

Panel Mount Computer



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1. Introduction

This manual describes in details the AbraxSys Panel PC. We have tried to include as much information as possible but have not duplicated information that is provided in the standard IBM Technical References, unless it proved to be necessary to aid in the understanding of this board. We strongly recommend that you study this manual carefully before attempting to set up or change the standard configurations.

Please be aware that it is possible to create configurations within the CMOS RAM that make booting impossible. If this should happen, clear the CMOS settings, (see the description of the Jumper Settings for details).

If you have any suggestions or find any errors regarding this manual and want to inform us of these, please

contact our Customer Service department with the relevant details.

2. Product Safety Precautions

- * Ensure that sufficient space is available around the display to provide the circulation necessary for cooling.
- * Ensure that the ambient air temperature will not exceed the specified maximum temperature.
- * Do not attempt to service this display yourself. The rear chassis has a seal so that non-qualified personnel will not expose themselves to dangerous voltages or other risks.
- To protect from electrical shock, unplug the display power supply from the wall before moving.
- * Do not expose the display to direct sunlight or heat.
- Do not use this display near water.
- bo not place any heavy objects on the power cords. Damage may cause electrical shock.
- * Unplug the power supply from the wall or unit if one of the following conditions exists:
 - Power cord or plug is damaged or frayed.
 - Liquid is spilled onto the display or the display is exposed to rain or water.
 - The display does not operate normally when the operating instructions are followed.
 - The display has been dropped or the enclosure has been damaged.
 - The display exhibits a distinct change in performance, indicating a need for service.

3. Inspection of your AbraxSys Computer.

The Panel PC is supplied with different accessories depending on the model configuration purchased. Verify the model and accessories that were ordered. Contact your AbraxSys salesperson should there be any discrepancies.

4. Unpacking your AbraxSys Computer

Your new rugged Panel PC package will consist of a variation of the components depending on model, configuration, and options ordered. Open shipping container and place all the components on a flat clean surface. Contact your AbraxSys salesperson should there be any discrepancies and/or packaging damage. Packaging type will depend on model size. 'Cable Kits' are clearly labeled on a box <u>inside</u> the shipping container which will include not only all associated cables, but as well necessary mounting hardware, user manual (USB flash drive), touch screen driver (USB flash drive) [already installed]. If the kit box is missing, please contact AbraxSys immediately. Additionally, on the outside of each packaging container you will notice a white AbraxSys product label. Printed information on this label will be Model, Model Configuration, Date Code, Serial Number, Invoice number, customer PO number, and customer requested reference information, and the AbraxSys Production work-order number.





5. Power

General

AbraxSys typically offers the following power options:

- * 90-264V AC 110/220
- * 12V DC FIXED
- * 24V DC Variable
- * 9 to 36V DC Variable
- * 20 to 53V DC Variable

Alternating Current [AC] Power

AC Power with an In-Line Corcom Transient Noise and EMI / RFI Filter Auto Switching @ 50/60 Hz (Internal)

Current - IEC 6A

Voltage - IEC 120VAC

Current - UL 6A

Voltage - UL 250VAC

This power module has a field replaceable fuse port. Below is shown how to change the fuses (x2). Use two Glass 2A 250VAC 3AB 3AG Fuses. AbraxSys suggests Littlefuse p/n 0313002.HXP.











Direct Current [DC] Power

AbraxSys typically provides one of these two types of DC power connectors, although a Terminal Block is a possibility, too.

DC with Locking Connector



Its Mating Cable



Yellow = Positive Black = Negative

24V DC Variable

This is a variable DC option and can handle a fairly wide deviation from 24V.

9 to 36V DC Variable

This variable configuration will take variations from 9V DC all the way through 36V DC.

20 to 53V DC Variable

This variable configuration will take variations from 20V DC all the way through 53V DC.

6. Cleaning and Caring For

Occasionally clean the display panel and cabinet with a soft cloth dampened (not soaked) with a mild (non-abrasive) glass cleaner. Keep turning a fresh side of the cloth toward the screen surface to avoid scratching it with accumulated grit.

Note: The solvent should be applied only to the cloth, and not directly on the monitor screen.

Do not use paper products as they may scratch the surface. To minimize the risk of abrasion, allow the screen to stand dry. Special care should be taken when cleaning a touch screen or polycarbonate shield that is installed over the screen. Abrasive and certain chemical cleaners can easily damage the surface. Never use alcoholic or ammoniac cleaners to clean the polycarbonate shield or a touch screen.

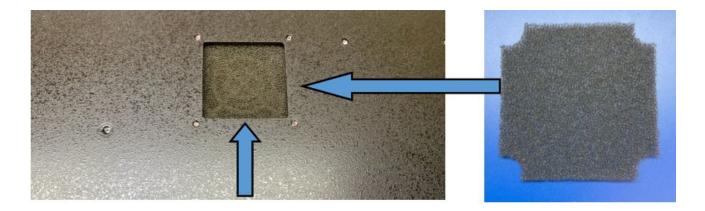
Note: For best results cleaning a monitor with the optional antireflective tempered glass display shield, a solution of denatured alcohol is recommended to thoroughly clean the display.

Replacing a Line Cord

To avoid shock and fire hazards, the monitor's power cord should be replaced if the insulation becomes broken or if it develops a loose internal connection.

Fan Filter

A fan is not integrated into all AbraxSys models, but those that have a fan at the backside of the monitor the fan filter should be changed regularly, especially in very dirty environments. Replacement filters can be obtained by calling AbraxSys, (800) 883-9050.



Qualified service personnel should perform all maintenance, except for the power cord replacement described above.

7. Mounting

Panel Mount

- 1. Cut and drill the panel (refer to panel mount drawing). Measurements are in inches and millimeters.
- 2. If access to the side of the PC is not available following installation, attach the power and video cables to the side of the monitor at this time.
- 3. Install the monitor in the prepared cutout.
- 4. Install the lock nuts and washers, supplied with the monitor, behind the holes running along the sides and top/bottom of the cutout in the panel. Extra lock nuts and washers are provided.
- 5. Tighten mounting nuts evenly to provide adequate seal and avoid potential damage to the unit. AbraxSys assumes no responsibility for water or chemical damage due to improper installation.
- 6. Attach the power, video cables, and touch cables (if applicable) if you have not already done so.

8. Touchscreen (optional feature)

Introduction

Touch screens are a common means to interface operator inputs to a system. The universal standard of Windows GUI (Graphical User Interface) has significantly increased the use of touch screens. There are several main touch technologies. The technologies are resistive, surface acoustic wave (SAW), surface capacitive, infra-red (IR), Optical, projective capacitive, and AbraxSys' Hardened Armored Resistive Touch. Each touch technology has advantages and disadvantages based on different user applications. Currently, AbraxSys only supports: Projected Capacitive, 5-wire Resistive, or Hardened Armored Resistive. These three are deemed the best for harsh-duty environments.

Typically, for 5-wire Resistive or Hardened Armored Resistive configurations, AbraxSys provides both Serial (RS232) and USB ports on its monitors. In some instances, only one will be present if the mechanical rear chassis is too small to accommodate both, at which point only one or the other will be resident. This will have been discussed and selected at the time of order.

Projected Capacitive Touch configurations will have only USB. RS232 is not offered or available.

