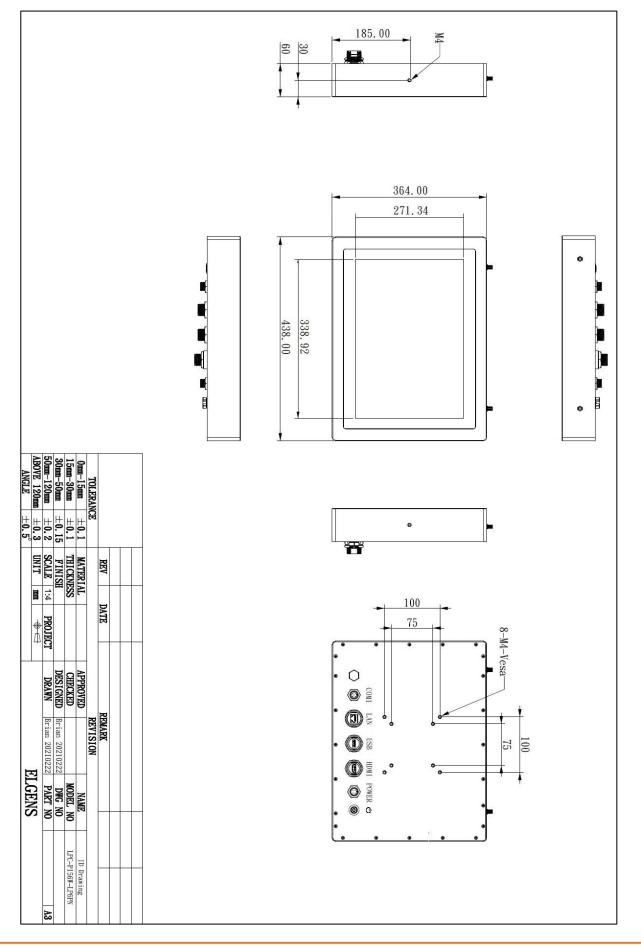
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#### 1.3.2 LPC-P156W-LPX Drawing

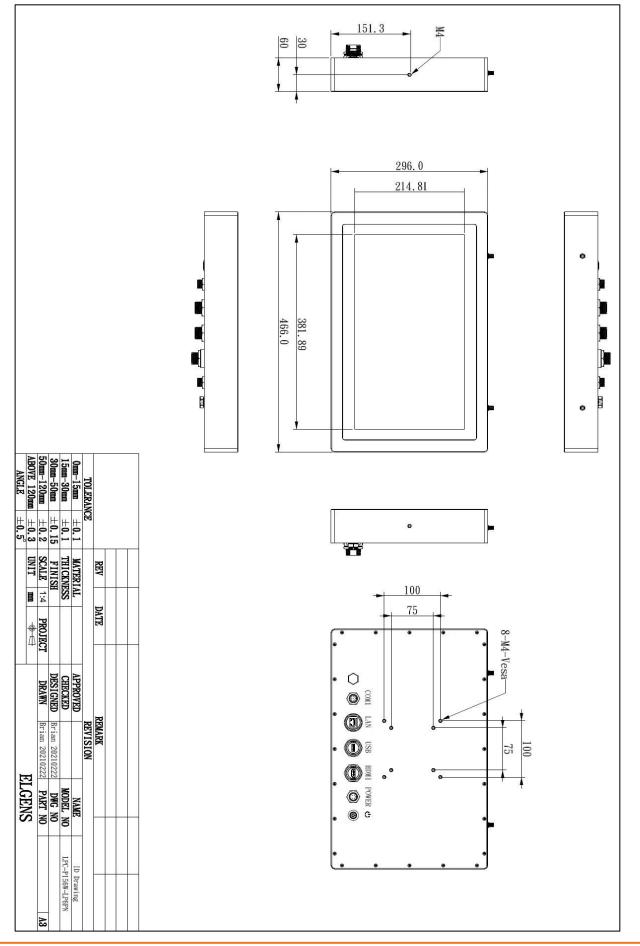


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### 1.3.3 LPC-P170S-LPX Drawing



