

# NanoCOM-BT

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COM Express Module

User's Manual 6<sup>th</sup> Ed

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## Packing List

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Before setting up your product, please make sure the following items have been shipped:

Item	Quantity
● NanoCOM-BT	1

If any of these items are missing or damaged, please contact your distributor or sales representative immediately.

## About this Document

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This User's Manual contains all the essential information, such as detailed descriptions and explanations on the product's hardware and software features (if any), its specifications, dimensions, jumper/connector settings/definitions, and driver installation instructions (if any), to facilitate users in setting up their product.

Users may refer to the [AAEON.com](http://AAEON.com) for the latest version of this document.

## Safety Precautions

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Please read the following safety instructions carefully. It is advised that you keep this manual for future references

1. All cautions and warnings on the device should be noted.
2. Make sure the power source matches the power rating of the device.
3. Position the power cord so that people cannot step on it. Do not place anything over the power cord.
4. Always completely disconnect the power before working on the system's hardware.
5. No connections should be made when the system is powered as a sudden rush of power may damage sensitive electronic components.
6. If the device is not to be used for a long time, disconnect it from the power supply to avoid damage by transient over-voltage.
7. Always disconnect this device from any AC supply before cleaning.
8. While cleaning, use a damp cloth instead of liquid or spray detergents.
9. Make sure the device is installed near a power outlet and is easily accessible.
10. Keep this device away from humidity.
11. Place the device on a solid surface during installation to prevent falls
12. Do not cover the openings on the device to ensure optimal heat dissipation.
13. Watch out for high temperatures when the system is running.
14. Do not touch the heat sink or heat spreader when the system is running
15. Never pour any liquid into the openings. This could cause fire or electric shock.
16. As most electronic components are sensitive to static electrical charge, be sure to ground yourself to prevent static charge when installing the internal components. Use a grounding wrist strap and contain all electronic components in any static-shielded containers.

17. If any of the following situations arises, please the contact our service personnel:
  - i. Damaged power cord or plug
  - ii. Liquid intrusion to the device
  - iii. Exposure to moisture
  - iv. Device is not working as expected or in a manner as described in this manual
  - v. The device is dropped or damaged
  - vi. Any obvious signs of damage displayed on the device
18. **DO NOT LEAVE THIS DEVICE IN AN UNCONTROLLED ENVIRONMENT WITH TEMPERATURES BEYOND THE DEVICE'S PERMITTED STORAGE TEMPERATURES (SEE CHAPTER 1) TO PREVENT DAMAGE.**

### **Warning!**



This device complies with Part 15 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.

### **Caution:**

*There is a danger of explosion if the battery is incorrectly replaced. Replace only with the same or equivalent type recommended by the manufacturer. Dispose of used batteries according to the manufacturer's instructions and your local government's recycling or disposal directives.*

### **Attention:**

*Il y a un risque d'explosion si la batterie est remplacée de façon incorrecte. Ne la remplacer qu'avec le même modèle ou équivalent recommandé par le constructeur. Recycler les batteries usées en accord avec les instructions du fabricant et les directives gouvernementales de recyclage.*



## China RoHS Requirements (CN)

产品中有毒有害物质或元素名称及含量

AAEON Main Board/ Daughter Board/ Backplane

部件名称	有毒有害物质或元素					
	铅 (Pb)	汞 (Hg)	镉 (Cd)	六价铬 (Cr(VI))	多溴联苯 (PBB)	多溴二苯醚 (PBDE)
印刷电路板 及其电子组件	×	○	○	○	○	○
外部信号 连接器及线材	×	○	○	○	○	○
<p>O: 表示该有毒有害物质在该部件所有均质材料中的含量均在 SJ/T 11363-2006 标准规定的限量要求以下。</p> <p>X: 表示该有毒有害物质至少在该部件的某一均质材料中的含量超出 SJ/T 11363-2006 标准规定的限量要求。</p> <p>备注: 此产品所标示之环保使用期限, 系指在一般正常使用状况下。</p>						

## China RoHS Requirement (EN)

Poisonous or Hazardous Substances or Elements in Products

AAEON Main Board/ Daughter Board/ Backplane

Component	Poisonous or Hazardous Substances or Elements					
	Lead (Pb)	Mercury (Hg)	Cadmium (Cd)	Hexavalent Chromium (Cr(VI))	Polybrominated Biphenyls (PBB)	Polybrominated Diphenyl Ethers (PBDE)
PCB & Other Components	X	○	○	○	○	○
Wires & Connectors for External Connections	X	○	○	○	○	○
<p>O: The quantity of poisonous or hazardous substances or elements found in each of the component's parts is below the SJ/T 11363-2006-stipulated requirement.</p> <p>X: The quantity of poisonous or hazardous substances or elements found in at least one of the component's parts is beyond the SJ/T 11363-2006-stipulated requirement.</p> <p><b>Note:</b> The Environment Friendly Use Period as labeled on this product is applicable under normal usage only</p>						

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# Chapter 1

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Product Specifications

## 1.1 Specifications

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### System

Form Factor	COM Express Mini Size, Type 10, 84mm x 55 mm
CPU	Intel® Atom™ / Celeron® Series Processor SoC (Formerly Bay Trail)
CPU Frequency	Up to E3845, 1.91 GHz
Chipset	SoC
Memory Type	Onboard DDR3L 1333MHz
Max. Memory Capacity	2GB only
BIOS	AMI BIOS ( Legacy Free )
Wake on LAN	Yes
Watchdog Timer	By ITE IT8528 , 255 Levels
Power Requirement	Nominal +12V
Power Supply Type	Default: ATX, Options: AT
Power Consumption (Typical)	0.7A@12V, full load, E3845
Dimension ( L x W )	3.31" x 2.17" (84 mm x 55 mm)
Operating Temperature	32°F ~ 140°F (0°C ~ 60°C) -40°F ~ 185°F (-40°C ~ 85°C) by E38xx, 2GB SKU
Storage Temperature	-4°F ~ 158°F (-20°C ~ 70°C)

## System

Operating Humidity	0% ~ 90% relative humidity, non-condensing
MTBF ( Hour )	737,946
Certification	CE / FCC Class A

## Display

VGA / LCD Controller	Intel® HD Graphics
Video Output	LVDS LCD/eDP, DDI x 1
LVDS Interface	Supports 18-bit and 24-bit Single channel

## I/O

Ethernet	Intel I210AT/IT Gigabit Ethernet x 1
Audio	High Definition Audio Interface
USB Port	USB 3.2 Gen 1 x 1, USB 2.0 x 7
Serial Port	2-Wire UART (Tx/Rx) x 2
OnBoard Storage	eMMC x 1 (up to 64GB)
HDD Interface	SATA 2 x 2
Expansion Slot	PCIe[x1] x3, LPC, I2C, SMBus
GPIO	8-bit
TPM	-

# Chapter 2

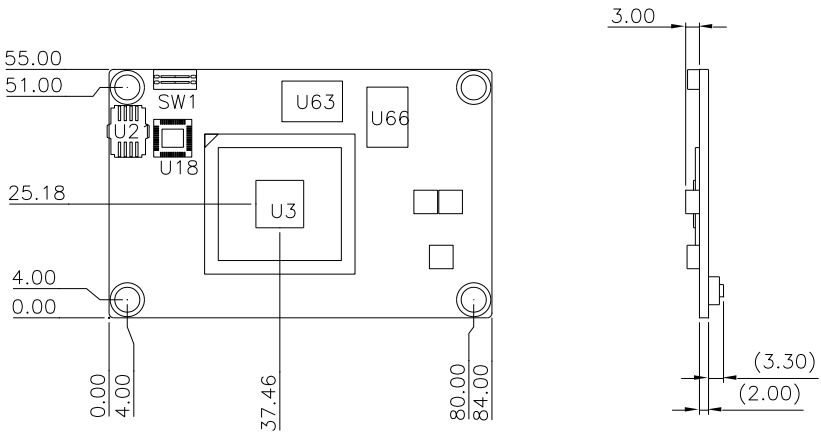
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Hardware Information

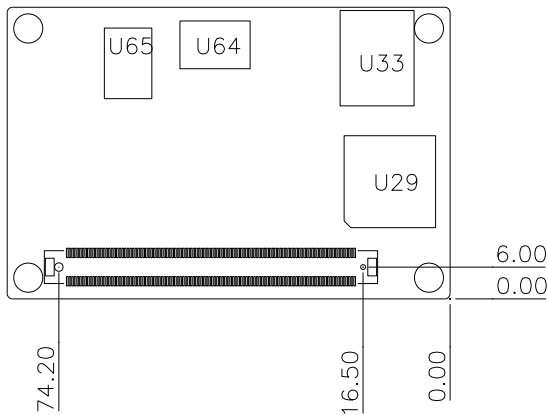


## 2.1 Dimensions, Jumpers and Connectors

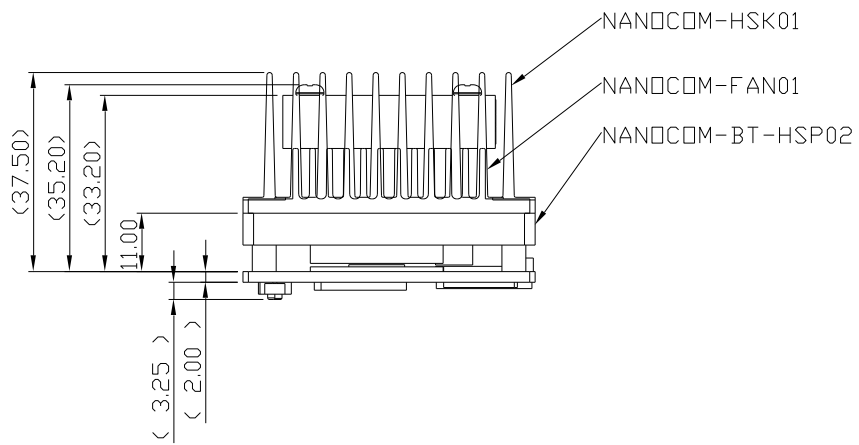
### Component Side



### Solder Side



With heat spreader



## 2.2 List of Switches and Connectors

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Please refer to the table below for all of the board's jumpers that you can configure for your application

Label	Function
SW1	AT/ ATX switch
CN1	ROW A/B connector

## 2.2.1 AT/ATX Switch (SW1)

Pin	Function
1 (On)	AT Mode
2 (On)	RTC reset
1 (Off)	ATX Mode
2 (Off)	RTC Normal

## 2.2.2 ROW A/B Connector (CN1)

Row A		Row B	
A1	GND (FIXED)	B1	GND (FIXED)
A2	GBE0_MDI3-	B2	GBE0_ACT#
A3	GBE0_MDI3+	B3	LPC_FRAME#
A4	GBE0_LINK100#	B4	LPC_AD0
A5	GBE0_LINK1000#	B5	LPC_AD1
A6	GBE0_MDI2-	B6	LPC_AD2
A7	GBE0_MDI2+	B7	LPC_AD3
A8	GBE0_LINK#	B8	N.C
A9	GBE0_MDI1-	B9	N.C
A10	GBE0_MDI1+	B10	LPC_CLK
A11	GND (FIXED)	B11	GND (FIXED)
A12	GBE0_MDI0-	B12	PWRBTN#
A13	GBE0_MDI0+	B13	SMB_CK
A14	N.C	B14	SMB_DAT
A15	SUS_S3#	B15	SMB_ALERT#
A16	SATA0_TX+	B16	SATA1_TX+
A17	SATA0_TX-	B17	SATA1_TX-

<b>A18</b>	SUS_S4#	<b>B18</b>	SUS_STAT#
<b>A19</b>	SATA0_RX+	<b>B19</b>	SATA1_RX+
<b>A20</b>	SATA0_RX-	<b>B20</b>	SATA1_RX-
<b>A21</b>	GND (FIXED)	<b>B21</b>	GND (FIXED)
<b>A22</b>	USB3_RXN0	<b>B22</b>	USB3_TXN0
<b>A23</b>	USB3_RXP0	<b>B23</b>	USB3_TXP0
<b>A24</b>	SUS_S5#	<b>B24</b>	PWR_OK
<b>A25</b>	N.C	<b>B25</b>	N.C
<b>A26</b>	N.C	<b>B26</b>	N.C
<b>A27</b>	BATLOW#	<b>B27</b>	WDT
<b>A28</b>	ATA_ACT#	<b>B28</b>	N.C
<b>A29</b>	AC_SYNC	<b>B29</b>	AC_SDIN1
<b>A30</b>	AC_RST#	<b>B30</b>	AC_SDIN0
<b>A31</b>	GND (FIXED)	<b>B31</b>	GND (FIXED)
<b>A32</b>	AC_BITCLK	<b>B32</b>	SPKR
<b>A33</b>	AC_SDOOUT	<b>B33</b>	I2C_CK
<b>A34</b>	BIOS_DIS0#	<b>B34</b>	I2C_DAT
<b>A35</b>	THRMTRIP#	<b>B35</b>	THRM#
<b>A36</b>	USB6-	<b>B36</b>	N.C
<b>A37</b>	USB6+	<b>B37</b>	N.C
<b>A38</b>	USB_6_7_OC#	<b>B38</b>	USB_4_5_OC#
<b>A39</b>	USB4-	<b>B39</b>	USB5-
<b>A40</b>	USB4+	<b>B40</b>	USB5+
<b>A41</b>	GND (FIXED)	<b>B41</b>	GND (FIXED)
<b>A42</b>	USB2-	<b>B42</b>	USB3-
<b>A43</b>	USB2+	<b>B43</b>	USB3+
<b>A44</b>	USB_2_3_OC#	<b>B44</b>	USB_0_1_OC#
<b>A45</b>	USB0-	<b>B45</b>	USB1-

<b>A46</b>	USB0+	<b>B46</b>	USB1+
<b>A47</b>	VCC_RTC	<b>B47</b>	EXCD1_PERST#
<b>A48</b>	EXCD0_PERST#	<b>B48</b>	EXCD1_CPPE#
<b>A49</b>	EXCD0_CPPE#	<b>B49</b>	SYS_RESET#
<b>A50</b>	LPC_SERIRQ	<b>B50</b>	CB_RESET#
<b>A51</b>	GND (FIXED)	<b>B51</b>	GND (FIXED)
<b>A52</b>	N.C	<b>B52</b>	N.C
<b>A53</b>	N.C	<b>B53</b>	N.C
<b>A54</b>	GPIO	<b>B54</b>	GPO1
<b>A55</b>	N.C	<b>B55</b>	N.C
<b>A56</b>	N.C	<b>B56</b>	N.C
<b>A57</b>	GND	<b>B57</b>	GPO2
<b>A58</b>	PCIE_TX3+	<b>B58</b>	PCIE_RX3+
<b>A59</b>	PCIE_TX3-	<b>B59</b>	PCIE_RX3-
<b>A60</b>	GND (FIXED)	<b>B60</b>	GND (FIXED)
<b>A61</b>	PCIE_TX2+	<b>B61</b>	PCIE_RX2+
<b>A62</b>	PCIE_TX2-	<b>B62</b>	PCIE_RX2-
<b>A63</b>	GPI1	<b>B63</b>	GPO3
<b>A64</b>	PCIE_TX1+	<b>B64</b>	PCIE_RX1+
<b>A65</b>	PCIE_TX1-	<b>B65</b>	PCIE_RX1-
<b>A66</b>	GND	<b>B66</b>	WAKE0#
<b>A67</b>	GPI2	<b>B67</b>	WAKE1#
<b>A68</b>	PCIE_TX0+	<b>B68</b>	PCIE_RX0+
<b>A69</b>	PCIE_TX0-	<b>B69</b>	PCIE_RX0-
<b>A70</b>	GND (FIXED)	<b>B70</b>	GND (FIXED)
<b>A71</b>	LVDS_A0+	<b>B71</b>	DDIO_PAIR0+
<b>A72</b>	LVDS_A0-	<b>B72</b>	DDIO_PAIR0-
<b>A73</b>	LVDS_A1+	<b>B73</b>	DDIO_PAIR1+

