MARINEPC-6000

Fanless Box Computing

User's Manual

Version 1.2

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Reversion History :

Reversion		**Date**	**Notes**	**Author(s)**
From	**To**			
	1.0	Dec. 13, 2013	Initial document issued	Stanley Chou
1.0	1.1	July 7, 2014	Add System Installation	Stanley Chou
1.1	1.2	Dec. 15, 2014	Add DB9 connector (GIOP, COM1, COM2)	Stanley Chou

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User Manual

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

1. This device may not cause harmful interference.
2. This device must withstand any background interference including those that may cause undesired operation.

Safety Information

Read the following precautions before setting up a CARTFT.COM Product.

Electrical safety

- To prevent electrical shock hazard, disconnect the power cable from the electrical outlet before relocating the system.
- When adding or removing devices to or from the system, ensure that the power cables for the devices are unplugged before the signal cables are connected. If possible, disconnect all power cables from the existing system before you add a device.
- Before connecting or removing signal cables from the motherboard, ensure that all power cables are unplugged.
- Seek professional assistance before using an adapter or extension cord. These devices could interrupt the grounding circuit.
- Make sure that your power supply is set to the correct voltage in your area. If you are not sure about the voltage of the electrical outlet you are using, contact your local power company.
- If the power supply is broken, do not try to fix it by yourself. Contact a qualified service technician or your retailer.

Operation safety

- Before installing the motherboard and adding devices on it, carefully read all the manuals that came with the package.
- Before using the product, make sure all cables are correctly connected and the power cables are not damaged. If you detect any damage, contact your dealer immediately.
- To avoid short circuits, keep paper clips, screws, and staples away from connectors, slots, sockets and circuitry.
- Avoid dust, humidity, and temperature extremes. Do not place the product in any area where it may become wet.
- Place the product on a stable surface.
- If you encounter technical problems with the product, contact a qualified service technician or your retailer.

CAUTION

Incorrectly replacing the battery may damage this computer. Replace only with the same or its equivalent as recommended by CarTFT.com Dispose used battery according to the manufacturer's instructions.

Technical Support

Please do not hesitate to call or e-mail our customer service when you still cannot fix the problems.

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E-mail : support@cartft.com

Website : www.CarTFT.com

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INTRODUCTION

1.0 INTRODUCTION

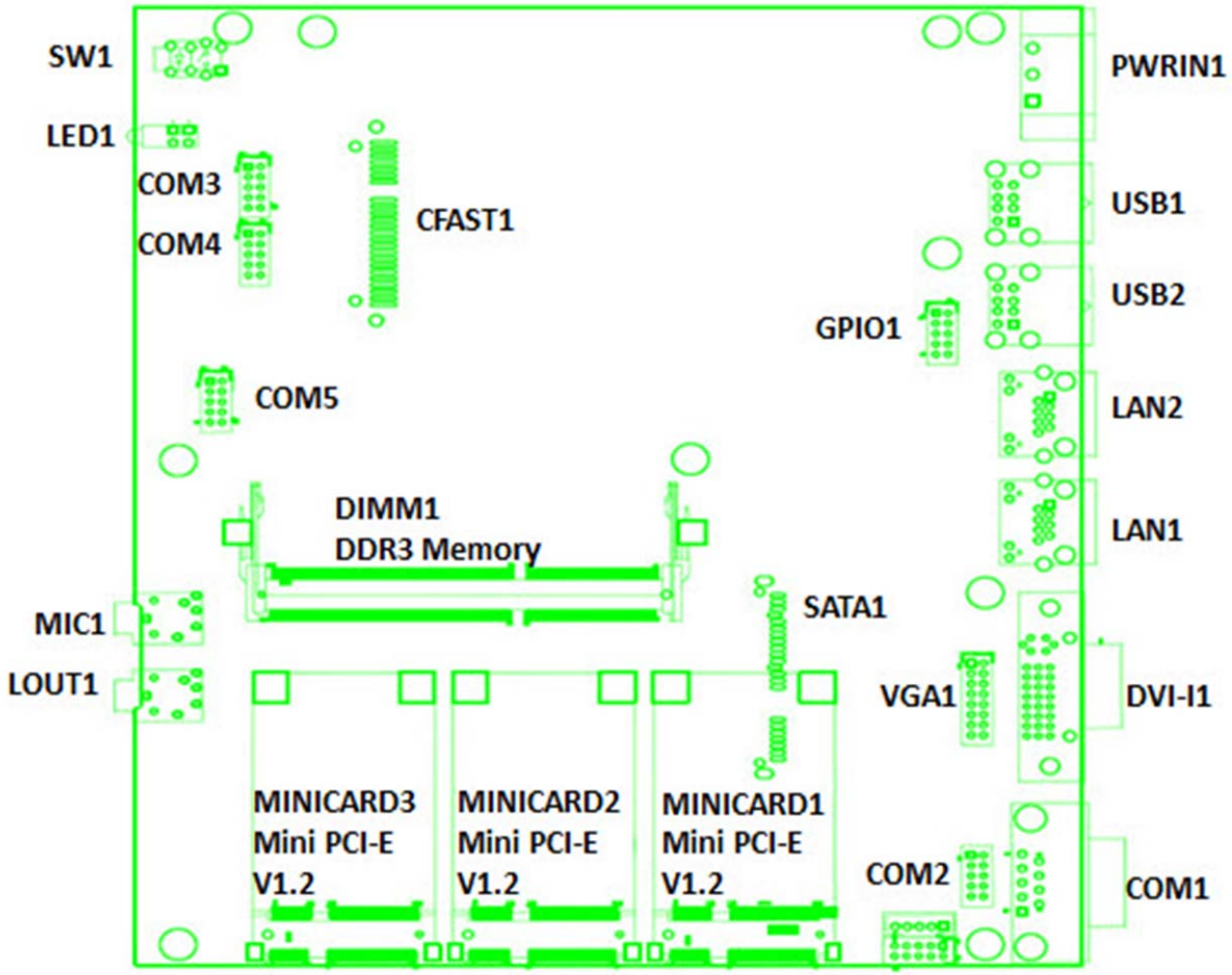
1.1 Model Specification

System	
CPU	Intel Cedarview Atom D2550 Dual Core 1.86GHz Processor
Chipset	Intel NM10
Memory	1 x DDR3 1066MHz SO-DIMM up to 4GB
Graphics	Intel GMA3650
LAN Chipset	Intel I210-AT Gb/s Ethernet Controllers Onboard Support PXE, WOL and Teaming
Audio	Realtek ALC662 HD Codec Onboard
Watchdog	1 ~ 255 level reset
Power Requirement	
Power Input	● +9V to 32VDC input with “maritime / industrial” surge protection (reverse polarity) ● +9V to 36VDC input with 1,5KV galvanic isolation protection (Option)
Power Protection	Automatics Recovery Short Circuit Protection
Qualification	
Certifications	CE, FCC, EN60945
I/O	
Serial Port	Support 5 x RS-232 ports and 1 x RS-232/422/485(COM1) 1 x RS232/485(COM2)
USB Port	4 x USB 2.0 ports
LAN	2 x RJ45 ports for GbE
Video Port	1 x DVI-I + 1 x VGA Connectors on Rear I/O 1 x DP Port Connector on Front I/O
GPIO Port	4 in and 4 out with OD
Audio	1 x Line-out and 1 x Mic-in
Expansion Bus	3 x Mini-Card Slots
Antenna	4 x SMA-type External Antenna Connectors for WLAN/ UMTS/

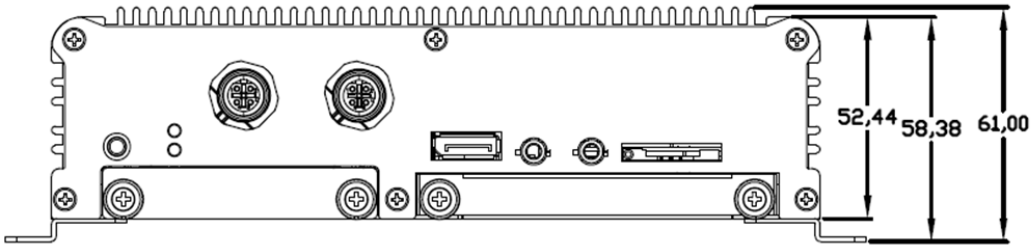
	GSM/ GPRS/ GPS/ Bluetooth
SIM Card Socket	1 x SIM Card sockets supported onboard with eject
Storage	
Type	1 x 2.5” drive bay for SATA Type Hard Disk Drive / SSD 1 x SATA DOM
Environment	
Operating Temp.	-25 ~ 70ºC, ambient w/ air
Storage Temp.	-30 ~ 80ºC
Relative Humidity	10 ~ 95% @ 40ºC (non-condensing)
Mechanical	
Construction	Aluminum alloy
Mounting	Supports both of wall-mount/VESA-mount
Weight	TBD
Dimensions	200 x 160 x 55 mm

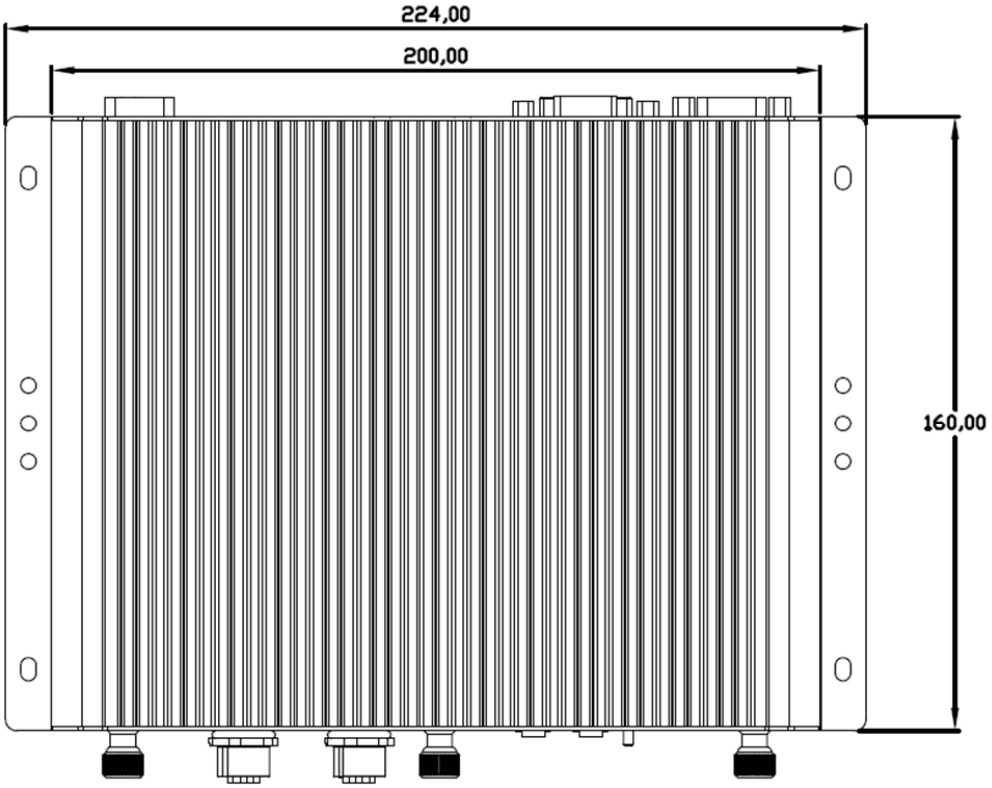
1.2 MARINEPC-6000 Illustration (MB, System)