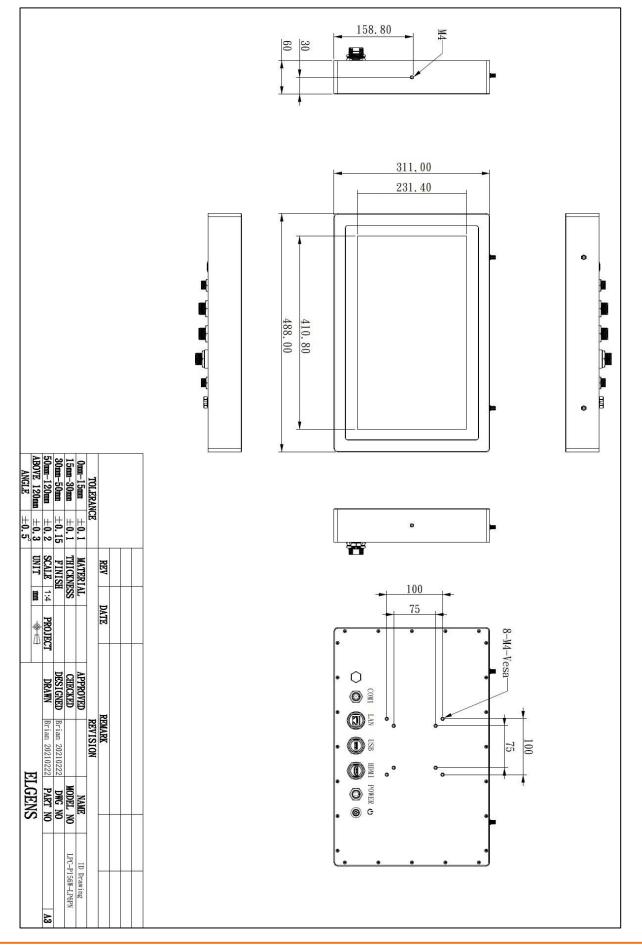
11



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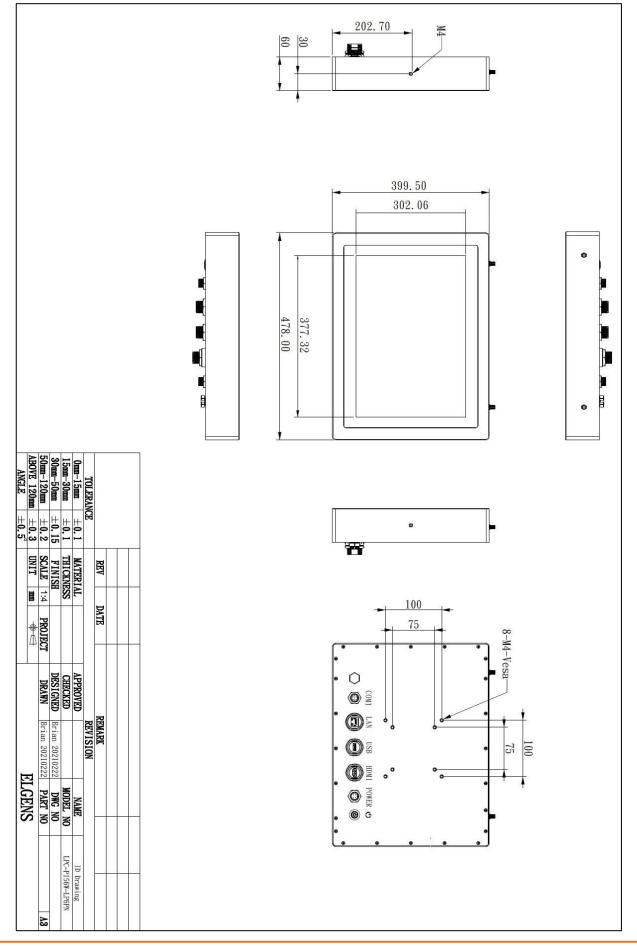
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### 1.3.5 LPC-P185W-LPX Drawing

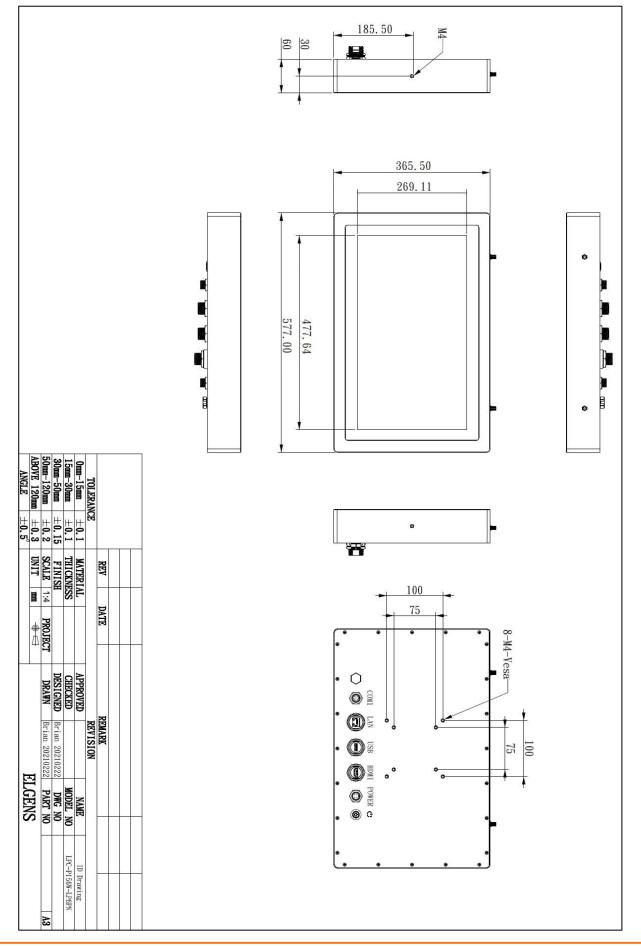


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### 1.3.6 LPC-P190S-LPX Drawing



### 1.3.7 LPC-P215W-LPX Drawing



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# **1.4** IO Pin Definition

### 1.4.1 COM1

COM 1 is default RS-485 as below pin definition, adjustable to RS-RS232/422 by BIOS.

Pin	RS-232	RS-422	RS-485
1	DCD	422 TXD-	485 TXD-
2	SIN	422 TXD+	485 TXD+
3	SOUT	422 RXD+	
4	DTR	422 RXD-	
5	GND	GND	GND
6	DSR		
7	RTS		
8	CTS		

### 1.4.2 Power Input

Power input terminal block pin definition is as below.

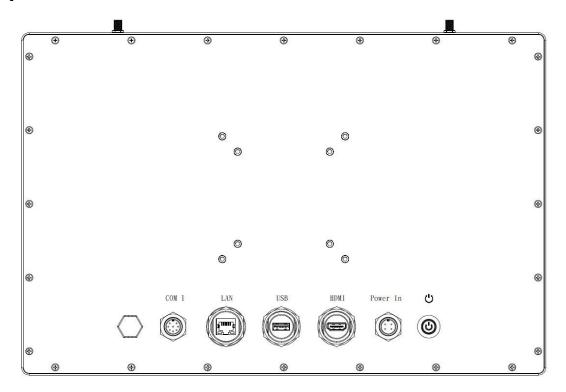
Pin	Description	
1	V+	
2	V+	
3	GND	
4	GND	4 PIN

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# 1.5 System Front View



# 1.6 System IO View



# Chapter 2. BIOS Setup

This chapter provides information on the BIOS Setup program and allows users to configure the system for optimal use.

Users may need to run the Setup program when:

- An error message appears on the screen at system startup and requests users to run SETUP.
- Users want to change the default settings for customized features.

#### **Important**

- Please note that BIOS update assumes technician-level experience.
- As the system BIOS is under continuous update for better system performance, the illustrations in this chapter should be held for reference only.

## 3.1. Entering Setup

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 & Reset	
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. The Menu Bar

System Date System Time	[Tue 06/20/2017] [10:13:30]	Set the Date. Use Tab to switch between Date elements.
SATA1 SATA2 mSATA	Empty Empty Empty	
SATA Mode Selection	[AHCI]	
USB Devices: 1 Drive, 1 Keyboard, 1	Mouse	
Intel(R) Celeron(R) CPU 3955 Processor Speed Processor ID BIDS Version Build Type Total Memory	U @ 2.000Hz 2000 MHz 0x440E53 E98H3IMS V1.0b12 062017 64 8192 MB (DDR4)	++: Select Screen 11: Select Item Enter: Select +/-: Change Oot. F1: General Help F7: Previous Values F3: Optimized Defaults F10: Save & Reset ESC: Exit

Main

Use this menu for basic system configurations, such as time, date, etc.