<b>A74</b>	LVDS_A1-	<b>B74</b>	DDIO_PAIR1-
<b>A75</b>	LVDS_A2+	<b>B75</b>	DDIO_PAIR2+
<b>A76</b>	LVDS_A2-	<b>B76</b>	DDIO_PAIR2-
<b>A77</b>	LVDS_VDD_EN	<b>B77</b>	N.C
<b>A78</b>	LVDS_A3+	<b>B78</b>	N.C
<b>A79</b>	LVDS_A3-	<b>B79</b>	LVDS_BKLD_EN
<b>A80</b>	GND (FIXED)	<b>B80</b>	GND (FIXED)
<b>A81</b>	LVDS_A_CK+	<b>B81</b>	DDIO_PAIR3+
<b>A82</b>	LVDS_A_CK-	<b>B82</b>	DDIO_PAIR3-
<b>A83</b>	LVDS_I2C_CK	<b>B83</b>	LVDS_BKLT_CTRL
<b>A84</b>	LVDS_I2C_DAT	<b>B84</b>	VCC_5V_SBY
<b>A85</b>	GPI3	<b>B85</b>	VCC_5V_SBY
<b>A86</b>	N.C	<b>B86</b>	VCC_5V_SBY
<b>A87</b>	N.C	<b>B87</b>	VCC_5V_SBY
<b>A88</b>	PCIE0_CK_REF+	<b>B88</b>	BISO_DIS1#
<b>A89</b>	PCIE0_CK_REF-	<b>B89</b>	DDIO_HPD
<b>A90</b>	GND (FIXED)	<b>B90</b>	GND (FIXED)
<b>A91</b>	SPI_POWER	<b>B91</b>	N.C
<b>A92</b>	SPI_MISO	<b>B92</b>	N.C
<b>A93</b>	GPO0	<b>B93</b>	N.C
<b>A94</b>	SPI_CLK	<b>B94</b>	N.C
<b>A95</b>	SPI_MOSI	<b>B95</b>	DDIO_DDC_AUX_SEL
<b>A96</b>	GND	<b>B96</b>	N.C
<b>A97</b>	TYPE10#	<b>B97</b>	SPI_CS#
<b>A98</b>	RS1_TX	<b>B98</b>	DDIO_CTRL_CLK
<b>A99</b>	RS1_RX	<b>B99</b>	DDIO_CTRL_DATA
<b>A100</b>	GND (FIXED)	<b>B100</b>	GND (FIXED)
<b>A101</b>	RS2_TX	<b>B101</b>	FAN_PWMOUT

<b>A102</b>	RS2_RX	<b>B102</b>	FAN_TACHIN
<b>A103</b>	LID#	<b>B103</b>	SLEEP#
<b>A104</b>	VCC_12V	<b>B104</b>	VCC_12V
<b>A105</b>	VCC_12V	<b>B105</b>	VCC_12V
<b>A106</b>	VCC_12V	<b>B106</b>	VCC_12V
<b>A107</b>	VCC_12V	<b>B107</b>	VCC_12V
<b>A108</b>	VCC_12V	<b>B108</b>	VCC_12V
<b>A109</b>	VCC_12V	<b>B109</b>	VCC_12V
<b>A110</b>	GND (FIXED)	<b>B110</b>	GND (FIXED)



# Chapter 3

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AMI BIOS Setup

## 3.1 System Test and Initialization

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The board uses certain routines to perform testing and initialization. If an error, fatal or non-fatal, is encountered, a few short beeps or an error message will be outputted. The board can usually continue the boot up sequence with non-fatal errors.

The system configuration verification routines check the current system configuration against the values stored in the CMOS memory. If they do not match, an error message will be outputted, in which case you will need to run the BIOS setup program to set the configuration information in memory.

There are three situations in which you will need to change the CMOS settings:

- You are starting your system for the first time
- You have changed your system's hardware
- The CMOS memory has lost power and the configuration information is erased

The system's CMOS memory uses a backup battery for data retention, which is to be replaced once emptied.

## 3.2 AMI BIOS Setup

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The AMI BIOS ROM has a pre-installed Setup program that allows users to modify basic system configurations, which is stored in the battery-backed CMOS RAM and BIOS NVRAM so that the information is retained when the power is turned off.

To enter BIOS Setup, press <Del> or <F2> immediately while your computer is powering up.

The function for each interface can be found below.

**Main** – Date and time can be set here. Press <Tab> to switch between date elements

**Advanced** – Enable/ Disable boot option for legacy network devices

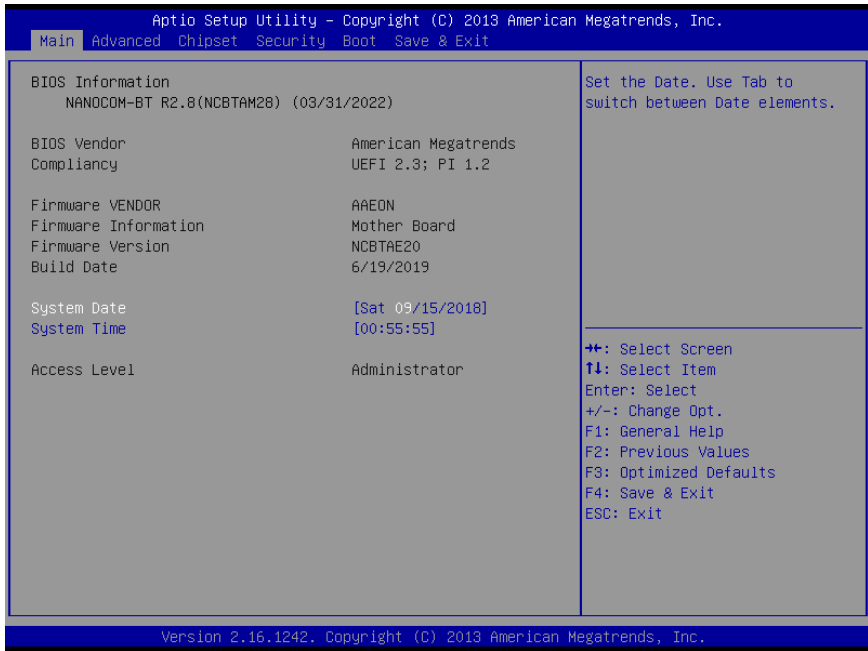
**Chipset** – For hosting bridge parameters

**Boot** – Enable/ Disable quiet Boot Option

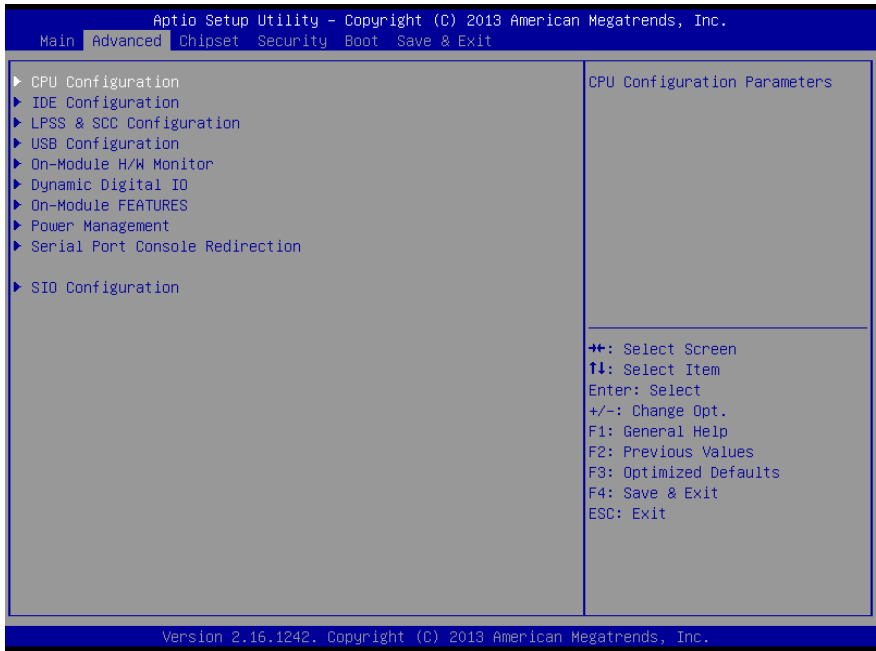
**Security** – The setup administrator password can be set here

**Save & Exit** – Save your changes and exit the program

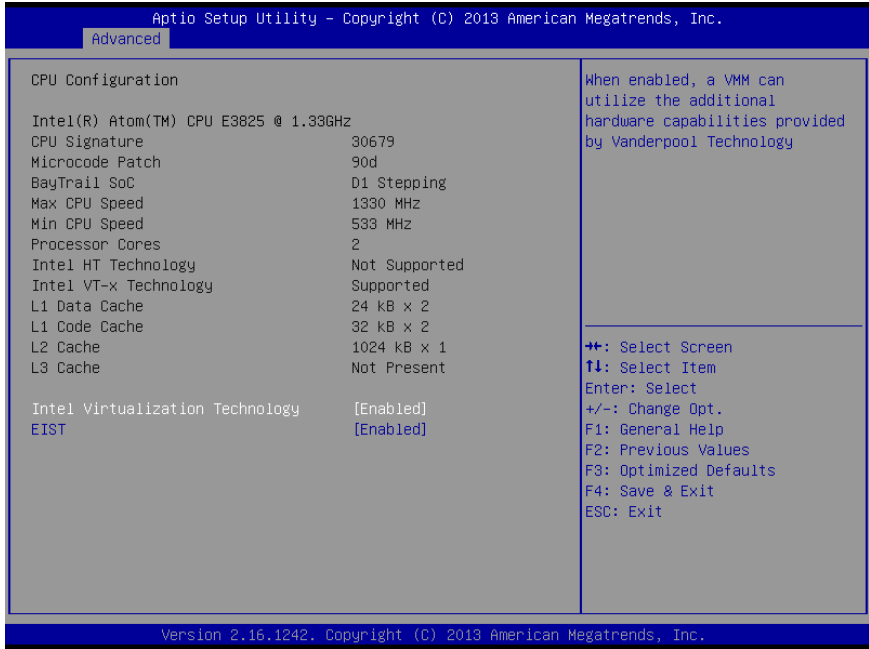
### 3.3 Setup submenu: Main



### 3.4 Setup submenu: Advanced



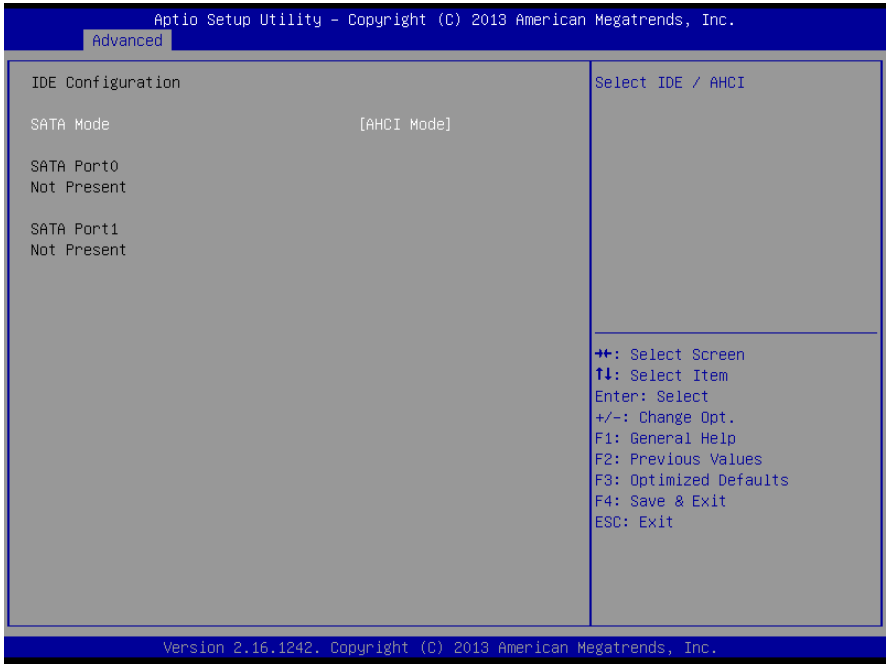
### 3.4.1 Advanced: CPU Configuration



Options summary:

Intel Virtualization Technology	Disabled	
	Enabled	Optimal Default, Failsafe Default
When enabled, a VMM can utilize the additional hardware capabilities provided by Vanderpool Technology		
EIST	Disabled	
	Enabled	Optimal Default, Failsafe Default
Enable/Disable Intel SpeedStep		

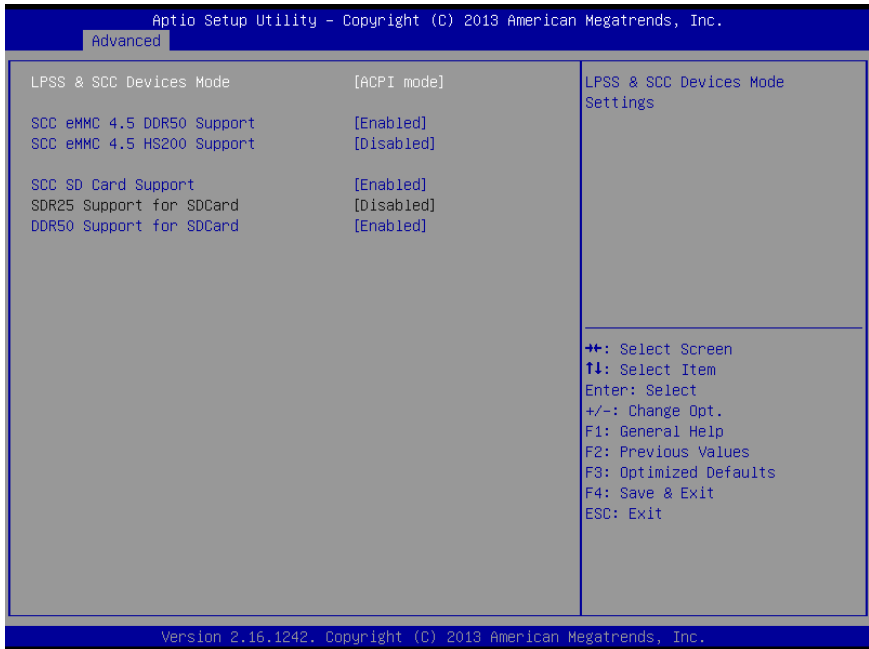
### 3.4.2 Advanced: IDE Configuration



Options summary:

SATA Mode	IDE Mode	
	AHCI Mode	Optimal Default, Failsafe Default
Select IDE / AHCI		

