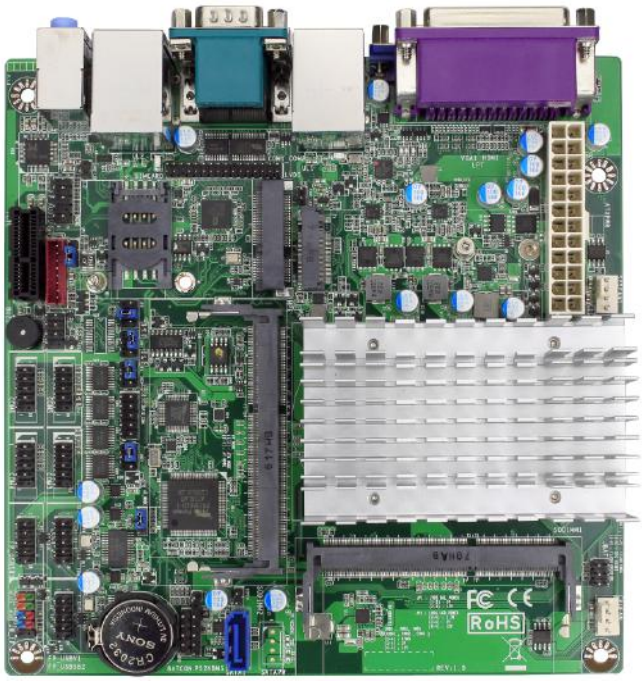
User Manual



BSW-mITX-N3160

A MiniITX embedded solution on

Intel® Quad-core processor

(Braswell Family)

Version 1.0

Copyright

Trademarks Acknowledgement

Revision History

Revision	Date	Remark
1.0	June 3, 2019	First version release

Contents

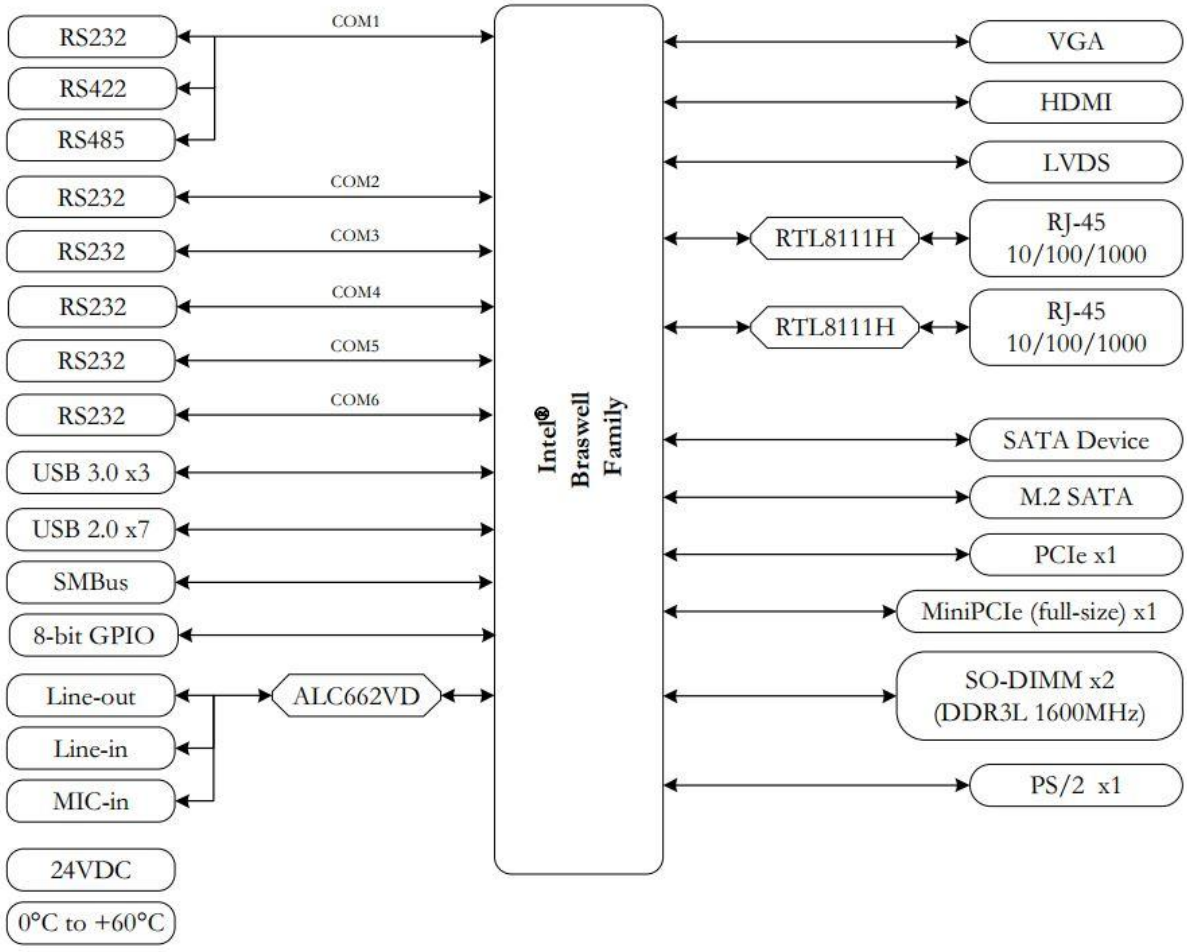
1 General Information

1.1 Overview

BSW-mITX-N3160, a standard mini-ITX embedded solution for industrial application based on Intel® Braswell Quad-Core CPU with DDR3L RAM support up to 8GB, provides stable and powerful computing performance.

