

NUC-6100U / 6300U

User Manual

Version 1.0 Published December 2016 Copyright©2016 ASRock INC. All rights reserved. Version 1.0 Published December 2016 Copyright©2016 ASRock INC. All rights reserved.

Copyright Notice:

No part of this documentation may be reproduced, transcribed, transmitted, or translated in any language, in any form or by any means, except duplication of documentation by the purchaser for backup purpose, without written consent of ASRock Inc.

Products and corporate names appearing in this documentation may or may not be registered trademarks or copyrights of their respective companies, and are used only for identification or explanation and to the owners' benefit, without intent to infringe.

Disclaimer:

Specifications and information contained in this documentation are furnished for informational use only and subject to change without notice, and should not be constructed as a commitment by ASRock. ASRock assumes no responsibility for any errors or omissions that may appear in this documentation.

With respect to the contents of this documentation, ASRock does not provide warranty of any kind, either expressed or implied, including but not limited to the implied warranties or conditions of merchantability or fitness for a particular purpose.

In no event shall ASRock, its directors, officers, employees, or agents be liable for any indirect, special, incidental, or consequential damages (including damages for loss of profits, loss of business, loss of data, interruption of business and the like), even if ASRock has been advised of the possibility of such damages arising from any defect or error in the documentation or product.



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

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

CALIFORNIA, USA ONLY

The Lithium battery adopted on this motherboard contains Perchlorate, a toxic substance controlled in Perchlorate Best Management Practices (BMP) regulations passed by the California Legislature. When you discard the Lithium battery in California, USA, please follow the related regulations in advance.

"Perchlorate Material-special handling may apply, see <u>www.dtsc.ca.gov/hazardouswaste/</u> <u>perchlorate</u>"

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

The terms HDMI" and HDMI High-Definition Multimedia Interface, and the HDMI logo are trademarks or registered trademarks of HDMI Licensing LLC in the United States and other countries.



CAUTION:

RISK OF EXPLOSION IF BATTERY IS REPLACED BY AN INCORRECT TYPE. DISPOSE OF USED BATTERIES ACCORDING TO THE INSTRUCTIONS.

Contents

1	Intr	oduction	5
	1.1	Package Contents	5
	1.2	Specifications	6
	1.3	Motherboard Layout	8
	1.4	I/O Panel	9
2	Inst	allation	10
	2.1	Screw Holes	10
	2.2	Pre-installation Precautions	10
	2.3	Installation of Memory Modules (SO-DIMM)	11
	2.4	Expansion Slots	12
	2.5	Onboard Headers and Connectors	13
3	UEF	FI SETUP UTILITY	14
	3.1	Introduction	14
		3.1.1 UEFI Menu Bar	14
		3.1.2 Navigation Keys	15
	3.2	Main Screen	15
	3.3	Advanced Screen	16
		3.3.1 CPU Configuration	17
		3.3.2 Chipset Configuration	19
		3.3.3 Storage Configuration	21
		3.3.4 Super IO Configuration	22
		3.3.5 ACPI Configuration	23
		3.3.6 USB Configuration	24
		3.3.7 Trusted Computing	25
	3.4	Hardware Health Event Monitoring Screen	26
	3.5	Security Screen	27
	3.0 2.7	Bool Screen	20
л	Sof	Exit Scieen	30 21
4	301		31
	4.1	Install Operating System	31
	4.2	Support CD Information	31
		4.2.1 Running Support CD	31
		4.2.2 Drivers Menu	31
		4.2.3 Utilities Menu	31 24
		4.2.4 Contact Information	31

Chapter 1: Introduction

Thank you for purchasing ASRock **NUC-6100U** / **6300U** motherboard, a reliable motherboard produced under ASRock's consistently stringent quality control. It delivers excellent performance with robust design conforming to ASRock's commitment to quality and endurance.

In this manual, chapter 1 and 2 contain introduction of the motherboard and stepby-step guide to the hardware installation. Chapter 3 and 4 contain the configuration guide to BIOS setup and information of the Support CD.