### 3.4.3 Advanced: LPSS & SCC Configuration



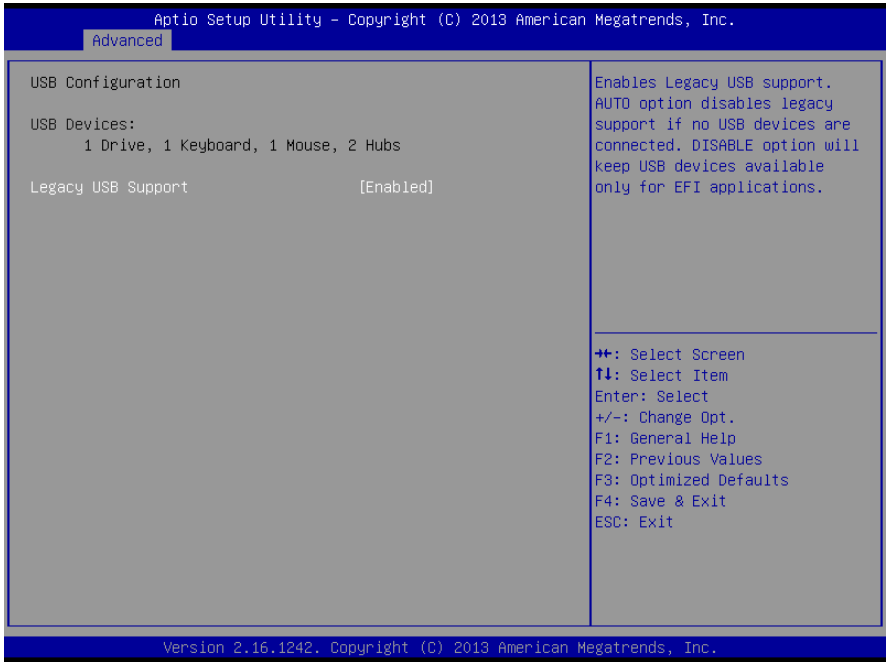
Options summary:

LPSS & SCC Devices Mode	ACPI mode	Optimal Default, Failsafe Default
	PCI mode	
LPSS & SCC Devices Mode Settings (Please set PCI mode for Linux O/S)		
SCC eMMC 4.5 DDR50 Support	Enabled	Optimal Default, Failsafe Default
	Disabled	
SCC eMMC 4.5 DDR50 Support Enable\Disable		
SCC eMMC 4.5 HS200 Support	Enabled	Optimal Default, Failsafe Default
	Disabled	
SCC eMMC 4.5 HS200 Support Enable\Disable		
SCC SD Card Support	Enabled	Optimal Default, Failsafe Default
	Disabled	
SCC SD Card Support Enable\Disable		



SDR25 Support for SDCard	Enabled	Optimal Default, Failsafe Default
	Disabled	
Disable/Enable SDR25 Capability in SD Card controller		
SDR50 Support for SDCard	Enabled	Optimal Default, Failsafe Default
	Disabled	
Disable/Enable SDR50 Capability in SD Card controller		

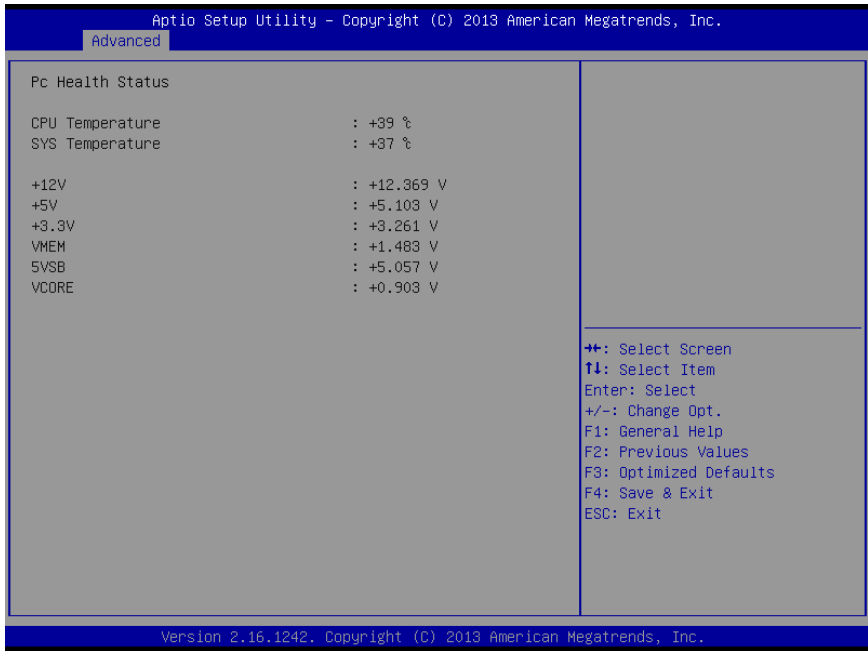
### 3.4.4 Advanced: USB Configuration



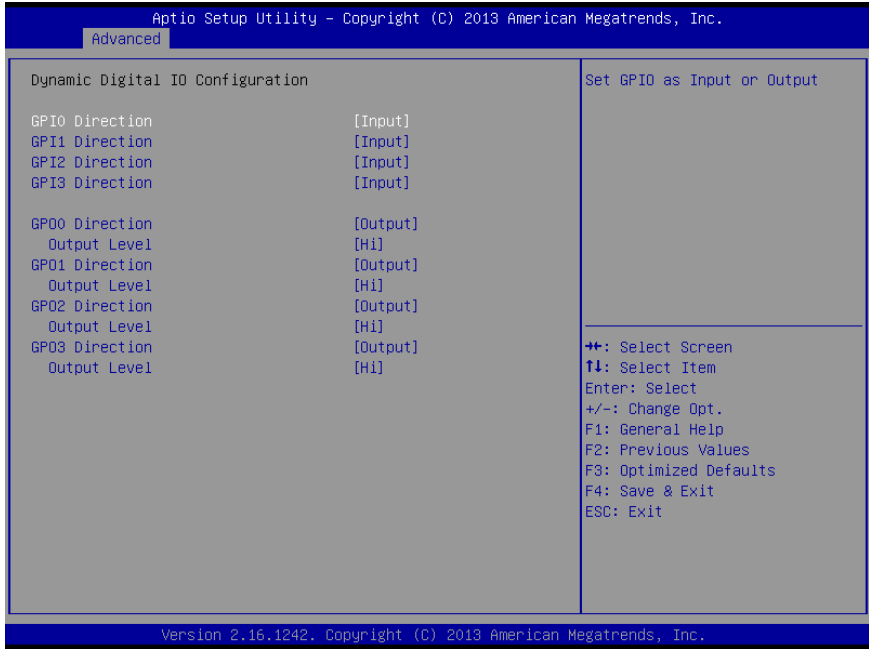
Options summary:

Legacy USB Support	Enabled	Optimal Default, Failsafe Default
	Disabled	
	Auto	
Enables BIOS Support for Legacy USB Support. When enabled, USB can be functional in legacy environment like DOS. AUTO option disables legacy support if no USB devices are connected		
Device Name (Emulation Type)	Auto	Optimal Default, Failsafe Default
	Floppy	
	Forced FDD	
	Hard Disk	
	CDROM	
If Auto. USB devices less than 530MB will be emulated as Floppy and remaining as Floppy and remaining as hard drive. Forced FDD option can be used to force a HDD formatted drive to boot as FDD(Ex. ZIP drive)		
USB Port 0/1 function routing	FCH USB port 8/9	Optimal Default, Failsafe Default
	FCH USB port 0/1	

### 3.4.5 Advanced: Hardware Monitor



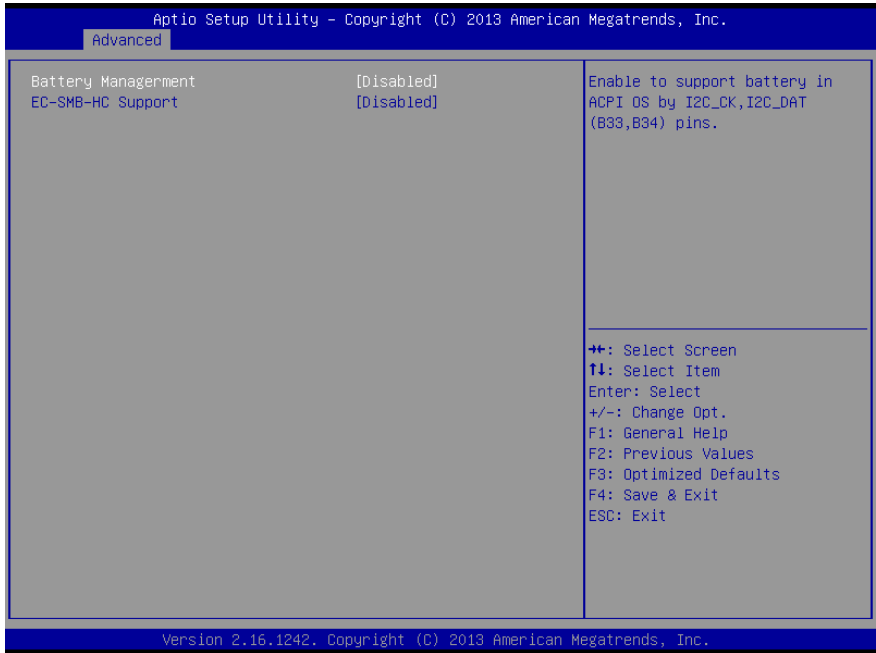
### 3.4.6 Advanced: Dynamic Digital IO Configuration



Options summary:

GPIO[3:0] Direction	Input	Optimal Default, Failsafe Default
	Output	
Set GPIO[3:0] as Input or Output		
GPIO[3:0] Output Level	Hi	Optimal Default, Failsafe Default
	Low	
Set GPIO[3:0] Output as Hi or Low		
GPIO[3:0] Direction	Input	Optimal Default, Failsafe Default
	Output	
Set GPIO[3:0] as Input or Output		
GPIO[3:0] Output Level	Hi	Optimal Default, Failsafe Default
	Low	
Set GPIO[3:0] Output as Hi or Low		

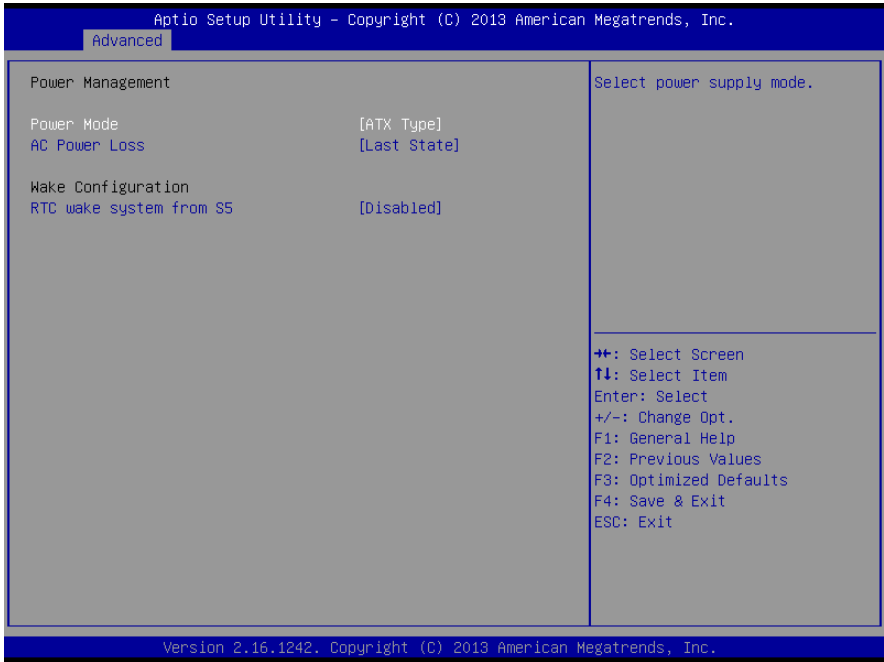
### 3.4.7 Advanced: On-Module FEATURES



Options summary:

Battery Management	Disabled	Optimal Default, Failsafe Default
	One Battery	
Enable to support battery in ACPI OS by I2C_CK, I2C_DAT(B33,B34) pins.		
EC-SMB-HC Support	Disabled	Optimal Default, Failsafe Default
	Enabled	
SMBus Host Controller Interface via Embedded Controller.		

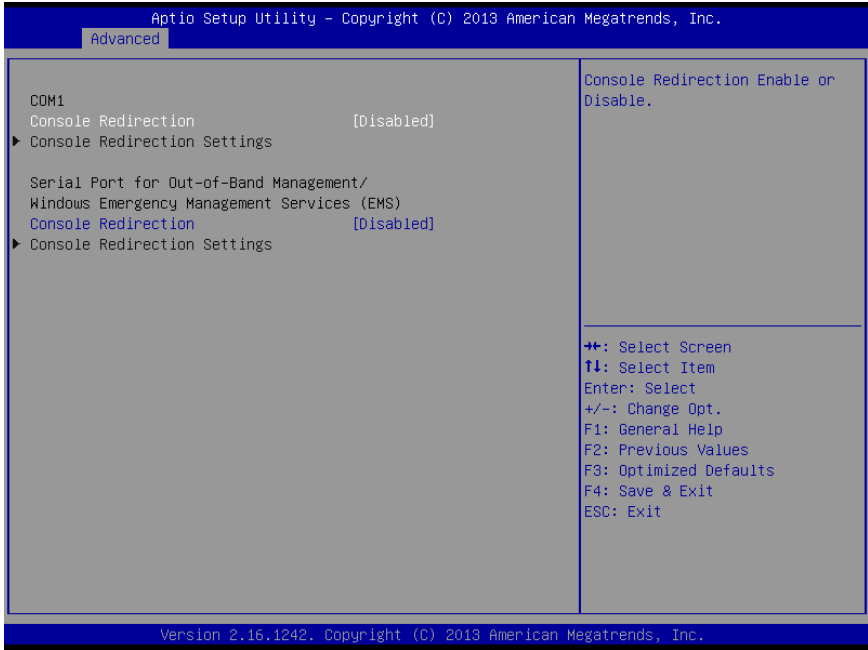
### 3.4.8 Advanced: Power Management



Options summary:

Power Mode	ATX Type	Optimal Default, Failsafe Default
	AT Type	
Select power supply mode.		
Restore on Power Loss	Last State	Optimal Default, Failsafe Default
	Power On	
	Power Off	
Power Failure feature / AC Power Loss feature		
RTC wake system from S5	Disabled	Optimal Default, Failsafe Default
	Fixed Time	
	Dynamic Time	
Fixed Time: System will wake on the hr::min::sec specified.		
Dynamic Time: System will wake on the current time + Increase minute(s)		

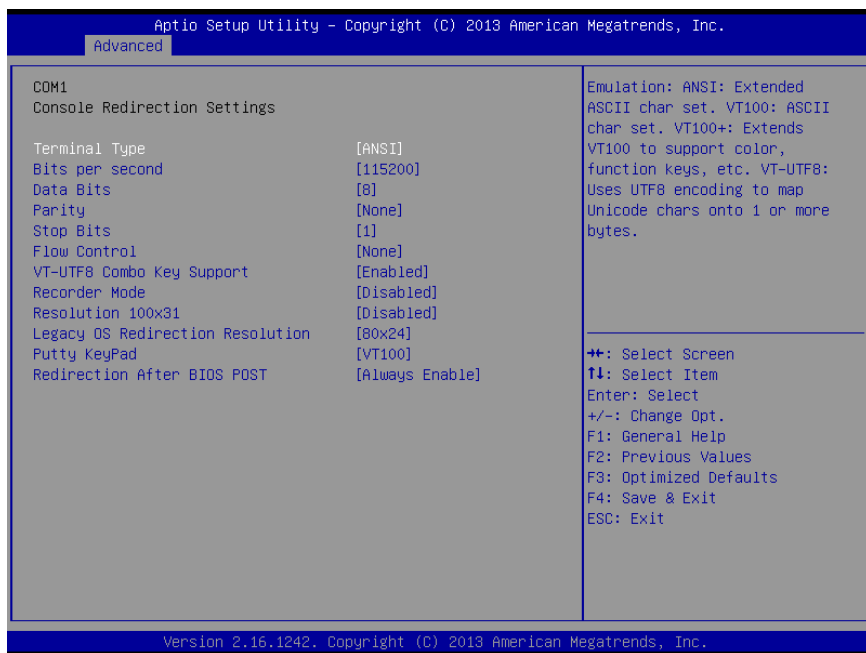
### 3.4.9 Advanced: Serial Port Console Redirection