BSW-mITX-N3160 supports 2x Gigabit LAN, 6x COM, 10x USB, Parallel, PS/2, SMBus, 8-bit GPIO, SIM card holder, MiniPCIe, ,PCIe, HDMI, LVDS, VGA, and 2 storage options SATA interface and M.2 SATA interface for development use.

1.2 Block diagram



1.3 Specifications

Processor	Intel® Braswell N3160 2.24GHz (Burst) 1.6GHz Quad Core		
System memory	DDR3L 1600MHz memory support up to 8GB in SO-DIMM slot x2		
BIOS	AMI BIOS		
Display	Intel® HD Graphics with MultiDisplay support HDMI: resolution support up to 3840 x 2160 at 30Hz VGA: resolution support up to 1920 x 1080 at 60Hz LVDS: resolution support up to 1920 x 1080 at 60Hz		
Audio	Realtek ALC662VD HD Audio		
LAN	Realtek 8111H Gigabit Ethernet Controller		
Expansion	MiniPCIe (full-size) x1	PCIe x1	
Disk Support	M.2 SATA x1	SATA interface x1	
I/O Interface	8-bit GPIO x1	COM x6 (RS232/422/485 x1)	HDMI x1
	Line-in, Line-out, and MIC-in x1	LVDS x1	Parallel x1
	PS/2 interface x1	SIM card holder x2	SMBus x1
	USB (ver. 2.0) x7	USB (ver. 3.0) x3	VGA x1
Connectors	5-pin header for SMBus x1	6-pin header for PS/2 Keyboard & Mouse x1	
	7-pin SATA connector for SATA x1	25-pin D-sub connector for Parallel x1	
	9-pin header for COM x4	ATX Power connector x1	
	9-pin header for USB2.0 x2	HDMI connector x1	
	9-pin D-sub connector for COM x2	MIniPCIe slot x1	
	10-pin header for 8-bit GPIO x1	M.2 slot (M. Key slot 2242/2260) for M.2 SATA x1	
	15-pin D-sub connector for VGA x1	Phone Jack for Line-in, Line-out, MIC-in x1	
	32-pin header for LVDS x1	RS45 connector for Ggia LAN x2	
	USB connector for USB2.0 x1	USB connector for USB3.0 x3	
Power Requirement	24VDC ATX power input with ATX/AT mode		
Operating Temp.	0°C to 60°C		
Dimensions	170 x 170 mm		
O/S Support	Windows 10	Windows 7	Linux