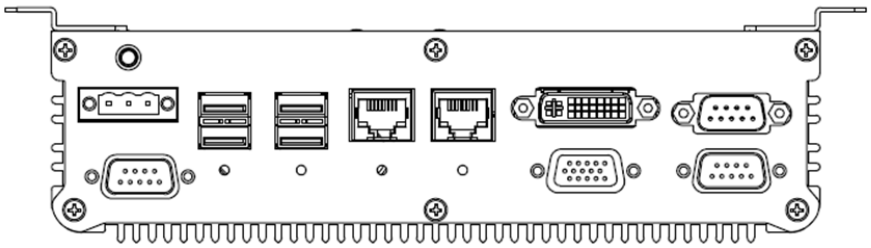
Main Board



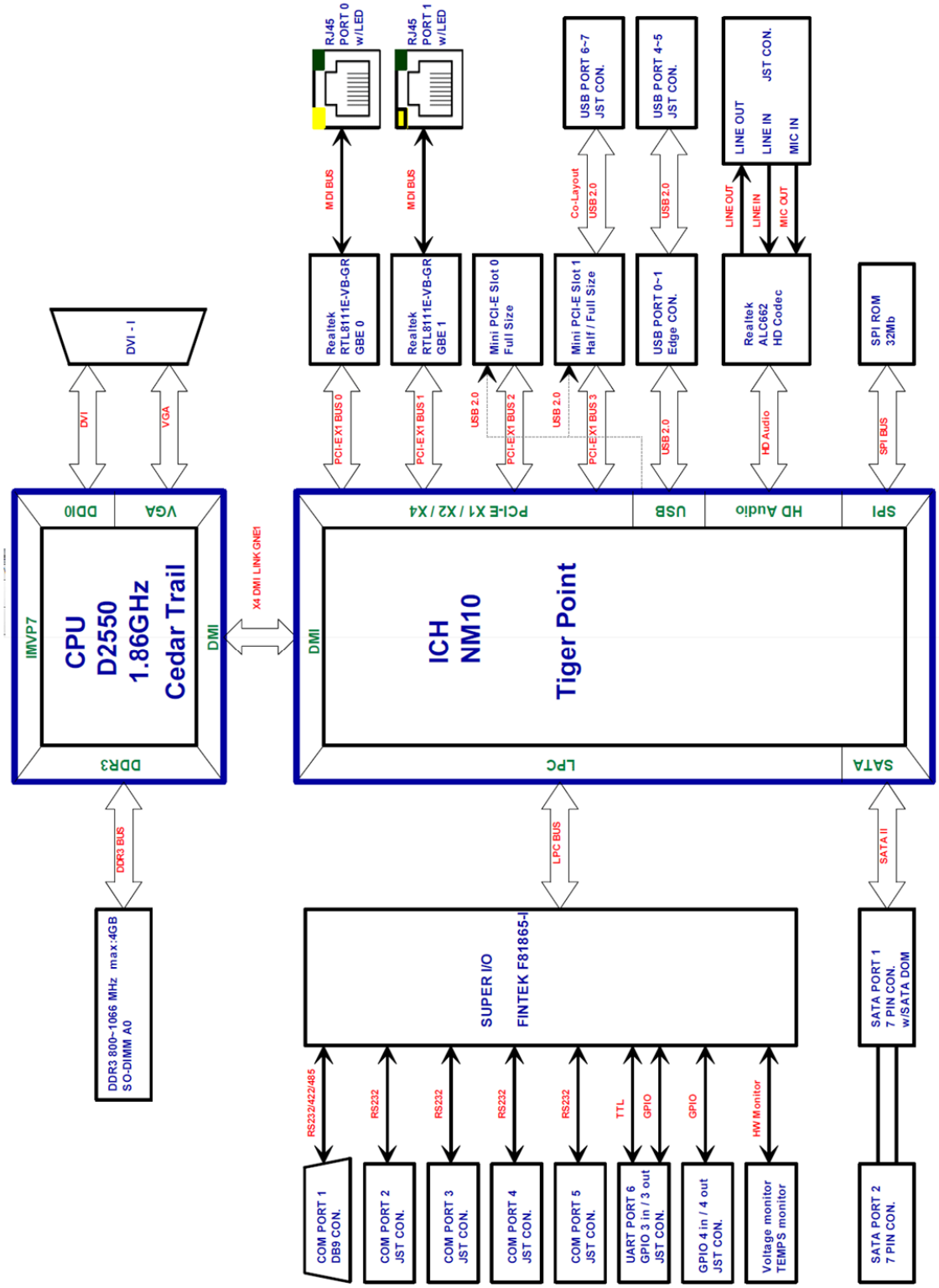
System







1.3 Architecture



1.4 Principal Component Specification

CPU

<table>
<tr><th>Chip</th><th>Description</th></tr>
<tr><td>Intel</td><td>1. Power Consumption:
<table>
<tr><th>Symbol</th><th>Processor Number</th><th>Core Frequency / GHz</th><th>Thermal Design Power</th><th>Unit</th><th>Tj min (°C)</th><th>Tj max (°C)</th><th>Note</th></tr>
<tr><td>TDP</td><td>N2600
N2800
D2500
D2700</td><td>1.86 – 1.6
2.13 – 1.86
2.13 – 1.86
2.4 – 2.13</td><td><=3.5
<=6.5
<=10
<=10</td><td>W
W
W
W</td><td>0</td><td>100
100
100
100</td><td></td></tr>
<tr><td>Symbol</td><td colspan="2">Parameter</td><td>Max</td><td>Unit</td><td></td><td></td><td></td></tr>
<tr><td>AVERAGE</td><td>N2600
N2800</td><td></td><td>~1.25
~1.7</td><td>W
W</td><td>0</td><td>50</td><td></td></tr>
<tr><td>IDLE</td><td colspan="2">D2500
D2700</td><td>TBD
~2.7</td><td>W
W</td><td>0</td><td>50</td><td></td></tr>
</table>
</td></tr>
</table>

South Bridge

Chip	Description
Intel NM10	1. Power Consumption:2.1W

2.0
INTERNAL CONNECTOR SPECIFICATION

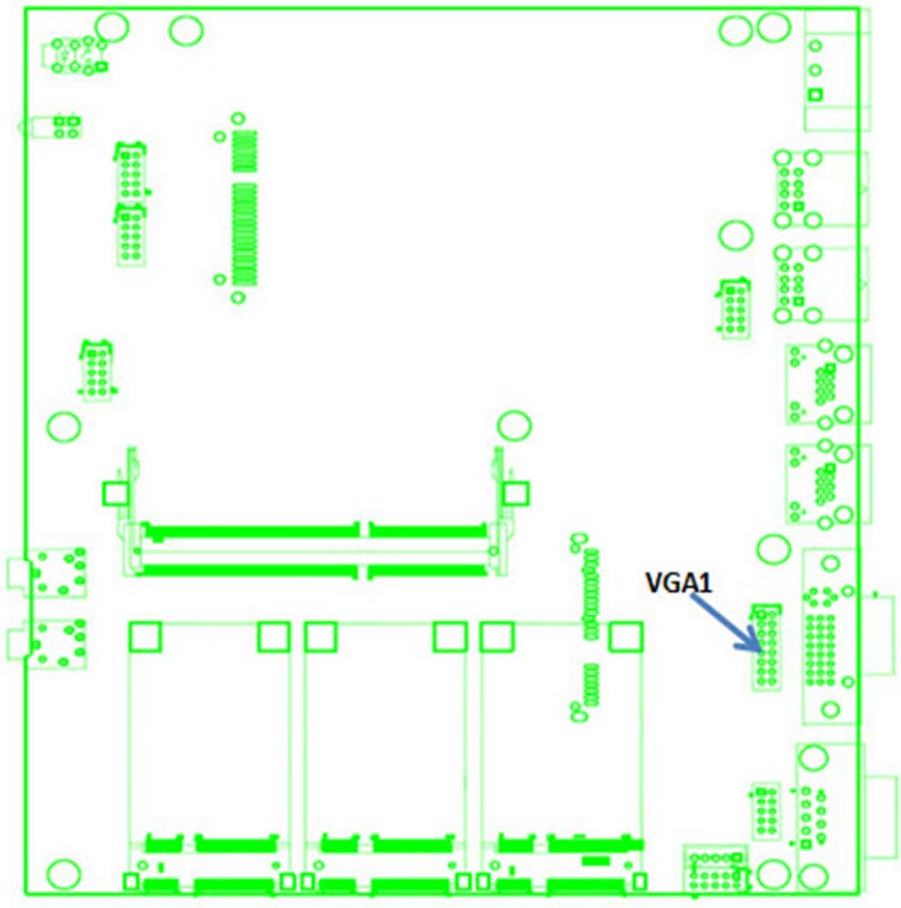
2.0 INTERNAL CONNECTOR SPECIFICATION

2.1 VGA Connector

Connector size	2 X 8 = 16 Pin
Connector type	JST-2.0mm-M-180
Connector location	**VGA1**
Connector pin definition	

Pin	Signal	Pin	Signal
1	RED	2	GREEN
3	BLUE	4	NC
5	CRT_DET	6	GND
7	GND	8	GND
9	+5V	10	GND
11	NC	12	DAC_SDA
13	HSYNC	14	VSYNC
15	DAC_SCL	16	NC

Connector map

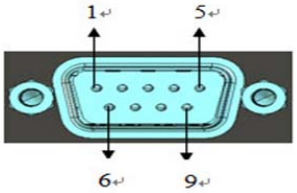


2.2 GPIO Connector

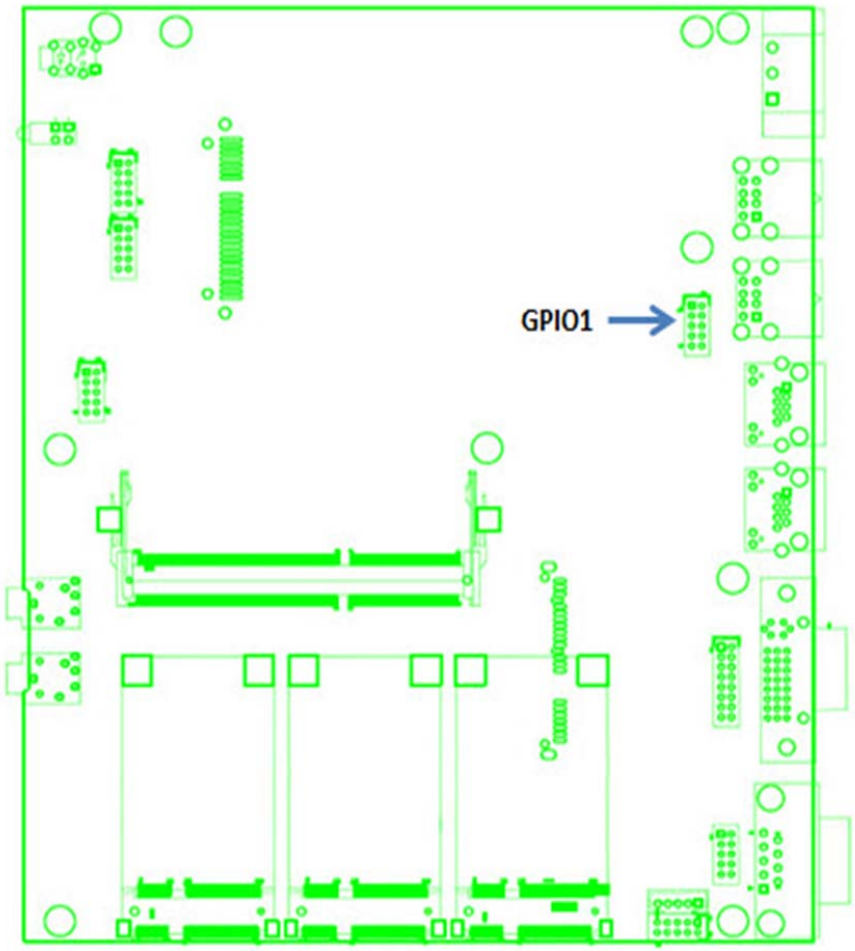
Connector size	2 X 5 = 10 Pin
Connector type	JST-2.0mm-M-180
Connector location	**GPIO1**
Connector pin definition	

Pin	Signal	Pin	Signal
1	GPI0	2	GPI1
3	GPI2	4	GPI3
5	GPO0	6	GPO1
7	GPO2	8	GPO3
9	GND_ISO	10	NC

External DB9 (Male) pin definition



Connector map

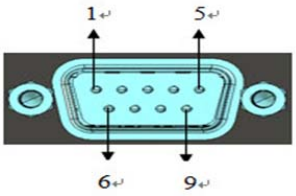


2.3 COM Connector (COM2)

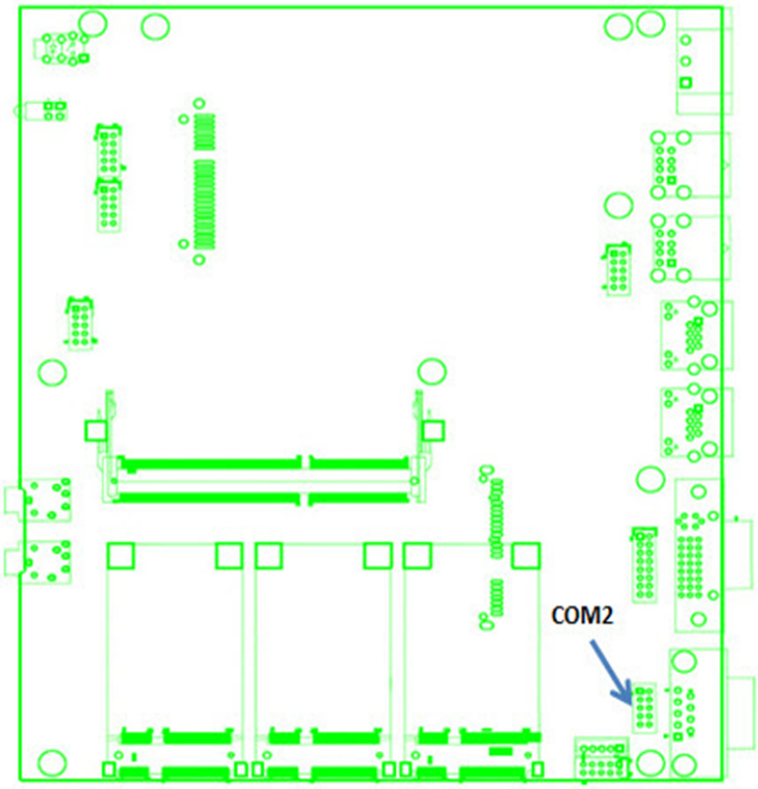
Connector size	2 X 5 = 10 Pin
Connector type	JST-2.0mm-M-180
Connector location	**COM2**
Connector pin definition	