Because the motherboard specifications and the BIOS software might be updated, the content of this manual will be subject to change without notice. In case any modifications of this manual occur, the updated version will be available on ASRock website without further notice. You may find the latest VGA cards and CPU support lists on ASRock website as well. ASRock website <u>http://www.asrock.com</u>

If you require technical support related to this motherboard, please visit our website for specific information about the model you are using. www.asrock.com/support/index.asp

1.1 Package Contents

ASRock *NUC-6100U / 6300U* Motherboard (4.09" x 4.02" (104 x 102mm)) ASRock *NUC-6100U / 6300U* Driver CD ASRock *NUC-6100U / 6300U* Jumper setting instruction

1.2 Specifications

Form Factor	Dimensions	4.09" x 4.02" (104 x 102mm)		
	CPU	Intel [®] 6 th Gen Core U Processor (Core i3-6100U) Intel [®] 6 th Gen Core U Processor (Core i5-6300U)		
Processor	Core Number	2		
System	Max Speed	(By CPU)		
	L2 Cache	3MB		
	Chipset	(By CPU)		
	BIOS	UEFI		
Expansion	M.2 for Wi- Fi	1 (TYPE 2230)		
5101	M.2 for SSD	1 (TYPE 2260)		
	Technology	Dual Channel DDR4 2133 MHz		
Memory	Max.	32GB		
	Socket	2 x SO-DIMM		
	Controller	Intel [®] HD Graphics 520		
	VRAM	Shared Memory		
	VGA	N/A		
	פחעו	N/A		
	LVDO	HDMI 1: Supports max resolution up to		
		HDMI 1: Supports max resolution up to 4Kx2K@60Hz		
Graphics	HDMI	HDMI 1: Supports max resolution up to 4Kx2K@60Hz HDMI 2 : Supports max resolution up to		
Graphics	HDMI	HDMI 1: Supports max resolution up to 4Kx2K@60Hz HDMI 2 : Supports max resolution up to 4Kx2K@30Hz		
Graphics		HDMI 1: Supports max resolution up to 4Kx2K@60Hz HDMI 2 : Supports max resolution up to 4Kx2K@30Hz N/A		
Graphics	HDMI DVI DisplayPort	HDMI 1: Supports max resolution up to 4Kx2K@60Hz HDMI 2 : Supports max resolution up to 4Kx2K@30Hz N/A Supports max resolution up to 4096x2160@60Hz		
Graphics	HDMI DVI DisplayPort Multi Display	HDMI 1: Supports max resolution up to 4Kx2K@60Hz HDMI 2 : Supports max resolution up to 4Kx2K@30Hz N/A Supports max resolution up to 4096x2160@60Hz Yes (Dual Display, supports HDMI 1 + DP or HDMI 1 + HDMI 2)		
Graphics	HDMI DVI DisplayPort Multi Display Ethernet	HDMI 1: Supports max resolution up to 4Kx2K@60Hz HDMI 2 : Supports max resolution up to 4Kx2K@30Hz N/A Supports max resolution up to 4096x2160@60Hz Yes (Dual Display, supports HDMI 1 + DP or HDMI 1 + HDMI 2) 10/100/1000 Mbps		
Graphics Ethernet	HDMI DVI DisplayPort Multi Display Ethernet Controller	HDMI 1: Supports max resolution up to 4Kx2K@60Hz HDMI 2 : Supports max resolution up to 4Kx2K@30Hz N/A Supports max resolution up to 4096x2160@60Hz Yes (Dual Display, supports HDMI 1 + DP or HDMI 1 + HDMI 2) 10/100/1000 Mbps 1 x Intel i219V (non vPro) (Core i3-6100U) 1 x Intel i219LM (vPro, TPM) (Core i5-6300U)		
Graphics Ethernet	HDMI DVI DisplayPort Multi Display Ethernet Controller Connector	HDMI 1: Supports max resolution up to 4Kx2K@60Hz HDMI 2 : Supports max resolution up to 4Kx2K@30Hz N/A Supports max resolution up to 4096x2160@60Hz Yes (Dual Display, supports HDMI 1 + DP or HDMI 1 + HDMI 2) 10/100/1000 Mbps 1 x Intel i219V (non vPro) (Core i3-6100U) 1 x Intel i219LM (vPro, TPM) (Core i5-6300U) 1 x RJ-45		
Graphics Ethernet	HDMI DVI DisplayPort Multi Display Ethernet Controller Connector Max Data	HDMI 1: Supports max resolution up to 4Kx2K@60Hz HDMI 2 : Supports max resolution up to 4Kx2K@30Hz N/A Supports max resolution up to 4096x2160@60Hz Yes (Dual Display, supports HDMI 1 + DP or HDMI 1 + HDMI 2) 10/100/1000 Mbps 1 x Intel i219V (non vPro) (Core i3-6100U) 1 x Intel i219LM (vPro, TPM) (Core i5-6300U) 1 x RJ-45		
Graphics Ethernet SATA	HDMI DVI DisplayPort Multi Display Ethernet Controller Connector Max Data Transfer	HDMI 1: Supports max resolution up to 4Kx2K@60Hz HDMI 2 : Supports max resolution up to 4Kx2K@30Hz N/A Supports max resolution up to 4096x2160@60Hz Yes (Dual Display, supports HDMI 1 + DP or HDMI 1 + HDMI 2) 10/100/1000 Mbps 1 x Intel i219V (non vPro) (Core i3-6100U) 1 x Intel i219LM (vPro, TPM) (Core i5-6300U) 1 x RJ-45 SATA3 (6.0Gb/S)		