Advanced

Use this menu to set up the items of special enhanced features.

Boot

Use this menu to specify the priority of boot devices.

Security

Use this menu to set supervisor and user passwords.

► Chipset

This menu controls the advanced features of the onboard chipsets.

► Power

Use this menu to specify your settings for power management.

Save & Exit

This menu allows you to load the BIOS default values or factory default settings into the BIOS and exit the BIOS setup utility with or without changes.

USB Devices: 1 Drive, 1 Keyboard, 1 Mouse Intel(R) Celeron(R) CPU 3955U @ 2.00GHz	
USB Devices: 1 Drive, 1 Keyboard, 1 Mouse Intel(R) Celeron(R) CPU 3955U @ 2.006Hz	
Intel(R) Celeron(R) CPU 3955U @ 2.00GHz	
Processor Speed 2000 MHz ++: Select Screen	
Processor ID 0x406E3 11: Select Item BIOS Version E98H3IMS V1.0b12 062017 Enter: Select	
Build Type 64 +/-: Change Opt.	
Total Memory 8192 MB (DDR4) F1: General Help	
F7: Previous Values	
F9: Optimized Defau	lts
F10: Save & Reset ESC: Exit	
COUL EXIL	

► System Date

This setting allows you to set the system date. The date format is <Day>, <Month> <Date> <Year>.

► System Time

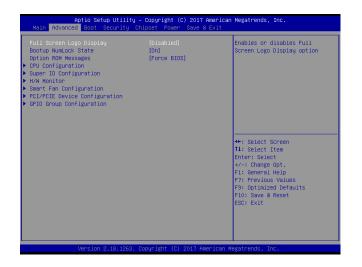
This setting allows you to set the system time. The time format is <Hour>

<Minute> <Second>.

► SATA Mode Selection

This setting specifies the SATA controller mode.

# 3.4. Advanced



Full Screen Logo Display

This BIOS feature determines if the BIOS should hide the normal POST messages

with the motherboard or system manufacturer's full-screen logo.

When it is enabled, the BIOS will display the full-screen logo during the boot-up sequence, hiding normal POST messages.

When it is disabled, the BIOS will display the normal POST messages, instead of the full-screen logo. Please note that enabling this BIOS feature often adds 2-3 seconds of delay to the booting sequence. This delay ensures that the logo is displayed for a sufficient amount of time. Therefore, it is recommended that you disable this BIOS feature for a faster boot-up time.

Bootup NumLock State

This setting is to set the Num Lock status when the system is powered on. Setting

to [On] will turn on the Num Lock key when the system is powered on. Setting to [Off] will allow users to use the arrow keys on the numeric keypad.

Option ROM Messages

This item is used to determine the display mode when an optional ROM is

initialized during POST. When set to [Force BIOS], the display mode used by AMI BIOS is used. Select [Keep Current] if you want to use the display mode of optional ROM.

#### CPU Configuration

Advanced	
CPU Configuration	
Intel(R) Celeron(R) CPU 3955U @ 2.00 Processor ID Processor Speed L2 Cache L3 Cache	GH2 0x406E3 2000 MH2 256 KB x 2 2 MB
Intel Virtualization Technology Active Processor Cores Execute Disable Bit Intel(N SpeedStep(tm) C states	(Enabled) (All) (Enabled) (Enabled) (Enabled)

Intel Virtualization Technology

Virtualization enhanced by Intel Virtualization Technology will allow a platform

to run multiple operating systems and applications in independent partitions. With virtualization, one computer system can function as multiple "Virtual" systems.

Active Processor Cores

This setting specifies the number of active processor cores.

Execute Disable Bit

Intel's Execute Disable Bit functionality can prevent certain classes of malicious

"buffer overflow" attacks when combined with a supporting operating system. This functionality allows the processor to classify areas in memory by where application code can execute and where it cannot. When a malicious worm attempts to insert code in the buffer, the processor disables code execution, preventing damage or worm propagation.

Intel SpeedStep

EIST (Enhanced Intel SpeedStep Technology) allows the system to dynamically

adjust processor voltage and core frequency, which can result in decreased average power consumption and decreased average heat production. When disabled, the processor will return the actual maximum CPUID input value of the processor when queried.

C-States

This setting controls the C-States (CPU Power states).

#### Super IO Configuration

Advanced	
Super IO Configuration	
Serial Port 1	
Device Settings	IO=3F8h; IRQ=4;
Change Settings	[Auto]
Mode Select	[RS232]
Serial Port 2	[Enabled]
Device Settings	IO=2F8h; IRQ=3;
Change Settings	[Auto]
Serial Port 3	[Enabled]
Device Settings	IO=3E8h; IRQ=7;
Change Settings	[Auto]
Serial Port 4	[Enabled]
Device Settings	IO=2E8h; IRQ=7;
Change Settings	[Auto]
Serial Port 5	[Enabled]
Device Settings	IO=2FOh; IRQ=7;
Change Settings	[Auto]
Serial Port 6	[Enabled]
Device Settings	IO=2EOh; IRQ=7;
Change Settings	[Auto]
Unter Den Timen	(D) i a shi b shi
Watch Dog Timer FIFO Mode	[Disabled]
Shared IRQ Mode	[128-byte] [Edge/Low Active]
Shared Ing Houe	(EugerLow Hotive)

Serial Port 1/2/3/4/5/6

This setting enables/disables the specified serial port.

Change Settings

This setting is used to change the address & IRQ settings of the specified

serial port.

Mode Select

Select an operation mode for the specified serial port.

Watch Dog Timer

You can enable the system watch-dog timer, a hardware timer that generates

a reset when the software that it monitors does not respond as expected each time the watch dog polls it.

► FIFO Mode

This setting controls the FIFO data transfer mode.

Shared IRQ Mode

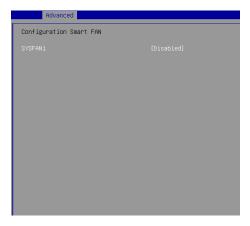
This setting provides the system with the ability to share interrupts among its serial ports.