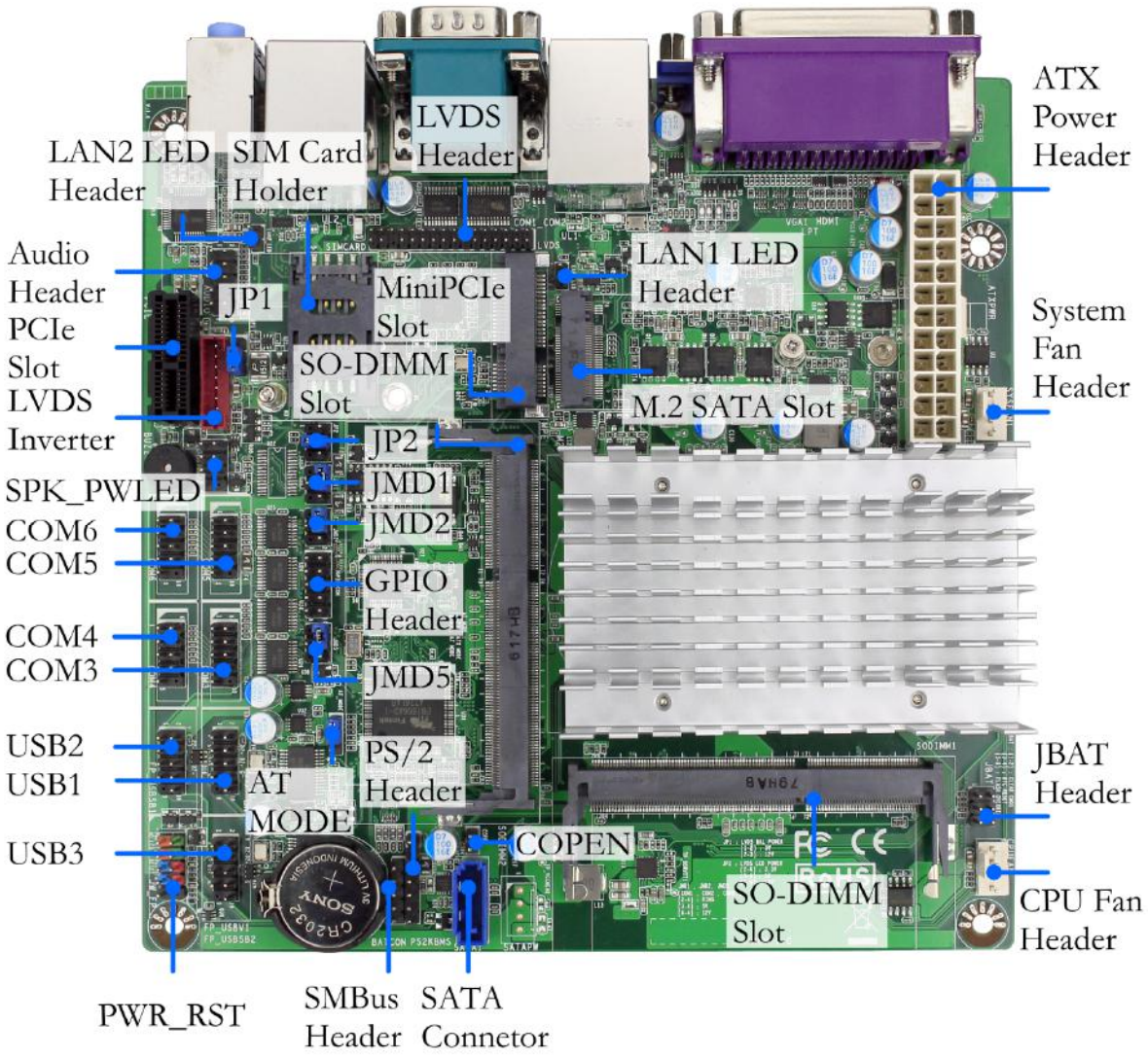
1.4 Ordering Information

1.4.1 BYT-35-N2930

Product Name	BSW-mITX-N3160
Processor	Intel® Braswell N3160 2.24GHz (Burst) 1.60GHz Quad Core
System Memory	DDR3L 1600MHz memory support up to 8GB in SO-DIMM socket x2
Expansion	MiniPCIe (full size) x1, PCIe x1
Disk Support	M.2 SATA, SATA device
Display	HDMI, VGA, LVDS
Audio	Line-in, Line-out, MIC-in
GigaLAN	2
COM	6 (1x RS232/422/485)
USB3.0	3
USB2.0	7
Parallel	1
SMBus	1
8-bit GPIO	1
PS/2	1
SIM Card Holder	Support

2 Hardware Information

2.1 Board Outline

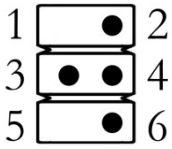


2.2 Connector, Header, and Jumper Summary

Nbr.	Name	Description	Nbr of Pin
JMD1	Function Select for Pin 9 on COM1	Function setting for Pin9 of COM1	4
JMD2	Function Select for Pin 9 on COM2	Function setting for Pin9 of COM2	4
JMD5	Function Select for Pin 9 on COM5	Function setting for Pin9 of COM5	4
JP1	Voltage Select for LVDS Backlight	LVDS backlight voltage setting	4
JP2	Voltage Select for LVDS LCD	LVDS LCD voltage setting	4
JBAT	CMOS Clearing & Flash Select	Pin Header for CMOS Clearing and Flash Select	6
LAN1_LED	LAN1 LED Header	Pin Header for LAN1 LED	2
LAN2_LED	LAN2 LED Header	Pin Header for LAN2 LED	2
COPEN	Case Open Message Display	Case Open Message Display Function	2
AT Mode	AT Mode Function Select	AT Mode Function Select Function	3
---	Audio Header	Pin Header for Line-out & MIC-in	9
---	ATX Power Connector	24-pin lockable connector for ATX Power	24
---	COM3 Header	Pin Header for COM3	9
---	COM4 Header	Pin Header for COM4	9
---	COM5 Header	Pin Header for COM5	9
---	COM6 Header	Pin Header for COM6	9
---	CPU Fan Header	Pin Header for CPU Fan	4
---	GPIO Header	Pin Header for GPIO	10
---	LVDS Inverter	Wafer for LVDS Inverter	8
---	LVDS Header	Pin Header for LVDS Display	32
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	9
	PS/2 Header	Header for PS/2 Keyboard & Mouse	6
---	SMBus Header	Pin Header for SMBus Device	5
SPK_PWLED	Speaker and Power LED Header	Pin Header for Speaker and Power LED Header	8
---	System Fan Header	Pin Header for System Fan	4
---	SATA Connector	7-pin connector for SATA Device	7
---	USB1 Header	Pin Header for USB1	9
---	USB2 Header	Pin Header for USB2	9
---	USB3 Header	Pin Header for USB3	9

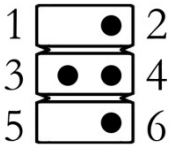
2.3 Pin Assignments & Jumper Settings

JMD1: Function Selector for Pin 9 on COM1



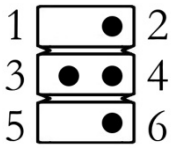
Pin	Status	Assignment
2 – 4	Closed	RS232
3 – 4	Closed	5V
4 – 6	Closed	12V

JMD5: Function Selector for Pin 9 on COM5



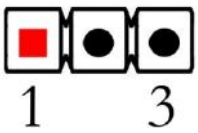
Pin	Status	Assignment
2 – 4	Closed	RS232
3 – 4	Closed	5V
4 – 6	Closed	12V

JMD2: Function Selector for Pin 9 on COM2



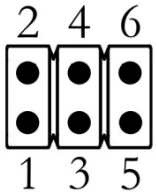
Pin	Status	Assignment
2 – 4	Closed	RS232
3 – 4	Closed	5V
4 – 6	Closed	12V

JP1: Voltage Select for LVDS Backlight



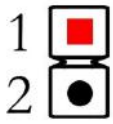
Pin	Status	Assignment
2 – 4	Closed	RS232
3 – 4	Closed	5V
4 – 6	Closed	12V

JP2: Voltage Select for LVDS LCD



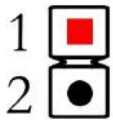
Pin	Status	Assignment
2 – 4	Closed	3.3V
3 – 4	Closed	5V
4 – 6	Closed	12V

LAN1_LED: LAN1 LED Header



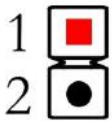
Pin	Assignment
1.	LED+
3	LED-

LAN2_LED: LAN2 LED Header



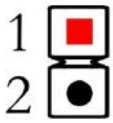
Pin	Assignment
1	LED+
2	LED-

COPEN: Case Open Message Display



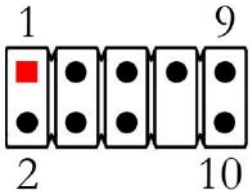
Pin	Status	Assignment
1 – 2	Open	---
1 – 2	Closed	Case Open Message Display