Installation

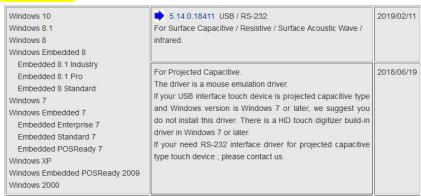
All AbraxSys displays configured with a touch screen ("Resistive" and/or "Hardened Armored Resistive" only) are supplied with a USB thumb-drive which includes the drivers for various operating systems. Insert the supplied USB removable drive into the computer's applicable USB port and follow the installation instructions that will appear on the screen.

Drivers can also be downloaded from here:



Microsoft http://www.eeti.com.tw/drivers_Win.html

Screenshot





http://www.eeti.com.tw/drivers Linux.html

Screenshot



For those systems specifically configured with an ELO Resistive Touch controller, drivers can be downloaded from here:



https://www.elotouch.com/support/downloads#/category/346LYmeuAUEI4Qa0sSyiSa

NOTE: Projected Capacitive touch screens (PCAP for short) are **USB only** devices and do NOT need drivers or calibration. They are HID devices (Human Interface Device) and all Windows and Linux based operating systems, Win7 and above, are all HID-enabled.

The HID standard was adopted primarily to enable innovation in PC input devices and to simplify the process of installing such devices. Prior to the introduction of the HID concept, devices usually conformed to strictly defined protocols for mouse, keyboards, touch screens, and joysticks. The HID protocol enables all modern mainstream operating systems to recognize standard USB HID devices, again, such as touch screens, keyboards, and mice, without needing a specialized driver. When installed, a message saying "An HID-compliant device has been recognized" generally appears on screen.

Technical support is available by contacting AbraxSys' customer support at 800-883-9050.

9. Dimming (optional feature)

AbraxSys offers several types of dimming controls:

Rear Mounted User Keypad with Up/Down arrows to control dimming

Front Mounted User Keypad with Up/Down arrows to control dimming

Manual Full-Range Dimming Turn-Pot from 0 to 100% brightness

Automatic Ambient Light Sensor

Remote Dimming by Turn-Pot

Command Dimming by Serial (RS232) Port (not available on all models)

Rear or Front Mounted Keypad

While the Up/Down arrows also control menu movement within the OSD, the keypad has been pre-programmed to also do quick brightness adjustments by simply pressing the Up or Down arrows to control dimming levels.

Manual Full-Range Dimming Turn-Pot

With this option, if ordered, a sealed potentiometer 'knob' has been integrated into a lower corner of the front bezel. Turn left to reduce the monitor's brightness, turn the knob right to increase luminance. All the way 'right' will be at full brightness and all the way left will produce a black screen....even though the monitor is still 'on'.

Automatic Ambient Light Sensor

With this option, if ordered, a small sealed light sensor has been integrated into the front bezel. It automatically senses ambient light levels and provides continuous self-regulating control of the LCD's LED backlights for daylight and nighttime operation. Ideal for unsupervised KIOKS, outdoor control panels, vehicle operation, etc. and works by monitoring daylight conditions, then controlling the monitor's luminance so as to ensure that adequate lighting levels are maintained. The sensor will not reduce brightness down to a black screen, or zero 'nits'. Typically, about 20% of maximum brightness is as low as it will go. Please note as well, that when operating the monitor inside the brightness will appear about as bright as a standard office LCD, so do not be alarmed if the brightness is not super bright. You can take a flashlight and direct it closely over the light sensor and see the luminance increase. The sensor is meant only for very bright environments.

Remote Dimming

Same as "Manual Full-Range Dimming Turn-Pot" but the potentiometer is provided with wire leads so you can mount remotely, like on a ship's console or within a Pelican case.

Command Dimming

Please contact AbraxSys for support if this was ordered.

10. System Specifications

04	
System	
CPU	Onboard 6th generation Intel® Skylake i7/i5/i3 2+2e SoC ULT Processor (15W)
BIOS	AMI uEFI BIOS,128 Mbit SPI Flash ROM
	iAMTsupported
I/O Chip	EC(IT8528E)
System Memory	Two 260-pin DDR4 SODIMM (non ECC) support up to 32GB
SSD	mSATA from MiniPCle
Watchdog Timer	H/W Reset, 1sec. ~ 65535sec. and 1sec./step
H/W Status	Monitoring System Temperature, Voltage and FAN Status with Auto Throttling
Monitor	Control
	1 x Mini PCle connector (for PCle &USB2.0 &SIM Card)
Expansion	1 x Mini PCle connector (for MSATA)
Built-in Touch	EETI ETP-CP-MER4485XRU
screen (optional)	1 x 5-pin 2.54mm Pin Header (0 Degree Right Angle Pin Header)
1/0	
	1 x SATA III (1 x 1x2 pin wafer w/2.0mm pitch for SATA Power)
****	2 x DB-9 male connector for COM1/2 (RS-232/422/485 selected by jumper w/ Auto
MIO	Flow), 4 x RS-232 (Pin Header)
	LPC x 1, SPI x 1
USB	4 x USB3.0 (dual deck USB connector for 2 USB3.0 port), 4 x USB 2.0 (Wafer)
GPIO	16bit GPIO (2 x 10 pin wafer w/2.0mm pitch) 8 x In, 8 x Out
	*1 x SIM socket
	*Backlight
	1. 1 x 2 x 3 pin w/2.0mm pitch (VR voltage adjustment) 1/3/5 pin connected to EC
	2. 1 x 1 x 5 pin wafer w/2.0mm pitch Please check Backlight sheet
	3. 1 x 1 x 3 pin header w/2.0mm pitch(DC/PWM) 1pin for PWM,3pin for DC
	*1 x 6pin DIP Switch for COM1 & COM2 (RS232/422/485 selection),AT/ATX, Touch
	on/off
Display	
Chipset	Intel® Skylake U Processor integrated Graphics
Resolution	LVDS: 1920 x 1080@60Hz
Resolution	HDMI: 3840 x 2160@24Hz
Multiple Display	Dual display
HDMI	HDMI 1.4b
	Dual channel 24-bit LVDS (CH7511B)
LCD Interface	2 x 20 pin Hirose Connector for (Optional BOM for 1 x internal eDP or 1 x CH7511B
	LVDS for 2 x 24-bit.)
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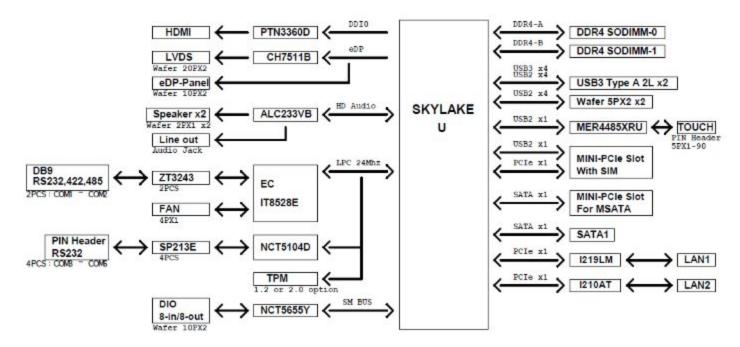
Audio		
AC97 Codec	Realtek ALC233 HD Supports 2.1-CH Audio	
Audio Amp	2W Per Channel	
Audio Amp	ine-Out and Amp.	
Ethernet		
LAN Chip	1 x Intel I210AT GbE controller	
LAN CIIIP	1 x Intel I219LM Gigabit Ethernet PHY	
Ethernet	10/100/1000 Base-Tx compatible	
Interface	10/100/1000 Base-1X compatible	
Internal I/O		
Connectors		
Fan	1 x 4 pin header w/2.54mm pitch	
Buzzer	Onboard	
CMOS Battery	CR2032	
Audio	2 x 1 x 2 wafer w/2.0mm pitch for AMP (if use 2.1 Audio Codec)	
COM	4 x RS232	
Rear I/O		
Connectors		
USB	4 x USB3.0	
LAN	RJ-45 connectors for two GbE ports (Default one RJ-45)	
HDMI	1 x HDMI (HDMI type A connector)	
	1 x dual deck LED:	
LED	Green indicator: power-on	
	Yellow indicator: HDD active	
Others	1 x Reset button	



Note: Specifications are subject to change without notice.