#### ► H/W Monitor

These items display the current status of all monitored hardware devices/ components such as voltages, temperatures and all fans' speeds.

Advanced	
PC Health Status	
CPU temperature System temperature	: +43 C : +37 C
SYSFAN1	: N/A
VDC_CORE VDC3 VDC5 +12V VDC3V VDC3V VSB3V VSB5V VB4T	: +0.976 V : +3.321 V : +5.045 V : +12.056 V : +3.328 V : +3.344 V : +4.944 V : +3.152 V

#### Smart Fan Configuration



#### ► SYSFAN1

This setting enables/disables the Smart Fan function. Smart Fan is an

excellent feature which will adjust the CPU/system fan speed automatically depending on the current CPU/system temperature, avoiding the overheating to damage your system.

► PCI/PCIE Device Configuration

Advanced		
Advanced Legacy USB Support Audio Controller Launch OnBoard Lan OpRom Launch OnBoard Lan OpRom	[Enabled] [Enabled] [Disabled] [Disabled]	

Legacy USB Support

Set to [Enabled] if you need to use any USB 1.1/2.0 device in the operating

system that does not support or have any USB 1.1/2.0 driver installed, such as DOS and SCO Unix.

Audio Controller

This setting enables/disables the onboard audio controller.

► Launch OnBoard LAN OpROM

These settings enable/disable the initialization of the onboard/onchip LAN

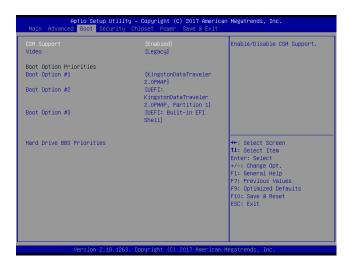
Boot ROM during bootup. Selecting [Disabled] will speed up the boot process.

#### ► GPIO Group Configuration

Advanced	
GPIO Group Configuration	
GPD0 GPD1 GPD2 GPD3 GPD4 GPD5 GPD6 GPD7	[Low] [Low] [Low] [Low] [Low] [Low] [Low]

► GPO0 ~ GPO7

These settings control the operation mode of the specified GPIO.



CSM Support

This setting enables/disables the support for Compatibility Support Module, a

part of the Intel Platform Innovation Framework for EFI providing the capability to support legacy BIOS interfaces.

Video

This setting selects the video mode.

Boot Option Priorities

This setting allows users to set the sequence of boot devices where BIOS

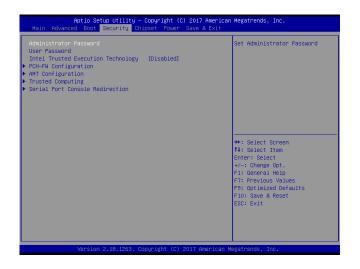
attempts to load the disk operating system.

Hard Drive BBS Priorities

This setting allows users to set the priority of the specified devices. First press

<Enter> to enter the sub-menu. Then you may use the arrow keys (  $\uparrow \downarrow$  ) to select the desired device, then press <+>, <-> or <PageUp>, <PageDown> key to move it up/down in the priority list.

# 3.6. Security



Administrator Password

Administrator Password controls access to the BIOS Setup utility.

User Password

User Password controls access to the system at boot and to the BIOS Setup utility.

Intel Trusted Execution Technology

Intel Trusted Execution Technology provides highly scalable platform security in physical and virtual infrastructures.

#### ▶ PCH-FW Configuration

Security	
ME Firmware Version ME Firmware Mode ME Firmware SKU ME File System Integrity Value ME Firmware Status 1 ME Firmware Status 2 NFC Support	11.6.13.1212 Normal Mode Corporate SKU 2 0x30000255 0x8A10830E Disabled
<ul> <li>ME State</li> <li>Manageability Features State</li> <li>AMT BIOS Features</li> <li>AMT Configuration</li> <li>ME Unconfig on RTC Clean</li> <li>Comms Hub Support</li> <li>JHI Support</li> <li>Core Bios Done Message</li> </ul>	(Enabled) (Enabled) (Enabled) (Disabled) (Disabled) (Enabled) (Enabled)
<ul> <li>Firmware Update Configuration</li> <li>PTT Configuration</li> <li>ME Debug Configuration</li> </ul>	

► ME Firmware Version, ME Firmware Mode, ME Firmware SKU, System Integrity Value, ME Firmware Status 1, ME Firmware Status 2, NFC Sup-

port

These settings show the firmware information of the Intel ME (Management Engine).

► ME Status

This setting enables/disables the ME status.

Manageablility Features States

This setting specifies the Intel ME Manageability Features.

AMT BIOS Features

This setting specifies theAMT BIOS Features.

#### ► AMT Configuration

Intel Active Management Technology (AMT) is hardware-based technology for remotely managing and securing PCs out-of-band.

Security	
ASF support	[Enabled]
USB Provisioning of AMT CIRA Configuration > AGF Configuration > Secure Erase Configuration > OEM Flags Settings > MEBx Resolution Settings	[Disabled]

ME Unconfig on RTC Clear

This setting enables/disables ME Firmware Un-configure on RTC clear state.

Comms Hub Support

This setting enables/disables Comms Hub Support.

► JHI Support

This setting enables/disables JHI Support.

Core BIOS Done Message

This setting enables/disables the Core BIOS Done Message.

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► Firmware Update Configuration



ME FW Image Re-Flash

This setting enables/disables the ME FW image reflash.

#### ► PTT Configuration

Intel Platform Trust Technology (PTT) is a platform functionality for credential storage and key management used by Microsoft Windows.



ME Debug Configuration

Aptio Setup Util Securit	ity — Copyright (C) 2017 American y
HECI Timeouts	[Enabled]
Force ME DID Init Status CPU Replaced Polling Disable ME DID Message HECI Retry Disable HECI Message check Disable MBP HOB Skip HEDI2 Interface Communication KT Device End Of Post Message DOI3 Setting for HECI Disable	[Disabled] [Disabled] [Enabled] [Disabled] [Disabled] [Disabled] [Enabled] [Enabled] [Enabled] [Send in DXE] [Disabled]

#### Trusted Computing

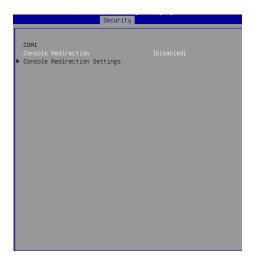


Security Device Support

This setting enables/disables BIOS support for security device. When set to

[Disable], the OS will not show security device. TCG EFI protocol and INT1A interface will not be available.