Pin	Signal	
	RS232	RS485
1	COM2_DCD	COM2_TXD-/RXD-
2	COM2_RXD	COM2_TXD+/RXD+
3	COM2_TXD	NC
4	COM2_DTR	NC
5	GND	GND
6	COM2_DSR	NC
7	COM2_RTS	NC
8	COM2_CTS	NC
9	COM2_RI	NC
10	GND	NC

External DB9 (Male) pin definition



Connector map

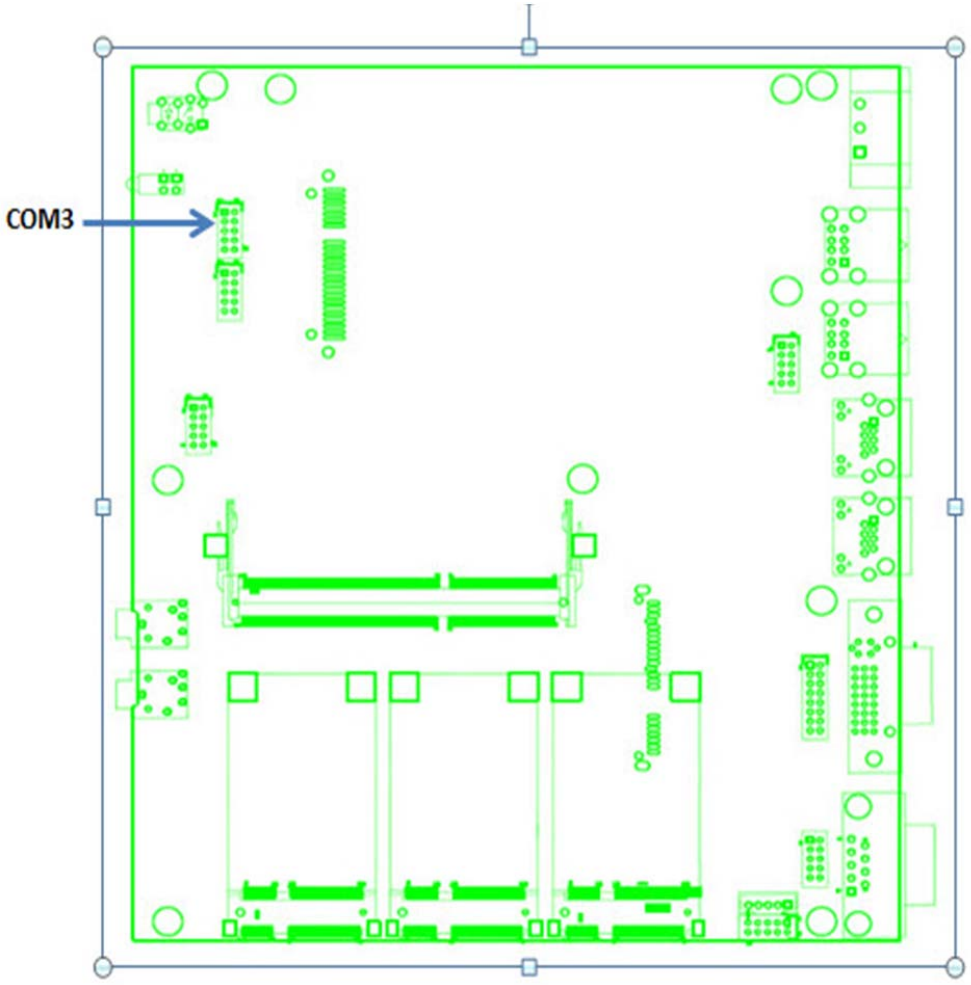


2.4 COM Connector (COM3)

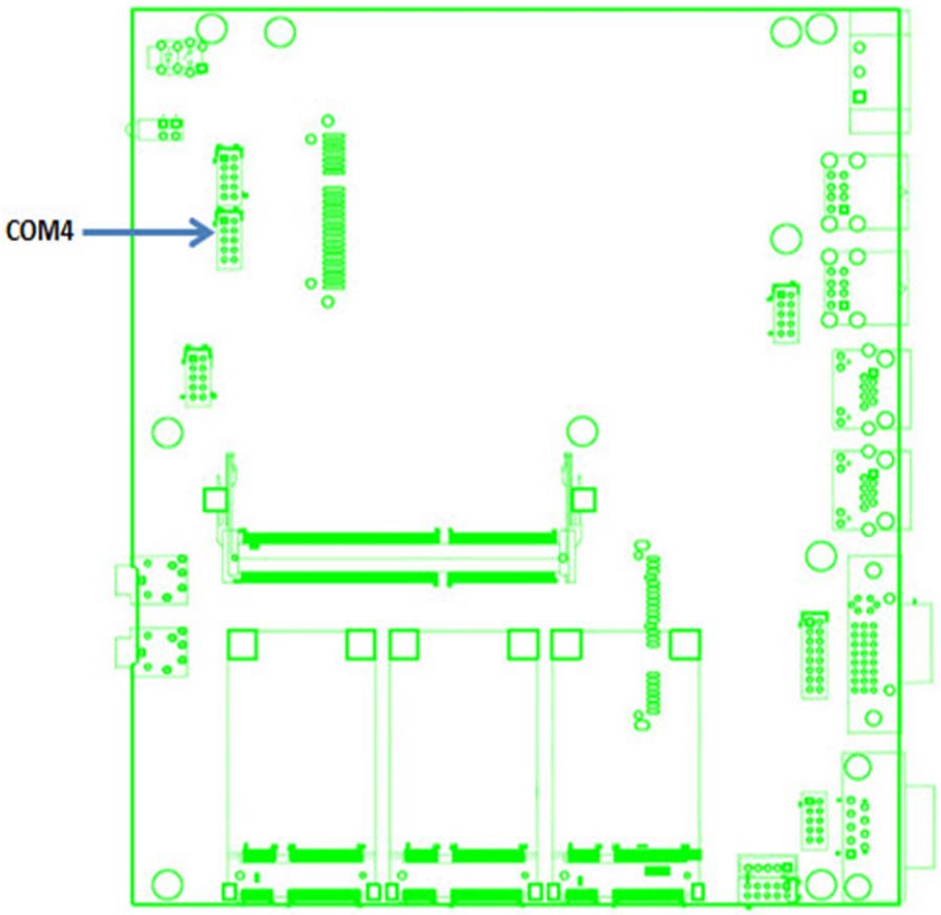
Connector size	2 X 5 = 10 Pin
Connector type	JST-2.0mm-M-180
Connector location	**COM3**
Connector pin definition	

Pin	Signal	Pin	Signal
1	COM3_DCD	2	COM3_RXD
3	COM3_TXD	4	COM3_DTR
5	GND	6	COM3_DSR
7	COM3_RTS	8	COM3_CTS
9	COM3_RI	10	GND

Connector map



2.5 COM Connector (COM4)

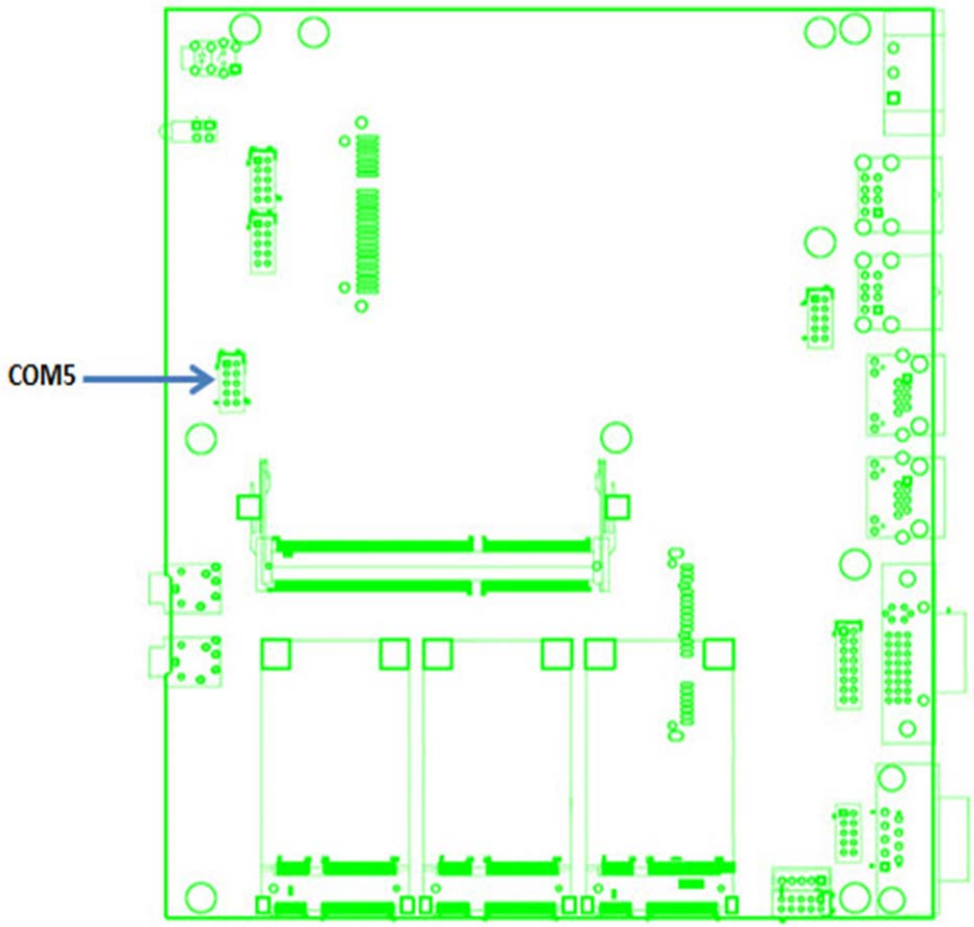
<table>
<tr><th colspan="2">4.5 COM connector</th></tr>
<tr><td>Connector size</td><td>2 X 5 = 10 Pin</td></tr>
<tr><td>Connector type</td><td>JST-2.0mm-M-180</td></tr>
<tr><td>Connector location</td><td>COM4</td></tr>
<tr><td>Connector pin definition</td><td>
<table>
<tr><th>Pin</th><th>Signal</th><th>Pin</th><th>Signal</th></tr>
<tr><td>1</td><td>COM4_DCD</td><td>2</td><td>COM4_RXD</td></tr>
<tr><td>3</td><td>COM4_TXD</td><td>4</td><td>COM4_DTR</td></tr>
<tr><td>5</td><td>GND</td><td>6</td><td>COM4_DSR</td></tr>
<tr><td>7</td><td>COM4_RTS</td><td>8</td><td>COM4_CTS</td></tr>
<tr><td>9</td><td>COM4_RI</td><td>10</td><td>GND</td></tr>
</table>
</td></tr>
<tr><td>Connector map</td><td> 
</td></tr>
</table>

2.6 COM Connector (COM5)

Connector size	2 X 5 = 10 Pin
Connector type	JST-2.0mm-M-180
Connector location	**COM5**
Connector pin definition	

Pin	Signal	Pin	Signal
1	COM5_DCD	2	COM5_RXD
3	COM5_TXD	4	COM5_DTR
5	GND	6	COM5_DSR
7	COM5_RTS	8	COM5_CTS
9	COM5_RI	10	GND

