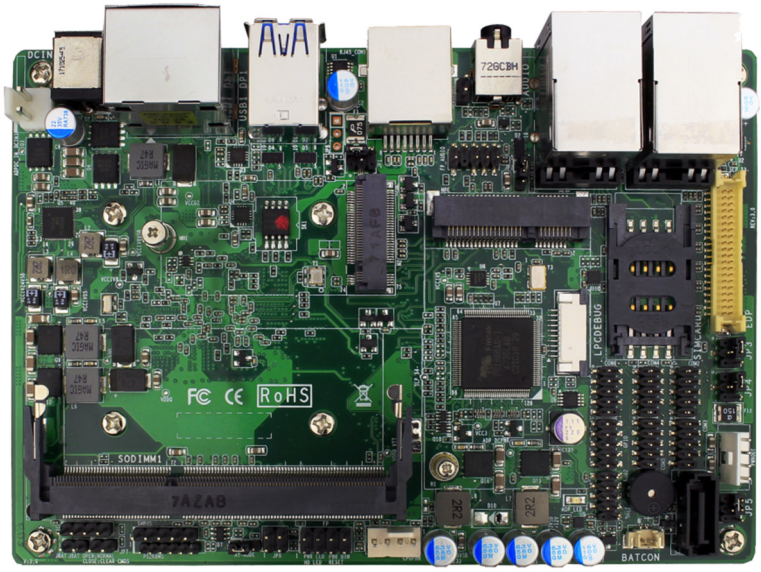
User Manual



APL-35-N3350

A 3.5” embedded solution on

Intel® Dual-core processor

(Apollo Lake Family)

Version 1.0

Copyright

Trademarks Acknowledgement

Revision History

Revision	Date	Remark
1.0	June 3, 2019	First version release

Contents

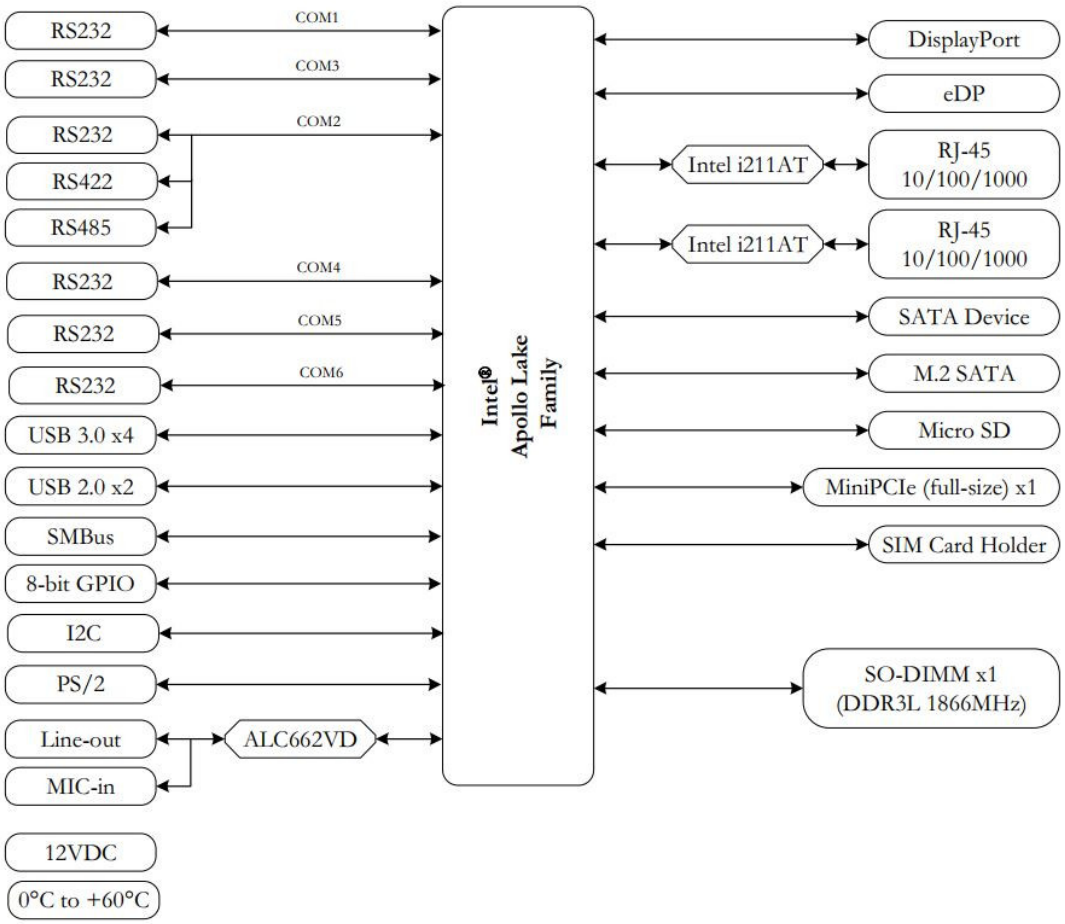
1 General Information

1.1 Overview

APL-35-N3350, a standard 3.5-inch embedded solution for industrial application based on Intel® Apollo Lake Dual-Core CPU with DDR3L RAM support up to 8GB, provides stable and powerful computing performance.

APL-35-N3350 supports 2x Gigabit LAN, 6x COM, 6x USB, PS/2, 8-bit GPIO, I²C, SMBuS, SIM card holder, MiniPCIe, eDP, DisplayPort, and 3 storage options SATA interface, M.2 SATA interface, and Micro SD slot for development use.

1.2 Block diagram



1.3 Specifications

Processor	Intel® Apollo Lake N3350 2.40GHz (Burst) 1.10GHz Dual Core		
System memory	DDR3L 1866MHz memory support up to 8GB in SO-DIMM slot x1		
BIOS	AMI BIOS		
Display	Intel® HD Graphics with MultiDisplay support eDP: resolution support up to 4096 x 2160 at 60Hz DisplayPort: resolution support up to 4096 x 2160 at 60Hz		
Audio	Realtek ALC662VD HD Audio		
LAN	Intel® i211AT Gigabit Ethernet Chip		
Expansion	MiniPCIe (full-size) x1		
Disk Support	M.2 SATA x1	SATA interface x1	Micro SD card slot x1
I/O Interface	8-bit GPIO x1	COM x6 (RS232/422/485 x1)	DisplayPort x2
	eDP x1	GigaLAN x2	I²C x1
	Line-out & MIC-in	PS/2 interface x1	SIM card holder x1
	SMIBus x1	USB (ver. 2.0) x2	USB (ver. 3.0) x4
Connectors	4-pin wafer for SATA power output x1		MiniPCIe slot x1
	4-pin header for I²C x1		M.2 slot (M key 2242) for M.2 SATA x1
	5-pin header for SMBus x1		Phone Jack for Line-out/MIC-in x1
	6-pin header for PS/2 interface x1		Power Jack for 12VDC input x1
	7-pin SATA connector for SATA x1		RJ45 connector for COM x1
	9-pin heder for COM x5		RJ45 connector for LAN x2
	10-pin header for GPIO x1		SIM card holder x1
	40-pin wafer for eDP x1		USB connector for USB3.0 x4
	DisplayPort connector x2		
Power Requirement	12VDC standard input from power jack or internal 2 –pin power connector for ATX/AT mode		
Operating Temp.	0°C t0 60°C		
Dimensions	148 x 102 mm		
O/S Support	Windows 10	Linux	