The following block diagram shows the architecture and main components of the motherboard.

11. Architecture Overview – Block Diagram



12. BIOS Setup



Introduction

The BIOS setup program allows users to modify the basic system configuration. In this following chapter will describe how to access the BIOS setup program and the configuration options that may be changed.

Starting Setup

AMIBIOS™ is immediately activated when you first power on the computer. The BIOS reads the system information contained in the NVRAM and begins the process of checking out the system and configuring it. When it finishes, the BIOS will seek an operating system on one of the disks and then launch and turn control over to the operating system. While the BIOS is in control, the Setup program can be activated in one of two ways:

By pressing <F2>or immediately after switching the system on, or

By pressing the <F2>or key when the following message appears briefly at the left-top of the screen during the POST (Power On Self Test).

Press <F2> or to enter SETUP

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

Using Setup

In general, you use the arrow keys to highlight items, press <Enter> to select, use the Page Up and Page Down keys to change entries, press <F1> for help and press <Esc> to quit. The following table provides more detail about how to navigate in the Setup program using the keyboard.

Button	Description
1	Move to previous item
1	Move to next item
	Move to the item in the left hand
→	Move to the item in the right hand
Esc key	Main Menu Quit and not save changes into NVRAM Status Page Setup Menu and Option Page Setup Menu Exit current page and return to Main Menu
+ key	Increase the numeric value or make changes
- key	Decrease the numeric value or make changes
F1 key	General help, only for Status Page Setup Menu and Option Page Setup Menu
F2 key	Previous Values
F3 key	Optimized defaults
F4 key	Save & Exit Setup

· Navigating Through The Menu Bar

Use the left and right arrow keys to choose the menu you want to be in.

Note: Some of the navigation keys differ from one screen to another.

·To Display a Sub Menu Use the arrow keys to move the cursor to the sub menu you want. Then press <Enter>. A "¬" pointer marks all sub menus.

Getting Help

Press F1 to pop up a small help window that describes the appropriate keys to use and the possible selections for the highlighted item. To exit the Help Window press <Esc> or the F1 key again.

In Case of Problems

If, after making and saving system changes with Setup, you discover that your computer no longer is able to boot, the AMIBIOS supports an override to the NVRAM settings which resets your system to its defaults. The

best advice is to only alter settings which you thoroughly understand. To this end, we strongly recommend that you avoid making any changes to the chipset defaults. These defaults have been carefully chosen by both BIOS Vendor and your systems manufacturer to provide the absolute maximum performance and reliability. Even a seemingly small change to the chipset setup has the potential for causing you to use the override.

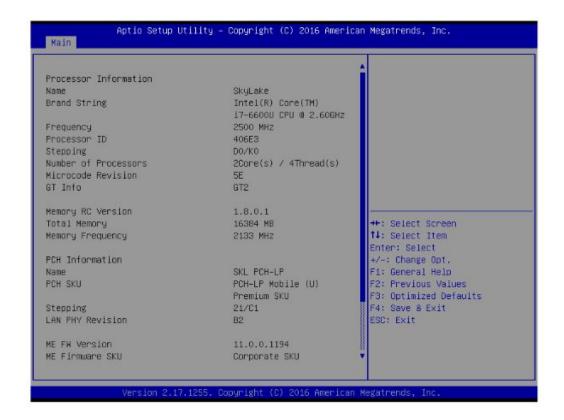
BIOS Setup

Once you enter the Aptio Setup Utility, the Main Menu will appear on the screen. The Main Menu allows you to select from several setup functions and exit choices. Use the arrow keys to select among the items and press <Enter> to accept and enter the sub-menu.

Main Menu

This section allows you to record some basic hardware configurations in your computer and set the system clock.





System Language

This option allows choosing the system default language.

System Date

Use the system date option to set the system date. Manually enter the day, month and year.

System Time

Use the system time option to set the system time. Manually enter the hours, minutes and seconds

Advance Menu

This section allows you to configure your CPU and other system devices for basic operation through the following sub-menus.



Trusted Computing



Item	Options	Description
Security Device Support	Disable, Enable [Default]	Enables or Disables BIOS support for security device. O.S. will not show Security Device. TCG EFI protocol and INT1A interface will not be available.
SHA-1 PCR Bank	Disabled Enables or Disables SHA-1 PCR	
SHA256 PCR Bank	Disabled[Default] Enabled,	Enables or Disables SHA256 PCR Bank.
Pending operation	None [Default] , TPM Clear	Schedule an Operation for the Security Device. NOTE: Your Computer will reboot during restart in order to change State of Security Device.
Platform Hierarchy	Disabled Enabled[Default],	Enable or Disable Platform Hierarchy.
Storage Hierarchy	Disabled Enabled[Default],	Enable or Disable Storage Hierarchy.
Endorsement Hierarchy	Disabled Enabled[Default] ,	Enable or Disable Endorsement Hierarchy.
TPM2.0 UEFI Spec Version	1.0 [Default] , 1.x	Select the TCG2 Spec Version Support. 1.0: the Compatible mode for Win8/Win10, 1.x: For TCG2 newer spec for Win10.

APCI Settings



Item	Options	Description
Enable Hibernation	Disabled Enabled [Default] ,	Enables or Disables System ability to Hibernate (OS/S4 Sleep State). This option may be not effective with some OS.
ACPI Sleep State	Suspend Disabled, S3 (Suspend to RAM) [Default]	Select the highest ACPI sleep state the system will enter when the SUSPEND button is pressed.
ACPI Low Power S0 Id1e	Disabled [Default] , Enabled	Enable or Disable ACPI Low Power S0 Id1e Support.
ErP Function	Disabled [Default] , Enabled	ErP Function (Deep S5).
PWR-On After PWR-Fail	Off [Default] On Last state	AC loss resume.
Watch Dog	Disabled[Default], 30 sec 40 sec 50 sec 1 min 2 min 10 min 30 min	Select WatchDog.

AMT Configuration

Intel AMT Un-Configure ME	[Enabled] [Disabled]	Enable/Disable Intel (R) Active Management Technology BIOS Extension. Note: iAMT H/W is always
		enabled. This option just controls the BIOS extension execution. If enabled, this requires additional firmware in the SPI device
		++: Select Screen †1: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit

Item	Options	Description
Intel AMT	Disabled Enabled [Default] ,	Enable/Disable Intel® Active Management Technology BIOS Extension. Note: iAMT H/W is always enabled. This option just controls the BIOS extension execution. If enabled, this requires additional firmware in the SPI device.
Un-Configure ME	Disabled [Default] Enabled,	OEMFlag Bit 15: Un-Configure ME without password.

PCH-FW Configuration



Item	Options	Description
fTPM Switch Selection	GPDMA Work-Around[Default],	Select the desired fTPM solution to be
TIPM Switch Selection	MSFT QFE Solution	used.