AT Mode: AT Mode Select



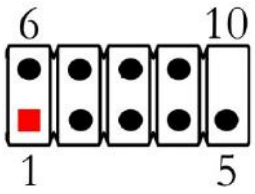
Pin	Status	Assignment
1 – 2	Open	ATX Mode
1 – 2	Closed	AT Mode

Audio Header



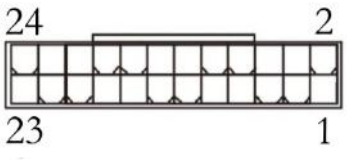
Pin	Assignment	Pin	Assignment
1.	MICR	2	GND
3	MICL	4	NC
5	LOUTR	6	NC
7	BC	8	---
9	LOUTL	10	NC

COM3 Header



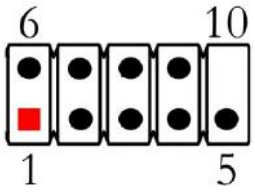
Pin	Assignment	Pin	Assignment
1.	DCD	6	DSR
2	RXD	7	RTS
3	TXD	8	CTS
4	DTR	9	RI
5	GND	10	NC

ATX Power Connector



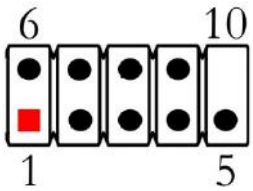
Pin	Assignment	Pin	Assignment
1.	+3.3V	2	+3.3V
3	+3.3V	4	-12V
5	GND	6	GND
7	+5V	8	Soft Power On
9	GND	10	GND
11	+5V	42	GND
13	GND	14	GND
15	Power OK	16	-5V
17	+5V Stand By	18	+5V
19	+12V	20	+5V
21	+12V	22	+5V
23	+3.3V	25	GND

COM4 Header



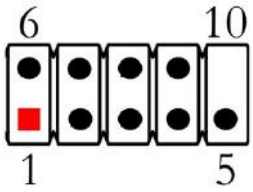
Pin	Assignment	Pin	Assignment
1.	DCD	6	DSR
2	RXD	7	RTS
3	TXD	8	CTS
4	DTR	9	RI
5	GND	10	NC

COM5 Header



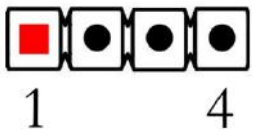
Pin	Assignment	Pin	Assignment
1.	DCD	6	DSR
2	RXD	7	RTS
3	TXD	8	CTS
4	DTR	9	RI
5	GND	10	NC

COM6 Header



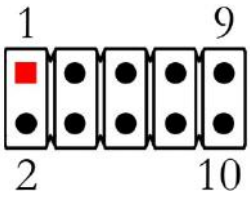
Pin	Assignment	Pin	Assignment
1.	DCD	6	DSR
2	RXD	7	RTS
3	TXD	8	CTS
4	DTR	9	RI
5	GND	10	NC

CPU Fan Header



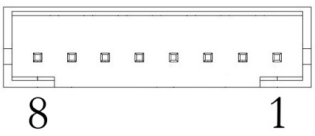
Pin	Assignment
1	GND
2	+12V
3	FAN CLOCK
4	CONTROL

GPIO Header



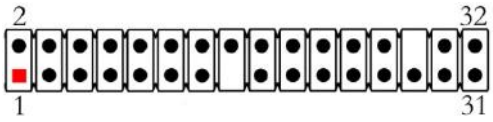
Pin	Assignment	Pin	Assignment
1.	GPIO00	2	GPIO01
3	GPIO02	4	GPIO03
5	GPIO30	6	GPIO31
7	GPIO32	8	GPIO33
9	GND	10	GND

LVDS Inverter



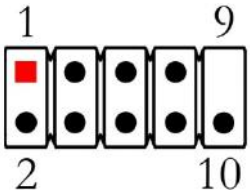
Pin	Assignment
1	Backlight Enable
2	Backlight PWM
3	VCC
4	VCC
5	GND
6	GND
7	Backlight SW+
8	Backlight SW-

LVDS Header



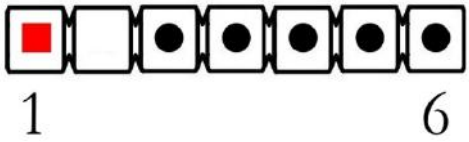
Pin	Assignment	Pin	Assignment
1.	LVDSB_DATAN3	2	LVDSB_DATAP3
3	LVDS_CLKBN	4	LVDS_CLKBP
5	LVDSB_DATAN2	6	LVDSB_DATAP2
7	LVDSB_DATAN1	8	LVDSB_DATAP1
9	LVDSB_DATAN0	10	LVDSB_DATAP0
11	NC/DDC_DATA	12	NC/DDC_CLK
13	GND	14	GND
15	GND	16	GND
17	LVDSA_DATAP3	18	LVDSA_DATAN3
19	LVDS_CLKAP	20	LVDS_CLKAN
21	LVDSA_DATAP2	22	LVDSA_DATAN2
23	LVDSA_DATAP1	24	LVDSA_DATAN1
25	LVDSA_DATAP0	26	LVDSA_DATAN30
27	PVCC	28	PVCC
29	PVCC	30	PVCC
31	GND	32	GND