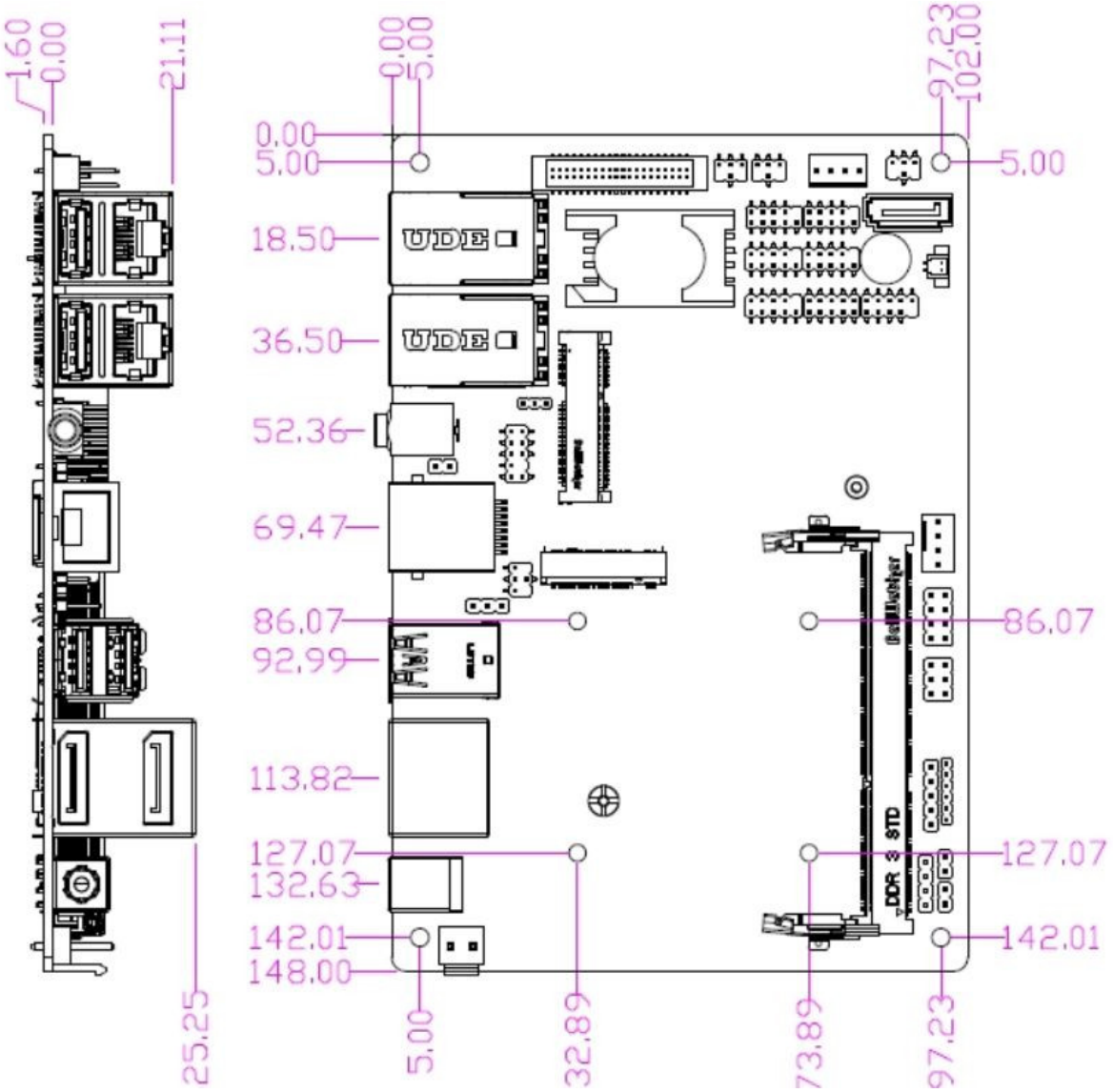
1.4 Ordering Information

1.4.1 APL-35-N3350

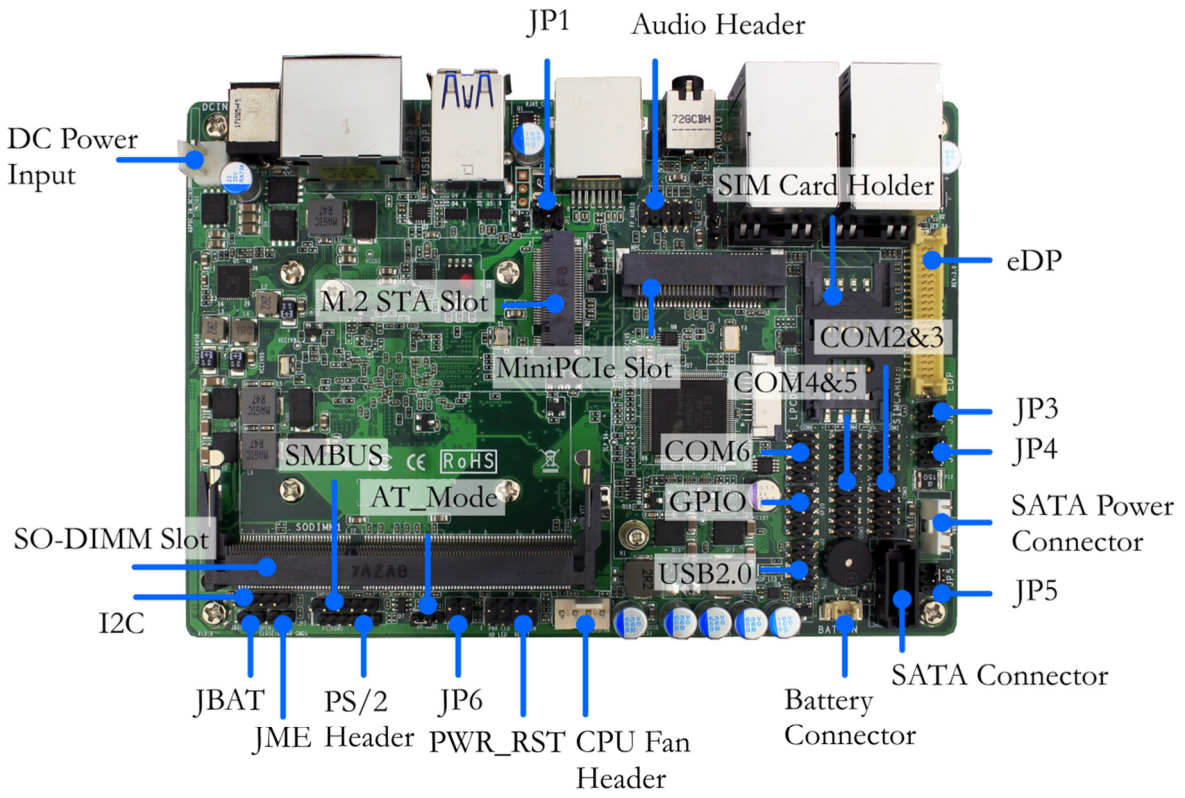
Product Name	APL-35-N3350
Processor	Intel® Apollo Lake N3350 2.40GHz (Burst) 1.10GHz Dual Core
System Memory	DDR3L 1866MHz memory support up to 8GB in SO-DIMM socket x1
Expansion	MiniPCIe (full size) x1
Disk Support	M.2 SATA, SATA device, Micro SD
Display	eDP x1, DisplayPort x2
Audio	Line-out, MIC-in
GigaLAN	2
COM	6 (RS323/422/485 x1)
I²C	1
SMBus	1
USB3.0	4
USB2.0	2
PS/2	1
8-bit GPIO	1
SIM Card Holder	Support