Serial Port Console Redirection

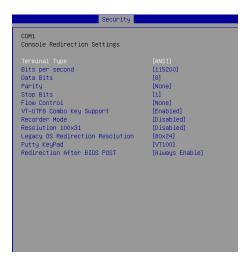


Console Redirection

Console Redirection operates in host systems that do not have a monitor

and keyboard attached. This setting enables/disables the operation of console redirection. When set to [Enabled], BIOS redirects and sends all contents that should be displayed on the screen to the serial COM port for display on the terminal screen. Besides, all data received from the serial port is interpreted as keystrokes from a local keyboard.

Console Redirection Settings



Terminal Type

To operate the system's console redirection, you need a terminal supporting

ANSI terminal protocol and a RS-232 null modem cable connected between the host system and terminal(s). This setting specifies the type of terminal device for console redirection.

▶ Bits per second, Data Bits, Parity, Stop Bits

This setting specifies the transfer rate (bits per second, data bits, parity,

stop bits) of Console Redirection.

► Flow Control

Flow control is the process of managing the rate of data transmission

between two nodes. It's the process of adjusting the flow of data from one device to another to ensure that the receiving device can handle all of the incoming data. This is particularly important where the sending device is capable of sending data much faster than the receiving device can receive it.

► VT-UTF8 Combo Key Support

This setting enables/disables the VT-UTF8 combination key support for

ANSI/VT100 terminals.

▶ Recorder Mode, Resolution 100x31

These settings enable/disable the recorder mode and the resolution

100x31.

Legacy OS Redirection Resolution

This setting specifies the redirection resolution of legacy OS.

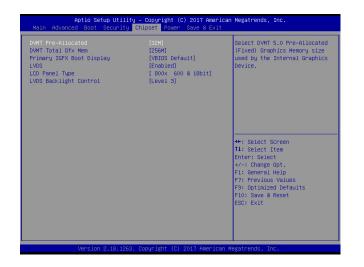
Putty Keypad

PuTTY is a terminal emulator for Windows. This setting controls the numeric keypad for use in PuTTY.

► Redirection After BIOS POST

This setting determines whether or not to keep terminals' console redirection running after the BIOS POST has booted.

## 3.7. Chipset



DVMT Pre-Allocated

This setting defines the DVMT pre-allocated memory. Pre-allocated memory is

the small amount of system memory made available at boot time by the system BIOS for video. Pre-allocated memory is also known as locked memory. This is because it is "locked" for video use only and as such, is invisible and unable to be used by the operating system.

DVMT Total Gfx Mem

This setting specifies the memory size for DVMT.

Primary IGFX Boot Display

Use the field to select the type of device you want to use as the displays of the

system.

LVDS

This setting enables/disables LVDS.

LCD Panel Type

This setting specifies the LCD panel type.

LCD Backlight Control

This setting controls the LVDS backlight.

Aptio Setup Utilit Main Advanced Boot Security	y — Copyright (C) 2017 Ar Chipset Power Save & E	
Restore AC power Loss Deep Sleep Mode	[Last State] [S5]	Select AC power state when power is re-applied after a power failure.
Advanced Resume Events Control OnChip GbE/USB PCIE PME RTC	[Enabled] [Disabled] [Disabled]	
		++: Select Screen 14: Select Item Enter: Select +/-: Change Opt. F1: General Helo F7: Previous Values F3: Optimized Defaults F10: Save & Reset ESC: Exit
Version 2.18.1263	. Copyright (C) 2017 Amer	rican Megatrends, Inc.

#### Restore AC Power Loss

This setting specifies whether your system will reboot after a power failure or interrupt occurs. Available settings are:

[Power Off]	Leaves the computer in the power off state.
[Power On]	Leaves the computer in the power on state.
[Last State]	Restores the system to the previous status before
	power failure or interrupt occurred.

#### ► Deep Sleep Mode

The setting enables/disables the Deep S5 power saving mode. S5 is almost

the same as G3 Mechanical Off, except that the PSU still supplies power, at a minimum, to the power button to allow return to S0. A full reboot is required. No previous content is retained. Other components may remain powered so the computer can "wake" on input from the keyboard, clock, modem, LAN, or USB device.

\*\* Advanced Resume Events Control \*\*

Onchip GbE / USB

The item allows the activity of the OnChip GbE/USB device to wake up the system from S3/S4 sleep state.

► PCIE PME

This field specifies whether the system will be awakened from power saving modes when activity or input signal of onboard PCIE PME is detected.

► RTC

When [Enabled], you can set the date and time at which the RTC (real-time clock) alarm awakens the system from suspend mode.

## 3.9. Save & Exit



Save Changes and Reset

Save changes to CMOS and reset the system.

Discard Changes and Exit

Abandon all changes and exit the Setup Utility.

Discard Changes

Abandon all changes.

Load Optimized Defaults

Use this menu to load the default values set by the motherboard manufacturer specifically for optimal performance of the motherboard.

Save as User Defaults

Save changes as the user's default profile.

Restore User Defaults

Restore the user's default profile.

Launch EFI Shell from filesystem device

This setting helps to launch the EFI Shell application from one of the available file system devices.

# Chapter 4. USB 3.0 driver installation

## SOP of USB 3.0 driver installation prior to Win 7 by Smart kit

### Purpose:

The original Windows 7 is imcompatible with USB 3.0, the program "MSI Smart Tool Kits" will help you to compile USB 3.0 driver into your original Windows 7, in order to avoid the system failure when you install OS. This tool can make your own bootable Windows 7 USB from your original Windows 7 disk.