Firmware Update Configuration



Item	Option	Description
ME FW Image Re-Flash	Disabled [Default], Enabled	Enable/Disable Me FW Image Re-Flash function.

IT8528 Super IO Configuration

You can use this item to set up or change the IT8528Super IO configuration for serial ports.



Item	Description	
Serial Port 1 Configuration	rial Port 1 Configuration Set Parameters of Serial Port 1 (COMA).	
Serial Port 2 Configuration	Set Parameters of Serial Port 2 (COMB).	
Serial Port 3 Configuration	Set Parameters of Serial Port 3 (COMC).	
Serial Port 4 Configuration	Set Parameters of Serial Port 4 (COMD).	
Serial Port 5 Configuration	Set Parameters of Serial Port 5 (COME).	
Serial Port 6 Configuration	Set Parameters of Serial Port 6 (COMF).	

Serial Port 1 Configuration



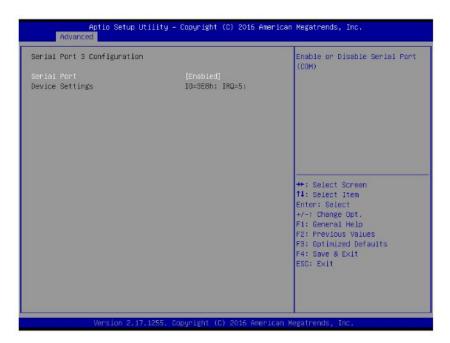
Item	Option	Description
Serial Port	Enabled[Default] , Disabled	Enable or Disable Serial Port (COM).

Serial Port 2 Configuration



Item	Option	Description
Serial Port	Enabled [Default] , Disabled	Enable or Disable Serial Port (COM).

Serial Port 3 Configuration



Item	Option	Description
Ondal Dark	Enabled[Default],	Enable or Disable Serial Port
Serial Port	Disabled	(COM).

Serial Port 4 Configuration



Item	Option	Description
O-mint D-mt	Enabled[Default],	Enable or Disable Serial Port
Serial Port	Disabled	(COM).

Serial Port 5 Configuration



Item	Option	Description
Serial Port	Enabled[Default] , Disabled	Enable or Disable Serial Port (COM).

Serial Port 6 Configuration



Item	Option	Description	
Serial Port	Enabled[Default], Disabled	Enable or Disable Serial Port (COM).	

H/W Monitor

Pc Health Status Smart Fan Function		Enable or Disable Smart Fan
CPU temperature System temperature Fani Speed +VSS VXN_L VCORE	: +24 C : +24 C : 6125 RPM : +5.062 V : +12.117 V : +0.914 V	
		++: Select Screen 11: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Dotimized Defaults F4: Save & Exit ESC: Exit

ltem	Options	Description
Smart Fan Function	Enabled, Disabled[Default]	Enables or Disables Smart Fan.

S5 RTC Wake Settings



Item	Options	Description
Wake system from \$5	Disabled[Default],	Enable or disable System wake on alarm

Fixed Time	event. Select Fixed Time, system will wake on
Dynamic Time	the hr::min::sec specified. Select Dynamic
	Time, System will wake on the current time +
	Increase minute(s).

Serial Port Console Redirection



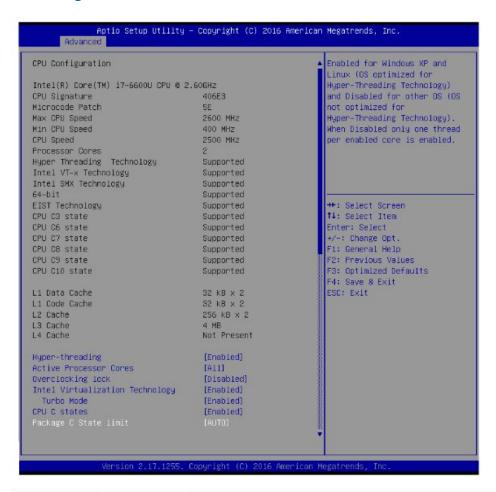
Item	Options	Description
Console Redirection	Disabled[Default],	Console Redirection Enable or Disable.
	Enabled	Console Redirection Enable of Disable.

Legacy Console Redirection Settings



Item	Option	Description
Legacy Serial Redirection	COM1[Default],	Select a COM port to display redirection of Legacy OS and Legacy OPROM Messages.

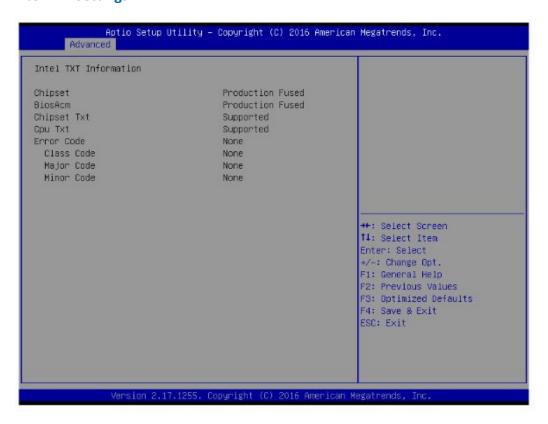
CPU Configuration



Item	Options	Description
Hyper-threading	Disabled, Enabled[Default]	When Hyper-threading is enabled, 2 logical CPUS per core is present.
Active Processor Cores	All [Default] 1 2 3	Number of cores to enable in each processor package.
Overclocking lock	Disabled [Default] , Enabled	FLEX_RATIO (194) MSR.
Intel Virtualization Technology	Disabled Enabled [Default]	When enabled, a VMM can utilize the additional hardware capabilities provided by Vanderpool Technology.
Turbo Mode	Disabled Enabled[Default]	Turbo Mode.
CPU C states	Disabled Enabled[Default]	Enable or disable CPU C state.

	C0/C1		
	C2		
Package C State limit	C3	Package C State limit.	
	C6		
	C7		
	C7s		
	C8		
	C9		
	C10		
	Auto[Default]		

Intel TXT Settings



SATA Configuration

Aptio Setup Utility - Copyright (C) 2016 American Megatrends, Inc. Advanced SATA Controller(s) SATA Test Mode Enable or disable SATA Device. [Disabled] Aggressive LPM Support [Enabled] Serial ATA Port O Empty Unknown Software Preserve Port 0 [Enabled] SATA Device Type [Hard Disk Drive] Serial ATA Port 1 Empty Software Preserve Unknown Port 1 [Enabled] [Hard Disk Drive] SATA Device Type Serial ATA Port 2 Empty ++: Select Screen †4: Select Item Software Preserve Unknown Port 2 [Enabled] [Hard Disk Drive] Enter: Select SATA Device Type +/-: Change Opt. Fi: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit Version 2.17.1255. Copyright (C) 2016 American Megatrends, Inc

Item	Options	Description
SATA Controller(s)	Enabled[Default] Disabled,	Enable or disable SATA Device.
SATA Test Mode	Enabled Disabled[Default],	Test Mode Enable/Disable (Loop Back).
Aggressive LPM Support	Enabled [Default] Disabled	Enable PCH to aggressively enter link power state.
Port 0/1/2	Enabled [Default] Disabled,	Enable or Disable SATA Port.
SATA Device Type	Hard Disk Drive [Default] Solid State Drive	Identify the SATA port is connected to Solid State Drive or Hard Disk Drive.