VGA 0 HDMI 2 DVI-I/D 0 DisplayPort 1 Ethernet 1 USB 4 (3 x USB 3.0 compliant, 1 x USB 3.1 Type C) Audio 1 (Mic-in, Line-out) Serial 0 PS/2 0 USB 0 LVDS/ inverter 0			
HDMI 2 DVI-I/D 0 DisplayPort 1 Ethernet 1 Ethernet 1 USB 4 (3 x USB 3.0 compliant, 1 x USB 3.1 Type C) Audio 1 (Mic-in, Line-out) Serial 0 e-SATA 0 PS/2 0 LVDS/ inverter 0		VGA	0
DVI-I/D 0 DisplayPort 1 Ethernet 1 B 4 (3 x USB 3.0 compliant, 1 x USB 3.1 Type Audio 1 (Mic-in, Line-out) Serial 0 e-SATA 0 PS/2 0 LVDS/ 0 inverter 0		HDMI	2
DisplayPort 1 Ethernet 1 USB 4 (3 x USB 3.0 compliant, 1 x USB 3.1 Type C) Audio 1 (Mic-in, Line-out) Serial 0 e-SATA 0 PS/2 0 USB 0 LVDS/ inverter 0		DVI-I/D	0
Ethernet 1 Rear I/O USB 4 (3 x USB 3.0 compliant, 1 x USB 3.1 Type C) Audio 1 (Mic-in, Line-out) Serial 0 e-SATA 0 PS/2 0 USB 0 LVDS/ inverter 0		DisplayPort	1
Rear I/O USB 4 (3 x USB 3.0 compliant, 1 x USB 3.1 Type C) Audio 1 (Mic-in, Line-out) Serial 0 e-SATA 0 PS/2 0 USB 0 LVDS/ inverter 0		Ethernet	1
Audio1 (Mic-in, Line-out)Serial0e-SATA0PS/20USB0LVDS/ inverter0	Rear I/O	USB	4 (3 x USB 3.0 compliant, 1 x USB 3.1 Type C)
Serial 0 e-SATA 0 PS/2 0 USB 0 LVDS/ 0 inverter 0		Audio	1 (Mic-in, Line-out)
e-SATA 0 PS/2 0 USB 0 LVDS/ inverter 0		Serial	0
PS/2 0 USB 0 LVDS/ inverter 0		e-SATA	0
USB 0 LVDS/ inverter		PS/2	0
LVDS/ inverter 0		USB	0
Inverter		LVDS/	0
		inverter	•
VGA 0		VGA	0
		Serial	
SATA 1 x SATA3 (6.0Gb/s)		SAIA	1 x SAIA3 (6.0Gb/s)
Internal Fi 1 (TYPE 2230)	Internal	M.2 for Wi- Fi	1 (TYPE 2230)
Connector M.2 for SSD 1 (TYPE 2260)	Connector	M.2 for SSD	1 (TYPE 2260)
Parallel 0		Parallel	0
IrDA 1		IrDA	1
GPIO 0		GPIO	0
SATA PWR 1		SATA PWR	1
Output Con		Output Con	
Speaker Header		Speaker	0
Watchdog Output 0	Watchdog	Output	0
Timer Interval 0	Timer	Interval	0
Input PWR 19V / 65W DC-In (DC. lack)		Input PWR	19V / 65W DC-In (DC Jack)
Power ATX Supported	Power		ATX Supported
Requirements Power On ATX: Press Button to PWR on after Power	Requirements	Power On	ATX: Press Button to PWR on after Power
linput ready			input ready
Environment Temperature 0°C – 60°C	Environment	Temperature	0°C – 60°C