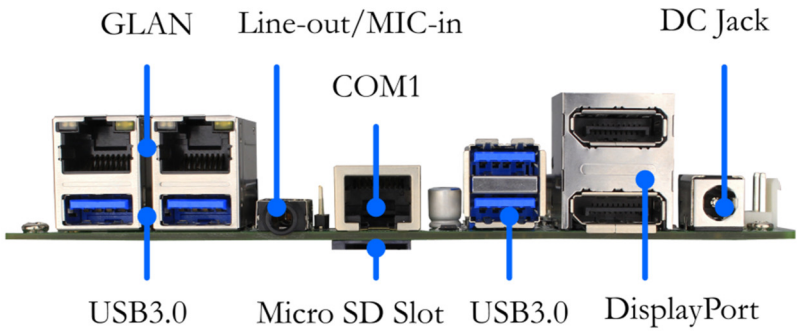
2 Hardware Information

2.1 Dimension



2.2 Board Outline



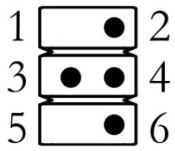


2.3 Connector, Header, and Jumper Summary

Nbr.	Name	Description	Nbr of Pin
JP1	Function Select for Pin 9 on COM1	Function setting for Pin9 of COM1	4
JP2	Voltage Select for MiniPCIe	MiniPCIe voltage setting	3
JP3	Voltage Select for eDP	eDP Display voltage setting	3
JP4	Voltage Select for eDP Inverter	eDP inverter voltage setting	4
JP5	Function Select for Pin 9 on COM2	Function setting for Pin9 of COM2	4
JP6	Case Open & TXE/ME	Pin Header for Case Open Display message and TXE/ME	4
JBAT	CMOS Clearing	Pin Header for CMOS Clearing	2
JME	ME Clearing	Pin Header for ME Clearing	2
AT Mode	AT Mode Function Select	AT Mode Function Select	3
---	Audio Header	Pin header for Line-out & MIC-in	9
---	I²C	Pin Header for I²C	4
---	SMBus	Pin Header for SMBus	4
---	USB2.0	Pin Header for USB2.0 Device	9
---	COM2	Pin Header for COM2	9
---	COM3	Pin Header for COM3	9
---	COM4	Pin Header for COM4	9
---	COM5	Pin Header for COM5	9
---	COM6	Pin Header for COM6	9
---	CPU Fan Header	Pin header for CPU Fan	4
---	GPIO	Pin Header for GPIO	10
---	SATA Connector	7-pin connector for SATA Device	7
---	SATA Power Connector	4-pin power connector for SATA Device	4
---	eDP Display	Wafer for eDP Display	40
PWR_RST	Power Button, Reset Button, Power LED, and Hard Disk LED Header	Header for Power Button, Reset Button, Power LED, and Hard Disk LED	8
---	PS/2 Header	Header for PS/2 Keyboard & Mouse	6

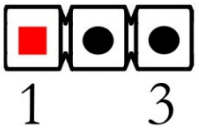
2.4 Pin Assignments & Jumper Settings

JP1: Function Selector for Pin 9 on COM1



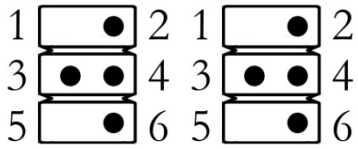
Pin	Status	Assignment
2 – 4	Closed	RS232
3 – 4	Closed	5V
4 – 6	Closed	12V

JP2: Voltage Select for MiniPCIe



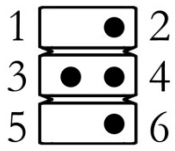
Pin	Status	Assignment
1 – 2	Closed	3.3V (Default)
2 – 3	Closed	3.3VSB

JP3: Power Select for eDP



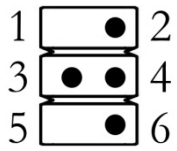
Pin	Status	Assignment
2 – 4	Closed	3.3V
3 – 4	Closed	5V
4 – 6	Closed	12V

JP4: Voltage Select for eDP Inverter



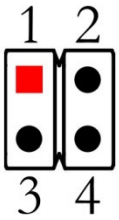
Pin	Status	Assignment
2 – 4	Closed	5V
3 – 4	Closed	12V
4 – 6	Closed	Adapter Power

JP5: Function Selector for Pin 9 on COM2



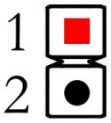
Pin	Status	Assignment
2 – 4	Closed	RS232
3 – 4	Closed	5V
4 – 6	Closed	12V

JP6: Case Open & TXEME



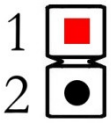
Pin	Status	Assignment
1– 2	Closed	Enable Case Open Function
1– 2	Closed	Disable ME

JBAT: CMOS Clearing



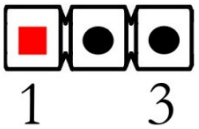
Pin	Status	Assignment
1 – 2	Open	---
1 – 2	Closed	Clear BIOS

JME: ME Clearing



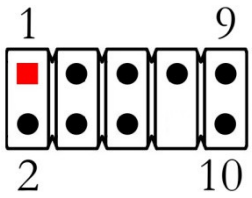
Pin	Status	Assignment
1 – 2	Open	---
1 – 2	Closed	Clear ME

AT Mode: AT Mode Function Select



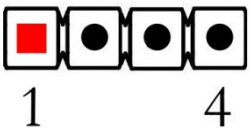
Pin	Status	Assignment
1 – 2	Closed	ATX Mode (Default)
2 – 3	Closed	AT Mode

Audio Header



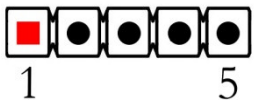
Pin	Assignment	Pin	Assignment
1.	MICR	2	GND
3	MICL	4	NC
5	LOUTR	6	NC
7	NC	8	---
9	LOUTL	10	NC

I²C



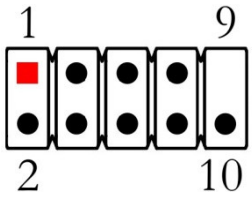
Pin	Assignment
1	VCC3
2	I2C0_SCL
3	GND
4	I2C0_SDA

SMBus



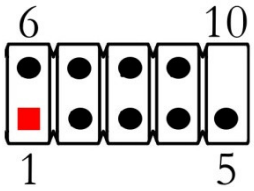
Pin	Assignment
1	SCL
2	SDA
3	SMBALERT-
4	GND
5	VCC3