Options summary:

COM1 Console Redirection	Disabled	Optimal Default, Failsafe Default
	Enabled	
Console Redirection Enable or Disable		
Console Redirection	Disabled	Optimal Default, Failsafe Default
	Enabled	
Console Redirection Enable or Disable		

### 3.4.9.1 Serial Port Console Redirection: COM1 Console Redirection Settings



Options summary:

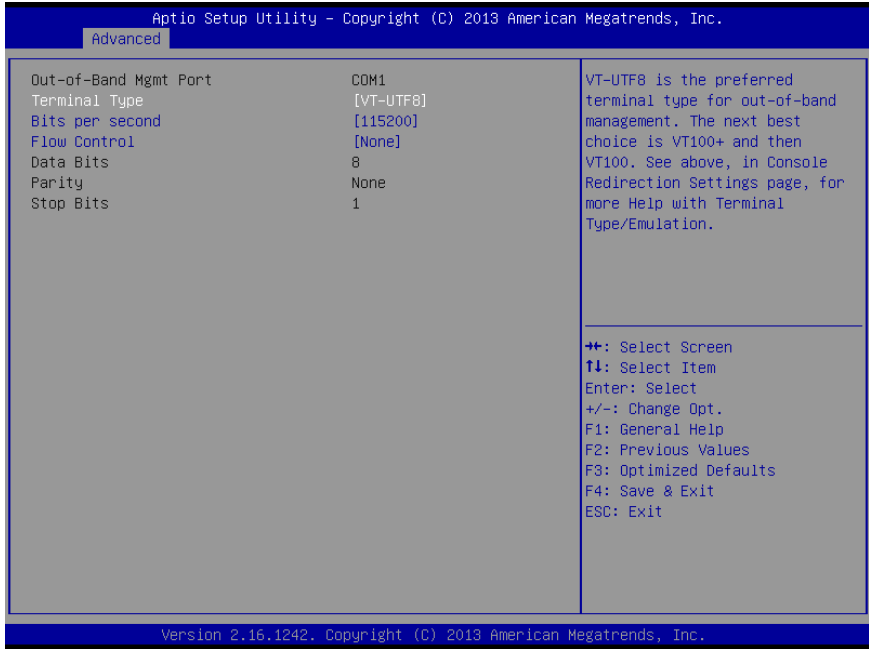
Terminal Type	VT100	Optimal Default, Failsafe Default
	VT100+	
	VT-UTF8	
	ANSI	
Emulation: ANSI: Extended ASCII char set. VT100: Extends VT100 to support color, function keys, etc. VT-UTF8: Uses UTF8 encoding to map Unicode chars onto 1 or more bytes.		
Bits per second	9600	Optimal Default, Failsafe Default
	19200	
	38400	
	57600	
	115200	
Selects serial port transmission speed. The speed must be match on the other side. Long or noisy lines may require lower speeds.		



Data Bits	7	Optimal Default, Failsafe Default
	8	
Data Bits		
Parity	None	Optimal Default, Failsafe Default
	Even	
	Odd	
	Mark	
	Space	
<p>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 data 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.</p>		
Stop Bits	1	Optimal Default, Failsafe Default
	2	
<p>Stop bits indicate the end of a serial data 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.</p>		
Flow Control	None	Optimal Default, Failsafe Default
	Hardware RTS/CTS	
<p>Flow control can prevent data loss from buffer overflow. When sending data, if the receiving buffers are full, a 'stop' signal can be sent to stop the data 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.</p>		
VT-UTF8 Combo Key Support	Disabled	Optimal Default, Failsafe Default
	Enabled	
Enable VT-UTF8 Combination Key Support for ANSI/VT100 terminals		
Recorder Mode	Disabled	Optimal Default, Failsafe Default
	Enabled	
<p>On this mode enabled only text will be sent. This is to capture Terminal data.</p>		
Resolution 100x31	Disabled	Optimal Default, Failsafe Default
	Enabled	
Enables or disables extended terminal resolution		
Legacy OS Redirection Resolution	80x24	Optimal Default, Failsafe Default
	80x25	
On Legacy OS, the Number of Rows and Columns supported redirection		
Putty KeyPad	VT100	Optimal Default, Failsafe Default
	LINUX	
	XTERMR6	
	SC0	

	ESCN	
	VT400	
Select FunctionKey and KeyPad on Putty.		
Redirection After BIOS POST	Always Enable	Optimal Default, Failsafe Default
	BootLoader	
The Settings specify if BootLoader is selected then Legacy console redirection is disabled before booting to Legacy OS. Default value is Always Enable which means Legacy console Redirection is enabled for Legacy OS.		

### 3.4.9.2 Serial Port Console Redirection: Console Redirection Settings

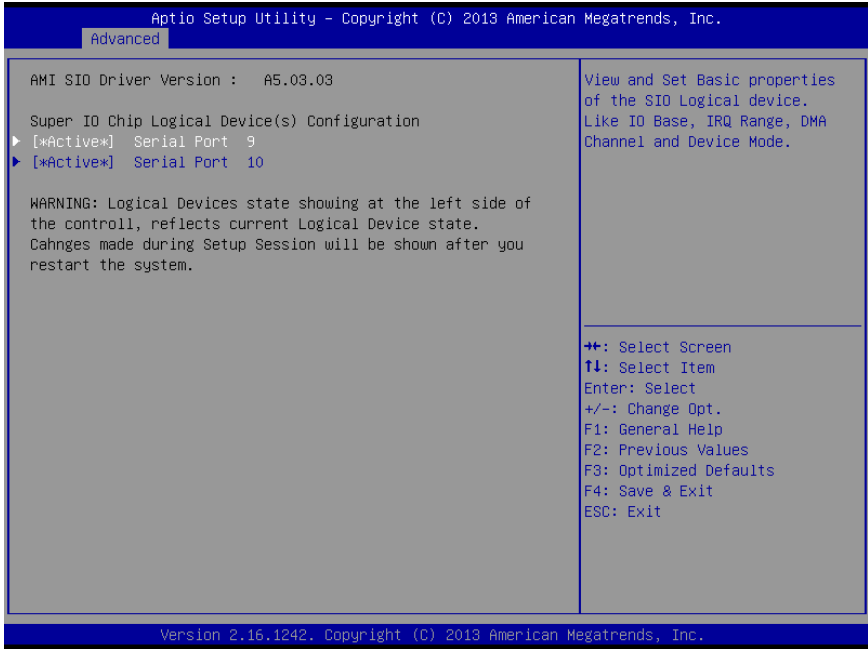


Options summary:

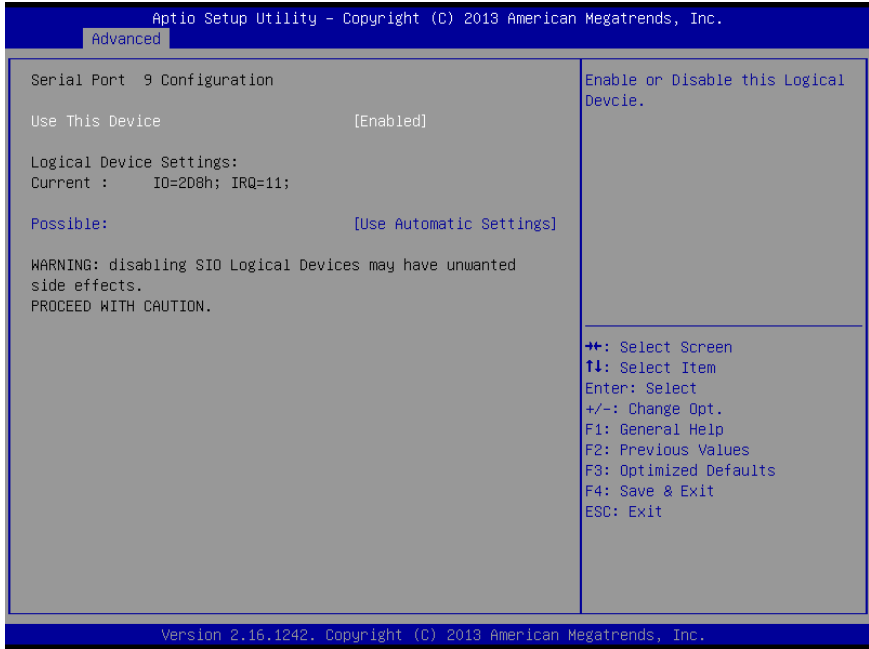
Terminal Type	VT100	Optimal Default, Failsafe Default
	VT100+	
	VT-UTF8	
	ANSI	
VT-UTF8 is the preferred terminal type for out-of-band management. The next best choice is VT100+ and then VT100. See above, in Console Redirection Settings page, for more Help with Terminal Type/Emulation.		
Bits per second	9600	Optimal Default, Failsafe Default
	19200	
	57600	
	115200	
Selects serial port transmission speed. The speed must be match on the other side. Long or noisy lines may require lower speeds.		

Flow Control	None	Optimal Default, Failsafe Default
	Hardware RTS/CTS	
	Software Xon/Xoff	
Flow control can prevent data loss from buffer overflow. When sending data, if the receiving buffers are full, a 'stop' signal can be sent to stop the data 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.		

### 3.4.10 Advanced: SIO Configuration



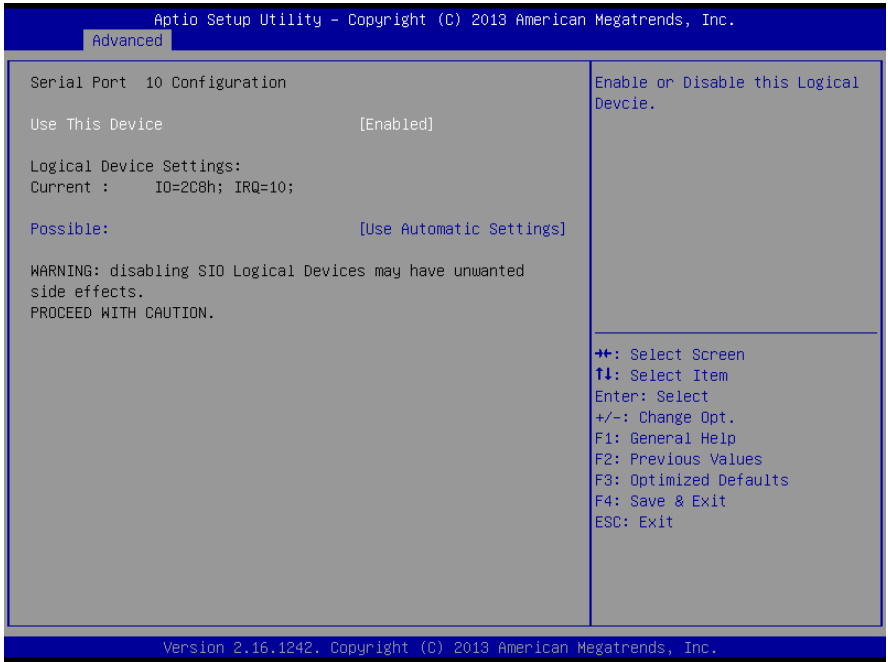
### 3.4.10.1 SIO Configuration: Serial Port 9 Configuration



Options summary:

Use This Device	Disabled	Optimal Default, Failsafe Default
	Enabled	
En/Disable this Logical Device.		
Possible:	Use Automatic Settings	Optimal Default, Failsafe Default
	IO=2D8; IRQ=11; DMA;	
	IO=2C8; IRQ=11 DMA;	
Allows user to change Device's Resource settings. New settings will be reflected on This Setup Page after System restarts.		

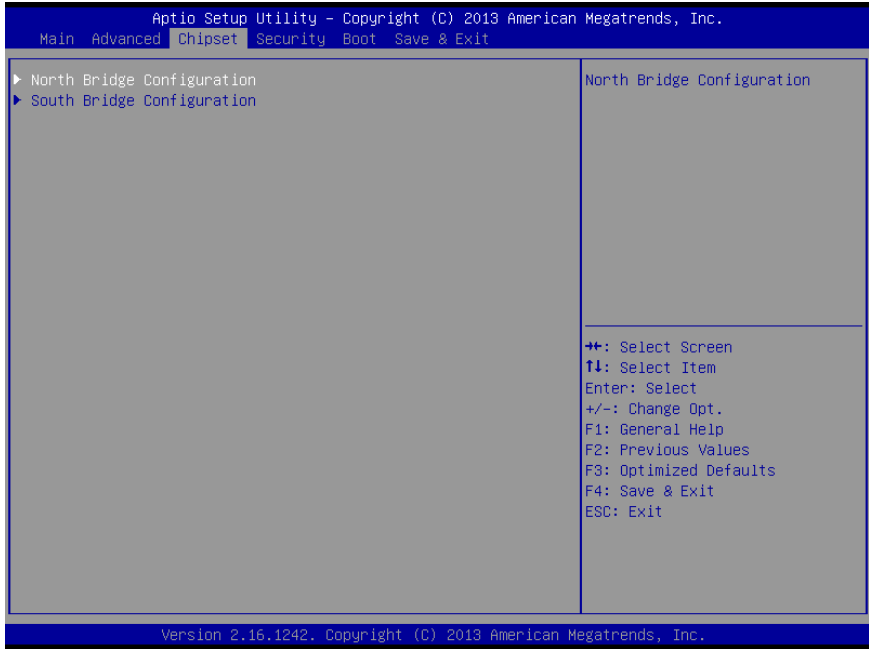
### 3.4.10.2 SIO Configuration: Serial Port 10 Configuration



Options summary:

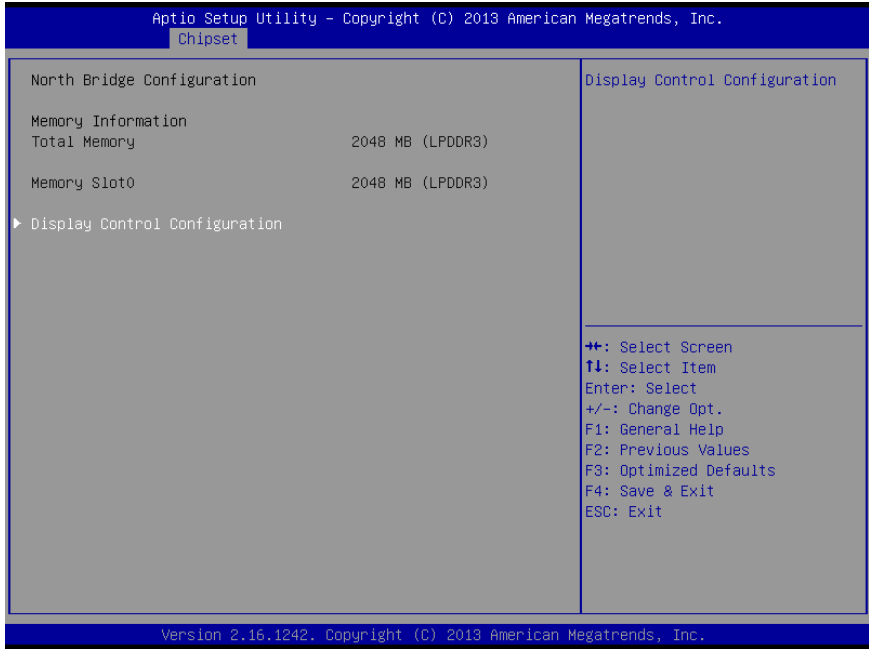
Use This Device	Disabled	Optimal Default, Failsafe Default
	Enabled	
En/Disable this Logical Device.		
Possible:	Use Automatic Settings	Optimal Default, Failsafe Default
	IO=2C8; IRQ=10; DMA;	
	IO=2D8; IRQ=10; DMA	
Allows user to change Device's Resource settings. New settings will be reflected on This Setup Page after System restarts.		