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



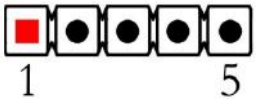
Pin	Assignment	Pin	Assignment
1.	HDD_LED+	2	PWRLED+
3	HDD_LED-	4	PWRLED-
5	GND	6	PWRBTN
7	RSTSW	8	GND
9	VCC	10	NC

PS/2 Header



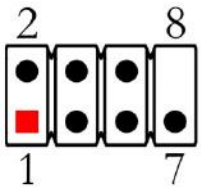
Pin	Assignment
1	VCC
2	KB_DATA
3	KB_CLK
4	GND
5	MS_CLK
6	MS_DATA

SMBus Header



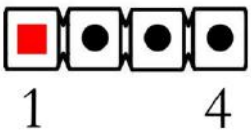
Pin	Assignment
1	CLK
2	DATA
3	NC
4	GND
5	3VSB

Speaker and Power LED Header



Pin	Assignment	Pin	Assignment
1.	SPEAKER+	2	POWER_LED+
3	NC	4	POWER_LED-
5	NC	6	POWER_LED-
7	SPEAKER-	8	NC

System Fan Header

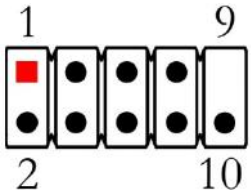


Pin	Assignment
1	GND
2	+12V
3	FAN CLOCK
4	CONTROL

SATA Connector

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

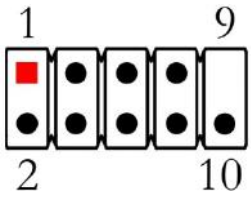
USB1 Header



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

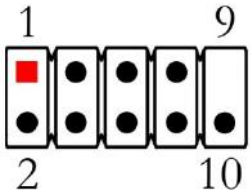
*Standby Power Wake Up function Supported

USB2 Header



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

USB3 Header



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

*Standby Power Wake Up function Supported

3 BIOS

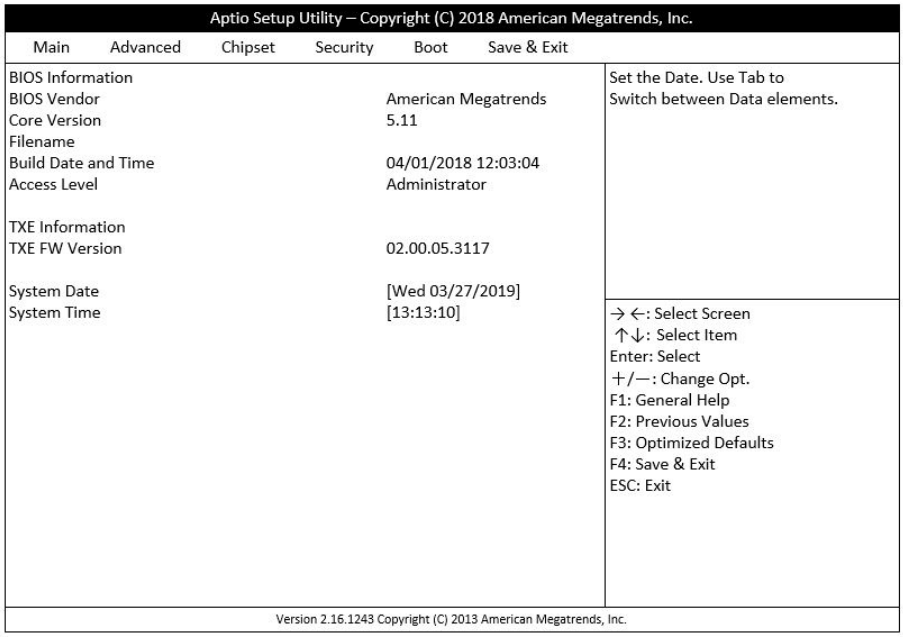
The AMI BIOS is preinstalled on BSW-mITX-N3160 to bridge board computer and operating system and is stored in CMOS RAM for retaining BIOS configuration. Through AMI BIOS, user can modify basic system configuration for application requirement.

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

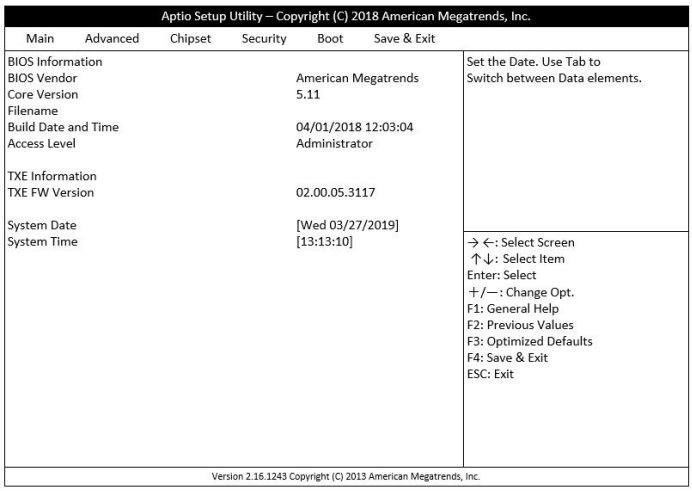
Press <Delete> key to enter BIOS Setup while the system is powering on. Once entering BIOS Setup, you will see an image as the following shown with six menu bars Main, Advance, Chipset, Boot, and Save & Exit at the top of BIOS menu.

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.