Connector map



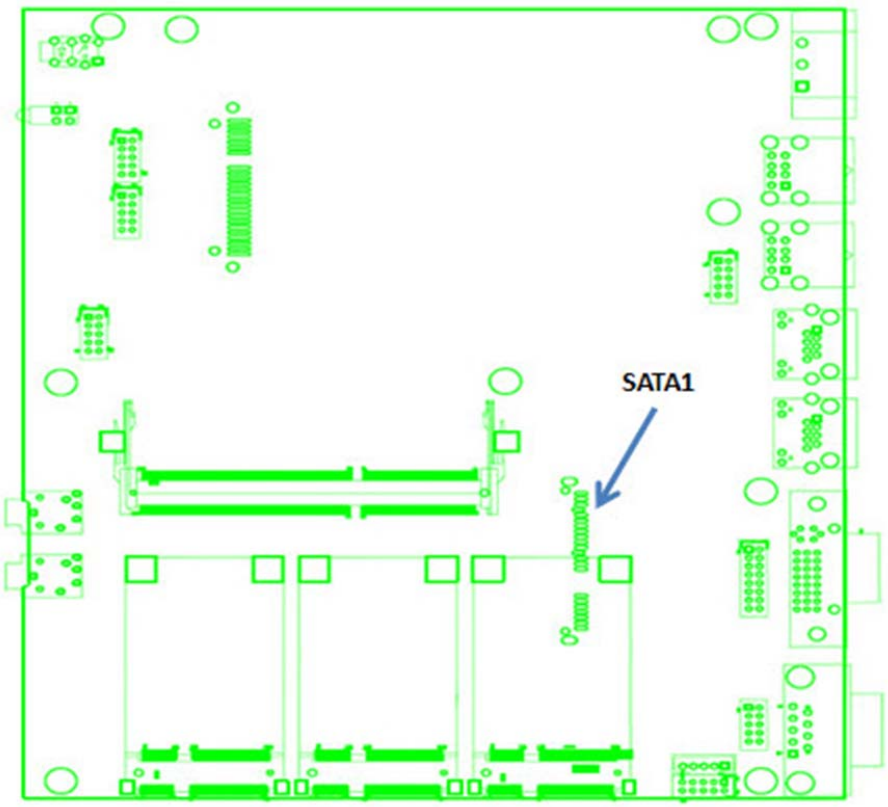
2.7 SATA Connector

Connector size	22Pin
Connector type	SATA-F-22P-90
Connector location	**SATA1**

Connector pin definition

Pin	Signal	Pin	Signal
S1	GND	P1	NC
S2	SATA_TXP0	P2	NC
S3	SATA_TXN0	P3	NC
S4	GND	P4	GND
S5	SATA_RXN0	P5	GND
S6	SATA_RXP0	P6	GND
S7	GND	P7	+5V
		P8	+5V
		P9	+5V
		P10	NC
		P11	GND
		P12	GND
		P13	NC
		P14	NC
		P15	NC

Connector map



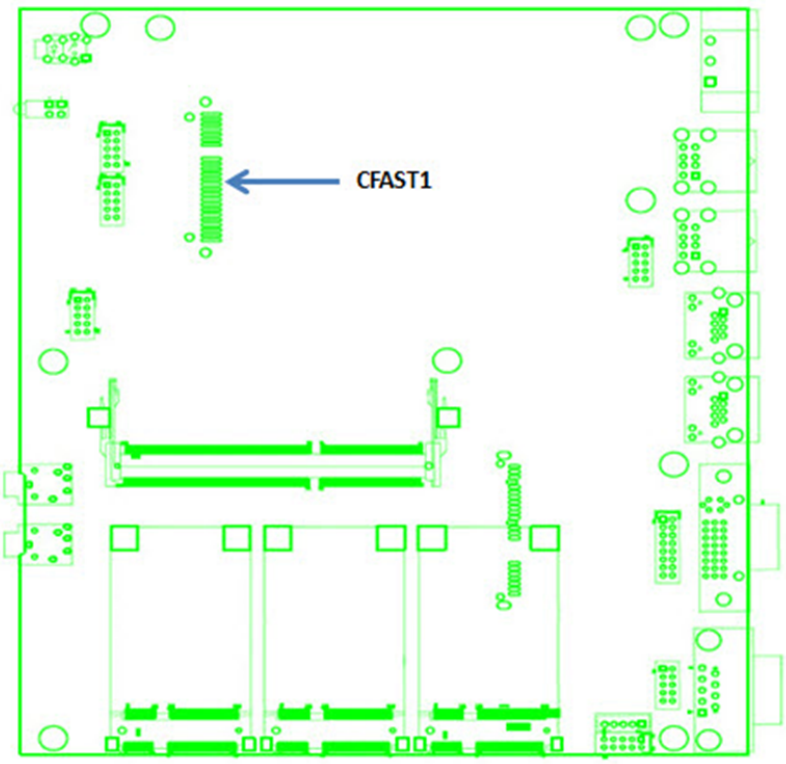
2.8 CFAST Connector

Connector size	24Pin
Connector type	CFAST-24PIN-90D
Connector location	**CFAST1**

Connector pin definition

Pin	Signal	Pin	Signal
S1	GND	P1	CDI
S2	SATA_TXP1	P2	GND
S3	SATA_TXN1	P3	NC
S4	GND	P4	NC
S5	SATA_RXN1	P5	NC
S6	SATA_RXP1	P6	**NC**
S7	GND	P7	GND
		P8	CFAST_LED#
		P9	NC
		P10	NC
		P11	NC
		P12	NC
		P13	VCC3
		P14	VCC3
		P15	GND
		P16	GND
		P17	CDO

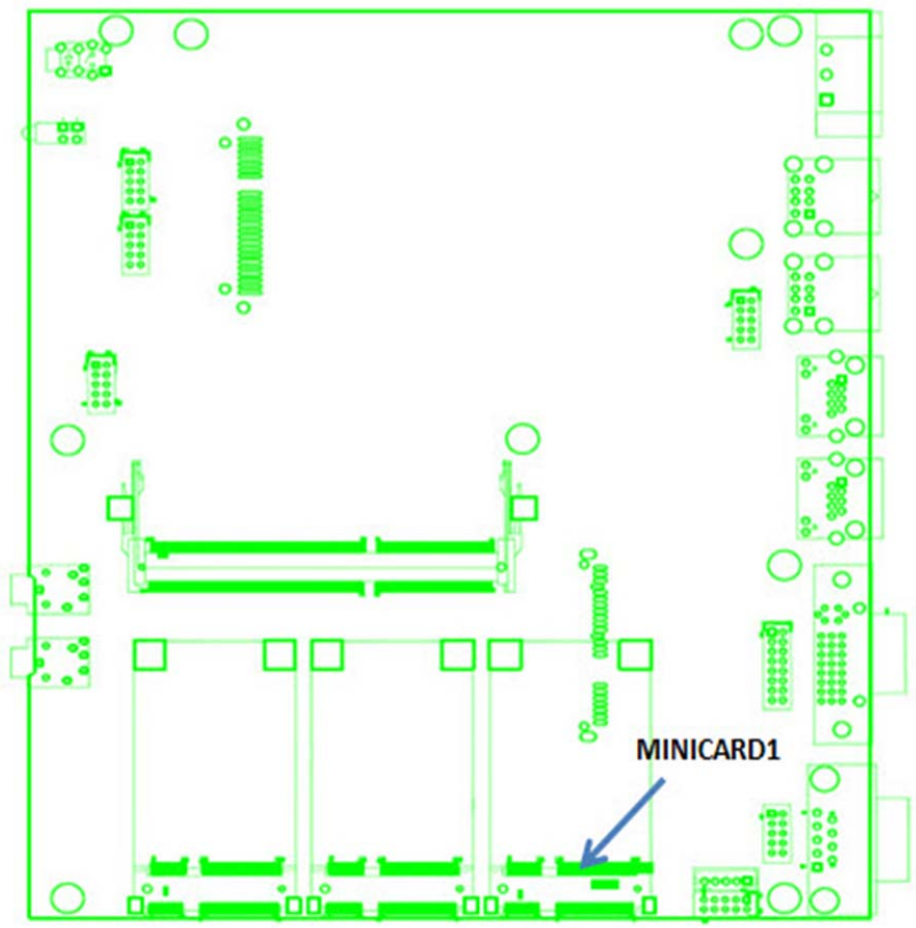
Connector map



2.9 Mini PCI-E Connector (MINICARD1)

Connector size	2 X 26 = 52 Pin
Connector type	MINI PCI-E CON 9.2mmH
Connector location	**MINICARD1**
Connector pin definition	

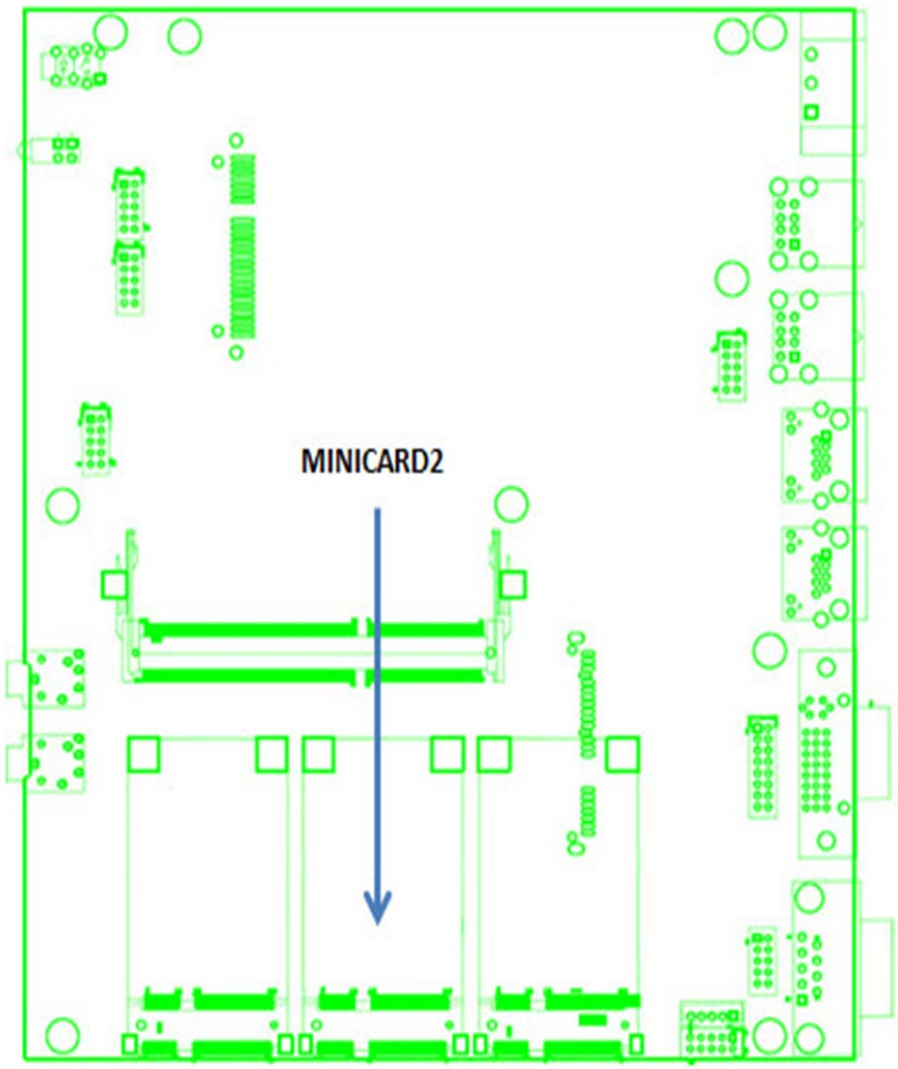
Pin	Signal	Pin	Signal
1	PCIE_WAKE#	2	3VSB
3	NC	4	GND
5	NC	6	+1.5V
7	MINICARD1_CLKREQ#	8	NC
9	GND	10	NC
11	PCIE_MCARD1_CLK_N	12	NC
13	PCIE_MCARD1_CLK_P	14	NC
15	GND	16	NC
17	NC	18	GND
19	NC	20	MINICARD1_DIS#
21	GND	22	PCIE_RST#
23	PCIE_MCARD1_RX_N	24	3VSB
25	PCIE_MCARD1_RX_P	26	GND
27	GND	28	+1.5V
29	GND	30	SMB_CLK
31	PCIE_MCARD1_TX_N	32	SMB_DATA
33	PCIE_MCARD1_TX_P	34	GND
35	GND	36	USB_4N
37	GND	38	USB_4P
39	3VSB	40	GND
41	3VSB	42	NC
43	GND	44	NC
45	NC	46	NC
47	NC	48	+1.5V
49	NC	50	GND
51	NC	52	3VSB

Connector map	

2.10 Mini PCI-E Connector (MINICARD2)

Connector size	2 X 26 = 52 Pin
Connector type	MINI PCI-E CON 9.2mmH
Connector location	**MINICARD2**
Connector pin definition	