1.3 Motherboard Layout



- 1 : Clear CMOS Pad (CLRMOS1)
- 2 : Audio Jack (AUDIO1)
- 3 : USB3.0 Port (USB3_2)
- 4 : USB 3.0 Type-C Port (USB3_TC_1)
- 5 : SATA Power Output Connector (SATA_PWR1)
- 6 : SATA3 Connector (SATA3_1)
- 7 : LPC Debug Header (LPC1)
- 8 : Infrared LED (IR1)

1.4 I/O Panel

				Description of the	
	1	2	4	5	6
		3			
					Č.
	7		8	9	10
1 2 3 4 5	USB 3.0 Ports (U DisplayPort (HDM HDMI Port (HDMI LAN RJ-45 Port HDMI Port (HDMI	SB3_3_4) II_DP_1) 1) (LAN1)* 2)	6 7 8 9 10	DC Jack (DC_II Infrared LED (II USB 3.1 Type-C USB 3.0 Port (L Audio Jack (AL	N1) R1) C Port (USB3_TC_1) JSB3_2) JDIO1)

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

LAN Port LED Indications				SPEED	ACT/LINK
Activ	ity/Link LED		SPEED LED	LED	LED
Status	Description	Status	Description		
Off	No Link	Off	10Mbps connection		Con I
Blinking	Data Activity	Off	Off 100Mbps connection		
On	Link	Green	Green 1Gbps connection		Port

Chapter 2: Installation

Before you install the motherboard, study the configuration of your chassis to ensure that the motherboard fits into it.



Make sure to unplug the power cord before installing or removing the motherboard. Failure to do so may cause physical injuries to you and damages to motherboard components.

2.1 Screw Holes

Place screws into the holes to secure the motherboard to the chassis.



Do not over-tighten the screws! Doing so may damage the motherboard.

2.2 Pre-installation Precautions

Take note of the following precautions before you install motherboard components or change any motherboard settings.

- 1. Unplug the power cord from the wall socket before touching any component.
- To avoid damaging the motherboard components due to static electricity, NEVER place your motherboard directly on the carpet or the like. Also remember to use a grounded wrist strap or touch a safety grounded object before you handle components.
- 3. Hold components by the edges and do not touch the ICs.
- 4. Whenever you uninstall any component, place it on a grounded antistatic pad or in the bag that comes with the component.



Before you install or remove any component, ensure that the power is switched off or the power cord is detached from the power supply. Failure to do so may cause severe damage to the motherboard, peripherals, and/or components.

2.3 Installation of Memory Modules (SO-DIMM)

NUC-6100U / 6300U provides two 204-pin DDR4 (Double Data Rate 4) SO-DIMM slots.

Step 1. Align a SO-DIMM on the slot such that the notch on the SO-DIMM matches the break on the slot.



- The SO-DIMM only fits in one correct orientation. It will cause permanent damage to the motherboard and the SO-DIMM if you force the SO-DIMM into the slot at incorrect orientation.
- 2. Please do not intermix different voltage SO-DIMMs on this motherboard.
- Step 2. Firmly insert the SO-DIMM into the slot until the retaining clips at both ends fully snap back in place and the SO-DIMM is properly seated.