### 3.5 Setup submenu: Chipset

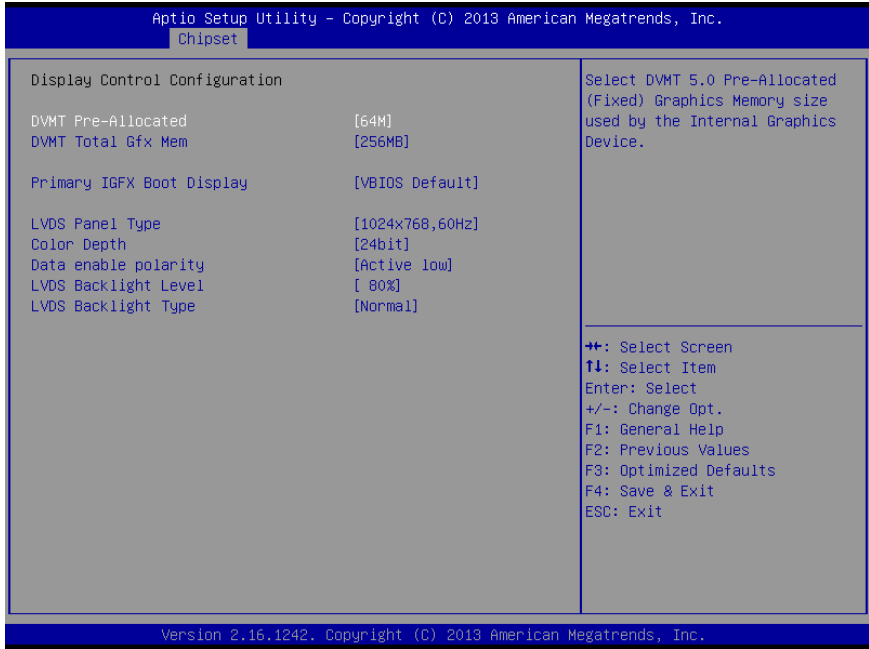




### 3.5.1 Chipset: North Bridge



### 3.5.1.1 North Bridge: Display Control Configuration



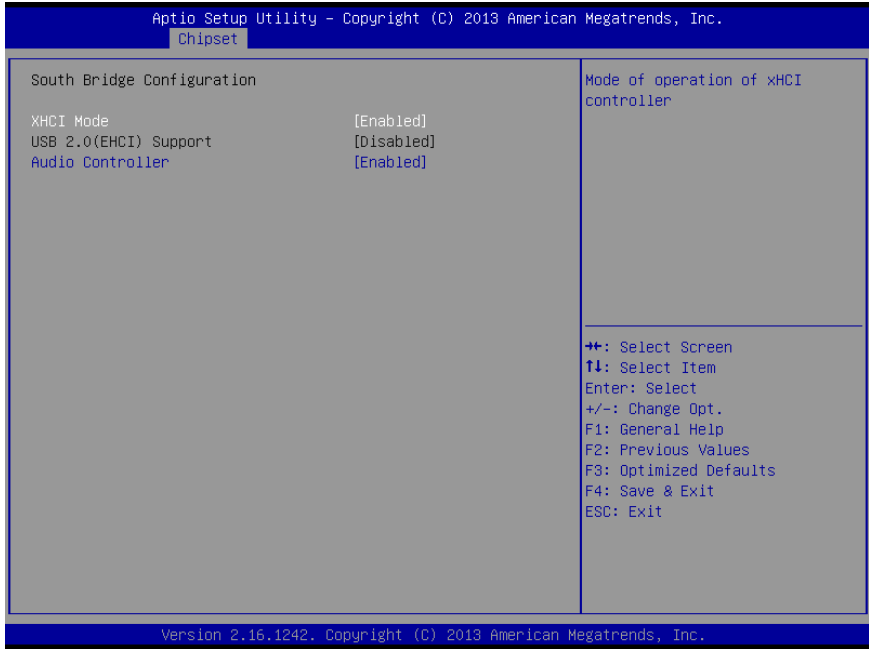
Options summary:

DVMT Pre-Allocated	64M	Optimal Default, Failsafe Default
	96M	
	128M	
	160M ...	
	224M	
	256M	
	288M	
	320M	
	352M	
	384M	
	416M	
	448M	
	480M	
512M		
Select DVMT 5.0 Pre-Allocated(Fixed) Graphics Memory size used by the Internal Graphics Devices		

DVMT Total Gfx Mem	128MB	Optimal Default, Failsafe Default
	256MB	
	Max	
Select DVMT 5.0 Total Graphic Memory size used by the Internal Graphics Device.		
Primary IGFX Boot Display	VBIOS Default	Optimal Default, Failsafe Default
	CRT	
	LVDS	
	DP	
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		
Secondary IGFX Boot Display	Disabled	Optimal Default, Failsafe Default
	CRT	
	LVDS	
	DP/HDMI	
Select Secondary Display Device		
LVDS Panel Type	640x480, 60Hz	Optimal Default, Failsafe Default
	800x480, 60Hz	
	800x600, 60Hz	
	1024x600, 60Hz	
	1024x768, 60Hz	
	1024x768, 60Hz	
	1280x768, 60Hz	
	1280x1024, 60Hz	
	1366x768, 60Hz	
	1440x900, 60Hz	
	1600x1200, 60Hz	
	1920x1080, 60Hz	
	1920x1200, 60Hz	
	1280x800, 60Hz	
1024x600, 80Hz		
Select LCD panel used by Internal Graphics Device by selecting the appropriate setup item.		
Color Depth	24bit	Optimal Default, Failsafe Default
	18bit	
24bit or 18bit		
Data enable polarity	Active Low	Optimal Default, Failsafe Default
	Active High	
<b>Active high/low</b>		

LVDS Backlight Level	100%	Optimal Default, Failsafe Default
	90%	
	80%	
	70%	
	60%	
	50%	
	40%	
	30%	
	20%	
	10%	
0%		
Select Backlight brightness of LVDS		
LVDS Backlight Type	Normal	Optimal Default, Failsafe Default
	Inverted	
<b>Select Backlight Control Type</b>		

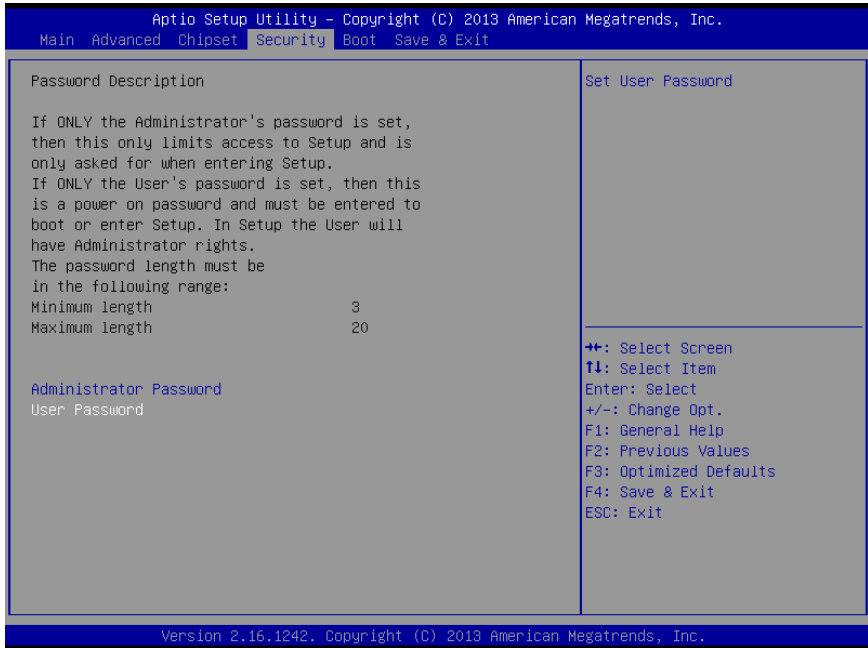
## 3.5.2 Chipset: South Bridge



Options summary:

XHCI Mode	Enabled	Optimal Default, Failsafe Default
	Disabled	
Mode of operation of xHCI controller		
Audio Controller	Disabled	Optimal Default, Failsafe Default
	Enabled	
Control Detection of the Azalia device. Disabled = Azalia will be unconditionally disabled. Enabled = Azalia will be unconditionally Enabled. Auto = Azalia will be enabled if present disabled otherwise.		

## 3.6 Setup submenu: Security



### Change User/Administrator Password

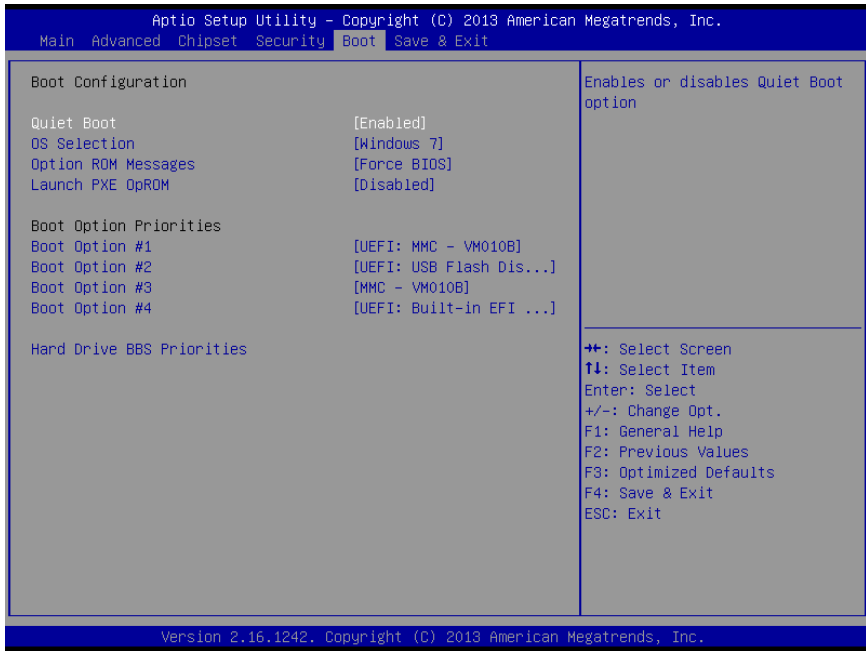
You can set a User Password once an Administrator Password is set. The password will be required during boot up, or when the user enters the Setup utility. Please Note that a User Password does not provide access to many of the features in the Setup utility.

Select the password you wish to set, press Enter to open a dialog box to enter your password (you can enter no more than six letters or numbers). Press Enter to confirm your entry, after which you will be prompted to retype your password for a final confirmation. Press Enter again after you have retyped it correctly.

### Removing the Password

Highlight this item and type in the current password. At the next dialog box press Enter to disable password protection.

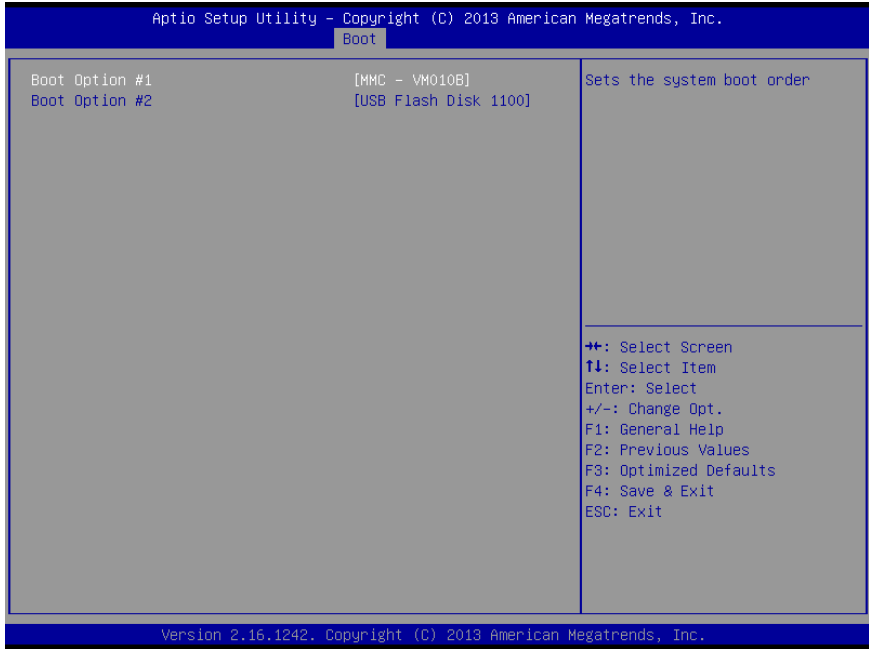
### 3.7 Setup submenu: Boot



Options summary:

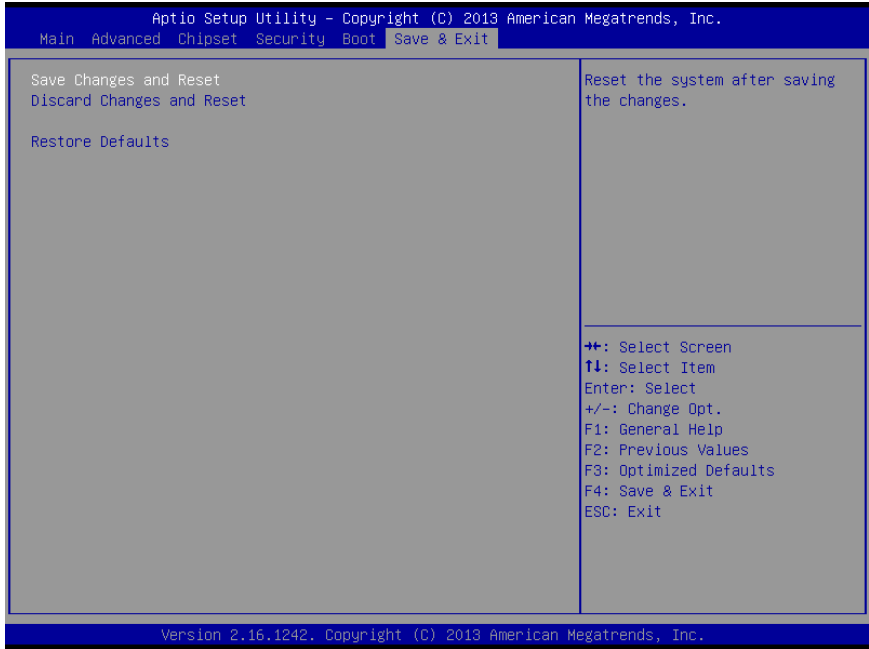
Quiet Boot	Disabled	Default
	Enabled	
En/Disable Quiet Boot option		
OS Selection	Windows 10	Default
	Windows 7	
OS Selection		
Option ROM Messages	Force BIOS	Default
	Keep Current	
Set display mode for Option ROM		
Launch PXE OpROM	Disabled	Default
	Enabled	
Controls the execution of LAN PXE OpROM		

### 3.7.1 Boot: BBS Priorities





### 3.8 Setup submenu: Save & Exit



# Chapter 4

---

Drivers Installation

## 4.1 Driver Download/Installation

---

Drivers for the NanoCOM-BT can be downloaded from the product page on the AAeon website by following this link:

<https://www.aaeon.com/en/p/com-express-modules-nanocom-bt>

Download the driver(s) you need and follow the steps below to install them.