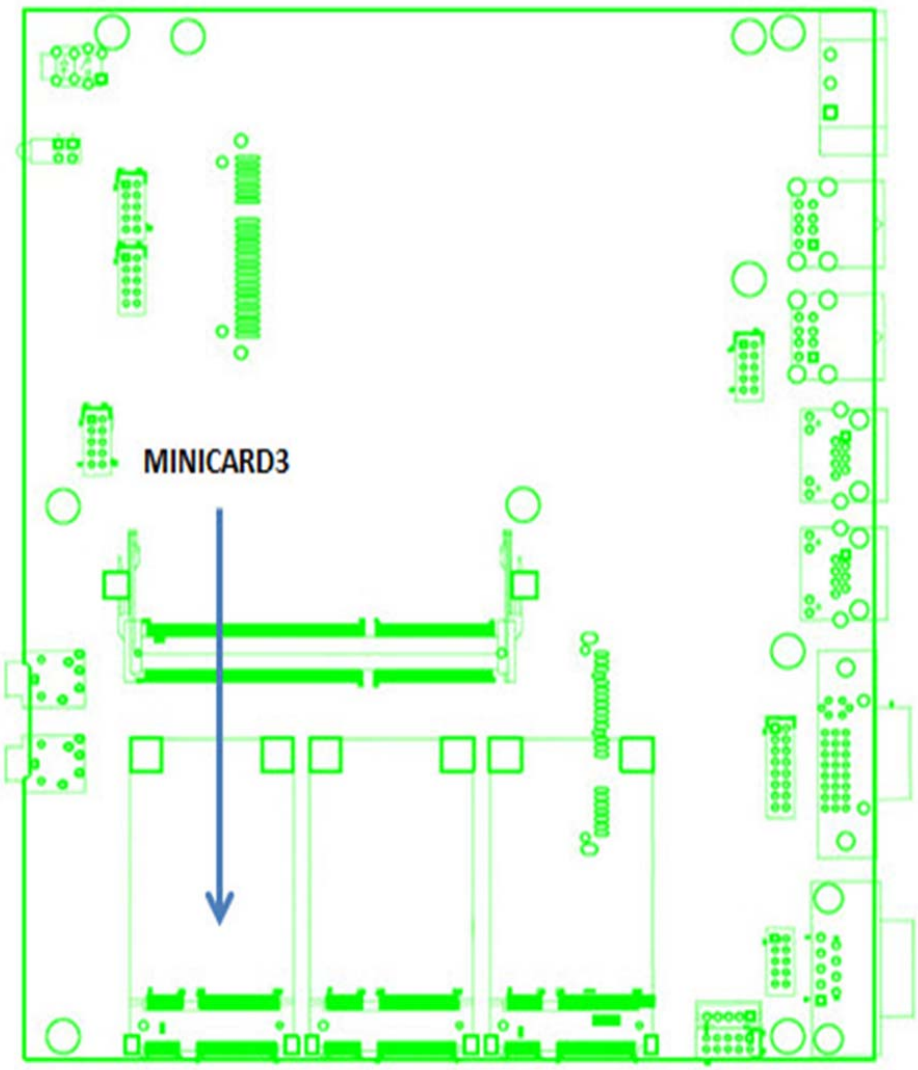
Pin	Signal	Pin	Signal
1	PCIE_WAKE#	2	3VSB
3	NC	4	GND
5	NC	6	+1.5V
7	MINICARD2_CLKREQ#	8	NC
9	GND	10	NC
11	PCIE_MCARD2_CLK_N	12	NC
13	PCIE_MCARD2_CLK_P	14	NC
15	GND	16	NC
17	NC	18	GND
19	NC	20	MINICARD2_DIS#
21	GND	22	PCIE_RST#
23	PCIE_MCARD2_RX_N	24	3VSB
25	PCIE_MCARD2_RX_P	26	GND
27	GND	28	+1.5V
29	GND	30	SMB_CLK
31	PCIE_MCARD2_TX_N	32	SMB_DATA
33	PCIE_MCARD2_TX_P	34	GND
35	GND	36	USB_5N
37	GND	38	USB_5P
39	3VSB	40	GND
41	3VSB	42	NC
43	GND	44	NC
45	NC	46	NC
47	NC	48	+1.5V
49	NC	50	GND
51	NC	52	3VSB

Connector map	

2.11 Mini PCI-E Connector (MINICARD3)

Connector size	2 X 26 = 52 Pin
Connector type	MINI PCI-E CON 9.2mmH
Connector location	**MINICARD3**
Connector pin definition	

Pin	Signal	Pin	Signal
1	PCIE_WAKE#	2	3VSB
3	NC	4	GND
5	NC	6	+1.5V
7	MINICARD3_CLKREQ#	8	UIM_PWR
9	GND	10	UIM_DAT
11	NC	12	UIM_CLK
13	NC	14	UIM_RST
15	GND	16	NC
17	NC	18	GND
19	NC	20	MINICARD3_DIS#
21	GND	22	PCIE_RST#
23	NC	24	3VSB
25	NC	26	GND
27	GND	28	+1.5V
29	GND	30	NC
31	NC	32	PCIE_WAKE#
33	NC	34	GND
35	GND	36	USB_6N
37	GND	38	USB_6P
39	3VSB	40	GND
41	3VSB	42	NC
43	GND	44	NC
45	NC	46	NC
47	NC	48	+1.5V
49	NC	50	GND
51	NC	52	3VSB

Connector map	

3.0
External CONNECTOR SPECIFICATION

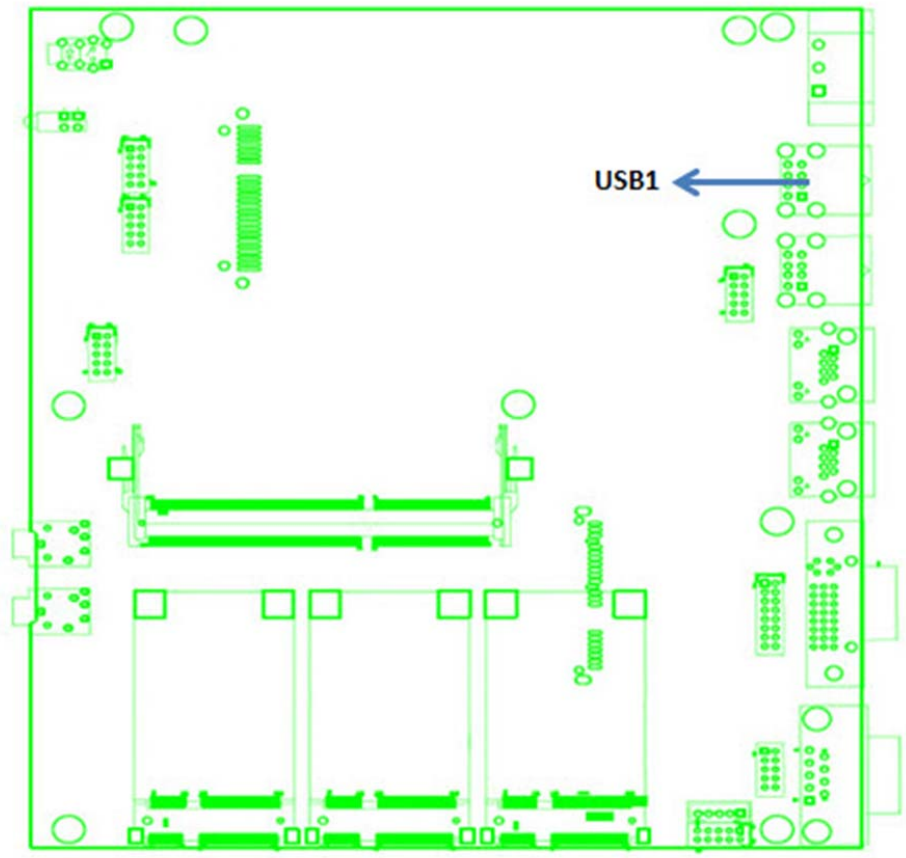
3.0 EXTERNAL CONNECTOR SPECIFICATION

3.1 USB Connector (USB1)

Connector size	8 Pin
Connector type	Type A
Connector location	**USB1**
Connector pin definition	

Pin	Signal	Pin	Signal
1	5VSB	2	USB0_ON
3	USB0_OP	4	M_GND
5	5VSB	6	USB1_ON
7	USB1_OP	8	GND

Connector map

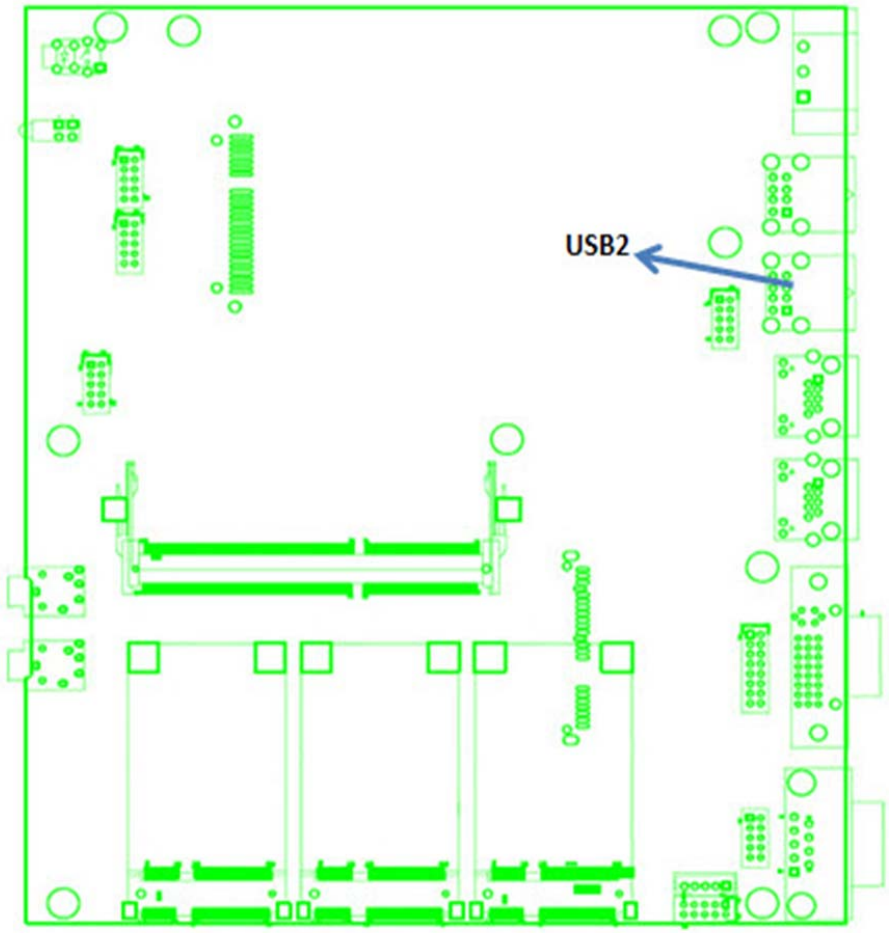


3.2 USB Connector (USB2)

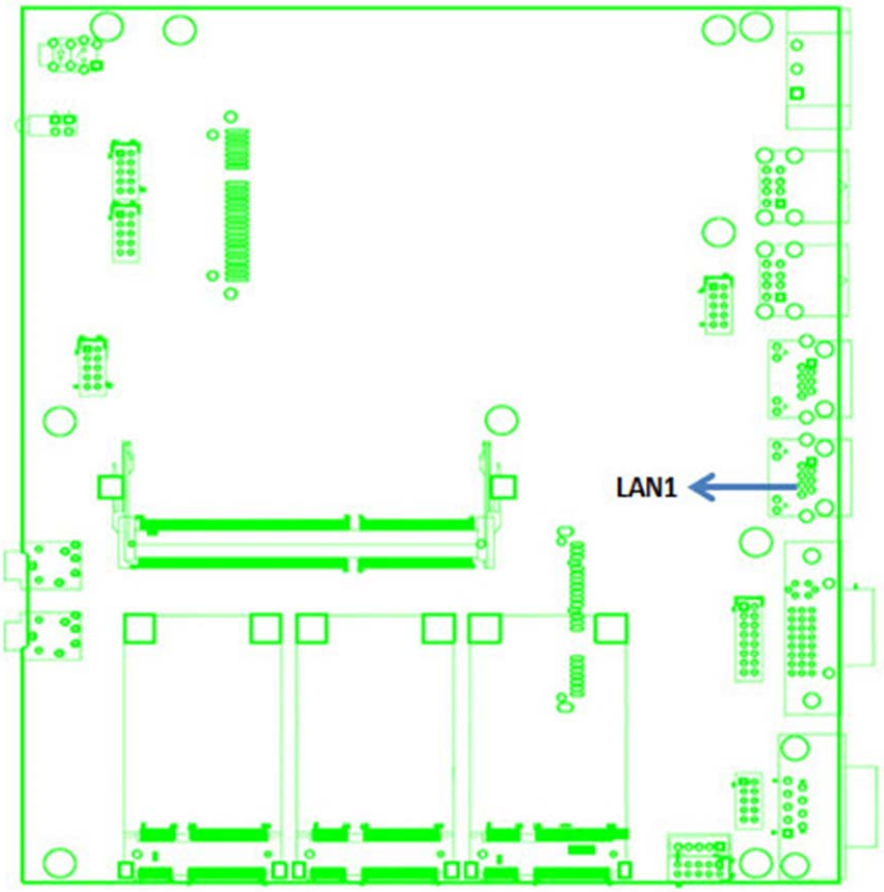
Connector size	8 Pin
Connector type	Type A
Connector location	**USB2**
Connector pin definition	