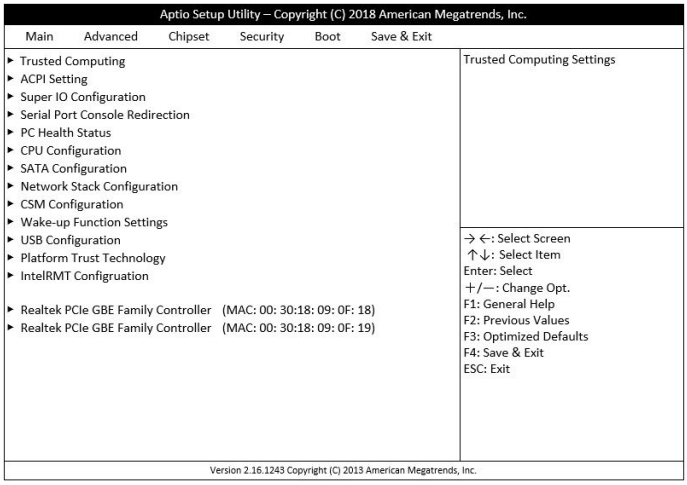


System Date Se the Date. Use Tab to switch between Date elements.

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

3.3 Advanced

To change advanced system I/O configuration



Trusted Computing — Trusted Computing Settings

Security Device Support — 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.
[Disabled], [Enabled]

ACPI Setting — System ACPI Parameters

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

Super IO Configuration — System IO Chip Parameters

Serial Port 1 Configuration — Set Parameter of Serial Port 1 (COMA)

Serial Port — Enable or Disable Serial Port (COM)
[Disabled], [Enabled]

Change Settings — Select an optimal settings for Support IO Device
[Auto], [IO=3F8h; IRQ=4], [IO=2F8h; IRQ=3], [IO=3E8h; IRQ=4], [IO=2E8h; IRQ=3]

Transmission Mode Select
[RS422], [RS232], [RS485]

Mode Speed Select — RS232/RS422/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 2 Configuration — Set Parameter of Serial Port 2 (COMB)

Serial Port — Enable or Disable Serial Port (COM)
[Disabled], [Enabled]

Change Settings — Select an optimal settings for Support IO Device
[Auto], [IO=3F8h; IRQ=4], [IO=2F8h; IRQ=3], [IO=3E8h; IRQ=4], *[IO=2E8h; IRQ=3]*

Serial Port FIFO Mode
[16-Byte FIFO], [32-Byte FIFO], [64-Byte FIFO], [128-Byte FIFO]

Serial Port 3 Configuration — Set Parameter of Serial Port 3 (COMC)

Serial Port — Enable or Disable Serial Port (COM)
[Disabled], [Enabled]

Change Settings — Select an optimal settings for Support IO Device
[Auto], [IO=3F8h; IRQ=4], [IO=2F8h; IRQ=3], [IO=3E8h; IRQ=4], *[IO=2E8h; IRQ=3]*

Serial Port FIFO Mode
[16-Byte FIFO], [32-Byte FIFO], [64-Byte FIFO], [128-Byte FIFO]

Serial Port 4 Configuration — Set Parameter of Serial Port 4 (COMD)

Serial Port — Enable or Disable Serial Port (COM)
[Disabled], [Enabled]

Change Settings — Select an optimal settings for Support IO Device
[Auto], [IO=3F8h; IRQ=4], [IO=2F8h; IRQ=3], [IO=3E8h; IRQ=4], *[IO=2E8h; IRQ=3]*

Serial Port FIFO Mode
[16-Byte FIFO], [32-Byte FIFO], [64-Byte FIFO], [128-Byte FIFO]

Serial Port 5 Configuration — Set Parameter of Serial Port 5 (COME)

Serial Port — Enable or Disable Serial Port (COM)

[Disabled], [Enabled]

Change Settings Select an optimal settings for Support IO Device

[Auto], [IO=3F8h; IRQ=4], [IO=2F8h; IRQ=3], [IO=3E8h; IRQ=4], [IO=2E8h; IRQ=3]

Serial Port FIFO Mode

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

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

Serial Port Enable or Disable Serial Port (COM)

[Disabled], [Enabled]

Change Settings Select an optimal settings for Support IO Device

[Auto], [IO=3F8h; IRQ=4], [IO=2F8h; IRQ=3], [IO=3E8h; IRQ=4], [IO=2E8h; IRQ=3]

Serial Port FIFO Mode

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

Parallel Port Configuration Set Parameter of Parallel Port (LPT.LPTE)

Parallel Port Enable or Disable Parallel Port (LPT.LPTE)

[Disabled], [Enabled]

Change Settings Select an optimal settings for Support IO Device

[Auto], [IO=378h; IRQ=5], [IO=378h; IRQ=5, 6, 7, 9,10, 11, 12], [IO=278h; IRQ=5, 6, 7, 9,10, 11, 12], [IO=3BCh; IRQ=5, 6, 7, 9,10, 11, 12],

Device Mode Change the Printer Port Mode

[STD Printer Mode], [SPP Mode], [EPP-1.9 and SPP Mode], [EPP-1.7 and SPP Mode], [ECP Mode], [ECP and EPP 1.9 Mode], [ECP and EPP 1.7 Mode]

OS Select For Serial Port Serial port support for Windows or Linux

[Windows],[Linux]