Network Stack Configuration



Item	Options	Description
Network Stack	Enabled Disabled [Default]	Enable/Disable UEFI Network Stack.

CSM Configuration



Item	Options	Description	
CSM Support	Enabled Disabled[Default]	Enable/Disable CSM Support.	

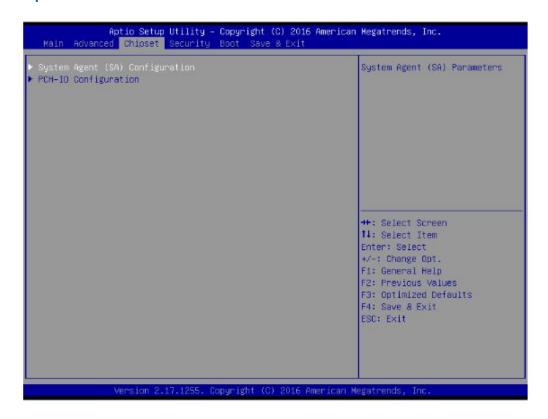
USB Configuration

The USB Configuration menu helps read USB information and configures USB settings.



Item	Options	Description
Legacy USB Support	Enabled [Default] Disabled Auto	Enables Legacy USB support. AUTO option disables legacy support if no USB devices are connected. DISABLE option will keep USB devices available only for EFI applications.
XHCI Hand-off	Enabled[Default] Disabled	This is a workaround for OSew without XHCI hand-off support. The XHCI ownership change should be claimed by XHCI driver.
USB Mass Storage Driver Support	Enabled[Default] Disabled	Enable/Disable USB Mass Storage Driver Support.
Port 60/64 Emulation	Enabled Disabled[Default]	Enable I/O port 60h/64h emulation support. This should be enabled for the complete USB keyboard legacy support for non-USB aware OSes.
USB transfer time-out	1 sec 5 sec 10 sec 20 sec [Default]	The time-out value for Control, Bulk, and Interrupt transfers.
Device reset time-out	10 sec 20 sec[Default] 30 sec 40 sec	USB mass storage device Start Unit command time-out.
Device power-up delay	Auto [Default] Manual	Maximum time the device will take before it properly reports itself to the Host Controller. 'Auto' uses default value: for a Root port it is 100ms, for a Hub port the delay is taken form Hub descriptor.

Chip Set

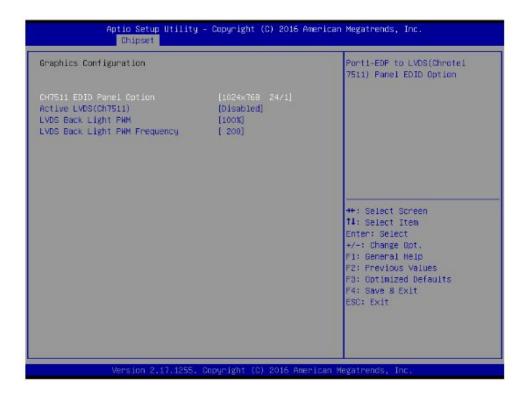


System Agent (SA) Configuration



Item	Option	Description
VT-d	Enabled[Default] Disabled	VT-d capability.

Graphics Configuration



Item	Option	Description
	1024x768 24/1[Default]	
	800x600 18/1	
	1024x768 18/1	
	1366x768 18/1	
	1024x600 18/1	
	1280x800 18/1	
CUZEAA EDID Danal Ontian	1920x1200 24/2	Port1-EDP to LVDS (Chrotel 7511)
CH7511 EDID Panel Option	1920x1080 18/2	Panel EDID Option.
	1280x1024 24/2	I TO SAME A STOCKSON IN
	1440x900 18/2	
	1600x1200 24/2	
	1366x768 24/1	
	1920x1080 24/2	
	1680x1050 24/2	
A - #: L V/D 0 (CLI7544)	Enabled[Default]	Active Internal LVDS (eDP->Ch7511-
Active LVDS (CH7511)	Disabled	to-LVDS).
	00%	
	25%	
LVDS Back Light PWM	50%	Select LVDS back light PWM duty.
A CAN THE STATE OF	75%	
	100%[Default]	
	200[Default]	
	300	
LVD C Deels Limbs DWM	400	Calcat I VDC hasts light DWM
LVDS Back Light PWM	500	Select LVDS back light PWM
Frequency	700	Frequency.
	1k	
	2k	
	3k	
	5k	
	10k	
	20k	
	ZUK	

Memory Configuration



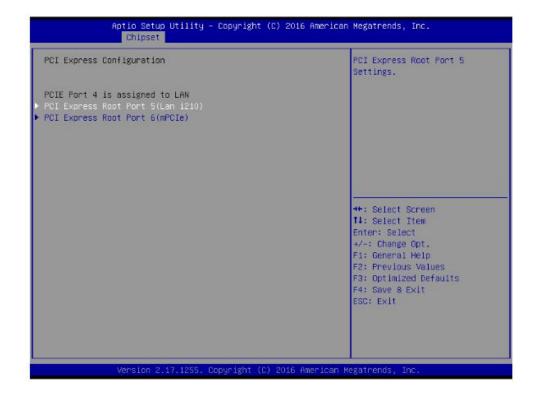
Item	Option	Description
Maximum Memory Frequency	Auto[Default] 1067/1200/1333/1400/1600 /1800/1867/2000/2133/2200 /2400/2600/2667/2800/2933 /3000/3200	Maximum Memory Frequency Selections in Mhz.
Max TOLUD	Dynamic [Default] 1GB/1.25GB/1.5GB/1.75GB /2GB/2.25GB/2.5GB/2.75GB /3GB/3.25GB/3.5GB	Maximum Value of TOLUD. Dynamic assignment would adjust TOLUD automatically based on largest MMIO length of installed graphic controller.