2.4 Expansion Slots (M.2 Slots)

There are 2 M.2 slots on this motherboard.

M.2 for SSD: M2_1 (Type 2260) is used for M.2 SSDs. M.2 for Wi-Fi: M2_2 (Type 2230) is used for M.2 Wi-Fi devices

Installing an expansion card

- Step 1. Before installing the expansion card, please make sure that the power supply is switched off or the power cord is unplugged. Please read the documentation of the expansion card and make necessary hardware settings for the card before you start the installation.
- Step 2. Remove the system unit cover (if your motherboard is already installed in a chassis).
- Step 3. Remove the bracket facing the slot that you intend to use. Keep the screws for later use.
- Step 4. Align the card connector with the slot and press firmly until the card is completely seated on the slot.
- Step 5. Fasten the card to the chassis with screws.
- Step 6. Replace the system cover.

2.5 Onboard Headers and Connectors



Onboard headers and connectors are NOT jumpers. Do NOT place jumper caps over these headers and connectors. Placing jumper caps over the headers and connectors will cause permanent damage of the motherboard!

Clear CMOS Pad (CLRMOS1) (see p.8, No. 1)

SATA Power Output Connector (SATA_PWR1) (see p.8, No. 5)



Please connect a SATA power cable to this connector.

SATA3 Connector

(SATA3_1: see p.8, No. 6)



This Serial ATA3 (SATA3) connector supports SATA data cables for internal storage devices. The current SATA3 interface allows up to 6.0 Gb/s data transfer rate.

LPC Debug Header

(13-pin LPC1)

(see p.8, No. 7)

_					
1		PIN	Signal Name	PIN	Signal Name
1		14	+3V	13	NC
		12	+3V	11	+3V
'		10	GND	9	GND
'		8	LAD3	7	LAD2
		6	LAD1	5	LAD0
		4	LFRAME#	3	RESET#
	1	2	GND	1	CLK

This connector supports a Trusted Platform Module (TPM) system, which can securely store keys, digital certificates, passwords, and data. A TPM system also helps enhance network security, protects digital identities, and ensures platform integrity.

Chapter 3: UEFI SETUP UTILITY

3.1 Introduction

This section explains how to use the UEFI SETUP UTILITY to configure your system. The UEFI chip on the motherboard stores the UEFI SETUP UTILITY. You may run the UEFI SETUP UTILITY when you start up the computer. Please press <F2> or during the Power-On-Self-Test (POST) to enter the UEFI SETUP UTILITY, otherwise, POST will continue with its test routines.

If you wish to enter the UEFI SETUP UTILITY after POST, restart the system by pressing <Ctl> + <Alt> + <Delete>, or by pressing the reset button on the system chassis. You may also restart by turning the system off and then back on.



Because the UEFI software is constantly being updated, the following UEFI setup screens and descriptions are for reference purpose only, and they may not exactly match what you see on your screen.

3.1.1 UEFI Menu Bar

The top of the screen has a menu bar with the following selections:

•	•
Main	To set up the system time/date information
Advanced	To set up the advanced UEFI features
H/W Monitor	To display current hardware status
Security	To set up the security features
Boot	To set up the default system device to locate and load the
	Operating System
Exit	To exit the current screen or the UEFI SETUP UTILITY

Use $\langle \cdot \cdot \rangle$ key or $\langle \cdot \rangle$ key to choose among the selections on the menu bar, and then press \langle Enter \rangle to get into the sub screen. You can also use the mouse to click your required item.

3.1.2 Navigation Keys

Please check the following table for the function description of each navigation key.