USB2.0 Header



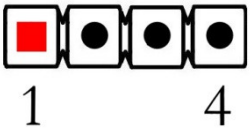
Pin	Assignment	Pin	Assignment
1.	VCC	2	VCC
3	DATA-	4	DATA-
5	DATA+	6	DATA+
7	GND	8	GND
9	---	10	NC

COM2 ~COM6 Header



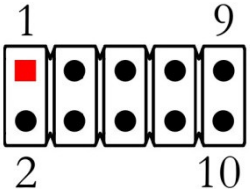
Pin	Assignment		
	RS232	RS422	RS485
1.	DCD	TX-	DATA-
2	RXD	TX+	DATA+
3	TXD	RX+	NC
4	DTR	RX-	NC
5	GND	GND	GND
6	DSR	NC	NC
7	RTS	NC	NC
8	CTS	NC	NC
9	RI	NC	NC

CPU Fan Header



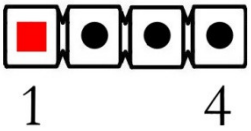
Pin	Assignment
1	GND
2	VCC
3	FAN CLOCK
4	CONTROL

GPIO Port Header



Pin	Assignment	Pin	Assignment
1.	GPIO80	2	GPIO81
3	GPIO82	4	GPIO83
5	GPIO84	6	GPIO85
7	GPIO86	8	GPIO87
9	GND	10	GND

SATA Power Connector

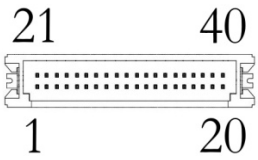


Pin	Assignment
1	+5V
2	GND
3	GND
4	+12V

SATA Connector

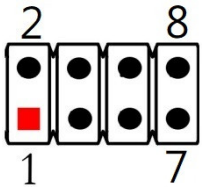
Pin	Assignment
1.	GND
2	TXP
3	TXN
4	GND
5	RXN
6	RXP
7	GND

eDP Wafer



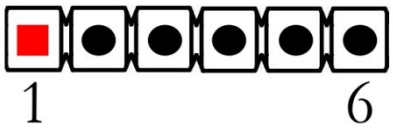
Pin	Assignment	Pin	Assignment
1	NC	21	NC
2	GND	22	NC
3	LANE3_N	23	GND
4	LANE3_P	24	GND
5	GND	25	GND
6	LANE2_N	26	GND
7	LANE2_P	27	GND
8	GND	28	GND
9	LANE1_N	29	GND
10	LANE1_P	30	GND
11	GND	31	GND
12	LANE0_N	32	BL_ENABLE
13	LANE0_P	33	BL_PWM_DM
14	GND	34	NC
15	AUX_CH_P	35	NC
16	AUX_CH_N	36	BL_PWR
17	GND	37	BL_PWR
18	VCC	38	BL_PWR
19	VCC	39	BL_PWR
20	VCC	40	NC

PWR_RST : Power Button, Reset Button, Power LED, and Hard Disk LED Header



Pin	Assignment	Pin	Assignment
1.	HDD LED+	2	PWR LED+
3	HDD LED-	4	PWR LED-
5	GND	6	PWRBTN
7	RSTSW	8	GND

PS/2 Header



Pin	Assignment
1	VCC
2	KB_DATA
3	KB_CLK
4	GND
5	MS_CLK
6	MS_DATA

3 BIOS

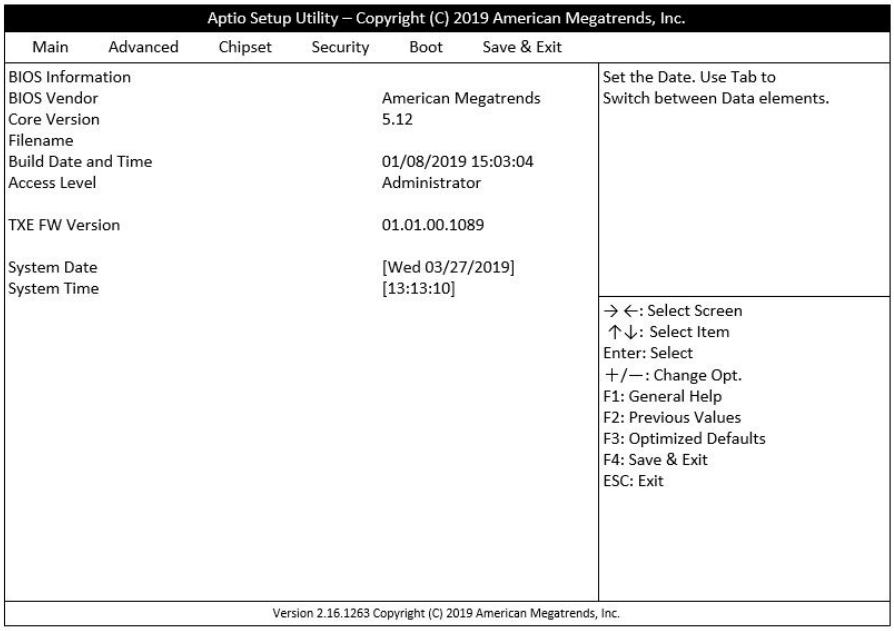
The AMI BIOS is preinstalled on APL-35-N3350 to bridge board computer and operating system and is stored in CMOS RAM for retaining BIOS configuration. Through AMI BIOS, user can modify basic system configuration for application requirement.

In this chapter, a brief BIOS introduction will be given to user who would to change BIOS configuration for application demand.

3.1 Entering BIOS Setup

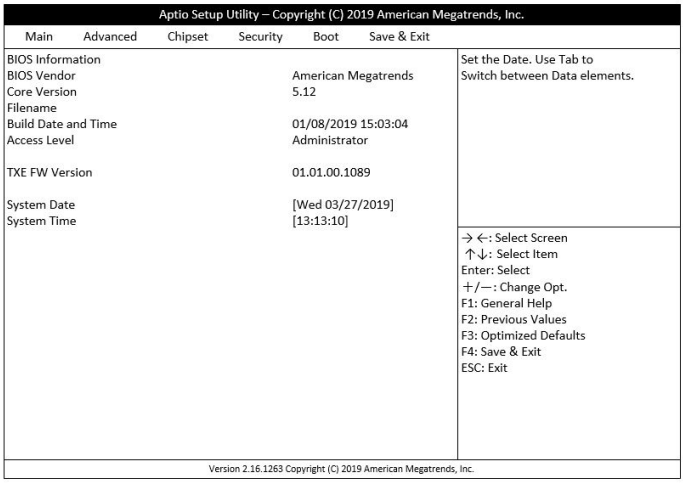
Press <Delete> key to enter BIOS Setup while the system is powering on. Once entering BIOS Setup, you will see an image as the following shown with six menu bars Main, Advance, Chipset, Boot, and Save & Exit at the top of BIOS menu.

Menu	To change basic system configuration
Advanced	To change advanced system configuration
Chipset	To change system chipset configuration
Security	Password setting
Boot	To change system boot setting
Save & Exit	To save configuration change or to reload default configuration setting



3.2 Main

To change basic system configuration with system date and time.
<Tab> key is used to switch between elements.