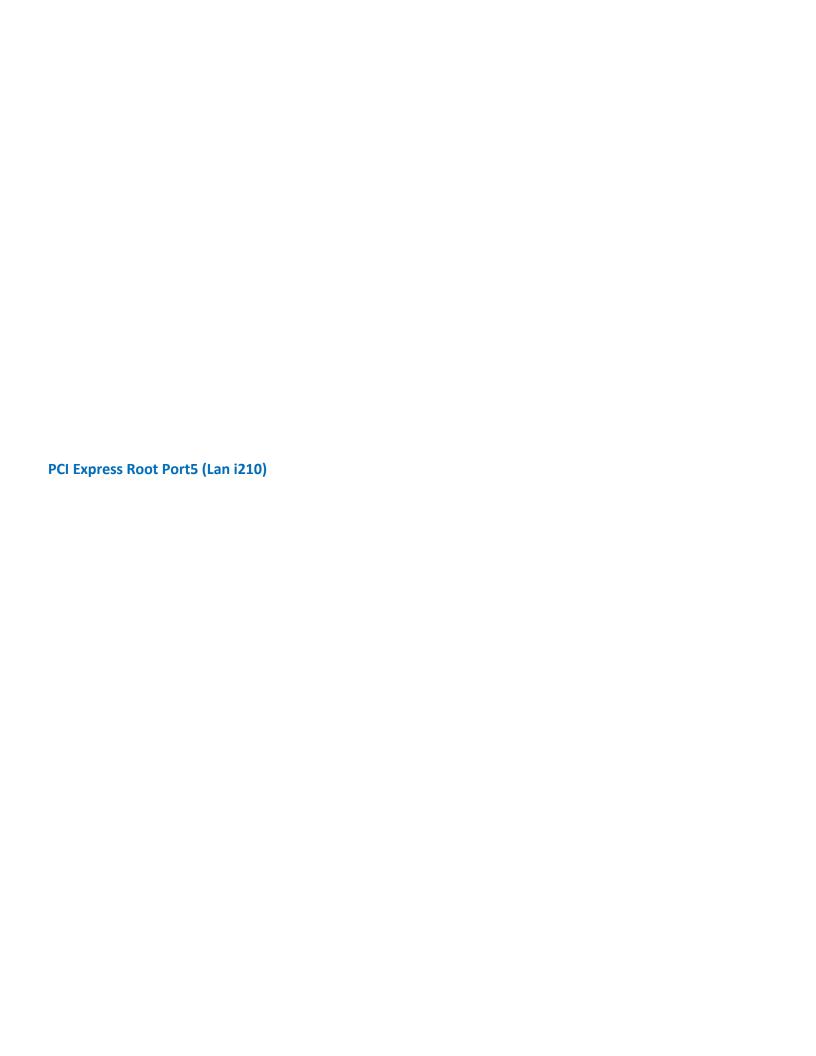
PCH IO Configuration

Intel PCH RC Version Intel PCH SKU Name	1.8.0.0 PCH-LP Mobile (U) Premium SKU	PCI Express Configuration settings
Intel PCH Rev ID	21/01	
USB Configuration HD Audio Configuration		
PCH LAN Controller	[Enabled]	
LAN PHY Drives LAN_WAKE#	[Disabled]	
		++: Select Screen 11: Select Item
		Enter: Select
		+/-: Change Opt. F1: General Help
		F2: Previous Values
		F3: Optimized Defaults F4: Save 8 Exit
		ESC: Exit

Item	Option	Description
PCH LAN Controller	Disabled Enabled [Default]	Enable or disable onboard NIC.
LAN PHY Drives LAN_WAKE#	Disabled [Default] Enabled	Enable/Disable LAN Phy driving LAN_WAKE# else platform drives LAN WAKE#.

PCI Express Configuration





PCI Express Root Port 5 ASPM Support L1 Substates PCIe Speed	(Enabled) (Disabled) [Li.1 & L1.2] (Auto)	Control the PCI Express Root Part.
		++: Select Screen 11: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit

Item	Option	Description
PCI Express Root Port 5	Enabled[Default], Disabled	Control the PCI Express Root Port.
	Disabled [Default],	
	L0s	Set the ASPM Level: Force L0s - Force al
ASPM Support	L1	links to L0s State AUTO - BIOS auto
	L0sL1	configure DISABLE - Disables ASPM.
	Auto	A 2007 (11 80 50 10 10 10 10 10 10 10 10 10 10 10 10 10
	Disabled	PCI Express L1 Substates settings.
L1 Substates	L1.1	
Li Substates	L1.2	
	L1.1 & L1.2[Default],	
	Auto[Default]	
DCIa Speed	Gen1	Salast DCI Everage part speed
PCIe Speed	Gen2	Select PCI Express port speed.
	Gen3	

PCI Express Root Port 6 ASPH Support LI Substates PCIe Speed	[Enabled] [Disabled] [L1.1 & L1.2] [Auto]	Control the PCI Express Root Port.
		++: Select Screen 11: Select Item Enter: Select +/-: Change Dot. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit

Item	Option	Description
PCI Express Root Port 6	Enabled[Default],	Control the PCI Express Root Port.
	Disabled	
ASPM Support	Disabled [Default],	
	L0s	Set the ASPM Level: Force L0s - Force al
	L1	links to L0s State AUTO - BIOS auto
	L0sL1	configure DISABLE - Disables ASPM.
	Auto	**************************************
L1 Substates	Disabled	PCI Express L1 Substates settings.
	L1.1	
	L1.2	
	L1.1 & L1.2[Default],	
PCIe Speed	Auto[Default]	Select PCI Express port speed.
	Gen1	
	Gen2	
	Gen3	

USB Configuration		Precondition work on USB host controller and root ports for
		faster enumeration.
KHCI Disable Compliance Mode	[FALSE]	
		++: Select Screen 11: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit

Item	Option	Description
USB Precondition	Enabled	Precondition work on USB host controller
	Disabled[Default],	and root ports for faster enumeration.
XHCI Disable Compliance Mode	FALSE [Default] , TRUE	Option to disable Compliance Mode. Default
		is FALSE to not disable Compliance Mode.
		Set TRUE to disable Compliance Mode.

HD Audio Configuration



Item	Option	Description
		Control Detection of the HD-Audio device.
	Disabled	Disable = HDA will be unconditionally
HD Audio	Enabled	disabled Enabled = HDA will be
	Auto[Default],	unconditionally enabled Auto = HDA will be
	Other Carrier Co.	enabled if present, disabled otherwise.

Security



Administrator Password

Set setup Administrator Password

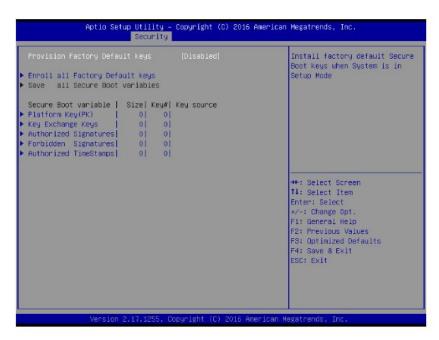
User Password

Set User Password

System Hode	Setup	Secure Boot can be enabled if 1.System running in User mode
Secure Boot	Not Active	with enrolled Platform Key(PK)
Vendor Keys	Not Active	2.CSM function is disabled
Secure Boot Mode	[Custom]	
Key Management		
		++: Select Screen
		14: Select Item
		Enter: Select +/-: Change Opt.
		F1: General Help
		F2: Previous Values
		F3: Optimized Defaults
		F4: Save & Exit
		ESC: EXIT

Item	Option	Description
Secure Boot	Disabled [Default] Enabled	Secure Boot can be enabled if 1.System running in User mode with enrolled Platform Key(PK) 2.CSM function is disabled.
Secure Boot Mode	Standard Custom [Default]	Secure Boot mode selector. 'Custom' Mode enables users to change Image Execution policy and manage Secure Boot Keys.

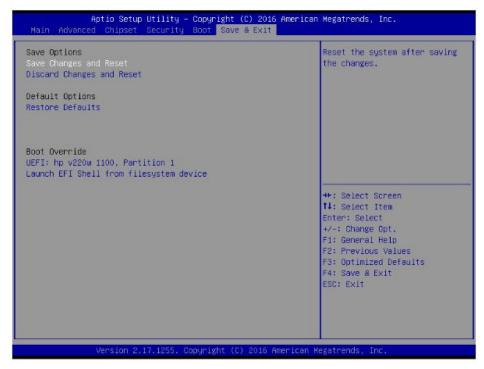
Key Management



Item	Option	Description
Provision Factory Default keys	Enabled,	Install Factory default Secure Boot Keys
	Disabled[Default]	when System is in Setup Mode.



Item	Option	Description
Setup Prompt Timeout	1~ 65535	Number of seconds to wait for setup activation key. 65535(0xFFFF) means indefinite waiting.
Bootup NumLock State	On [Default] Off	Select the Keyboard NumLock state
Quiet Boot	Disabled [Default] Enabled	Enables or disables Quiet Boot option
Fast Boot	Disabled[Default] Enabled	Enables or disables boot with initialization of a minimal set of devices required to launch active boot option. Has no effect for BBS boot options.
Boot Option #1	Set the system boot order.	