Navigation Key(s)	Function Description
← / →	Moves cursor left or right to select Screens
↑/↓	Moves cursor up or down to select items
+ / -	To change option for the selected items
<enter></enter>	To bring up the selected screen
<f1></f1>	To display the General Help Screen
<f7></f7>	Discard changes
<f9></f9>	To load optimal default values for all the settings
<f10></f10>	To save changes and exit the UEFI SETUP UTILITY
<f12></f12>	Print screen
<esc></esc>	To jump to the Exit Screen or exit the current screen

3.2 Main Screen

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



3.3 Advanced Screen

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



 \mathbf{A}

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

Instant Flash

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

3.3.1 CPU Configuration

Advanced	- copyright (c) 2010	miler scoll negationus, snot
Intel(R) Core(TM) i3-6100U CPU @ 2	.30GHz	Intel Hyper Threading
Microcode Revision	406E3 8A	Technology allows multiple
Max CPU Speed	2300 MHz	threads to run on each core,
Min CPU Speed	400 MHz	so that the overall
Processor Cores	2	performance on threaded
		software is improved.
Active Processor Cores	[A11]	
CPU C States Support	[Enabled]	
Enhanced Halt State(C1E)	[Auto]	
CPU C3 State Support	[Auto]	
CPU C6 State Support	[Auto]	
CPU C7 State Support	[Auto]	
Package C State Support	[Auto]	++: Select Screen
		14: Select Item
CPU Thermal Throttling	[Enabled]	Enter: Select
No-Execute Memory Protection	[Enabled]	+/-: Change Option
Intel Virtualization Technology	[Enabled]	F1: General Help
Hardware Prefetcher	[Enabled]	F7: Discard Changes
Adjacent Cache Line Prefetch	[Enabled]	F9: Load UEFI Defaults
SW Guard Extensions (SGX)	[Disabled]	F10: Save and Exit
DPTF	[Enabled]	ESC: Exit
Intel SpeedStep Technology	[Enabled]	

Intel Hyper Threading Technology

To enable this feature, a computer system with an Intel processor that supports Hyper-Threading technology and an operating system that includes optimization for this technology, such as Microsoft[®] Windows[®] 10 64-bit / 8.1 64-bit / 7 32-bit / 7 64-bit is required. Set to [Enabled] if using Microsoft[®] Windows[®] 10 64-bit / 8.1 64-bit / 7 32-bit / 7 64-bit or Linux kernel version 2.4.18 or higher. This option will be hidden if the installed CPU does not support Hyper-Threading technology.

Active Processor Cores

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

CPU C States Support

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

Enhanced Halt State (C1E)

Enable Enhanced Halt State (C1E) for lower power consumption.

CPU C3 State Support

Enable C3 sleep state for lower power consumption.

CPU C6 State Support

Enable C6 deep sleep state for lower power consumption.

CPU C7 State Support

Enable C7 deep sleep state for lower power consumption.

Package C State Support

Enable CPU, PCIe, Memory, Graphics C State Support for power saving.

CPU Thermal Throttling

You may select [Enabled] to enable CPU internal thermal control mechanism to keep the CPU from overheating.

No-Execute Memory Protection

No-Execution (NX) Memory Protection Technology is an enhancement to the IA-32 Intel Architecture. An IA-32 processor with "No Execute (NX) Memory Protection" can prevent data pages from being used by malicious software to execute codes. This option will be hidden if the current CPU does not support No-Excute Memory Protection.

Intel Virtualization Technology

When this option is set to [Enabled], a VMM (Virtual Machine Architecture) can utilize the additional hardware capabilities provided by Vanderpool Technology. This option will be hidden if the installed CPU does not support Intel Virtualization Technology.

Hardware Prefetcher

Use this item to turn on/off the MLC streamer prefetcher.

Adjacent Cache Line Prefetch

Use this item to turn on/off prefetching of adjacent cache lines.

SW Guard Extensions (SGX)

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

DPTF

The default value is [Enabled].

Intel SpeedStep Technology

Intel SpeedStep technology is Intel's new power saving technology. Processors can switch between multiple frequencies and voltage points to enable power saving. The default value is [Enabled]. Configuration options: [Enabled] and [Disabled]. If you install Windows[®] 10 64-bit / 8.1 64-bit / 7 32-bit / 7 64-bit and want to enable this function, please set this item to [Enabled]. This item will be hidden if the current CPU does not support Intel SpeedStep technology.