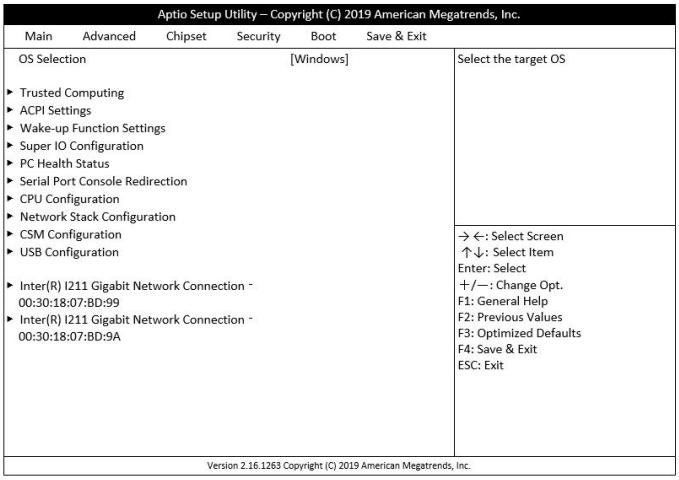


System Date Set the Date. Use Tab to switch between Date elements.

System Time Set the Time. Use Tab to switch between Time elements.

3.3 Advanced

To change advanced system I/O configuration



OS Selection Select the target OS.
[Windows], [Intel Linux], [MSDOS]

Trusted Computing Trusted Computing Settings

Security Device Support Enables or Disables BIOS support for
[Disabled], [Enabled] security device. O.S. will not show Security Device. TCG EFI protocol and INT1A interface will not be available.

ACPI Setting System ACPI Parameters

ACPI Sleep State Select the highest ACPI sleep state the
[Suspend Disabled], system will enter when the SUSPEND
[S3 (Suspend to RAM)] button is presses

Wakeup Function Settings System Wake-up function setting

Wake-up System with Fixed Time Enable or disable system wake on alarm
[Disabled], [Enabled] event. When enabled system will wake on the hr:min:sec specified.

Wake-up System with Dynamic Time Enable or disable system wake on alarm
[Disabled], [Enabled] event. When enabled, system will wake on current time + Increase minute(s).

PS2 KB/MS Wake-up Enable or Disable PS2 KB/MS wake-up
[Disabled], [Enabled] from (S3/S4/S5) Support Only Disable ERP Function.

USB S3/S4 Wake-up Enable or Disable USB S3/S4 wake-up
[Disabled], [Enabled] Support Only disable ERP Function

USB S5 Power USB Power after System Shutdown.

[Disabled], [Enabled] Support Only disable ERP Function

Super IO Configuration System IO Chip Parameters

ERP Support Energy-Related Products function.

[Disabled], [Enabled] Disable ERP to active all wake-up functions.

Serial Port 1 Configuration Set Parameters of Serial Port 1 (COMA)

Serial Port Enable or Disable Serial Port (COM)

[Disabled], [Enabled]

Change Settings Select an optimal setting for Super IO

[IO=2E0h; IRQ=11], Device.

[IO=3F8h; IRQ=3. 4. 5. 6. 7. 10. 11],

[IO=2F8h; IRQ=3. 4. 5. 6. 7. 10. 11],

[IO=3E8h; IRQ=3. 4. 5. 6. 7. 10. 11],

[IO=2E8h; IRQ=3. 4. 5. 6. 7. 10. 11],

[IO=3E0h; IRQ=3. 4. 5. 6. 7. 10. 11],

[IO=3E0h; IRQ=3. 4. 5. 6. 7. 10. 11]

Serial Port FIFO Mode

[16-Byte FIFO], [32-Byte FIFO],

[64-Byte FIFO], [128-Byte FIFO]

Serial Port 2 Configuration Set Parameters of Serial Port 2 (COMB)

Serial Port Enable or Disable Serial Port (COM)

[Disabled], [Enabled]

Change Settings Select an optimal setting for Super IO

[IO=2E0h; IRQ=11], Device.

[IO=3F8h; IRQ=3. 4. 5. 6. 7. 10. 11],

[IO=2F8h; IRQ=3. 4. 5. 6. 7. 10. 11],

[IO=3E8h; IRQ=3. 4. 5. 6. 7. 10. 11],

[IO=2E8h; IRQ=3. 4. 5. 6. 7. 10. 11],

[IO=3E0h; IRQ=3. 4. 5. 6. 7. 10. 11],

[IO=3E0h; IRQ=3. 4. 5. 6. 7. 10. 11]

Transmission Mode Select

Mode Speed Select RS232/422/RS485 Speed Select

[RS232/RS422/RS485=250kbps],

[RS232=1Mbps, RS422/RS485=10Mbps]

Serial Port FIFO Mode

[16-Byte FIFO], [32-Byte FIFO],

[64-Byte FIFO], [128-Byte FIFO]

Serial Port 3 Configuration Set Parameters of Serial Port 3 (COMC)

Serial Port Enable or Disable Serial Port (COM)

[Disabled], [Enabled]

Change Settings Select an optimal setting for Super IO Device.

[IO=2E0h; IRQ=11],
[IO=3F8h; IRQ=3. 4. 5. 6. 7. 10. 11],
[IO=2F8h; IRQ=3. 4. 5. 6. 7. 10. 11],
[IO=3E8h; IRQ=3. 4. 5. 6. 7. 10. 11],
[IO=2E8h; IRQ=3. 4. 5. 6. 7. 10. 11],
[IO=3E0h; IRQ=3. 4. 5. 6. 7. 10. 11],
[IO=3E0h; IRQ=3. 4. 5. 6. 7. 10. 11]

Serial Port FIFO Mode

[16-Byte FIFO], [32-Byte FIFO],
[64-Byte FIFO], [128-Byte FIFO]

Serial Port 4 Configuration Set Parameters of Serial Port 4 (COMD)

Serial Port Enable or Disable Serial Port (COM)

[Disabled], [Enabled]

Change Settings Select an optimal setting for Super IO Device.

[IO=2E0h; IRQ=11],
[IO=3F8h; IRQ=3. 4. 5. 6. 7. 10. 11],
[IO=2F8h; IRQ=3. 4. 5. 6. 7. 10. 11],
[IO=3E8h; IRQ=3. 4. 5. 6. 7. 10. 11],
[IO=2E8h; IRQ=3. 4. 5. 6. 7. 10. 11],
[IO=3E0h; IRQ=3. 4. 5. 6. 7. 10. 11],
[IO=3E0h; IRQ=3. 4. 5. 6. 7. 10. 11]

Serial Port FIFO Mode

[16-Byte FIFO], [32-Byte FIFO],
[64-Byte FIFO], [128-Byte FIFO]

Serial Port 5 Configuration Set Parameters of Serial Port 5 (COME)

Serial Port Enable or Disable Serial Port (COM)

[Disabled], [Enabled]

Change Settings Select an optimal setting for Super IO Device.