### Things need to prepare:

Prepare your Windows 7 DVD, and an USB disk at least 8Gb Put the DVD in the DVD-ROM and plug USB into your computer. Please download "MSI Smart Tool Kits" from the website below: https://drive.google.com/drive/u/0/folders/0B0ap8HaD1zCCOU5sN2cyZ1JMSjQ

### MSI Smart Tool Kits

- 1. Click "Source folder" choose the location of your Windows 7 disc.
- 2. Choose "USB storage" as bootable USB for your Windows 7
- 3. Click"Start"
- 4. Click"YES"



<b>MSí</b> ய	Win7 Smart Tool	××
Step 1 : Choose source Source folder Add USB drivers Step 2 : Choose storage USB storage	F:\	
O ISO destination	C:1	
M.2 Genie		
		Start
Co	pyright © 2015 Micro-Star INT'L CO., LTD. All rights reserved.	

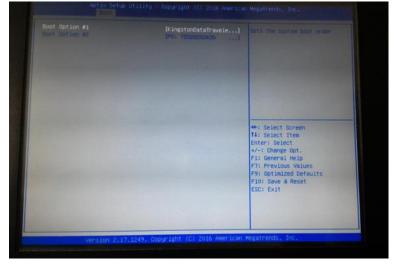
Once the status bar reach to 100%, withdraw the USB device and done.

### Step A.

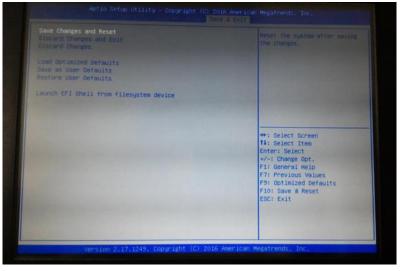
- A-1. Plug your modified USB to USB 3.0 port, and keyboard
- A-2. Then turn on the LPC series press "Delete" to enter BIOS mode,
- A-3. In BIOS mode, go to "Boot" page and select "Hard Drive BBS Priorities"

	[Enabled] [Legacy] [Hindows 7]	Set the order of the legac, devices in this group
bot Option Priorities Not Option #1 Not Option #2	[P0: TS326SSD630] [UEFI: Built-in EFI]	
		++: Select Screen 14: Select Item Enter: Select +/-: Change Opt. F1: General Help F7: Previous Values F9: Optimized Defaults F10: Save & Reset ESC: Exit
		F10: Save & Re

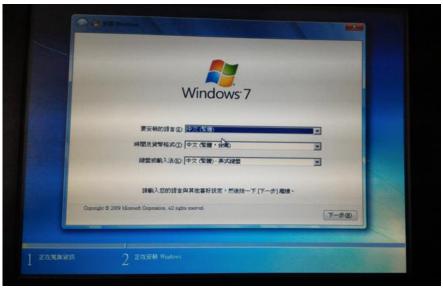
A-4. Select your Modified USB disk as "Boot Option #1"



A-5. Then go to "Save & Exit" page choose "Save Changes and Reset"



A-6. Then the Win 7 installation will appear on the screen. Now you can install Windows 7 with your keyboard through USB 3.0.

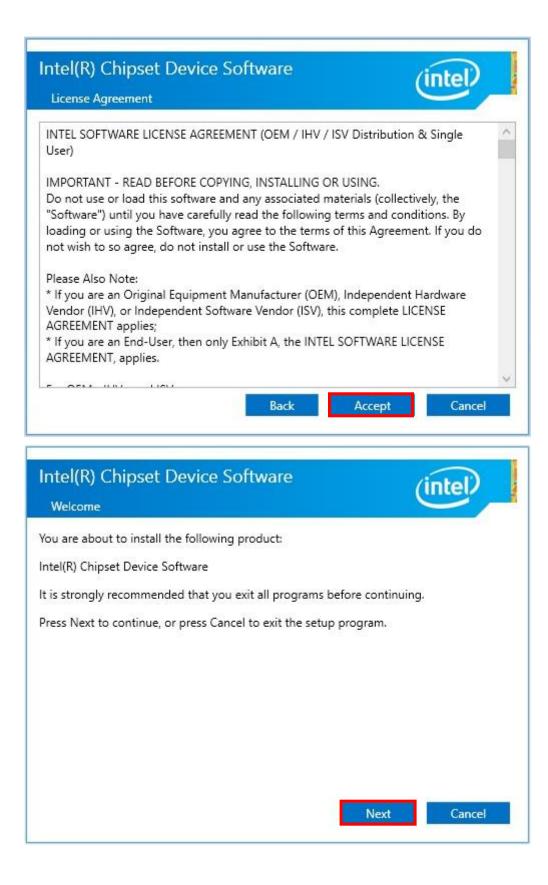


# **Chapter 5.** Installation Drivers

## 5.1. Chipset Driver Installation

- 4.1.1. Select Chipset folder and execute "Setupchipset.exe"
- 4.1.2. Please follow the red blank.

	R) Chipset Device Software	
Neadm		
*****	***************************************	****
	oduct: Intel(R) Chipset Device Software	100
	rsion: 10.1.1	
	rget PCH/Chipset: Client Platforms te: 2015-06-03	
******		***
1972-0	a mana a a ana ao mandritra ao aminina aminina aminina ao aminina aminina aminina aminina aminina aminina aminin 1983	
NOT		
	For the list of supported chipsets, please re to the Release Notes	rer
******		****
* CON	NTENTS OF THIS DOCUMENT	****
This c	document contains the following sections:	
1. 0	verview	
2. Sy	/stem Requirements	
3. Co	ontents of the Distribution Package	
34	A. Public and NDA Configurations	~
<		>



45

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

## 5.2. Graphics Driver Setup

- 4.2.1. Select "Graphics\4678\win64" folder and execute "Setup.exe"
- 4.2.2. Please follow the red blank.