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

3.3.2 Chipset Configuration

ME FW Version VT-d Capability	11.0.10.1002 Supported	Belect a primary VGA.
Privers Drawiles Top Of Lower Scable Dram VT-d	(Auto) (Dynamic) (Enabled)	
IOWIC 24-119 Entries	(Enabled)	
Diare Henory	(Auto)	
Intel(R) Ethernet Connection I219-V	(Enabled)	
Ordicanal HD Audio	[Enobled]	H: Belect Screen N: Select Item
WWW Radin	[Enabled]	e/-: Change Option
Demp Gleep	(Disabled)	Fit General Melo
Good Night LED	(Auto)	Fit Load UEF1 Detaults F10: Seve and Exit
		ESET ENTE

Primary Graphics Adapter

Select a primary VGA.

Top of Lower usable DRAM

Set the maximum value of TOLUD. Set this item to Dynamic to allow TOLUD to adjust automatically based on the largest MMIO length of the installed graphic controller.

VT-d

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

IOAPIC 24-119 Entries

I/O APICs contain a redirection table, which is used to route the interrupts it receives from peripheral buses to one or more local APICs. Enable/disable IOAPIC 24-119 Entries to expand to PIROI-PIROX.

Share Memory

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

Intel(R) Ethernet Connection I219-V

Enable or disable the onboard network interface controller.

Onboard HD Audio

Enable/disable onboard HD audio. Set to Auto to enable onboard HD audio and automatically disable it when a sound card is installed.

WAN Radio

Enable/disable the WiFi module's connectivity.

Deep Sleep

Configure deep sleep mode for power saving when the computer is shut down.

Good Night LED

By enabling Good Night LED, the Power/HDD LEDs will be switched off when the system is on. It will also automatically switch off the Power and Keyboard LEDs when the system enters into Standby/Hibernation mode.

3.3.3 Storage Configuration



SATA Controller(s)

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

SATA Mode Selection

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



AHCI (Advanced Host Controller Interface) supports NCQ and other new features that will improve SATA disk performance but IDE mode does not have these advantages.

SATA Aggressive Link Power Management

Use this item to configure SATA Aggressive Link Power Management.

Hard Disk S.M.A.R.T.

Use this item to enable or disable the S.M.A.R.T. (Self-Monitoring, Analysis, and Reporting Technology) feature. Configuration options: [Disabled] and [Enabled].

3.3.4 Super IO Configuration



CIR Controller

Enable or disable CIR Controller.

3.3.5 ACPI Configuration



Suspend to RAM

Use this item to select whether to auto-detect or disable the Suspend-to-RAM feature. Select [Auto] will enable this feature if the OS supports it.

ACPI HPET Table

Use this item to enable or disable ACPI HPET Table. The default value is [Enabled]. Please set this option to [Enabled] if you plan to use this motherboard to submit Windows[®] certification.

PCIE Devices Power On

Use this item to enable or disable PCIE devices to turn on the system from the power-soft-off mode.

CIR Power On

Use this item to enable or disable CIR to power on the system.

RTC Alarm Power On

Use this item to enable or disable RTC (Real Time Clock) to power on the system.

USB Keyboard/Remote Power On

Use this item to enable or disable USB Keyboard/Remote to power on the system.

USB Mouse Power On

Use this item to enable or disable USB Mouse to power on the system.

3.3.6 USB Configuration



Legacy USB Support

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

PS/2 Simulator

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

* Enable this option if you install Windows 7.

Third Party USB 3.1 Controller

Enable/disable the third party USB 3.1 controllers.

XHCI Hand-off

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

3.3.7 Trusted Computing



Security Device Support

Enable or disable BIOS support for security device.

3.4 Hardware Health Event Monitoring Screen

In this section, it allows you to monitor the status of the hardware on your system, including the parameters of the CPU temperature, motherboard temperature, CPU fan speed, chassis fan speed, and the critical voltage.

Aptio Setup Utility Main Advanced H/W Monitor Sec	– Copyright (C) 2016 America urity Boot Exit	an Megatrends, Inc.
CPU Temperature KVB Temperature CPU Fan 1 Speed CPU Voore Voltage + 3.30V CPU Fan 1 Setting	: 40,5 °C : 31,0 °C : 1917 RPH : 40,080 V : 43,392 V [Standard Mode]	Quiet Fan Function Control
		+: Select Screen 11: Select Item Enter: Select 4/-: Change Orlion 77: Discard Changes 79: Lood UFT Defaults F10: Seve and Exit ESD: Exit

CPU Fan 1 Setting

Select a fan mode for CPU Fan 1, or choose Customize to set 5 CPU temperatures and assign a respective fan speed for each temperature.