Pin	Signal	Pin	Signal
1	5VSB	2	USB0_ON
3	USB0_OP	4	M_GND
5	5VSB	6	USB1_ON
7	USB1_OP	8	GND

Connector map



3.3 LAN Connector (LAN1)

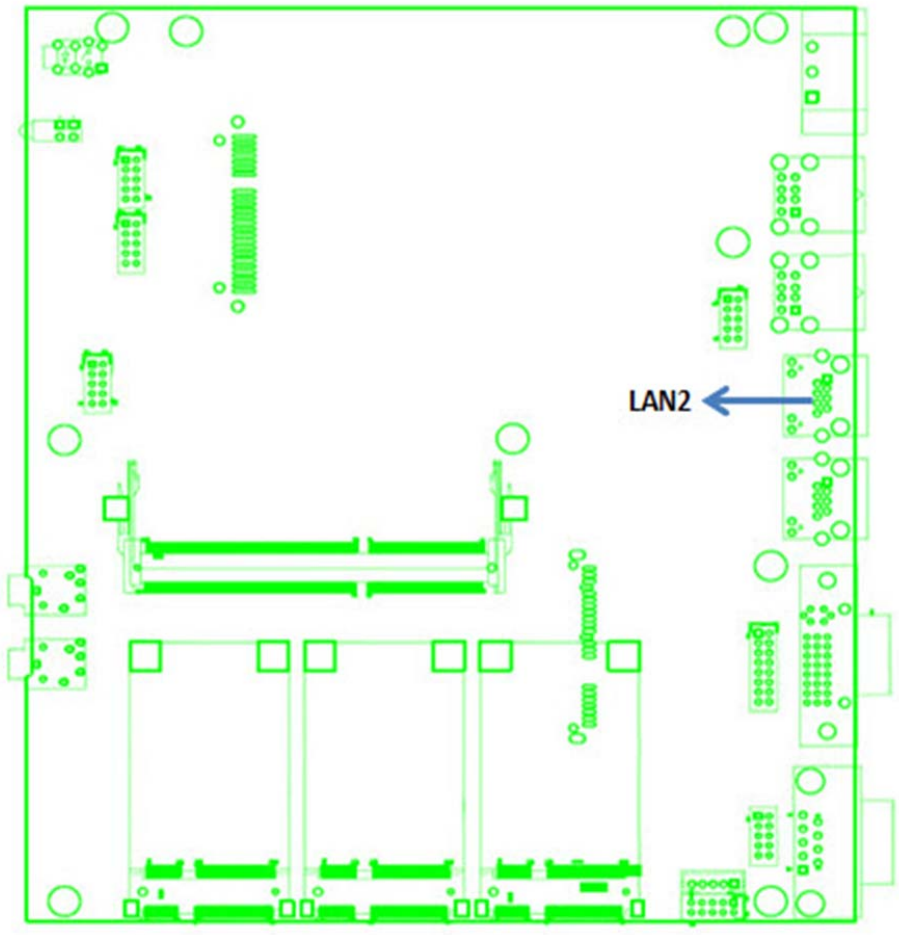
<table>
<tr><td>Connector size</td><td>12 Pin</td></tr>
<tr><td>Connector type</td><td>RJ45+LED</td></tr>
<tr><td>Connector location</td><td>LAN1</td></tr>
<tr><td>Connector pin definition</td><td>
<table>
<tr><th>Pin</th><th>Signal</th><th>Pin</th><th>Signal</th></tr>
<tr><td>1</td><td>LAN1_MDI0P</td><td>2</td><td>LAN1_MDI0N</td></tr>
<tr><td>3</td><td>LAN1_MDI1P</td><td>4</td><td>LAN1_MDI2P</td></tr>
<tr><td>5</td><td>LAN1_MDI2N</td><td>6</td><td>LAN1_MDI1N</td></tr>
<tr><td>7</td><td>LAN1_MDI3P</td><td>8</td><td>LAN1_MDI3N</td></tr>
<tr><td>9</td><td>LAN1_ACT#</td><td>10</td><td>LAN1_ACTPW</td></tr>
<tr><td>11</td><td>LAN1_LINK#</td><td>12</td><td>LAN1_LINKPW</td></tr>
</table>
</td></tr>
<tr><td>Connector map</td><td> 
</td></tr>
</table>

3.4 LAN Connector (LAN2)

Connector size	12 Pin
Connector type	RJ45+LED
Connector location	**LAN2**
Connector pin definition	

Pin	Signal	Pin	Signal
1	LAN2_MDI0P	2	LAN2_MDI0N
3	LAN2_MDI1P	4	LAN2_MDI2P
5	LAN2_MDI2N	6	LAN2_MDI1N
7	LAN2_MDI3P	8	LAN2_MDI3N
9	LAN2_ACT#	10	LAN2_ACTPW
11	LAN2_LINK#	12	LAN2_LINKPW

Connector map



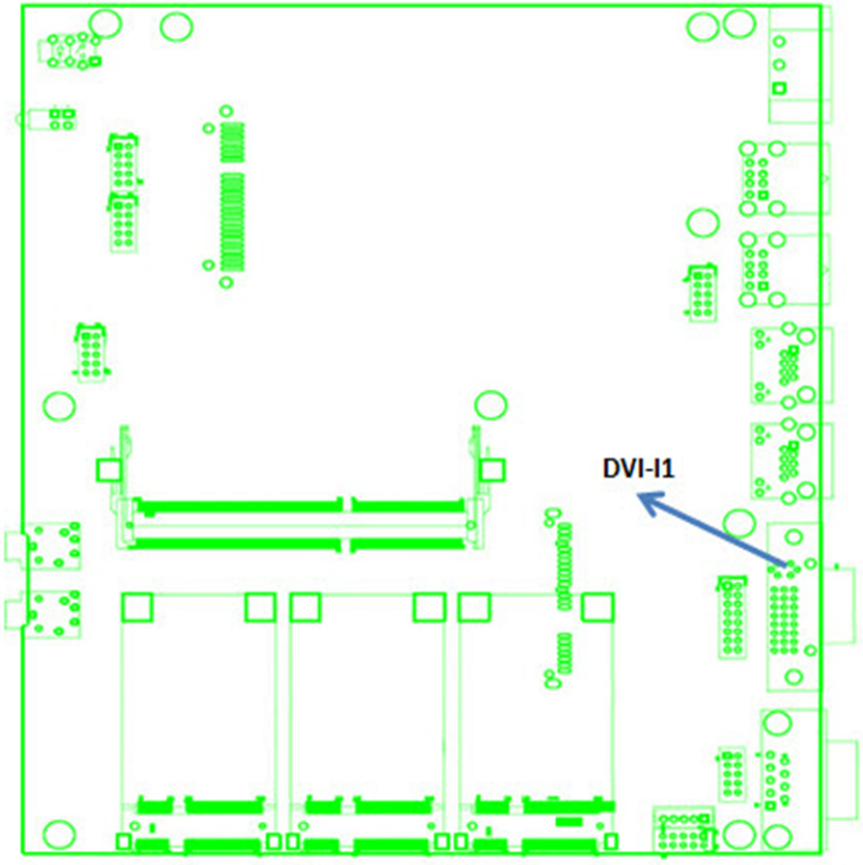
3.5 DVI-I Connector

Connector size	30 Pin
Connector type	DVI-I
Connector location	**DVI-I1**

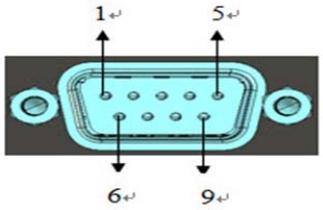
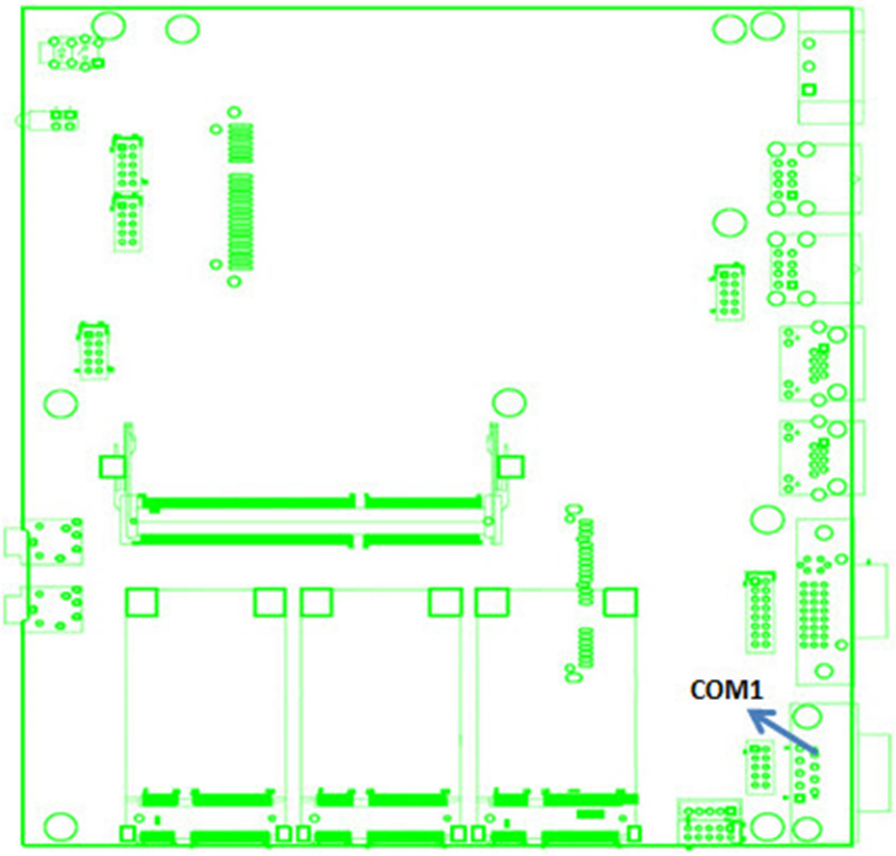
Connector pin definition

Pin	Signal	Pin	Signal
1	DVI_TX2_N	2	DVI_TX2_P
3	GND	4	NC
5	NC	6	DVI_DDC_CLK
7	DVI_DDC_DATA	8	CRT_VSYNC
9	DVI_TX1_N	10	DVI_TX1_P
11	GND	12	NC
13	NC	14	+5V_DVI_PWR
15	GND	16	DVI_HPD
17	DVI_TX0_N	18	DVI_TX0_P
19	GND	20	CRT_DAC_SDA
21	CRT_DAC_SCL	22	NC
23	DVI_CLK_P	24	DVI_CLK_N
C1	CRT_RED	C2	CRT_GREEN
C3	CRT_BLUE	C4	CRT_HSYNC
C5	CRT_DET	C6	GND