[IO=2E0h; IRQ=11],
[IO=3F8h; IRQ=3. 4. 5. 6. 7. 10. 11],
[IO=2F8h; IRQ=3. 4. 5. 6. 7. 10. 11],
[IO=3E8h; IRQ=3. 4. 5. 6. 7. 10. 11],
[IO=2E8h; IRQ=3. 4. 5. 6. 7. 10. 11],
[IO=3E0h; IRQ=3. 4. 5. 6. 7. 10. 11],

[IO=3E0h; IRQ=3. 4. 5. 6. 7. 10. 11]

Serial Port FIFO Mode

[16-Byte FIFO], [32-Byte FIFO],

[64-Byte FIFO], [128-Byte FIFO]

Serial Port 6 Configuration Set Parameters of Serial Port 6 (COMF)

Serial Port Enable or Disable Serial Port (COM)

[Disabled], [Enabled]

Change Settings Select an optimal setting for Super IO

[IO=2E0h; IRQ=11], Device.

[IO=3F8h; IRQ=3. 4. 5. 6. 7. 10. 11],

[IO=2F8h; IRQ=3. 4. 5. 6. 7. 10. 11],

[IO=3E8h; IRQ=3. 4. 5. 6. 7. 10. 11],

[IO=2E8h; IRQ=3. 4. 5. 6. 7. 10. 11],

[IO=3E0h; IRQ=3. 4. 5. 6. 7. 10. 11],

[IO=3E0h; IRQ=3. 4. 5. 6. 7. 10. 11]

Serial Port FIFO Mode

[16-Byte FIFO], [32-Byte FIFO],

[64-Byte FIFO], [128-Byte FIFO]

WatchDog Reset Timer Support WDT reset function

[Disabled], [Enabled]

Case Open Detect Detect Case has already open or not. Show

[Disabled], [Enabled] message in POST

PS/2 KB/MS Connect Setting PS2 Connect Primary Devices

[Keyboard First], [Mouse First]

PC Health Status Monitor hardware status

SmartFAN Configuration

CPUFAN Type

[4-pin], [3-pin]

CPUFAN Smart Mode

[Disabled], [Enabled]

CPUFALL Full-Speed Temperature

CPUFALL Full-Speed Duty

CPUFALL Idle-Speed Temperature

CPUFALL Idle-Speed Duty

Serial Port Console Redirection Serial Port Console Redirection

Console Redirection Console Redirection Enable or Disable

[Disabled], [Enabled]

Console Redirection Settings The settings specify how the host computer

	and the remote computer and the remote computer (which the user is using) will exchange date. Both computers should have the same or compatible settings.
Terminal Type *[VT100], [VT100+], [VT-UTF8], [ANSI]*	Emulation: ANSI: Extended ASCII char set. VT100: ASCII char set. VT100+: Extends VT100 to support color, function keys, etc. VT-UTF8: Uses UTF8 encoding to map Unicode chars onto 1 or more bytes.
Bits per second *[9600], [19200], [38400], [57600], [115200]*	Select serial port transmission speed. The speed must be matched on the other side. Long or noisy lines may require lower speeds.
Data Bits *[7], [8]*	Data Bits
Parity *[None], [Even], [Odd], [Mark], [Space]*	A parity bit can be sent with the data bits to detect some transmission errors. Even: parity bit is 0 if the num of 1's in the date bits is even. Odd: parity bit is 0 if num of 1's in the data bits is odd. Mark: parity bit is always 1. Space: parity bit is always 0. Mark and Space Parity do not allow for error detection.
Stop Bits *[1], [2]*	Stop bits indicate the end of a serial date packet (A start bit indicates the beginning). The standard setting is 1 stop bit. Communication with slow devices may require more than 1 stop bit.
Flow Control *[None], [Hardware RTS/CTS]*	Flow control can prevent data loss from buffer overflow. When sending date, if the r receiving buffers are full, a 'stop' signal can be sent to stop the date flow. Once the buffers are empty, a 'start' signal can be sent to re-start the flow. Hardware flow control uses two wires to send start/stop signals.
VT-UTF8 Combo Key Support *[Disabled], [Enabled]*	Enable VT-UTF8 Combination Key Support for ANSI/VT100 terminals.
Recorder Mode *[Disabled], [Enabled]*	With this mode enabled only test will be sent. This is to capture Terminal data.

Resolution 100x31 *[Disabled], [Enabled]*	Enables or disables extended terminal resolution
Legacy OS Redirection Resolution *[80x24], [80x25]*	On Legacy OS, the Number of Rows and Columns supported redirection.
Putty KeyPad *[VT100], [LINUX], [XTERM86], [SCO], [ESCN], [VT400]*	Select Function Key and Key pad on Putty.
Redirection After BIOS POST *[Always Enable], [Bootloader]*	The Settings specify if Bootloader is selected then Legacy console redirection is disabled before booting to Legacy OS. Default value is Always Enable with means Legacy console Redirection is enabled for Legacy OS.
Legacy Console Redirection Settings	Legacy Console Redirection Settings
Legacy Serial Redirection Port *[COM1]*	Select a COM port to display redirection of Legacy OS and Legacy OPROM Messages
Console Redirection *[Disabled], [Enabled]*	Console Redirection Enable or Disable
Console Redirection Settings	The settings specify how the how the host Computer and the remote computer (which the user is using) will exchange date. Both computers should have the same or compatible settings.
Terminal Type *[VT100], [VT100+], [VT-UTF8], [ANSI]*	VT-UTF8 is the preferred terminal type for out-of-band management, The next best choice is VT100+ and then VT100, See above, in Console Redirection Settings page, for more Help with Terminal Type/Emulation.
Bits per second *[9600], [19200], [38400], [57600], [115200]*	Select serial port transmission speed. The speed must be matched on the other side. Long or noisy lines may require lower speeds.
Flow Control *[None], [Hardware RTS/CTS], [Software Xon/Xoff]*	Flow control can prevent data loss from buffer overflow. When sending date, if the r receiving buffers are full, a 'stop' signal can be sent to stop the date flow. Once the