### Step 1 – Install Chipset Drivers

1. Open the **Step1 – Chipset** followed by **SetupChipset.exe**
2. Follow the instructions
3. Drivers will be installed automatically

### Step 2 – Install Graphics Driver

1. Open the **Step2 - Graphic** folder and select your OS
2. Open the **Setup.exe** file in the folder
3. Follow the instructions
4. Drivers will be installed automatically

### Step 3 – Install Atom E3800 I/O Driver

1. Click on the **Step3 – Atom\_E3800\_IO** folder and select your OS
2. Open the **.exe or .msi** file in the folder
3. Follow the instructions
4. Drivers will be installed automatically

**Note :** The user can skip this step when OS is installed on SATA or PCIe device.

#### Step 4 – Install Network Drivers

1. Open the **Step4 - Network** folder and select your OS
2. Open the **.exe** file in the folder
3. Follow the instructions
4. Drivers will be installed automatically

#### Step 5 – Install USB 3.0 Driver (Windows 7 only)

1. Open the **Step5 - USB3.0** folder followed by **Setup.exe**
2. Follow the instructions
3. Drivers will be installed automatically

#### Step 6 – Install Intel Sideband Fabric Device Driver

1. Open the **Step6 – Intel Sideband Fabric Driver** folder followed **Setup.exe**
2. Follow the instructions
3. Drivers will be installed automatically

# Appendix A

---

## Watchdog Timer Programming

## A.1 Watchdog Timer Initial Program

	Default Value	Note
Index	0x284(Note1)	BRAM Index Register
Data	0x285(Note2)	BRAM Data Register
Logical Device Number	0xA8(Note3)	Watch dog Logical Device Number
Function and Device Number	0x00(Note4)	Watch dog Function/Device Number

	Option Register	BitNum	Value	Note
Timer Counter	0x00(Note5)		(Note10)	Time of watchdog timer (0~255)
Counting Unit	0x01(Note6)	0(Note7)	0(Note11)	Select time unit. 0: second 1: minute
Watchdog RST pulse width	0x01(Note8)	[3:2](Note9)	0(Note12)	0: 20ms 1: 60ms 2: 100ms 3: 250ms

```

*****
// Embedded BRAM relative definition (Please reference to Table 1)
#define byte EcBRAMIndex //This parameter is represented from Note1
#define byte EcBRAMData //This parameter is represented from Note2
#define byte BRAMLDNReg //This parameter is represented from Note3
#define byte BRAMFnDataReg //This parameter is represented from Note4
#define void EcBRAMWriteByte(byte Offset, byte Value);
#define byte EcBRAMReadByte(byte Offset);
#define void IOWriteByte(byte Offset, byte Value);
#define byte IOReadByte(byte Offset);
// Watch Dog relative definition (Please reference to Table 2)
#define byte TimerReg //This parameter is represented from Note5
#define byte TimerVal // This parameter is represented from Note10
#define byte UnitReg //This parameter is represented from Note6
#define byte UnitBit //This parameter is represented from Note7
#define byte UnitVal //This parameter is represented from Note11
#define byte RSTReg //This parameter is represented from Note8
#define byte RSTBit //This parameter is represented from Note9
#define byte RSTVal //This parameter is represented from Note12
*****

```

```
*****
VOID Main(){
    // Procedure : AaeonWDTConfig
    // (byte)Timer : Time of WDT timer.(0x00~0xFF)
    // (boolean)Unit : Select time unit(0: second, 1: minute).
    AaeonWDTConfig();

    // Procedure : AaeonWDTEnable
    // This procedure will enable the WDT counting.
    AaeonWDTEnable();
}
*****
```



```

*****
// Procedure : AaeonWDTEnable
VOID  AaeonWDTEnable (){
    WDTEnableDisable(1);
}

// Procedure : AaeonWDTConfig
VOID  AaeonWDTConfig (){
    // Disable WDT counting
    WDTEnableDisable(0);
    // WDT relative parameter setting
    WDTParameterSetting();
}

VOID  WDTEnableDisable(byte Value){
    ECBRAMWriteByte(TimerReg , Value);
}

VOID  WDTParameterSetting(){
    Byte TempByte;

    // Watchdog Timer counter setting
    ECBRAMWriteByte(TimerReg , TimerVal);
    // WDT counting unit setting
    TempByte = ECBRAMReadByte(UnitReg);
    TempByte |= (UnitVal << UnitBit);
    ECBRAMWriteByte(UnitReg , TempByte);
    // WDT RST pulse width setting
    TempByte = ECBRAMReadByte(RSTReg);
    TempByte |= (RSTVal << RSTBit);
    ECBRAMWriteByte(RSTReg , TempByte);
}
*****

```

```

*****
VOID  ECBRAMWriteByte(byte OPReg, byte OPBit, byte Value){
    IOWriteByte(EcBRAMIndex, 0x10);
    IOWriteByte(EcBRAMData, BRAMLDNReg);
    IOWriteByte(EcBRAMIndex, 0x11);
    IOWriteByte(EcBRAMData, BRAMFnDataReg);

    IOWriteByte(EcBRAMIndex, 0x13 + OPReg);
    IOWriteByte(EcBRAMData, Value);

    IOWriteByte(EcBRAMIndex, 0x12);
    IOWriteByte(EcBRAMData, 0x30);           //Write start
}

Byte  ECBRAMReadByte(byte OPReg){
    IOWriteByte(EcBRAMIndex, 0x10);
    IOWriteByte(EcBRAMData, BRAMLDNReg);
    IOWriteByte(EcBRAMIndex, 0x11);
    IOWriteByte(EcBRAMData, BRAMFnDataReg);

    IOWriteByte(EcBRAMIndex, 0x12);
    IOWriteByte(EcBRAMData, 0x10);         //Read start

    IOWriteByte(EcBRAMIndex, 0x13 + OPReg);
    Return    IOReadByte(EcBRAMData, Value);
}
*****

```

# Appendix B

---

I/O Information


































## B.1 I/O Address Map


































▼	Input/output (IO)
📁	[0000000000000000 - 000000000000006F] PCI Express Root Complex
📁	[0000000000000020 - 0000000000000021] Programmable interrupt controller
📁	[0000000000000024 - 0000000000000025] Programmable interrupt controller
📁	[0000000000000028 - 0000000000000029] Programmable interrupt controller
📁	[000000000000002C - 000000000000002D] Programmable interrupt controller
📁	[000000000000002E - 000000000000002F] Motherboard resources
📁	[0000000000000030 - 0000000000000031] Programmable interrupt controller
📁	[0000000000000034 - 0000000000000035] Programmable interrupt controller
📁	[0000000000000038 - 0000000000000039] Programmable interrupt controller
📁	[000000000000003C - 000000000000003D] Programmable interrupt controller
📁	[0000000000000040 - 0000000000000043] System timer
📁	[000000000000004E - 000000000000004F] Motherboard resources
📁	[0000000000000050 - 0000000000000053] System timer
📁	[0000000000000061 - 0000000000000061] Motherboard resources
📁	[0000000000000063 - 0000000000000063] Motherboard resources
📁	[0000000000000065 - 0000000000000065] Motherboard resources
📁	[0000000000000067 - 0000000000000067] Motherboard resources
📁	[0000000000000068 - 0000000000000068] Microsoft ACPI-Compliant Embedded Controller
📁	[000000000000006C - 000000000000006C] Microsoft ACPI-Compliant Embedded Controller
📁	[0000000000000070 - 0000000000000070] Motherboard resources
📁	[0000000000000070 - 0000000000000077] System CMOS/real time clock
📁	[0000000000000078 - 00000000000000CF] PCI Express Root Complex
📁	[0000000000000080 - 000000000000008F] Motherboard resources
📁	[0000000000000092 - 0000000000000092] Motherboard resources
📁	[00000000000000A0 - 00000000000000A1] Programmable interrupt controller
📁	[00000000000000A4 - 00000000000000A5] Programmable interrupt controller
📁	[00000000000000A8 - 00000000000000A9] Programmable interrupt controller
📁	[00000000000000AC - 00000000000000AD] Programmable interrupt controller
📁	[00000000000000B0 - 00000000000000B1] Programmable interrupt controller
📁	[00000000000000B2 - 00000000000000B3] Motherboard resources
📁	[00000000000000B4 - 00000000000000B5] Programmable interrupt controller
📁	[00000000000000B8 - 00000000000000B9] Programmable interrupt controller
📁	[00000000000000BC - 00000000000000BD] Programmable interrupt controller
🖨️	[00000000000002C8 - 00000000000002CF] Communications Port (COM10)
🖨️	[00000000000002D8 - 00000000000002DF] Communications Port (COM9)
🖨️	[00000000000003B0 - 00000000000003BB] Intel(R) HD Graphics
🖨️	[00000000000003C0 - 00000000000003DF] Intel(R) HD Graphics
📁	[0000000000000400 - 000000000000047F] Motherboard resources
📁	[00000000000004D0 - 00000000000004D1] Programmable interrupt controller
📁	[0000000000000500 - 00000000000005FE] Motherboard resources
📁	[0000000000000600 - 000000000000061F] Motherboard resources
📁	[0000000000000680 - 000000000000069F] Motherboard resources
📁	[0000000000000D00 - 0000000000000FFF] PCI Express Root Complex
📁	[0000000000000D00 - 0000000000000DFF] Intel(R) Atom(TM)/Celeron(R)/Pentium(R) Processor PCI Express - Root Port 4 - 0F4E
📁	[0000000000000E00 - 0000000000000E1F] Intel(R) Atom(TM)/Celeron(R)/Pentium(R) Processor Platform Control Unit - SMBus Port - 0F12
🖨️	[0000000000000E20 - 0000000000000E3F] Standard SATA AHCI Controller
🖨️	[0000000000000E40 - 0000000000000E43] Standard SATA AHCI Controller
🖨️	[0000000000000E50 - 0000000000000E57] Standard SATA AHCI Controller
🖨️	[0000000000000E60 - 0000000000000E63] Standard SATA AHCI Controller
🖨️	[0000000000000E70 - 0000000000000E77] Standard SATA AHCI Controller
🖨️	[0000000000000E80 - 0000000000000E87] Intel(R) HD Graphics


































## B.2 Memory Address Map

Address Range	Device Name
[0000000000A0000 - 0000000000BFFFFF]	Intel(R) HD Graphics
[0000000000A0000 - 0000000000BFFFFF]	PCI Express Root Complex
[0000000000C0000 - 0000000000DFFFFF]	PCI Express Root Complex
[0000000000E0000 - 0000000000FFFFFF]	PCI Express Root Complex
[0000000080000000 - 00000000D071AFFE]	PCI Express Root Complex
[00000000C0000000 - 00000000CFFFFFFF]	Intel(R) HD Graphics
[00000000D0000000 - 00000000D03FFFFFFF]	Intel(R) HD Graphics
[00000000D0400000 - 00000000D04FFFFFFF]	PCI Encryption/Decryption Controller
[00000000D0500000 - 00000000D05FFFFFFF]	PCI Encryption/Decryption Controller
[00000000D0600000 - 00000000D061FFFFF]	Intel(R) I210 Gigabit Network Connection
[00000000D0600000 - 00000000D06FFFFFFF]	Intel(R) Atom(TM)/Celeron(R)/Pentium(R) Processor PCI Express - Root Port 4 - 0F4E
[00000000D0620000 - 00000000D0623FFF]	Intel(R) I210 Gigabit Network Connection
[00000000D0700000 - 00000000D070FFFFF]	Intel(R) USB 3.0 eXtensible Host Controller - 1.0 (Microsoft)
[00000000D0710000 - 00000000D0713FFF]	High Definition Audio Controller
[00000000D0714000 - 00000000D071401F]	Intel(R) Atom(TM)/Celeron(R)/Pentium(R) Processor Platform Control Unit - SMBus Port - 0F12
[00000000D0717000 - 00000000D0717FFF]	SDA Standard Compliant SD Host Controller
[00000000D0718000 - 00000000D07187FF]	Standard SATA AHCI Controller
[00000000D0719000 - 00000000D0719FFF]	SDA Standard Compliant SD Host Controller
[00000000E0000000 - 00000000EFFFFFFF]	Motherboard resources
[00000000E00000D0 - 00000000E00000DB]	Intel(R) Sideband Fabric Device
[00000000FED00000 - 00000000FED003FF]	High precision event timer
[00000000FED01000 - 00000000FED01FFF]	Motherboard resources
[00000000FED03000 - 00000000FED03FFF]	Motherboard resources
[00000000FED04000 - 00000000FED04FFF]	Motherboard resources
[00000000FED08000 - 00000000FED08FFF]	Motherboard resources
[00000000FED1C000 - 00000000FED1CFFF]	Motherboard resources
[00000000FEE00000 - 00000000FEEFFFFFFF]	Motherboard resources
[00000000FEF00000 - 00000000FEFFFFFFFF]	Motherboard resources
[00000000FF000000 - 00000000FFFFFFFF]	Legacy device


































## B.3 IRQ Mapping Chart


































▼ 	Interrupt request (IRQ)
	(ISA) 0x00000000 (00) System timer
	(ISA) 0x00000008 (08) High precision event timer
	(ISA) 0x0000000A (10) Communications Port (COM10)
	(ISA) 0x0000000B (11) Communications Port (COM9)
	(ISA) 0x00000036 (54) Microsoft ACPI-Compliant System
	(ISA) 0x00000037 (55) Microsoft ACPI-Compliant System
	(ISA) 0x00000038 (56) Microsoft ACPI-Compliant System
	(ISA) 0x00000039 (57) Microsoft ACPI-Compliant System
	(ISA) 0x0000003A (58) Microsoft ACPI-Compliant System
	(ISA) 0x0000003B (59) Microsoft ACPI-Compliant System
	(ISA) 0x0000003C (60) Microsoft ACPI-Compliant System
	(ISA) 0x0000003D (61) Microsoft ACPI-Compliant System
	(ISA) 0x0000003E (62) Microsoft ACPI-Compliant System
	(ISA) 0x0000003F (63) Microsoft ACPI-Compliant System
	(ISA) 0x00000040 (64) Microsoft ACPI-Compliant System
	(ISA) 0x00000041 (65) Microsoft ACPI-Compliant System
	(ISA) 0x00000042 (66) Microsoft ACPI-Compliant System
	(ISA) 0x00000043 (67) Microsoft ACPI-Compliant System
	(ISA) 0x00000044 (68) Microsoft ACPI-Compliant System
	(ISA) 0x00000045 (69) Microsoft ACPI-Compliant System
	(ISA) 0x00000046 (70) Microsoft ACPI-Compliant System
	(ISA) 0x00000047 (71) Microsoft ACPI-Compliant System
	(ISA) 0x00000048 (72) Microsoft ACPI-Compliant System
	(ISA) 0x00000049 (73) Microsoft ACPI-Compliant System
	(ISA) 0x0000004A (74) Microsoft ACPI-Compliant System
	(ISA) 0x0000004B (75) Microsoft ACPI-Compliant System
	(ISA) 0x0000004C (76) Microsoft ACPI-Compliant System
	(ISA) 0x0000004D (77) Microsoft ACPI-Compliant System
	(ISA) 0x0000004E (78) Microsoft ACPI-Compliant System
	(ISA) 0x0000004F (79) Microsoft ACPI-Compliant System
	(ISA) 0x00000050 (80) Microsoft ACPI-Compliant System
	(ISA) 0x00000051 (81) Microsoft ACPI-Compliant System