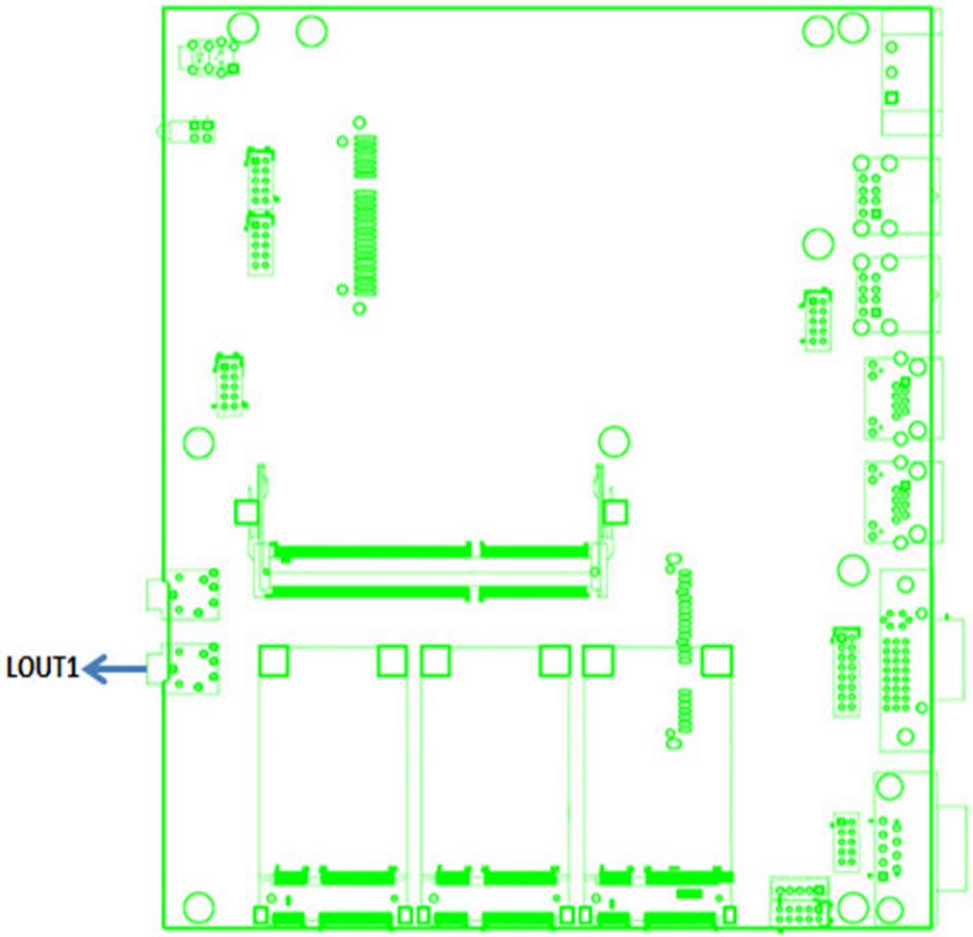
Connector map



3.6 COM Connector

<table>
<tr><td>Connector size</td><td>9 Pin</td></tr>
<tr><td>Connector type</td><td>DB9
 
</td></tr>
<tr><td>Connector location</td><td>COM1</td></tr>
<tr><td>Connector pin definition</td><td>
<table>
<tr><th>Pin</th><th colspan="3">Signal</th></tr>
<tr><td></td><td>RS232</td><td>RS422</td><td>RS485</td></tr>
<tr><td>1</td><td>COM1_DCD</td><td>COM1_TXD-</td><td>COM1_TXD-/RXD-</td></tr>
<tr><td>2</td><td>COM1_RXD</td><td>COM1_TXD+</td><td>COM1_TXD+/RXD+</td></tr>
<tr><td>3</td><td>COM1_TXD</td><td>COM1_RXD+</td><td>NC</td></tr>
<tr><td>4</td><td>COM1_DTR</td><td>COM1_RXD-</td><td>NC</td></tr>
<tr><td>5</td><td>GND</td><td>GND</td><td>GND</td></tr>
<tr><td>6</td><td>COM1_DSR</td><td>NC</td><td>NC</td></tr>
<tr><td>7</td><td>COM1_RTS</td><td>NC</td><td>NC</td></tr>
<tr><td>8</td><td>COM1_CTS</td><td>NC</td><td>NC</td></tr>
<tr><td>9</td><td>COM1_RI</td><td>NC</td><td>NC</td></tr>
</table>
</td></tr>
<tr><td>Connector map</td><td> 
</td></tr>
</table>

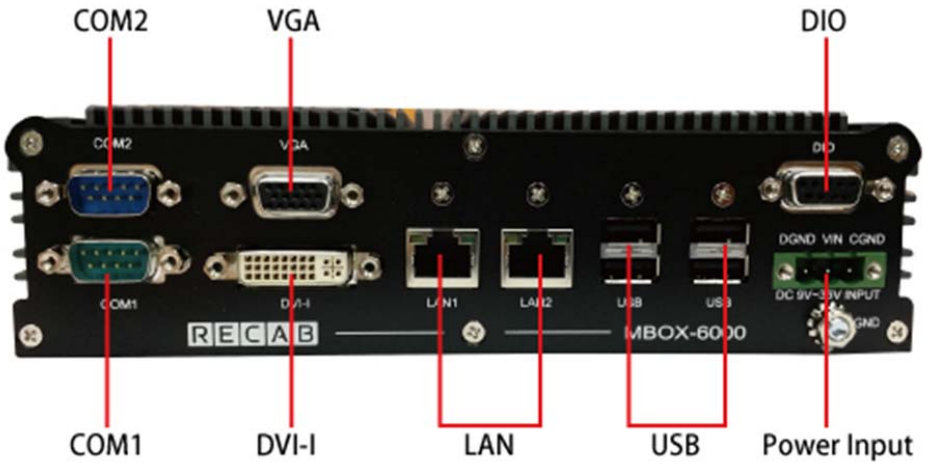
3.7 LINE OUT Connector

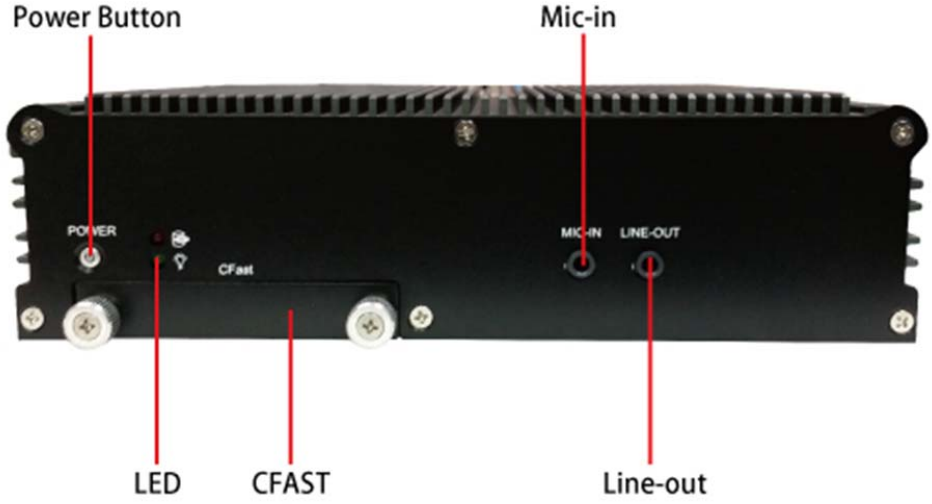
<table>
<tr><td>Connector size</td><td>6 Pin</td></tr>
<tr><td>Connector type</td><td>Phone Jack</td></tr>
<tr><td>Connector location</td><td>LOUT1</td></tr>
<tr><td>Connector pin definition</td><td>
<table>
<tr><th>Pin</th><th>Signal</th><th>Pin</th><th>Signal</th></tr>
<tr><td>1</td><td>FRONT_OUT_R</td><td>2</td><td>FRONT-JD</td></tr>
<tr><td>3</td><td>NC</td><td>4</td><td>FRONT_OUT_L</td></tr>
<tr><td>5</td><td>M_GND</td><td>6</td><td>GND</td></tr>
</table>
</td></tr>
<tr><td>Connector map</td><td> 
</td></tr>
</table>

4.0
SYSTEM INSTALLATION

4.0 SYSTEM INSTALLATION

4.1 System Introduction





4.2 Opening Chassis

Step1. Unscrew the six screws of the Back Cover as shown in the picture.

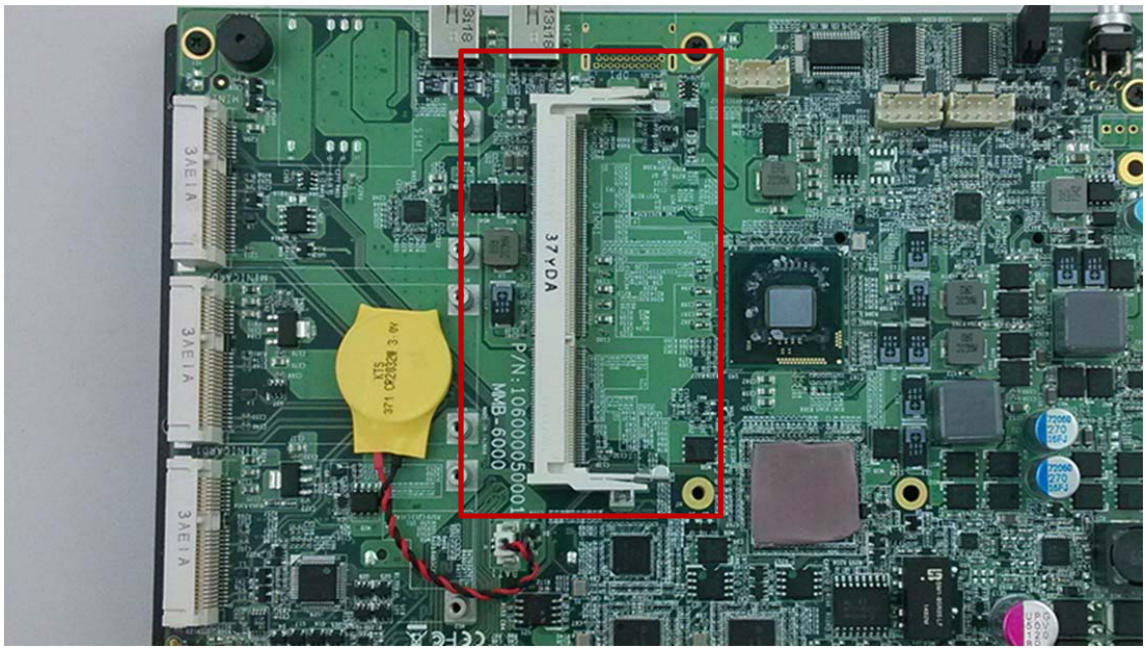
Step2. Unscrew the six screws of the Front Panel as shown in the picture.

Step3. Unscrew the six screws of the Rear Panel as shown in the picture.

Step4. Open Top Cover and Done.

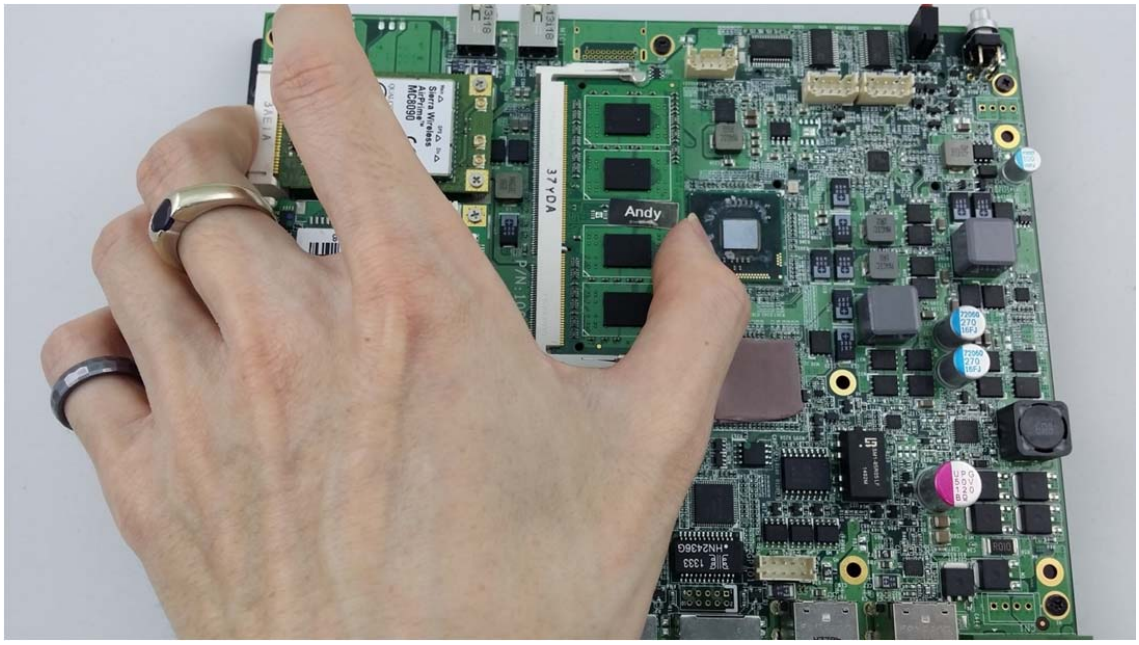
4.3 Installing Memory

Step 1. Put Memory on this place as shown in the picture.