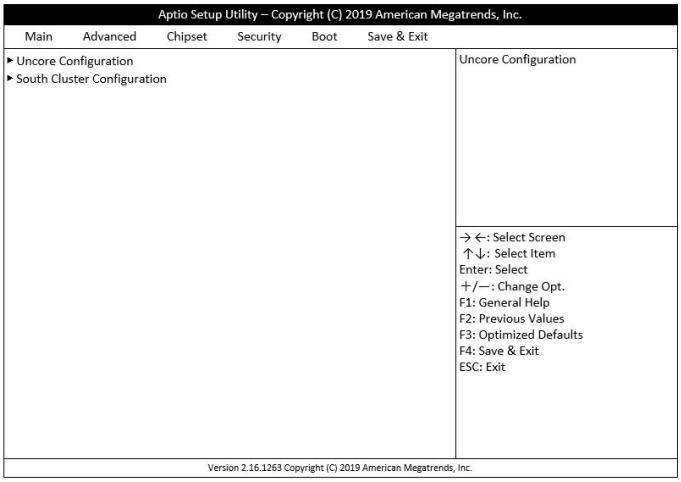
	buffers are empty, a 'start' signal can be sent to re-start the flow. Hardware flow control uses two wires to send start/stop signals.
CPU Configuration	CPU Configuration Parameters
Intel Virtualization Technology *[Disabled], [Enabled]*	When enabled, a VMM can utilize the additional hardware capabilities provided by Vanderpool Technology
VT-d *[Disabled], [Enabled]*	Enable/Disable CPU VT-d
EIST *[Disabled], [Enabled]*	Enable/Disable Intel SpeedStep
C-States *[Disabled], [Enabled]*	Enable/Disable C States
Enhanced C-States *[Disabled], [Enabled]*	Enable/Disable C1E. When enabled, CPU will switch to minimum speed when all cores enter C-State
Max Core C State *[Fused Value], [Core C10], [Core C9], [Core C8], [Core C8], [Core C6], [Core C1], [Unlimited]*	This option controls the Max core C State cores will support
Network Stack Configuration	Network Stack Settings
Network Stack *[Disabled], [Enabled]*	Enable/Disable UEFI Network Stack
CSM Configuration	CSM configuration: Enable/Disable, Option ROM execution settings, etc.
Boot Option Filter *[UEFI and Legacy], [Legacy Only] [UEFI Only]*	This option controls Legacy/UEFI priority
Network *[Do not Launch], [UEFI], [Legacy]*	Controls the execution of UEFI and Legacy PXE OpROM
Storage *[Do not Launch], [UEFI], [Legacy]*	Controls the execution of UEFI and Legacy Storage OpROM
Video *[Do not Launch], [UEFI], [Legacy]*	Controls the execution of UEFI and Legacy Videp OpROM
Other PCI Devices *[Do not Launch], [UEFI], [Legacy]*	Determines OpROM execution policy for devices other than Network, Storage, or Video
USB Configuration	USB Configuration Parameters

Legacy USB Support *[Disabled], [Enabled], [Auto]*	Enables Legacy USB support. Auto option disables legacy support if no USB devices are connected. DISABLED option will keep USB devices available only for EFI applications.
XHCI Hand-off *[Disabled], [Enabled]*	This is a workaround for OSes without XHCI hand-off support The XHCI ownership change should be claimed by XHCI driver.
USB Mass Storage Driver Support *[Disabled], [Enabled]*	Enable/Disable USB Mass Storage Driver Support
USB Transfer Time-out *[1 sec], [5 sec], [10 sec], [20 sec]*	The time-out value for Control, Bulk, and Interrupt transfers
Device Reset Time-out *[1 sec], [5 sec], [10 sec], [20 sec]*	USB mass storage device Start Unit command time-out
Device Power-up Delay *[Auto], [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 from Hub descriptor.

Intel(R) I211 Gigabit Network Connection –
00:30:18:07:BD:99
Intel(R) I211 Gigabit Network Connection –
00:30:18:07:BD:9A

3.4 Chipset

To change system I/O configuration based on North Bridge and South Bridge chipset



Uncore Configuration — Uncore Configuration

GTT Size — Select the GTT Sizze

[2MB], [4MB], [8MB]

DVMT Pre-Allocated — Select DVMT 5.0 Pre-Allocated (Fixed) Graphics Memory size used by the Internal Graphics Device

[64M], [96M], [128M], [160M], [192M], [224M], [256M], [288M], [320M], [352MB], [384MB], [416MB], [448MB], [480MB], [512MB]

DVMT Total Gfx Mem — Select DVMT 5.0 Total Graphic Memory Size used by the Internal Graphics Device

[128MB], [256MB], [MAX]

Brightness Level — Set LVDS Brightness Level

[20], [40], [60], [80], [100], [120], [140], [160], [180], [200], [220], [240], [255]

South Cluster Configuration — South Cluster Configuration

SATA Configuration — Press <Enter> to select the SATA Device Configuration Setup options.

SATA Controller(S) — Enables or Disables the Chipset SATA Controller

[Disabled], [Enabled]

Port — Enable or Disable SATA Port

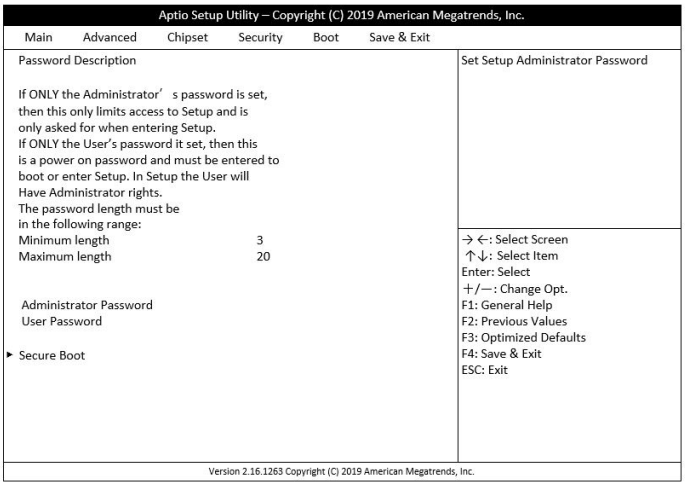
[Disabled], [Enabled]

Hot Plug — If enabled, SATA port will be reported as

[Disabled], [Enabled]	Hot Plug capable
Device Type	Identify the SATA port is connected to Solid
[HDD], [SSD]	Sate Drive or Hard Disk Drive.
Port	Enable or Disable SATA Port
[Disabled], [Enabled]	
USB Configuration	USB Configuration Settings
XHCI Mode	Once disabled, XHCI controller would be
[Disabled], [Enabled]	function disabled, none of the USB devices are detectable and usable during boot and in OS.
SD Card Support	Enable/Disable SCC SD Card Support
[Disabled], [Enabled]	
HD Audio Support	Enable/Disable HD Audio Support
[Disabled], [Enabled]	
Onboard Lan1 Controller	Control the PCI Express Root Port.
[Disabled], [Enabled]	Enable: Enable PCIe root port
	Disable: Disable PCIe root port
Onboard Lan2 Controller	Control the PCI Express Root Port.
[Disabled], [Enabled]	Enable: Enable PCIe root port
	Disable: Disable PCIe root port
System State After Power Failure	Specify what state to go to when power is
[Always Off], [Always On],	re-applied after a power failure (G3 State). S0
[Former state]	State: System will boot directly as soon as power applied. S5 State: System keeps in power-off sate until power button is pressed.

3.5 Security

Password setting for system security



Administrator Password Set Setup Administrator Password

[Disabled], [Enabled]

User Password Set Password

[Standard], [Custom]

Secure Boot Customizable Secure Boot settings

Provision Factory Default keys Install factory default Secure Boot keys

[Disabled], [Enabled] when System is in Setup Mode

Enroll all Factory Default keys Force System to User Mode –install

[Yes], [No] all Factory Default keys

Save all Secure Boot variables Save NVRAM content of all Secure Boot variables to the files (EFI_SIGNATURE_LIST data format) in root folder on a target file system device

Platform Key(PK) Enroll Factory Defaults or load the keys

[Set New Key] from a file with:

1. Public Key Certificates in:
   a) EFI_SIGNATURE_LIST
   b) EFI_CERT_X509 (DER encoded)
   c) EFI_CERT_RSA2048 (bin)
   d) EFI_CERT_SHA256 (bin)
2. Authenticated UEFI Variable

Key: Vendor, Custom, Mixed, Test(*) modified from Setup Menu.