 (ISA) 0x00000051 (81)	Microsoft ACPI-Compliant System
 (ISA) 0x00000052 (82)	Microsoft ACPI-Compliant System
 (ISA) 0x00000053 (83)	Microsoft ACPI-Compliant System
 (ISA) 0x00000054 (84)	Microsoft ACPI-Compliant System
 (ISA) 0x00000055 (85)	Microsoft ACPI-Compliant System
 (ISA) 0x00000056 (86)	Microsoft ACPI-Compliant System
 (ISA) 0x00000057 (87)	Microsoft ACPI-Compliant System
 (ISA) 0x00000058 (88)	Microsoft ACPI-Compliant System
 (ISA) 0x00000059 (89)	Microsoft ACPI-Compliant System
 (ISA) 0x0000005A (90)	Microsoft ACPI-Compliant System
 (ISA) 0x0000005B (91)	Microsoft ACPI-Compliant System
 (ISA) 0x0000005C (92)	Microsoft ACPI-Compliant System
 (ISA) 0x0000005D (93)	Microsoft ACPI-Compliant System
 (ISA) 0x0000005E (94)	Microsoft ACPI-Compliant System
 (ISA) 0x0000005F (95)	Microsoft ACPI-Compliant System
 (ISA) 0x00000060 (96)	Microsoft ACPI-Compliant System
 (ISA) 0x00000061 (97)	Microsoft ACPI-Compliant System
 (ISA) 0x00000062 (98)	Microsoft ACPI-Compliant System
 (ISA) 0x00000063 (99)	Microsoft ACPI-Compliant System
 (ISA) 0x00000064 (100)	Microsoft ACPI-Compliant System
 (ISA) 0x00000065 (101)	Microsoft ACPI-Compliant System
 (ISA) 0x00000066 (102)	Microsoft ACPI-Compliant System
 (ISA) 0x00000067 (103)	Microsoft ACPI-Compliant System
 (ISA) 0x00000068 (104)	Microsoft ACPI-Compliant System
 (ISA) 0x00000069 (105)	Microsoft ACPI-Compliant System
 (ISA) 0x0000006A (106)	Microsoft ACPI-Compliant System
 (ISA) 0x0000006B (107)	Microsoft ACPI-Compliant System
 (ISA) 0x0000006C (108)	Microsoft ACPI-Compliant System
 (ISA) 0x0000006D (109)	Microsoft ACPI-Compliant System
 (ISA) 0x0000006E (110)	Microsoft ACPI-Compliant System
 (ISA) 0x0000006F (111)	Microsoft ACPI-Compliant System
 (ISA) 0x00000070 (112)	Microsoft ACPI-Compliant System
 (ISA) 0x00000071 (113)	Microsoft ACPI-Compliant System


































 (ISA) 0x00000091 (145)	Microsoft ACPI-Compliant System
 (ISA) 0x00000092 (146)	Microsoft ACPI-Compliant System
 (ISA) 0x00000093 (147)	Microsoft ACPI-Compliant System
 (ISA) 0x00000094 (148)	Microsoft ACPI-Compliant System
 (ISA) 0x00000095 (149)	Microsoft ACPI-Compliant System
 (ISA) 0x00000096 (150)	Microsoft ACPI-Compliant System
 (ISA) 0x00000097 (151)	Microsoft ACPI-Compliant System
 (ISA) 0x00000098 (152)	Microsoft ACPI-Compliant System
 (ISA) 0x00000099 (153)	Microsoft ACPI-Compliant System
 (ISA) 0x0000009A (154)	Microsoft ACPI-Compliant System
 (ISA) 0x0000009B (155)	Microsoft ACPI-Compliant System
 (ISA) 0x0000009C (156)	Microsoft ACPI-Compliant System
 (ISA) 0x0000009D (157)	Microsoft ACPI-Compliant System
 (ISA) 0x0000009E (158)	Microsoft ACPI-Compliant System
 (ISA) 0x0000009F (159)	Microsoft ACPI-Compliant System
 (ISA) 0x000000A0 (160)	Microsoft ACPI-Compliant System
 (ISA) 0x000000A1 (161)	Microsoft ACPI-Compliant System
 (ISA) 0x000000A2 (162)	Microsoft ACPI-Compliant System
 (ISA) 0x000000A3 (163)	Microsoft ACPI-Compliant System
 (ISA) 0x000000A4 (164)	Microsoft ACPI-Compliant System
 (ISA) 0x000000A5 (165)	Microsoft ACPI-Compliant System
 (ISA) 0x000000A6 (166)	Microsoft ACPI-Compliant System
 (ISA) 0x000000A7 (167)	Microsoft ACPI-Compliant System
 (ISA) 0x000000A8 (168)	Microsoft ACPI-Compliant System
 (ISA) 0x000000A9 (169)	Microsoft ACPI-Compliant System
 (ISA) 0x000000AA (170)	Microsoft ACPI-Compliant System
 (ISA) 0x000000AB (171)	Microsoft ACPI-Compliant System
 (ISA) 0x000000AC (172)	Microsoft ACPI-Compliant System
 (ISA) 0x000000AD (173)	Microsoft ACPI-Compliant System
 (ISA) 0x000000AE (174)	Microsoft ACPI-Compliant System
 (ISA) 0x000000AF (175)	Microsoft ACPI-Compliant System
 (ISA) 0x000000B0 (176)	Microsoft ACPI-Compliant System
 (ISA) 0x000000B1 (177)	Microsoft ACPI-Compliant System





































































 (ISA) 0x000000B1 (177)	Microsoft ACPI-Compliant System
 (ISA) 0x000000B2 (178)	Microsoft ACPI-Compliant System
 (ISA) 0x000000B3 (179)	Microsoft ACPI-Compliant System
 (ISA) 0x000000B4 (180)	Microsoft ACPI-Compliant System
 (ISA) 0x000000B5 (181)	Microsoft ACPI-Compliant System
 (ISA) 0x000000B6 (182)	Microsoft ACPI-Compliant System
 (ISA) 0x000000B7 (183)	Microsoft ACPI-Compliant System
 (ISA) 0x000000B8 (184)	Microsoft ACPI-Compliant System
 (ISA) 0x000000B9 (185)	Microsoft ACPI-Compliant System
 (ISA) 0x000000BA (186)	Microsoft ACPI-Compliant System
 (ISA) 0x000000BB (187)	Microsoft ACPI-Compliant System
 (ISA) 0x000000BC (188)	Microsoft ACPI-Compliant System
 (ISA) 0x000000BD (189)	Microsoft ACPI-Compliant System
 (ISA) 0x000000BE (190)	Microsoft ACPI-Compliant System
 (ISA) 0x000000BF (191)	Microsoft ACPI-Compliant System
 (ISA) 0x000000C0 (192)	Microsoft ACPI-Compliant System
 (ISA) 0x000000C1 (193)	Microsoft ACPI-Compliant System
 (ISA) 0x000000C2 (194)	Microsoft ACPI-Compliant System
 (ISA) 0x000000C3 (195)	Microsoft ACPI-Compliant System
 (ISA) 0x000000C4 (196)	Microsoft ACPI-Compliant System
 (ISA) 0x000000C5 (197)	Microsoft ACPI-Compliant System
 (ISA) 0x000000C6 (198)	Microsoft ACPI-Compliant System
 (ISA) 0x000000C7 (199)	Microsoft ACPI-Compliant System
 (ISA) 0x000000C8 (200)	Microsoft ACPI-Compliant System
 (ISA) 0x000000C9 (201)	Microsoft ACPI-Compliant System
 (ISA) 0x000000CA (202)	Microsoft ACPI-Compliant System
 (ISA) 0x000000CB (203)	Microsoft ACPI-Compliant System
 (ISA) 0x000000CC (204)	Microsoft ACPI-Compliant System
 (ISA) 0x00000100 (256)	Microsoft ACPI-Compliant System
 (ISA) 0x00000101 (257)	Microsoft ACPI-Compliant System
 (ISA) 0x00000102 (258)	Microsoft ACPI-Compliant System
 (ISA) 0x00000103 (259)	Microsoft ACPI-Compliant System
 (ISA) 0x00000104 (260)	Microsoft ACPI-Compliant System


































 (ISA) 0x00000104 (260)	Microsoft ACPI-Compliant System
 (ISA) 0x00000105 (261)	Microsoft ACPI-Compliant System
 (ISA) 0x00000106 (262)	Microsoft ACPI-Compliant System
 (ISA) 0x00000107 (263)	Microsoft ACPI-Compliant System
 (ISA) 0x00000108 (264)	Microsoft ACPI-Compliant System
 (ISA) 0x00000109 (265)	Microsoft ACPI-Compliant System
 (ISA) 0x0000010A (266)	Microsoft ACPI-Compliant System
 (ISA) 0x0000010B (267)	Microsoft ACPI-Compliant System
 (ISA) 0x0000010C (268)	Microsoft ACPI-Compliant System
 (ISA) 0x0000010D (269)	Microsoft ACPI-Compliant System
 (ISA) 0x0000010E (270)	Microsoft ACPI-Compliant System
 (ISA) 0x0000010F (271)	Microsoft ACPI-Compliant System
 (ISA) 0x00000110 (272)	Microsoft ACPI-Compliant System
 (ISA) 0x00000111 (273)	Microsoft ACPI-Compliant System
 (ISA) 0x00000112 (274)	Microsoft ACPI-Compliant System
 (ISA) 0x00000113 (275)	Microsoft ACPI-Compliant System
 (ISA) 0x00000114 (276)	Microsoft ACPI-Compliant System
 (ISA) 0x00000115 (277)	Microsoft ACPI-Compliant System
 (ISA) 0x00000116 (278)	Microsoft ACPI-Compliant System
 (ISA) 0x00000117 (279)	Microsoft ACPI-Compliant System
 (ISA) 0x00000118 (280)	Microsoft ACPI-Compliant System
 (ISA) 0x00000119 (281)	Microsoft ACPI-Compliant System
 (ISA) 0x0000011A (282)	Microsoft ACPI-Compliant System
 (ISA) 0x0000011B (283)	Microsoft ACPI-Compliant System
 (ISA) 0x0000011C (284)	Microsoft ACPI-Compliant System
 (ISA) 0x0000011D (285)	Microsoft ACPI-Compliant System
 (ISA) 0x0000011E (286)	Microsoft ACPI-Compliant System
 (ISA) 0x0000011F (287)	Microsoft ACPI-Compliant System
 (ISA) 0x00000120 (288)	Microsoft ACPI-Compliant System
 (ISA) 0x00000121 (289)	Microsoft ACPI-Compliant System
 (ISA) 0x00000122 (290)	Microsoft ACPI-Compliant System
 (ISA) 0x00000123 (291)	Microsoft ACPI-Compliant System
 (ISA) 0x00000124 (292)	Microsoft ACPI-Compliant System


































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 (ISA) 0x00000124 (292)	Microsoft ACPI-Compliant System
 (ISA) 0x00000125 (293)	Microsoft ACPI-Compliant System
 (ISA) 0x00000126 (294)	Microsoft ACPI-Compliant System
 (ISA) 0x00000127 (295)	Microsoft ACPI-Compliant System
 (ISA) 0x00000128 (296)	Microsoft ACPI-Compliant System
 (ISA) 0x00000129 (297)	Microsoft ACPI-Compliant System
 (ISA) 0x0000012A (298)	Microsoft ACPI-Compliant System
 (ISA) 0x0000012B (299)	Microsoft ACPI-Compliant System
 (ISA) 0x0000012C (300)	Microsoft ACPI-Compliant System
 (ISA) 0x0000012D (301)	Microsoft ACPI-Compliant System
 (ISA) 0x0000012E (302)	Microsoft ACPI-Compliant System
 (ISA) 0x0000012F (303)	Microsoft ACPI-Compliant System
 (ISA) 0x00000130 (304)	Microsoft ACPI-Compliant System
 (ISA) 0x00000131 (305)	Microsoft ACPI-Compliant System
 (ISA) 0x00000132 (306)	Microsoft ACPI-Compliant System
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 (ISA) 0x00000139 (313)	Microsoft ACPI-Compliant System
 (ISA) 0x0000013A (314)	Microsoft ACPI-Compliant System
 (ISA) 0x0000013B (315)	Microsoft ACPI-Compliant System
 (ISA) 0x0000013C (316)	Microsoft ACPI-Compliant System
 (ISA) 0x0000013D (317)	Microsoft ACPI-Compliant System
 (ISA) 0x0000013E (318)	Microsoft ACPI-Compliant System
 (ISA) 0x0000013F (319)	Microsoft ACPI-Compliant System
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 (ISA) 0x0000015E (350)	Microsoft ACPI-Compliant System
 (ISA) 0x0000015F (351)	Microsoft ACPI-Compliant System
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 (ISA) 0x00000162 (354)	Microsoft ACPI-Compliant System
 (ISA) 0x00000163 (355)	Microsoft ACPI-Compliant System
 (ISA) 0x00000164 (356)	Microsoft ACPI-Compliant System
































 (ISA) 0x00000164 (356)	Microsoft ACPI-Compliant System
 (ISA) 0x00000165 (357)	Microsoft ACPI-Compliant System
 (ISA) 0x00000166 (358)	Microsoft ACPI-Compliant System
 (ISA) 0x00000167 (359)	Microsoft ACPI-Compliant System
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 (ISA) 0x0000016B (363)	Microsoft ACPI-Compliant System
 (ISA) 0x0000016C (364)	Microsoft ACPI-Compliant System
 (ISA) 0x0000016D (365)	Microsoft ACPI-Compliant System
 (ISA) 0x0000016E (366)	Microsoft ACPI-Compliant System
 (ISA) 0x0000016F (367)	Microsoft ACPI-Compliant System
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 (ISA) 0x00000179 (377)	Microsoft ACPI-Compliant System
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 (ISA) 0x0000017B (379)	Microsoft ACPI-Compliant System
 (ISA) 0x0000017C (380)	Microsoft ACPI-Compliant System
 (ISA) 0x0000017D (381)	Microsoft ACPI-Compliant System
 (ISA) 0x0000017E (382)	Microsoft ACPI-Compliant System
 (ISA) 0x0000017F (383)	Microsoft ACPI-Compliant System
 (ISA) 0x00000180 (384)	Microsoft ACPI-Compliant System
 (ISA) 0x00000181 (385)	Microsoft ACPI-Compliant System
 (ISA) 0x00000182 (386)	Microsoft ACPI-Compliant System
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 (ISA) 0x00000184 (388)	Microsoft ACPI-Compliant System