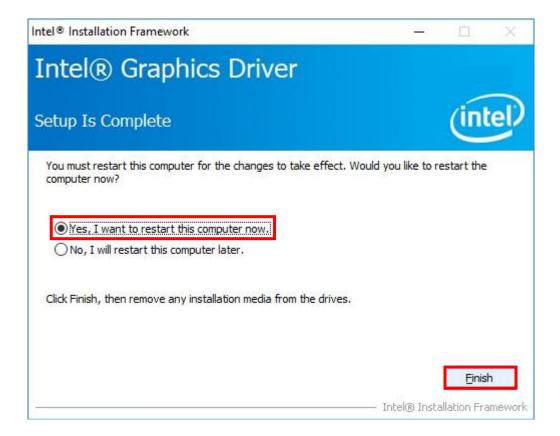
	Question	×	
	This computer currently contains driver versions newer that the versions you are about to install. Are you sure you war to overwrite the following drivers with the older versions?		
	Intel(R) Display Audio (10.24.0.3) Intel(R) HD Graphics 520 (24.20.100.6229)		
	Yes No		
Intel® Installation Fr	ramework —		X
Intel <sup>®</sup> G	raphics Driver		
Welcome to th	ne Setup Program	(inte	P
	will install the following components: iver	(inte	P
This setup program - Intel® Graphics Dr - Intel® Display Aud	will install the following components: iver		
This setup program - Intel® Graphics Dr - Intel® Display Auc It is strongly recomn	will install the following components: iver lio Driver	t to continue.	
This setup program - Intel® Graphics Dr - Intel® Display Auc It is strongly recomn	will install the following components: iver lio Driver nended that you exit all programs before continuing. Click Next	t to continue.	
This setup program - Intel® Graphics Dr - Intel® Display Auc It is strongly recomn	will install the following components: iver lio Driver nended that you exit all programs before continuing. Click Next n WinSAT and enable the Windows Aero desktop theme (if sup Next >	t to continue.	

Intel® Installation Framework		<u></u> )		×
Intel® Graphics Dri	ver			
License Agreement			(int	el)
You must accept all of the terms of the licens program. Do you accept the terms?	e agreement in order	to continue the	esetup	
INTEL SOFTWARE LICENSE AGREEMENT (OF IMPORTANT - READ BEFORE COPYING, INST Do not use or load this software and any ass until you have carefully read the following te Software, you agree to the terms of this Agr install or use the Software.	TALLING OR USING. sociated materials (co erms and conditions. E	llectively, the "S By loading or usi	Software") ng the	^
Please Also Note: * If you are an Original Equipment Manufact (IHV), or Independent Software Vendor (ISV * If you are an End-User, then only Exhibit A	), this complete LICE	NSE AGREEMEN	T applies;	¥
	< <u>B</u> ack	<u>Y</u> es	No	
		— Intel® Inst	allation Fra	mework

Intel® Installation Framework	<u>200</u> 9		×
Intel® Graphics Driver			
Readme File Information		(int	el
Refer to the Readme file below to view the system requirements	and installation ir	formation	
Driver Version: 21.20.16.4678			^
Release Version: Production Version			
Platforms/ Operating System(s):			
7th Gen Intel(R) Core(TM) processor family (Codename Kaby La Microsoft Windows* 10-64	ke)		
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® Inst	allation Fra	mework

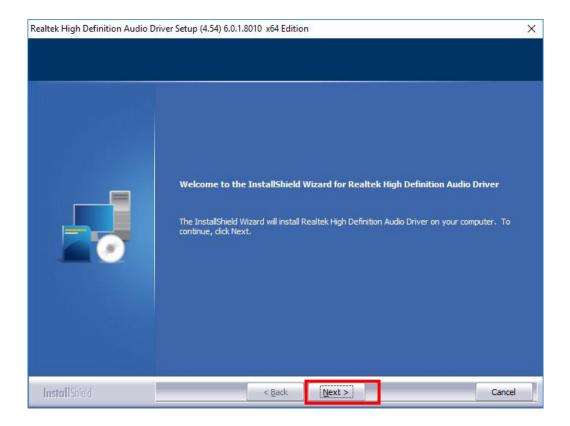
Intel® Installation Framework	
Intel® Graphics Driver	
Setup Progress	intel
Please wait while the following setup operations are performed	:
Creating Process: C:\Program Files (x86)\Intel\Intel\Intel(R) Proces Installing Driver: Intel(R) Display Audio Version: 10.22.1.100	sor Graphics\uninstall\UninstallVulka
\$	,
	Next >

	nstallation Framework	el® Installation Framewor
	el® Graphics Driver	ntel® Graph
(intel	) Progress	etup Progress
	e wait while the following setup operations are performed:	Please wait while the followin
ntel(R) Graphic el.Ink intel(R) Iris(TM) R) Iris(TM) Grap Ink	ting File: C: \ProgramData \Microsoft\Windows\Start Menu\F ting File: C: \ProgramData \Microsoft\Windows\Start Menu\F ting File: C: \Users\Public\Desktop\Intel(R) HD Graphics Cor ting File: C: \Users\Public\Desktop\Intel(R) Graphics and Me ting File: C: \ProgramData \Microsoft\Windows\Start Menu\F ting File: C: \ProgramData \Microsoft\Windows\Start Menu\F ting File: C: \Users\Public\Desktop\Intel(R) Iris(TM) Graphics ting File: C: \Users\Public\Desktop\Intel(R) Iris(TM) Graphic ting File: C: \Users\Public\Desktop\Intel\Intel(R) Iris(TM) Graphic ting File: C: \Users\Public\Desktop\Intel\Intel(R) Iris(TM) Graphic ting Registry Key: HKLM\SOFTWARE\Intel\GFX\Internal\Au ting Registry Key: HKLM\SOFTWARE\Intel\GFX\Internal\Au	Deleting File: C: \ProgramDa Deleting File: C: \Users \Public Deleting File: C: \Users \Public Deleting File: C: \ProgramDa Deleting File: C: \ProgramDa Deleting File: C: \Users \Public Deleting File: C: \Users \Public Deleting Registry Key: HKLM
~	Next to continue.	Click Next to continue.
>		<
<u>N</u> ext >		
stallation Framewo		
		3



## 5.3. Audio Driver Setup

- 4.3.1. Select "Audio\8010\_PG454\_Win10\_TH\_RS\_Win8.1\_Win8\_Win7\_WHQL" folder and execute "Setup.exe"
- 4.3.2. Please follow the red blank.



Realtek High Definition Audio Dri	ver 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
	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> </ul>
	Remove any disks from their drives, and then dick Finish to complete setup.
InstallShield	< Back Finish Cancel

ELGENS CO., LTD

## 5.4. LAN Driver Setup

- 4.4.1. Go to LAN file and choose 32 bits or 64 bits " Setup.exe"
- 4.4.2. Please follow the red blank.