Key Exchange Keys *[Set New Key], [Append Key]*	Enroll Factory Defaults or load the keys from a file with: 1. Public Key Certificates in: a) EFI_SIGNATURE_LIST b) EFI_CERT_X509 (DER encoded) c) EFI_CERT_RSA2048 (bin) d) EFI_CERT_SHA256 (bin) 2. Authenticated UEFI Variable Key: Vendor, Custom, Mixed, Test(*) modified from Setup Menu.
Authorized Signatures *[Set New Key], [Append Key]*	Enroll Factory Defaults or load the keys from a file with: 1. Public Key Certificates in: a) EFI_SIGNATURE_LIST b) EFI_CERT_X509 (DER encoded) c) EFI_CERT_RSA2048 (bin) d) EFI_CERT_SHA256 (bin) 2. Authenticated UEFI Variable Key: Vendor, Custom, Mixed, Test(*) modified from Setup Menu.
Forbidden Signatures *[Set New Key], [Append Key], [Delete Key]*	Enroll Factory Defaults or load the keys from a file with: 1. Public Key Certificates in: e) EFI_SIGNATURE_LIST f) EFI_CERT_X509 (DER encoded) g) EFI_CERT_RSA2048 (bin) h) EFI_CERT_SHA256 (bin) 2. Authenticated UEFI Variable Key: Vendor, Custom, Mixed, Test(*) modified from Setup Menu.
Authorized TimeStamps *[Set New Key], [Append Key]*	Enroll Factory Defaults or load the keys from a file with: 1. Public Key Certificates in: a) EFI_SIGNATURE_LIST b) EFI_CERT_X509 (DER encoded) c) EFI_CERT_RSA2048 (bin) d) EFI_CERT_SHA256 (bin) 2. Authenticated UEFI Variable

Key: Vendor, Custom, Mixed, Test(*) modified from Setup Menu.

OsRecovery Signatures

[Set New Key], [Append Key]

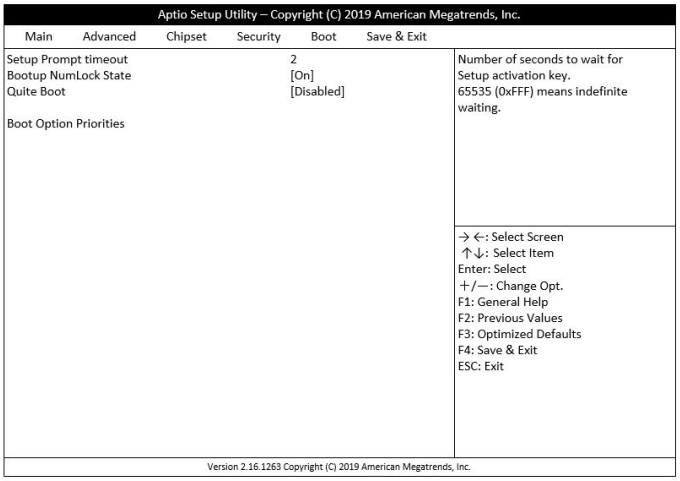
Enroll Factory Defaults or load the keys from a file with:

1. Public Key Certificates in:
   a) EFI_SIGNATURE_LIST
   b) EFI_CERT_X509 (DER encoded)
   c) EFI_CERT_RSA2048 (bin)
   d) EFI_CERT_SHA256 (bin)
2. Authenticated UEFI Variable

Key: Vendor, Custom, Mixed, Test(*) modified from Setup Menu.

3.6 Boot

To change system boot setting



Setup Prompt Timeout Number of seconds to wait for setup activation key. 65535 (0xFFFF) means indefinite waiting.

Boot NumLock State Customizable Secure Boot settings

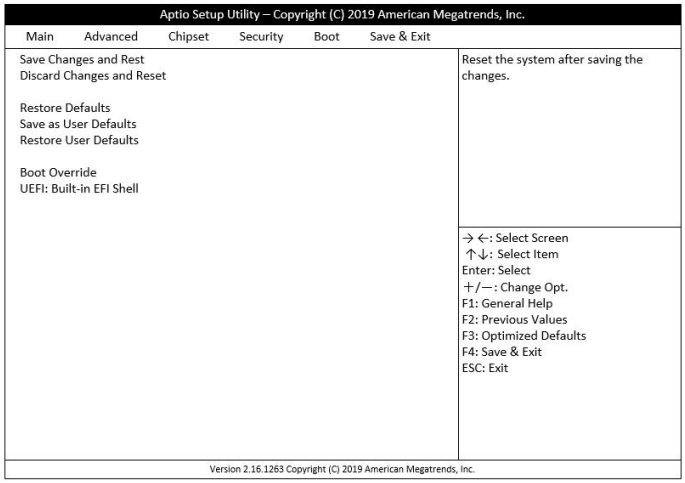
[On], [off[

Quiet Boot Enables or disables Quiet Boot option

[Disabled], [Enabled]

3.7 Save & Exit

To save configuration change or to reload default configuration setting



Save Changes and Reset	Reset the system after saving the changes.
Discard Changes and Reset	Reset the system setup without saving any changes.
Restore Defaults	Reset/Load Default values for all the setup options
Save as User Defaults	Save the changes done so far as User Defaults
Restore as User Defaults	Restore the User Defaults to all the setup options
Launch EFT Shell from filesystem device	Attempts to Launch EFI Shell application (Shell.efi) from one of the available filesystem devices

Technical Support Directly from ICOP

To offer you more accurate and specific solutions for the technical situations you have, please prepare the information below before contacting ICOP:

—Product name and serial number

—Description of the H/W environment (i.e.: working temperature, I/O board information, information of connection between main board and IO boards, and/or other devices, etc)

—Description of the S/W environment (i.e: operating system, version, application software, and/or other related information, etc.)

—A detailed description and photos of the technical situation

—Any complement or technical situations you want ICOP more focusing on

User Manual Feedback

To make this user manual more complete, if you have any comments or feedbacks to this manual, please feel free to write to info@icop.com.tw or contact your ICOP sales representative.

Warranty

This product is warranted to be in good working order for a period of one year (12 months) from the date of purchase. Should this product fail to be in good working order at any time during this period, we will, at our option, replace or repair it without additional charge except as set forth in the following terms. This warranty does not apply to products damaged by misuse, modifications, accident or disaster. Vendor assumes no liability for any damages, lost profits, lost savings or any other incidental or consequential damage resulting from the use, misuse of, originality to use this product. Vendor will not be liable for any claim made by any other related party. Return authorization must be obtained from the vendor before returned merchandise is accepted. Authorization can be obtained by calling or faxing the vendor and requesting a Return Merchandise Authorization (RMA) number. Returned goods should always be accompanied by a clear problem description. Should you have questions about warranty and RMA service, please contact us directly.

ICOP Technology Inc.
Address: No. 15 Wugong 5th Road, Xinzhuang Dist.
New Taipei City, Taiwan (R.O.C.) 24890
TEL: +886-2-8990-1933
FAX: +886-2-8990-2045
Mail: info@icop.com.tw
Website: http://www.icop.com.tw