Reset the system after saving the changes.

Any changes made to BIOS settings during this session of the BIOS setup program are discarded. The setup program then exits and reboots the controller.

This option restores all BIOS settings to the factory default. This option is useful if the controller exhibits unpredictable behavior due to an incorrect or inappropriate BIOS setting.

Attempts to Launch EFI Shell application (Shellx64.efi) from one of the available filesystem devices.



Note: Installation procedures and screen shots in this section are for your reference and may not be exactly the same as shown on your screen.

Install Chip Set Drive

Insert the Supporting DVD-ROM to DVD-ROM drive, and it should show the index page of Avalue's products automatically. If not, locate Index.htm and choose the product from the menu left, or link to \Driver_Chipset\Intel\EBM-SKLU.



Note: The installation procedures and screen shots in this section are based on Windows 8.1 operation system. If the warning message appears while the installation process, click Continue to go on.



Step1. Click Next.



Step 2. Click Accept.



Step 3. Click Install.

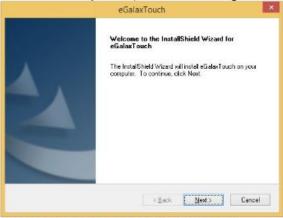


Step 4. Setup completed.

Insert the Supporting DVD-ROM to DVD-ROM drive, and it should show the index page of Avalue's products automatically. If not, locate Index.htm and choose the product from the menu left, or link to \Utility\EBM-SKLU_Touch.



Note: The installation procedures and screen shots in this section are based on Windows 8.1 operation system. If the warning message appears while the installation process, click Continue to go on.



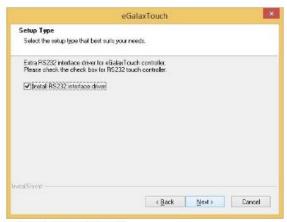
Step1. Click Next to start installation.



Step 2. Click Next to proceed setup.



Step 3. Click Next.



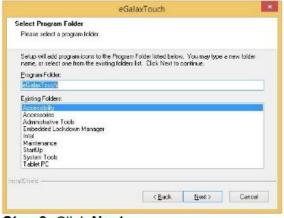
Step 4. Click Next.



Step 5. Click Next.



Step 6. Click OK.



eGalaxTouch

Select the features you went to install, and deselect the features you do not went to install. Click Next to continue.

(Back Next) Cancel

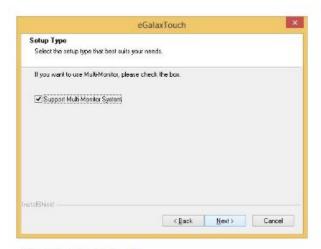
Step 9. Click Next.

Select the setup type that best suits your needs.

✓ Create a eGalaxTough Utility shortcut on desktop.

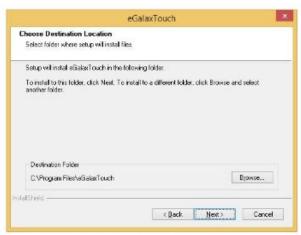
Setup Type

Install Shield -



Step 10. Click Next.

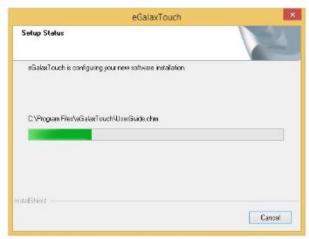




Step 8. Click Next to proceed setup.



Step 11. Click Next.



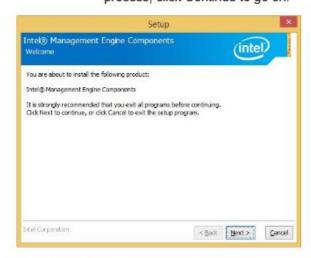
Step 12. Setup completed

Install ME Driver

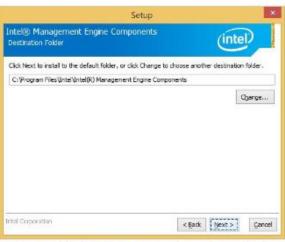
Insert the Supporting DVD-ROM to DVD-ROM drive, and it should show the index page of Avalue's products automatically. If not, locate Index.htm and choose the product from the menu left, or link to \Utility\EBM-SKLU_ME.



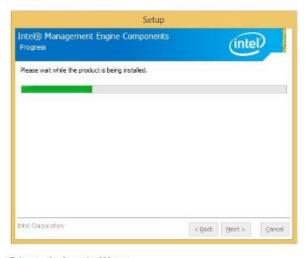
Note: The installation procedures and screen shots in this section are based on Windows 8.1 operation system. If the warning message appears while the installation process, click Continue to go on.



Step1. Click Next to start installation.



Step 3. Click Next to continue installation.



Step 4. Installing.



Step 2. Click Next.



Step 5. Click Finish to complete setup.

Install VGA Driver

Insert the Supporting DVD-ROM to DVD-ROM drive, and it should show the index page of Avalue's products automatically. If not, locate Index.htm and choose the product from the menu left, or link to \VGA\EBM-SKLU.

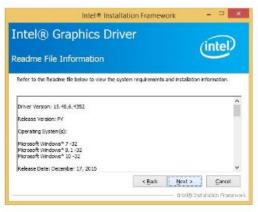




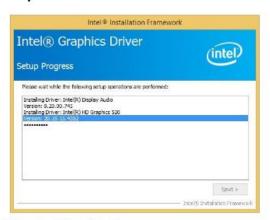
Step 1. Click Next to continue installation.



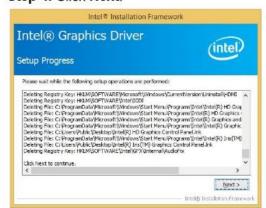
Step 2.



Step 3. Click Next.



Step 4. Click Next.



Step 5. Click Next.



Step 6. Click Finish to complete setup.

Install Audio Driver (For Realtek ALC233)

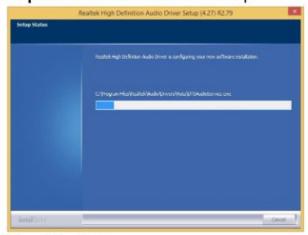
Insert the Supporting CD-ROM to CD-ROM drive, and it should show the index page of Avalue's products automatically. If not, locate Index.htm and choose the product from the menu left, or link to

\Driver_Audio\Realtek\ALC233\EBM-SKLU_Audio.





Step 1. Click Next to continue setup.



Step 2. Installing.



Step 3. Click **Finish** to complete the setup.

Insert the Supporting DVD-ROM to DVD-ROM drive, and it should show the index page of Avalue's products automatically. If not, locate Index.htm and choose the product from the menu left, or link to

\Driver_Gigabit\Intel\I210AT_I219LM\EBM-SKLU_LAN.





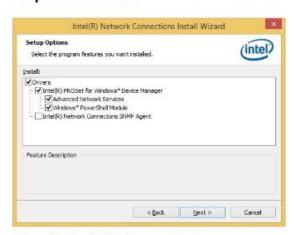
Step 1. Click **Install Drivers and Software** to continue installation.



Step 2. Click Next.