Welcome to Network Co	) the install wizard nnections	for Intel(R)	inte	
	Installs drivers, Intel(R) Networking Services.	Network Connections, and	Advanced	
	WARNING: This progra international treaties.	m is protected by copyright	aw and	
		< <u>B</u> ack <u>N</u> e	xt > Cancel	
Intel(R) Netw	ork Connections Instal		xt > Cancel	
License Agre		l Wizard	xt > Cancel	
License Agre Please read t	ement he following license agree INTEL SOFTWA	l Wizard	T	
License Agree Please read t IMP( Do not copy, in (collectively, t	ement he following license agree INTEL SOFTWA ORTANT - READ BEFO Install, or use this soft he "Software") provid	Il Wizard ement carefully. RE LICENSE AGREEMEN	T G OR U SING. d materials preement	
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Fieldse read the following license ag	cement carefully.	<u> </u>
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(collectively, the "Software") pro- ("Agreement") until you have car By copying, installing, or otherwis the terms of this Agreement. If yo do not copy, install, or use the So	vided under this license ag efully read the following ter se using the Software, you a ou do not agree to the terms	reement ms and conditions. agree to be bound by
(collectively, the "Software") pro- ("Agreement") until you have car By copying, installing, or otherwis the terms of this Agreement. If yo do not copy, install, or use the So	vided under this license age efully read the following ter se using the Software, you a bu do not agree to the terms ftware.	reement ms and conditions. agree to be bound by
(collectively, the "Software") pro- ("Agreement") until you have car By copying, installing, or otherwis the terms of this Agreement. If yo do not copy, install, or use the So LICENSES:	vided under this license age efully read the following ter se using the Software, you a bu do not agree to the terms oftware.	reement rms and conditions. agree to be bound by s of this Agreement,

Intel(R) Network Connections Install Wiz	ard		×
Setup Options Select the program features you want i	nstalled.		(intel)
Install:			
Device drivers     Intel® PROSet     Intel® Advanced Network Serv     Intel® SNMP Subagent      Feature Description	vices		
	< <u>B</u> ack	<u>N</u> ext >	Cancel

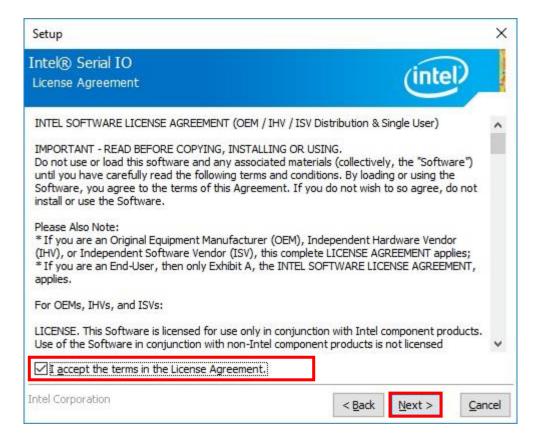
🕼 Intel(R) Network Connections Install Wizard	×
Ready to Install the Program	(intel)
The wizard is ready to begin installation.	Interv
Click Install to begin the installation.	
If you want to review or change any of your installation set exit the wizard.	tings, click Back. Click Cancel to
< <u>B</u> ack	<u>I</u> nstall Cancel

记 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

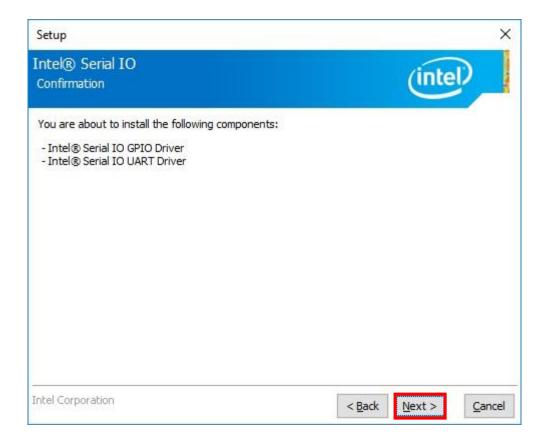
### 5.5. SIO Driver Setup

- 4.5.1. Go to "SIO\30.100.1713.2" and Choose "SetupSerialIO"
- 4.5.2. Please follow the red blank.





#### X Setup Intel® Serial IO Readme File Information \* \* Production Version Release \* 2 \* Microsoft Windows\* 10 64 bit \* \* \* Intel(R) Serial IO Driver \* August 2016 \* NOTE: This document refers to systems containing the following Intel processors/chipsets: \* Intel(R) Core(TM) M Processor. \* Intel(R) 6th generation Core Platform I/O. \* Intel(R) 100 Series Chipset Family. \* Intel(R) 7th Generation Core Platform I/O. \* Intel(R) 200 Series Chipset Family. Intel Corporation < Back Next > Cancel



Setup			×
Intel® Serial IO Completion		(inte	D
You have successfully installed the following product: Intel® Serial IO 30.100.1713.2			
You must restart this computer for the changes to take effect computer now?	. Would you	like to restart	t the
○ No, I will restart this computer later. Click here to open log file location.			
Intel Corporation	< <u>B</u> ack	Next >	Einish

### 5.6. ME Driver Setup

- 4.6.1. Go to "AMT11.6\ME11.6\_corp\_11.6.50.1213" E "and choose "SetupME.exe"
- 4.6.2. Please follow the red blank.



Setup			×
Intel® Management Engine Compon License Agreement	ents	(inte	D
INTEL SOFTWARE LICENSE AGREEMENT (OEM / 3	IHV / ISV Distribution &	Single User)	^
IMPORTANT - READ BEFORE COPYING, INSTALL Do not use or load this software and any associa until you have carefully read the following terms Software, you agree to the terms of this Agreem install or use the Software.	ted materials (collective and conditions. By loadi	ng or using th	e
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Setup	>	<
Intel® Management Engine Components Destination Folder	(intel)	A AL
Click Next to install to the default folder, or click Change to	o choose another destination folder.	
C:\Program Files (x86)\Intel\Intel(R) Management Engine	e Components	]
	Change	1
Intel Corporation	< Back Next > Cance	

Setup			×
Intel® Management Engine Components Completion		(intel	
You have successfully installed the following components:			
- Intel® Management Engine Interface - Serial Over LAN - Local Management Service - Intel® Management and Security Status			
Click <u>here</u> to open log file location.			
Intel Corporation	< <u>B</u> ack	Next >	Einish

# History

Date	Rev.	Description	PIC
2021/3/30	0.0	Draft	Haintz