ERP Support *[Disabled], [Enabled]*	Energy-Related Products function. Disable ERP to active all wake-up functions
Case Open Detect *[Disabled], [Enabled]*	Detect Case has already been opened or not. Show message in POST
PS2 KB/MS Connect *[Keyboard First], [Mouse First]*	Setting PS2 Connect Primary Devices
WatchDog Reset Timer *[Disabled], [Enabled]*	Support WDT reset function
WatchDog wake-up Timer *[Disabled], [Enabled]*	Support WDT Wake-up.
Serial Port Console Redirection	Serial Port Console Redirection
Console Redirection *[Disabled], [Enabled]*	Console Redirection Enable or Disable
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 date.
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.
Console Redirection *[Disabled], [Enabled]*	Console Redirection Enable or Disable
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.
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.
PC Health Status	Monitor hardware status
SmartFAN Configuration	
CPUFAN Smart Mode *[Disabled], [Enabled]*	
CPUFAN Full-Speed Temperature	
CPUFAN Full-Speed Duty	
CPUFAN Idle-Speed Temperature	
CPUFAN Idle-Speed Duty	
SYSTEMFAN1 Smart Mode *[Disabled], [Enabled]*	
SYSTEMFAN1 Full-Speed Temperature	
SYSTEMFAN1 Full-Speed Duty	
SYSTEMFAN1 Idle-Speed Temperature	
SYSTEMFAN1 Idle-Speed Duty	
Shutdown Temperature *[Disabled], [65˚C/149˚F], [70˚C/158˚F], [75˚C/167˚F], [80˚C/176˚F], [85˚C/185˚F]*	
CPU Configuration	CPU Configuration Parameters
Limited CUPID Maximum *[Disabled], [Enabled]*	Disable for Windows XP
EIST *[Disabled], [Enabled,*	Enable/Disable Intel SpeedStep
Turbo Mode *[Disabled], [Enabled]*	Turbo Mode

CPU C State Report *[Disabled], [Enabled]*	Enable/Disable CPU C state report to OS
Max CPU C State *[Disabled], [Enabled]*	This option controls Max C state that the processor will support
SATA Configuration	SATA Devices Configuration
SATA Controller *[Disabled], [Enabled]*	Enable/Disable SATA Device
SATA Mode Selection Controller *[AHCI]*	Determines how SATA controller operate
SATA Interface Speed *[Gen1], [Gen2], [Gen3]*	Select SATA Interface Speed, CHV A1 always with Gen1 Speed.
Port *[Disabled], [Enabled]*	
Port *[Disabled], [Enabled]*	
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 Legay/UEFI ROMs 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
Other PCI Devices *[Do not Launch], [UEFI],* *[Legacy]*	Determines OpROM execution policy for devices other than Network, Storage, or Video
Wake-up Configuration	
Wake-up System with Fixed Time *[Disabled], [Enabled]*	Enable or disable system wake-up by RTC alarm. When this function is enabled, system will wake on the time (hr:min:sec) specified.
Wake-up System with Dynamic Time	Enable or disable system wake-up by RTC

[Disabled], [Enabled]	alarm. When this function is enabled, system will wake on the (current time) + (Increase minute(s)).
USB Wake-up from S3-S4 *[Disabled], [Enabled]*	USB Wake-up is affected by ERP function in S4. Please disable ERP before activating this function in S4.
PS2 KB/MS USB Wake-up from S3-S5 *[Disabled], [Enabled]*	PS2 KB/MS Wake-up is affected by ERP function in S4-S5. Please disable ERP before activating this function in S4-S5.
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 ill keep USB devices available only for EFI applications.
XHCI Hand-off *[Disabled], [Enabled]*	This is a wrokaround for OSes without XHCI hand-off support. The XHCI ownership change should be claimed by
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 *[10 sec], [20 sec], [30 sec], [40 sec]*	USB mass storage device Start Unit command time-out
Device Power 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.
Platform Trust Technology	Platform Trust Technology
fTPM *[Disabled], [Enabled]*	Enable/Disable fTPM
Intel RMT Configuration	User Select Intel RMT (Ready Mode Technology) Support
Intel RMT Support *[Disabled], [Enabled]*	Intel RMT (Ready Mode Technology) SSDT table will be loaded if enabled

Realtek PCIe GBE Family Controller (MAC:00:30:18:09:0F:18)

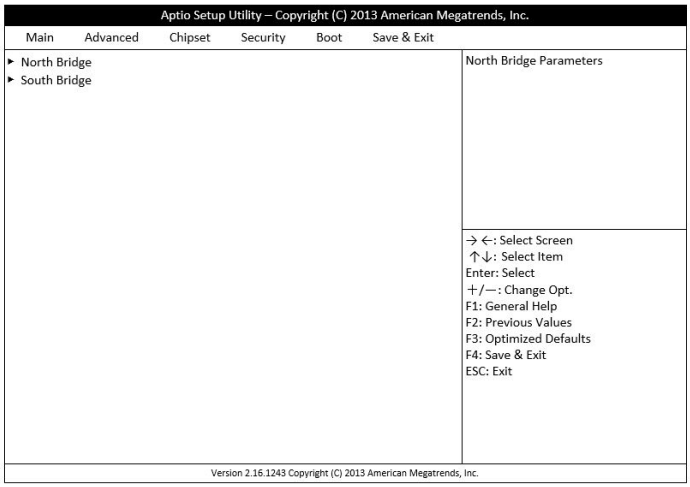
Get driver information and configure Realtek Ethernet controller parameter

Realtek PCIe GBE Family Controller (MAC:00:30:18:09:0F:18)

Get driver information and configure Realtek Ethernet controller parameter

3.4 Chipset

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



North Bridge — North Bridge Parameters

PAVC — Enable/Disable Protected Audio Video Control
[Disabled], [Enable]

DVMT Pre-Allocated — Select DVMT 5.0 Pre-Allocated (Fixed) Graphics Memory size used by the International Graphics Device.
[32MB], [64MB], [96MB], [128MB], [160MB], [192MB], [224MB], [256MB], [288MB], [320MB], [352MB], [384MB], [416MB], [448MB], [480MB], [512MB]

DVMT Total Gfx Mem — Select DVMT 5.0 Total Graphics Memory size used by the Internal Graphics Device.
[128MB], [256MB], [Max]