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 (ISA) 0x00000189 (393)	Microsoft ACPI-Compliant System
 (ISA) 0x0000018A (394)	Microsoft ACPI-Compliant System
 (ISA) 0x0000018B (395)	Microsoft ACPI-Compliant System
 (ISA) 0x0000018C (396)	Microsoft ACPI-Compliant System
 (ISA) 0x0000018D (397)	Microsoft ACPI-Compliant System
 (ISA) 0x0000018E (398)	Microsoft ACPI-Compliant System
 (ISA) 0x0000018F (399)	Microsoft ACPI-Compliant System
 (ISA) 0x00000190 (400)	Microsoft ACPI-Compliant System
 (ISA) 0x00000191 (401)	Microsoft ACPI-Compliant System
 (ISA) 0x00000192 (402)	Microsoft ACPI-Compliant System
 (ISA) 0x00000193 (403)	Microsoft ACPI-Compliant System
 (ISA) 0x00000194 (404)	Microsoft ACPI-Compliant System
 (ISA) 0x00000195 (405)	Microsoft ACPI-Compliant System
 (ISA) 0x00000196 (406)	Microsoft ACPI-Compliant System
 (ISA) 0x00000197 (407)	Microsoft ACPI-Compliant System
 (ISA) 0x00000198 (408)	Microsoft ACPI-Compliant System
 (ISA) 0x00000199 (409)	Microsoft ACPI-Compliant System
 (ISA) 0x0000019A (410)	Microsoft ACPI-Compliant System
 (ISA) 0x0000019B (411)	Microsoft ACPI-Compliant System
 (ISA) 0x0000019C (412)	Microsoft ACPI-Compliant System
 (ISA) 0x0000019D (413)	Microsoft ACPI-Compliant System
 (ISA) 0x0000019E (414)	Microsoft ACPI-Compliant System
 (ISA) 0x0000019F (415)	Microsoft ACPI-Compliant System
 (ISA) 0x000001A0 (416)	Microsoft ACPI-Compliant System
 (ISA) 0x000001A1 (417)	Microsoft ACPI-Compliant System
 (ISA) 0x000001A2 (418)	Microsoft ACPI-Compliant System
 (ISA) 0x000001A3 (419)	Microsoft ACPI-Compliant System
 (ISA) 0x000001A4 (420)	Microsoft ACPI-Compliant System

 (ISA) 0x000001A4 (420)	Microsoft ACPI-Compliant System
 (ISA) 0x000001A5 (421)	Microsoft ACPI-Compliant System
 (ISA) 0x000001A6 (422)	Microsoft ACPI-Compliant System
 (ISA) 0x000001A7 (423)	Microsoft ACPI-Compliant System
 (ISA) 0x000001A8 (424)	Microsoft ACPI-Compliant System
 (ISA) 0x000001A9 (425)	Microsoft ACPI-Compliant System
 (ISA) 0x000001AA (426)	Microsoft ACPI-Compliant System
 (ISA) 0x000001AB (427)	Microsoft ACPI-Compliant System
 (ISA) 0x000001AC (428)	Microsoft ACPI-Compliant System
 (ISA) 0x000001AD (429)	Microsoft ACPI-Compliant System
 (ISA) 0x000001AE (430)	Microsoft ACPI-Compliant System
 (ISA) 0x000001AF (431)	Microsoft ACPI-Compliant System
 (ISA) 0x000001B0 (432)	Microsoft ACPI-Compliant System
 (ISA) 0x000001B1 (433)	Microsoft ACPI-Compliant System
 (ISA) 0x000001B2 (434)	Microsoft ACPI-Compliant System
 (ISA) 0x000001B3 (435)	Microsoft ACPI-Compliant System
 (ISA) 0x000001B4 (436)	Microsoft ACPI-Compliant System
 (ISA) 0x000001B5 (437)	Microsoft ACPI-Compliant System
 (ISA) 0x000001B6 (438)	Microsoft ACPI-Compliant System
 (ISA) 0x000001B7 (439)	Microsoft ACPI-Compliant System
 (ISA) 0x000001B8 (440)	Microsoft ACPI-Compliant System
 (ISA) 0x000001B9 (441)	Microsoft ACPI-Compliant System
 (ISA) 0x000001BA (442)	Microsoft ACPI-Compliant System
 (ISA) 0x000001BB (443)	Microsoft ACPI-Compliant System
 (ISA) 0x000001BC (444)	Microsoft ACPI-Compliant System
 (ISA) 0x000001BD (445)	Microsoft ACPI-Compliant System
 (ISA) 0x000001BE (446)	Microsoft ACPI-Compliant System
 (ISA) 0x000001BF (447)	Microsoft ACPI-Compliant System
 (ISA) 0x000001C0 (448)	Microsoft ACPI-Compliant System
 (ISA) 0x000001C1 (449)	Microsoft ACPI-Compliant System
 (ISA) 0x000001C2 (450)	Microsoft ACPI-Compliant System
 (ISA) 0x000001C3 (451)	Microsoft ACPI-Compliant System
 (ISA) 0x000001C4 (452)	Microsoft ACPI-Compliant System

 (ISA) 0x000001C4 (452)	Microsoft ACPI-Compliant System
 (ISA) 0x000001C5 (453)	Microsoft ACPI-Compliant System
 (ISA) 0x000001C6 (454)	Microsoft ACPI-Compliant System
 (ISA) 0x000001C7 (455)	Microsoft ACPI-Compliant System
 (ISA) 0x000001C8 (456)	Microsoft ACPI-Compliant System
 (ISA) 0x000001C9 (457)	Microsoft ACPI-Compliant System
 (ISA) 0x000001CA (458)	Microsoft ACPI-Compliant System
 (ISA) 0x000001CB (459)	Microsoft ACPI-Compliant System
 (ISA) 0x000001CC (460)	Microsoft ACPI-Compliant System
 (ISA) 0x000001CD (461)	Microsoft ACPI-Compliant System
 (ISA) 0x000001CE (462)	Microsoft ACPI-Compliant System
 (ISA) 0x000001CF (463)	Microsoft ACPI-Compliant System
 (ISA) 0x000001D0 (464)	Microsoft ACPI-Compliant System
 (ISA) 0x000001D1 (465)	Microsoft ACPI-Compliant System
 (ISA) 0x000001D2 (466)	Microsoft ACPI-Compliant System
 (ISA) 0x000001D3 (467)	Microsoft ACPI-Compliant System
 (ISA) 0x000001D4 (468)	Microsoft ACPI-Compliant System
 (ISA) 0x000001D5 (469)	Microsoft ACPI-Compliant System
 (ISA) 0x000001D6 (470)	Microsoft ACPI-Compliant System
 (ISA) 0x000001D7 (471)	Microsoft ACPI-Compliant System
 (ISA) 0x000001D8 (472)	Microsoft ACPI-Compliant System
 (ISA) 0x000001D9 (473)	Microsoft ACPI-Compliant System
 (ISA) 0x000001DA (474)	Microsoft ACPI-Compliant System
 (ISA) 0x000001DB (475)	Microsoft ACPI-Compliant System
 (ISA) 0x000001DC (476)	Microsoft ACPI-Compliant System
 (ISA) 0x000001DD (477)	Microsoft ACPI-Compliant System
 (ISA) 0x000001DE (478)	Microsoft ACPI-Compliant System
 (ISA) 0x000001DF (479)	Microsoft ACPI-Compliant System
 (ISA) 0x000001E0 (480)	Microsoft ACPI-Compliant System
 (ISA) 0x000001E1 (481)	Microsoft ACPI-Compliant System
 (ISA) 0x000001E2 (482)	Microsoft ACPI-Compliant System
 (ISA) 0x000001E3 (483)	Microsoft ACPI-Compliant System
 (ISA) 0x000001E4 (484)	Microsoft ACPI-Compliant System



	(ISA) 0x000001EE (494)	Microsoft ACPI-Compliant System
	(ISA) 0x000001EF (495)	Microsoft ACPI-Compliant System
	(ISA) 0x000001F0 (496)	Microsoft ACPI-Compliant System
	(ISA) 0x000001F1 (497)	Microsoft ACPI-Compliant System
	(ISA) 0x000001F2 (498)	Microsoft ACPI-Compliant System
	(ISA) 0x000001F3 (499)	Microsoft ACPI-Compliant System
	(ISA) 0x000001F4 (500)	Microsoft ACPI-Compliant System
	(ISA) 0x000001F5 (501)	Microsoft ACPI-Compliant System
	(ISA) 0x000001F6 (502)	Microsoft ACPI-Compliant System
	(ISA) 0x000001F7 (503)	Microsoft ACPI-Compliant System
	(ISA) 0x000001F8 (504)	Microsoft ACPI-Compliant System
	(ISA) 0x000001F9 (505)	Microsoft ACPI-Compliant System
	(ISA) 0x000001FA (506)	Microsoft ACPI-Compliant System
	(ISA) 0x000001FB (507)	Microsoft ACPI-Compliant System
	(ISA) 0x000001FC (508)	Microsoft ACPI-Compliant System
	(ISA) 0x000001FD (509)	Microsoft ACPI-Compliant System
	(ISA) 0x000001FE (510)	Microsoft ACPI-Compliant System
	(ISA) 0x000001FF (511)	Microsoft ACPI-Compliant System
	(PCI) 0x00000003 (03)	Intel(R) Atom(TM)/Celeron(R)/Pentium(R) Processor Platform Control
	(PCI) 0x00000004 (04)	PCI Encryption/Decryption Controller
	(PCI) 0x00000012 (18)	SDA Standard Compliant SD Host Controller
	(PCI) 0x00000016 (22)	High Definition Audio Controller
	(PCI) 0xFFFFFFFF6 (-10)	Intel(R) HD Graphics
	(PCI) 0xFFFFFFFF7 (-9)	Intel(R) USB 3.0 eXtensible Host Controller - 1.0 (Microsoft)
	(PCI) 0xFFFFFFFF8 (-8)	Intel(R) I210 Gigabit Network Connection
	(PCI) 0xFFFFFFFF9 (-7)	Intel(R) I210 Gigabit Network Connection
	(PCI) 0xFFFFFFFFFA (-6)	Intel(R) I210 Gigabit Network Connection
	(PCI) 0xFFFFFFFFFB (-5)	Intel(R) I210 Gigabit Network Connection
	(PCI) 0xFFFFFFFFFC (-4)	Intel(R) I210 Gigabit Network Connection
	(PCI) 0xFFFFFFFFFD (-3)	Intel(R) I210 Gigabit Network Connection
	(PCI) 0xFFFFFFFFE (-2)	Standard SATA AHCI Controller

# Appendix C

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Programming Digital I/O

## C.1 DI/O Programming

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NanoCOM-BT utilizes ITE8518 chipset as its Digital I/O controller.

Below are the procedures to complete its configuration which you can develop customized program to fit your application.

## C.2 Digital I/O Register

Table 1 : Embedded BRAM relative register table		
	Default Value	Note
Index	0x284(Note1)	BRAM Index Register
Data	0x285(Note2)	BRAM Data Register
Logical Device Number	0xA2(Note3)	Watch dog Logical Device Number
Input/Output Function and Device Number	0x00(Note4)	DIO Input/Output Function/Device Number
Output Data Function and Device Number	0x01(Note5)	DIO Output Data Function/Device Number

Table 2 : Digital I/O relative register table				
	Register			
	Option Register	BitNum	Value	Note
GPI0 Pin Status	0x00(Note6)	0(Note7)	(Note15)	GPA2
GPI1 Pin Status	0x00(Note6)	1(Note8)	(Note16)	GPA3
GPI2 Pin Status	0x00(Note6)	2(Note9)	(Note17)	GPA4
GPI3 Pin Status	0x00(Note6)	3(Note10)	(Note18)	GPA5
GPO0 Pin Status	0x00(Note6)	4(Note11)	(Note19)	GPJ0
GPO1 Pin Status	0x00(Note6)	5(Note12)	(Note20)	GPJ1
GPO2 Pin Status	0x00(Note6)	6(Note13)	(Note21)	GPJ2
GPO3 Pin Status	0x00(Note6)	7(Note14)	(Note22)	GPJ3

### C.3 Digital I/O Sample Program

```
*****
// Embedded BRAM relative definition (Please reference to Table 1)
#define byte EcBRAMIndex //This parameter is represented from Note1
#define byte EcBRAMData //This parameter is represented from Note2
#define byte BRAMLDNReg //This parameter is represented from Note3
#define byte BRAMFnData0Reg //This parameter is represented from Note4
#define byte BRAMFnData1Reg //This parameter is represented from Note5
#define void EcBRAMWriteByte(byte Offset, byte Value);
#define byte EcBRAMReadByte(byte Offset);
#define void IOWriteByte(byte Offset, byte Value);
#define byte IOReadByte(byte Offset);
// Digital Input Status relative definition (Please reference to Table 2)
#define byte DIO0ToDIO7Reg // This parameter is represented from Note6
#define byte DIO0Bit // This parameter is represented from Note7
#define byte DIO1Bit // This parameter is represented from Note8
#define byte DIO2Bit // This parameter is represented from Note9
#define byte DIO3Bit // This parameter is represented from Note10
#define byte DIO4Bit // This parameter is represented from Note11
#define byte DIO5Bit // This parameter is represented from Note12
#define byte DIO6Bit // This parameter is represented from Note13
#define byte DIO7Bit // This parameter is represented from Note14
#define byte DIO0Val // This parameter is represented from Note15
#define byte DIO1Val // This parameter is represented from Note16
#define byte DIO2Val // This parameter is represented from Note17
#define byte DIO3Val // This parameter is represented from Note18
#define byte DIO4Val // This parameter is represented from Note19
#define byte DIO5Val // This parameter is represented from Note20
#define byte DIO6Val // This parameter is represented from Note21
#define byte DIO7Val // This parameter is represented from Note22
*****
```

```
*****
VOID Main(){
    Boolean PinStatus ;

    // Procedure : AaeonReadPinStatus
    // Input :
    //     Example, Read Digital I/O Pin 3 status
    // Output :
    //     InputStatus :
    //         0: Digital I/O Pin level is low
    //         1: Digital I/O Pin level is High
    PinStatus = AaeonReadPinStatus(DIO0ToDIO7Reg, DIO3Bit);

    // Procedure : AaeonSetOutputLevel
    // Input :
    //     Example, Set Digital I/O Pin 6 level
    AaeonSetOutputLevel(DIO0ToDIO7Reg, DIO6Bit, DIO6Val);
}
*****
```

```
*****
Boolean  AaeonReadPinStatus(byte OptionReg, byte BitNum){
    Byte TempByte;

    TempByte = ECBRAMReadByte(BRAMFnData1Reg, OptionReg);
    If (TempByte & BitNum == 0)
        Return 0;
    Return 1;
}
VOID  AaeonSetOutputLevel(byte OptionReg, byte BitNum, byte Value){
    Byte TempByte;

    TempByte = ECBRAMReadByte(BRAMFnData1Reg, OptionReg);
    TempByte |= (Value << BitNum);
    ECBRAMWriteByte(OptionReg, BitNum, Value);
}
*****
```

```

*****
VOID  ECBRAMWriteByte(byte OPReg, byte OPBit, byte Value){
    IOWriteByte(EcBRAMIndex, 0x10);
    IOWriteByte(EcBRAMData, BRAMLDNReg);
    IOWriteByte(EcBRAMIndex, 0x11);
    IOWriteByte(EcBRAMData, BRAMFnDataReg);

    IOWriteByte(EcBRAMIndex, 0x13 + OPReg);
    IOWriteByte(EcBRAMData, Value);

    IOWriteByte(EcBRAMIndex, 0x12);
    IOWriteByte(EcBRAMData, 0x30);          //Write start
}

Byte  ECBRAMReadByte(byte FnDataReg, byte OPReg){
    IOWriteByte(EcBRAMIndex, 0x10);
    IOWriteByte(EcBRAMData, BRAMLDNReg);
    IOWriteByte(EcBRAMIndex, 0x11);
    IOWriteByte(EcBRAMData, FnDataReg);

    IOWriteByte(EcBRAMIndex, 0x12);
    IOWriteByte(EcBRAMData, 0x10);        //Read start

    IOWriteByte(EcBRAMIndex, 0x13 + OPReg);
    Return    IOReadByte(EcBRAMData, Value);
}
*****

```