3.5 Security Screen

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

Aptio Setup Utility - Main Advanced H/H Monitor Secur	Copyright (C) 2016 American ity Boot Exit	Megatrends, Inc.
Supervisor Password User Password	Not Installed Not Installed	Set or change the password for the administrator account. Only the administrator has
Supervisor Password User Password		authority to change the settings in the UEFI Setup Utility. Leave it blank and
System Mode State Secure Boot State	Setup Disabled	press enter to remove the password.
Secure Boot	[Disabled]	
		het Solast Screen
		fl: Select Item Enter: Select
		+/-: Change Option F1: General Help F7: Discard Changes
		F9: Load UEFI Defaults F10: Save and Exit
		ESC: EXIL
Version 2.17.1249. F	opuright (C) 2016 American M	Megatrends. Inc.

Supervisor Password

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

User Password

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

Secure Boot

Enable to support Windows 8.1 / 8 Secure Boot.

3.6 Boot Screen

In this section, it will display the available devices on your system for you to configure the boot settings and the boot priority.



Boot From Onboard LAN

Use this item to enable or disable the Boot From Onboard LAN feature.

Setup Prompt Timeout

This shows the number of seconds to wait for setup activation key. 65535(0XFFFF) means indefinite waiting.

Bootup Num-Lock

If this item is set to [On], it will automatically activate the Numeric Lock function after boot-up.

Boot Beep

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

Full Screen Logo

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

CSM (Compatibility Support Module)



CSM

Enable to launch the Compatibility Support Module. Please do not disable unless you're running a WHCK test. If you are using Windows 8.1 64-bit and all of your devices support UEFI, you may also disable CSM for faster boot speed.

Launch PXE OpROM Policy

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

Launch Video OpROM Policy

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

3.7 Exit Screen



Save Changes and Exit

When you select this option, it will pop-out the following message, "Save configuration changes and exit setup?" Select [OK] to save the changes and exit the UEFI SETUP UTILITY.

Discard Changes and Exit

When you select this option, it will pop-out the following message, "Discard changes and exit setup?" Select [OK] to exit the UEFI SETUP UTILITY without saving any changes.

Discard Changes

When you select this option, it will pop-out the following message, "Discard changes?" Select [OK] to discard all changes.

Load UEFI Defaults

Load UEFI default values for all the setup questions. F9 key can be used for this operation.

Launch EFI Shell from filesystem device

Attempts to Launch EFI Shell application (Shell64.efi) from one of the available filesystem devices.

Chapter 4: Software Support

4.1 Install Operating System

This motherboard supports various Microsoft[®] Windows[®] operating systems: 10 64-bit / 8.1 64-bit / 7 32-bit / 7 64-bit. Because motherboard settings and hardware options vary, use the setup procedures in this chapter for general reference only. Refer your OS documentation for more information.

4.2 Support CD Information

The Support CD that came with the motherboard contains necessary drivers and useful utilities that enhance the motherboard's features.

4.2.1 Running The Support CD

To begin using the support CD, insert the CD into your CD-ROM drive. The CD automatically displays the Main Menu if "AUTORUN" is enabled in your computer. If the Main Menu did not appear automatically, locate and double click on the file "ASRSETUP.EXE" from the BIN folder in the Support CD to display the menus.

4.2.2 Drivers Menu

The Drivers Menu shows the available device's drivers if the system detects installed devices. Please install the necessary drivers to activate the devices.

4.2.3 Utilities Menu

The Utilities Menu shows the application software that the motherboard supports. Click on a specific item then follow the installation wizard to install it.

4.2.4 Contact Information

If you need to contact ASRock or want to know more about ASRock, you're welcome to visit ASRock's website at <u>http://www.asrock.com;</u> or you may contact your dealer for further information.