Aperture Size — Select the Aperture size
[128MB], [256MB], [512MB]

GTT Size — Select the GTT size
[2MB], [4MB]. [8MB]

Primary IGFX Boot Display — Select the Video Device which will be activated during POST. This has no effect if external graphics present. Secondary boot display selection will appear based on your selection. VGA modes will be supported only on primary display.
[Auto], [CRT], [HDMI]

Secondary IGFX Boot Display — Select Secondary Display Device
[Disabled], [CRT], [HDMI]

Active LFP
[Disabled], [Enabled]
LVDS FW Protect
[Disabled], [Enabled]
Max TOLUD Maximum Value of TOLUD
[2GB], [2.25GB], [2.5GB],
[2.75GB], [3GB]

South Bridge South Bridge Parameters

Onboard PCIE LAN2
[Disabled], [Enabled],
PCIE Slot (x1)
[Disabled], [Enabled],
PCIE Slot (x1) Speed
[Auto], [Gen 2], [Gen 1]
Mini PCIe
[Disabled], [Enabled],
Mini PCIE Speed
[Auto], [Gen 2], [Gen 1]

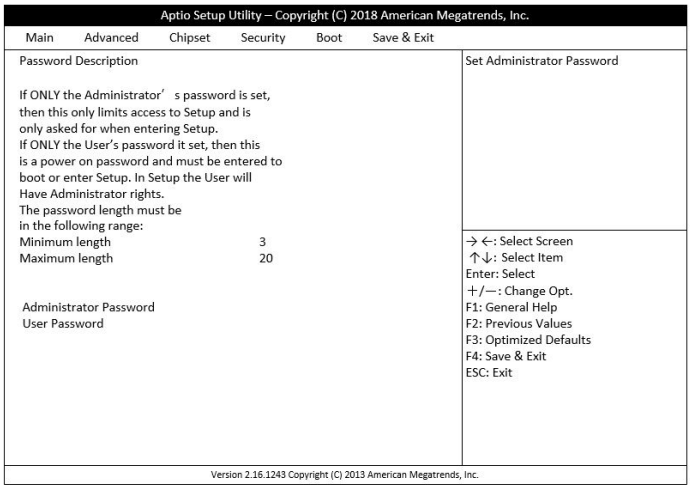
Audio Controller Control Detection of the Azalia device.
[Disabled], [Enabled] Disabled = Azalia will be unconditionally disabled. Enabled = Azalia will be unconditionally Enabled.

Azalia HDMI Codec Enable/Disable internal HDMI codec for
[Disabled], [Enabled] Azalia

System State after Power Failure Select the system state when AC power is
[Always Off], [Always On], re-applied after a power loss. The options –
[Former State] <Always On> and <Former State> are affected by ERP function. Please disable ERP to support <Always On> and <Former State>.

3.5 Security

Password setting for system security

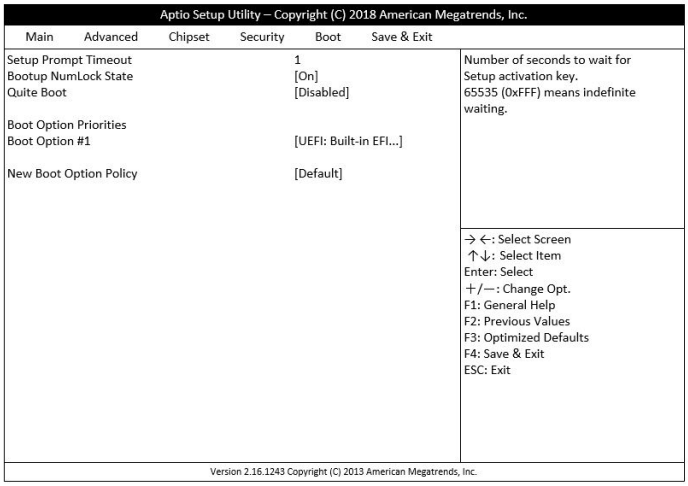


Administrator Password Set Administrator Password

User Password Set User Password

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.

Bootup NumLock State — Select the keyboard NumLock state

[On], [Off]

Quiet Boot — Enables or disables Quiet Boot option

[Disabled], [Enabled]

Boot Option #1 — Set the system boot order

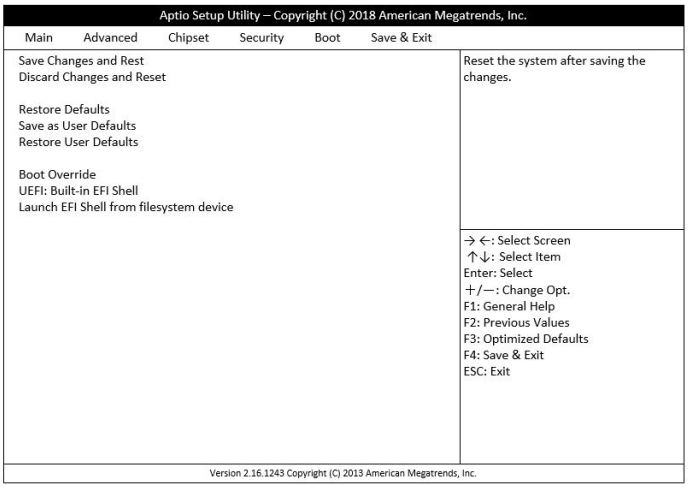
[UEFI: Built-in EFI Shell], [Disabled]

New Boot Option Policy — Controls the placement of newly detected UEFI boot options.

[Default], [Place First], [Place Last]

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
UEFI: Built-in EFT Shell	
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.

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