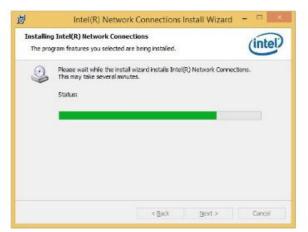
Step 3. Click Next.



Step 4. Click Next to continue.



Step 5. Click Install.



Step 6. Installing.



Step 7. Click Finish to complete setup.

Install Serial IO Driver

Insert the Supporting DVD-ROM to DVD-ROM drive, and it should show the index page of Avalue's products automatically. If not, locate Index.htm and choose the product from the menu left, or link to \Utility\EBM-SKLU_Serial_IO.





Step 1. Click Next to continue installation.



Step 3. Click Next.



Step 4. Click Next.





Step 5. Installing.

Step 2. Click Next.



Step 6. Click Finish to complete setup.

Install TPM2.0 Driver

Insert the Supporting CD-ROM to CD-ROM drive, and it should show the index page of Avalue's products automatically. If not, locate Index.htm and choose the product from the menu left, or link to \Utility\EBM-SKLU_TPM2.0.

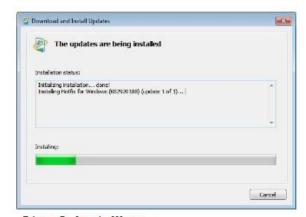




Step 1. Click Yes to continue setup.



Step 3. Setup completed.



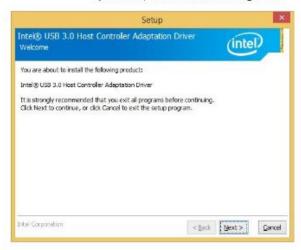
Step 2. Installing.

Install USB3.0 Driver

Insert the Supporting DVD-ROM to DVD-ROM drive, and it should show the index page of Avalue's products automatically. If not, locate Index.htm and choose the product from the menu left, or link to \Utility\EBM-SKLU_USB3.0.



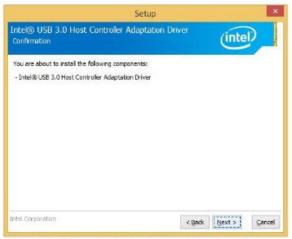
Note: The installation procedures and screen shots in this section are based on Windows 8.1 operation system. If the warning message appears while the installation process, click Continue to go on.



Step1. Click Next to start installation.



Step 2. Click Next.



Step 3. Click Next to continue installation.



Step 4. Installing.



Step 5. Click Finish to complete setup.

13. An overview of Windows 10 IoT Enterprise

① Note

Windows Containers are supported for commercial deployments on Windows Server, Windows Server IoT, Windows 10 IoT Enterprise and Windows 10 IoT Core. As of Windows October Update 2018 (Build 17763), Windows Containers can only be used with Windows 10 Enterprise and Windows 10 Professional for dev/test purposes.

What is Windows 10 IoT Enterprise?

Windows 10 IoT Enterprise is a full version of Windows 10 that delivers enterprise manageability and security to IoT solutions. Windows 10 IoT Enterprise shares all the benefits of the world-wide Windows ecosystem. It is a binary equivalent to Windows 10 Enterprise, so you can use the same familiar development and management tools as client PCs and laptops. However, when it comes to licensing and distribution, the desktop version and IoT versions differ. Note that Windows 10 IoT Enterprise offers both Long-term Servicing Channel (LTSC) and Semi-Annual Channel (SAC) options. OEMs can choose the version they require for their devices.

Getting started

You can learn how to manufacture with Windows 10 IoT Enterprise with our <u>the Windows 10 IoT Enterprise</u> Manufacturing Guide.

Fixed purpose devices

₽ Tip

See your licensing agreement for complete guidance on all Windows 10 IoT Enterprise usage scenarios. If you do not have this licensing agreement, ask the OEM you work with for the commercial agreement.

Windows is well known as the operating systems on laptop and desktops used by consumers and businesses world-wide. What is less well known is that for years, Windows has also powered many ATM machines, point-of-sale terminals, industrial automation systems, thin clients, medical Devices, digital signage, kiosks, and other fixed purpose devices. Windows 10 IoT Enterprise allows you to build fixed purpose devices with specific allowances and restrictions in the license agreement.

A fixed purpose device differs from a general purpose device in the following ways:

- The device is locked down to a single application or fixed set of applications through the Assigned Access or Shell Launcher features.
- The device experience is immediate when the customer powers-on. This is achieved by configuring the device image to skip the normal Windows out-of-box experiences.
- Keyboards, USB ports, and device policies are locked down to constrain the device to be used only in its fixed purpose.
- The OEM licenses the device to the user with the software attached to the device as a complete product and passes through specific Windows terms in their own agreements.
- The OEM provides the customer support for their complete product, including the functions performed by the operating system.

Long-term Servicing Channel (LTSC)

Specialized systems, such as PCs that control medical equipment, point-of-sale systems, and ATMs, often require a longer servicing option because of their purpose. These devices typically perform a single important task and don't need feature updates as frequently as other devices in the organization. It's more important that these devices be kept as stable and secure as possible than that they be up-to-date with UI changes. The LTSC servicing model prevents Windows 10 IoT Enterprise LTSC devices from receiving the usual feature updates and provides only quality updates to ensure that device security stays up-to-date. With this in mind, quality updates are still immediately available to Windows 10 IoT Enterprise LTSC clients, but customers can choose to defer them by using one of the servicing tools mentioned in the Servicing tools section.

① Note

Due to the long life of the LTSC releases and the benefit of remaining on a specific release for 10 years, an upgrade fee will be charged for customers moving from one LTSC release to another.

Long-Term Support Silicon Details

The Windows 10 IoT Enterprise 2019 release will be a LTSC release. See here for a general description of Windows 10 LTSC and other channels available. You can find details on processor support for each edition and channel of Windows 10 here.

Helpful resources

① Note

Additional resources may be available from your distributor to explain Windows EPKEA OEM Activation and provide guidance in generating your manufacturing-ready Windows IoT Enterprise WIM device image.

Helpful Links:

- Customizations for enterprise desktop
- Unified Write Filter for Windows 10
- Assigned Access for Enterprise & Pro
- Shell Launcher for Enterprise and Education editions
- Lockdown resources
- Enabling Embedded Mode and using Background Tasks on Windows IoT Enterprise
- Configure Windows telemetry in your organization
- Configure kiosk and shared devices running Windows desktop editions
- Desktop manufacturing

More information can be found here: https://docs.microsoft.com/en-us/windows/iot-core/

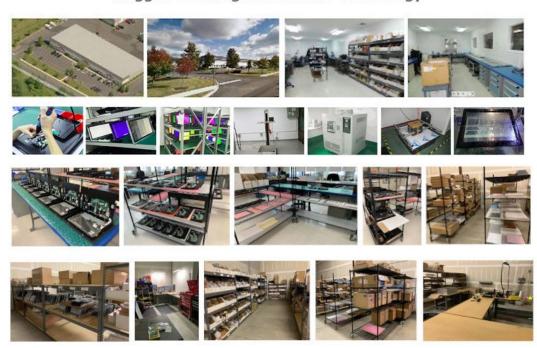
For all other support questions or product issues, please contact AbraxSys at (800) 883-9050 or by email customerservice@abraxsyscorp.com.



We Appreciate Your Business



AbraxSys | Quality | Reliability | Customer Oriented Rugged & Sunlight Readable Technology









Rev: 9/20_EBM-SKLU rev1