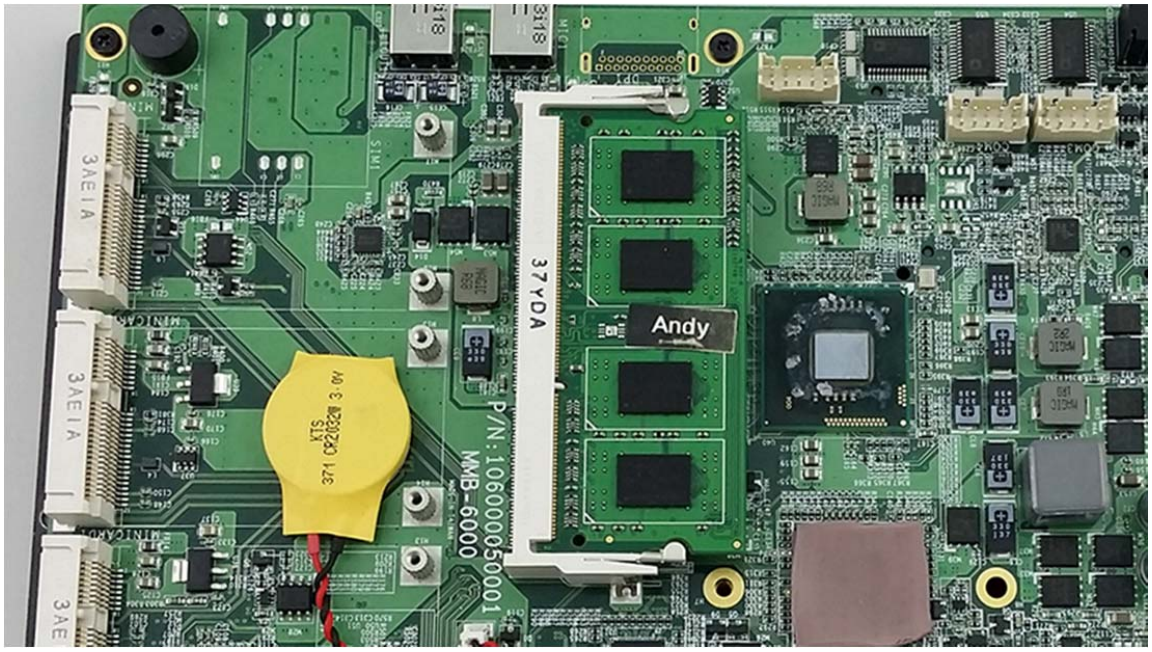


Step 2. Hold the Memory with its notch aligned with the Memory socket of the board and insert it at a 30-degreeangle into the socket as shown in the picture.

Step 3. Fully insert the module into the socket until a “click” is heard as shown in the picture.



Step 4. Press down on the Memory so that the tabs of the socket lock on both sides of the module.



4.4 Installing HDD / SSD

Step 1. Take the holder away from front panel as shown in the picture.

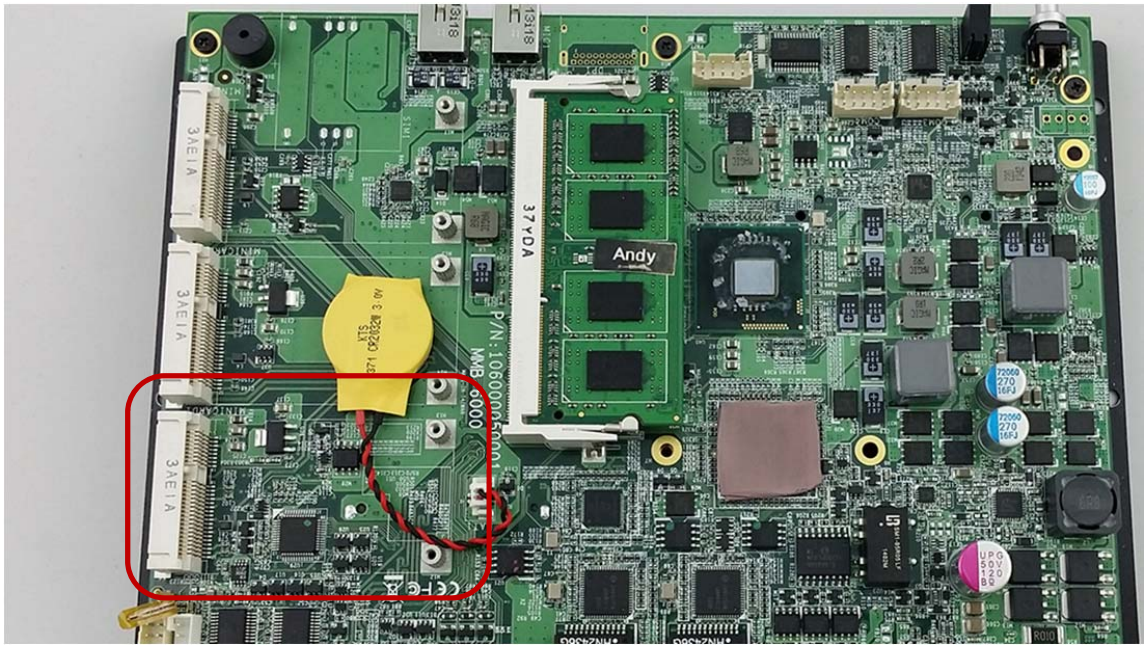
Step 2. Take the CFast card and Insert it into the socket as shown in the picture.

Step 3. Fully insert the HDD Holder into the socket until a “click” is heard as shown in the picture.

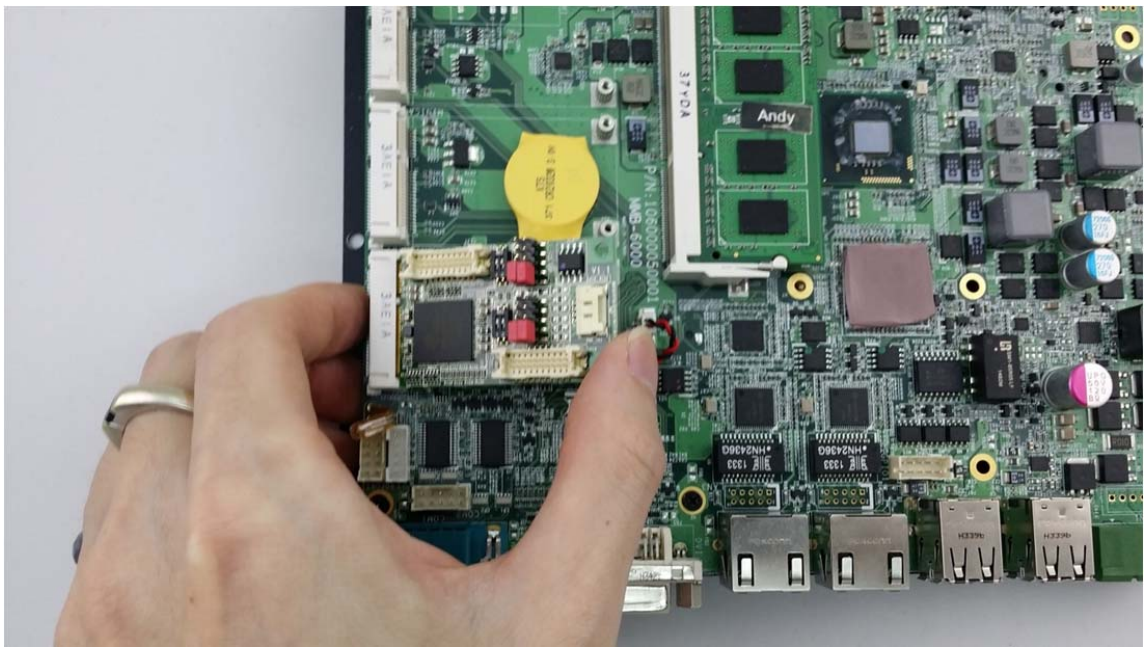
Step 4. Tighten to Storage Bracket screws as shown in the picture.

4.5 Installing MINI PCIe Expansion Card

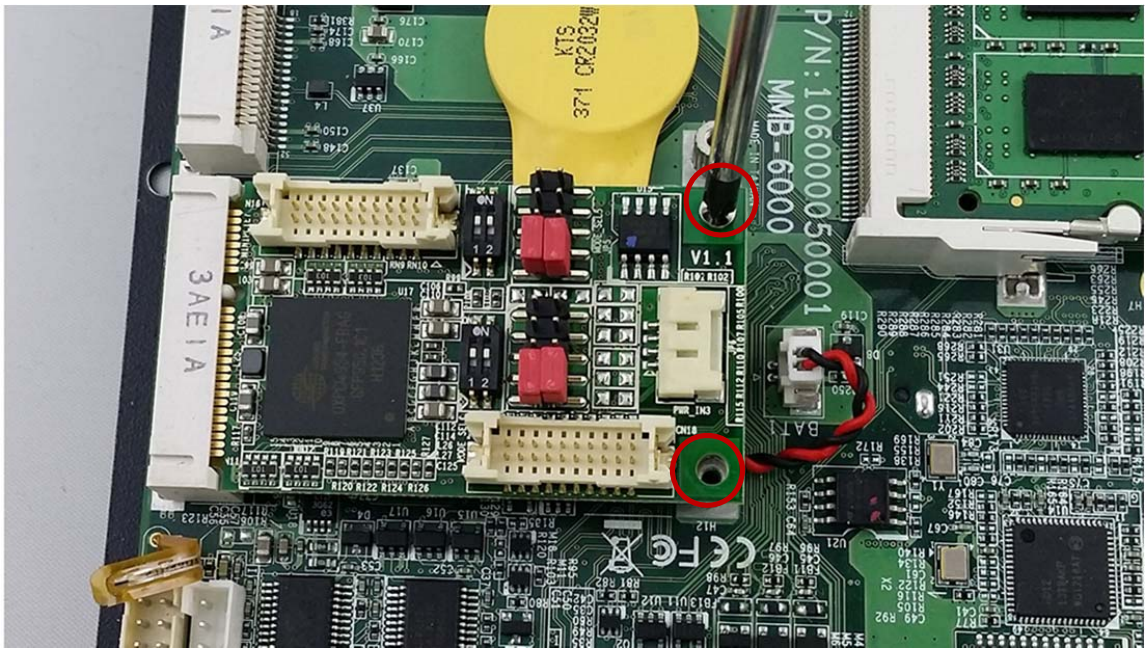
Step 1. Put MINI PCIe Expansion Card on this place as shown in the picture.



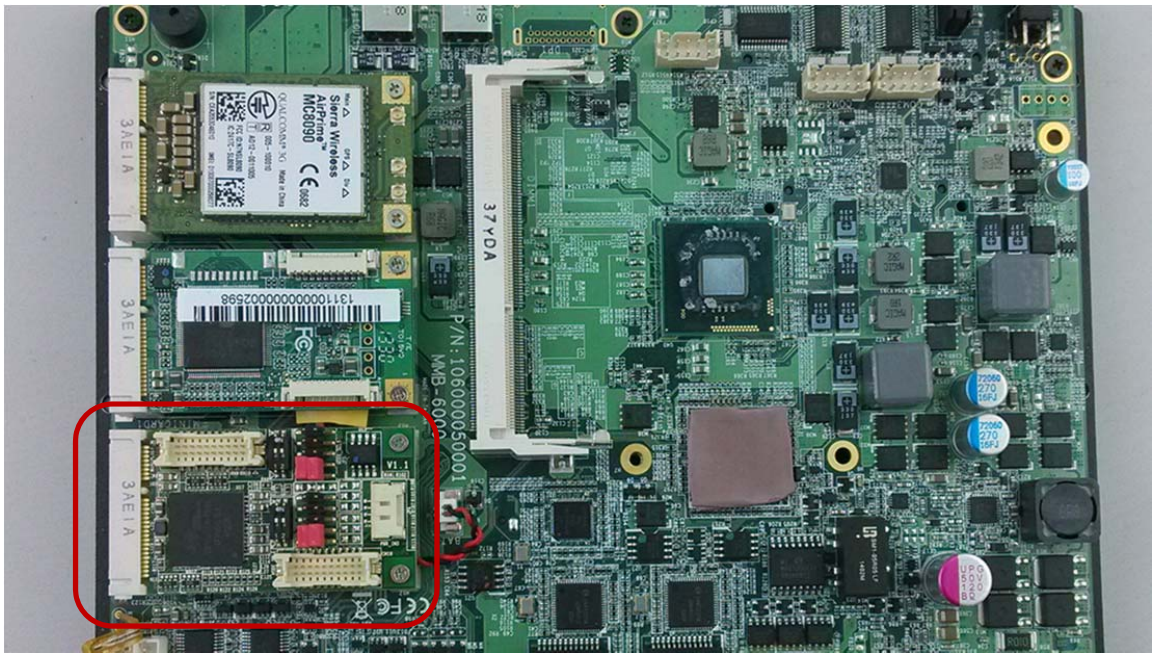
Step 2. Hold the Module with its notch aligned with the socket of the board and insert it at a 30 degree angle into the socket as shown in the picture.



Step 3. Screw two screws to the holder as shown in the picture.

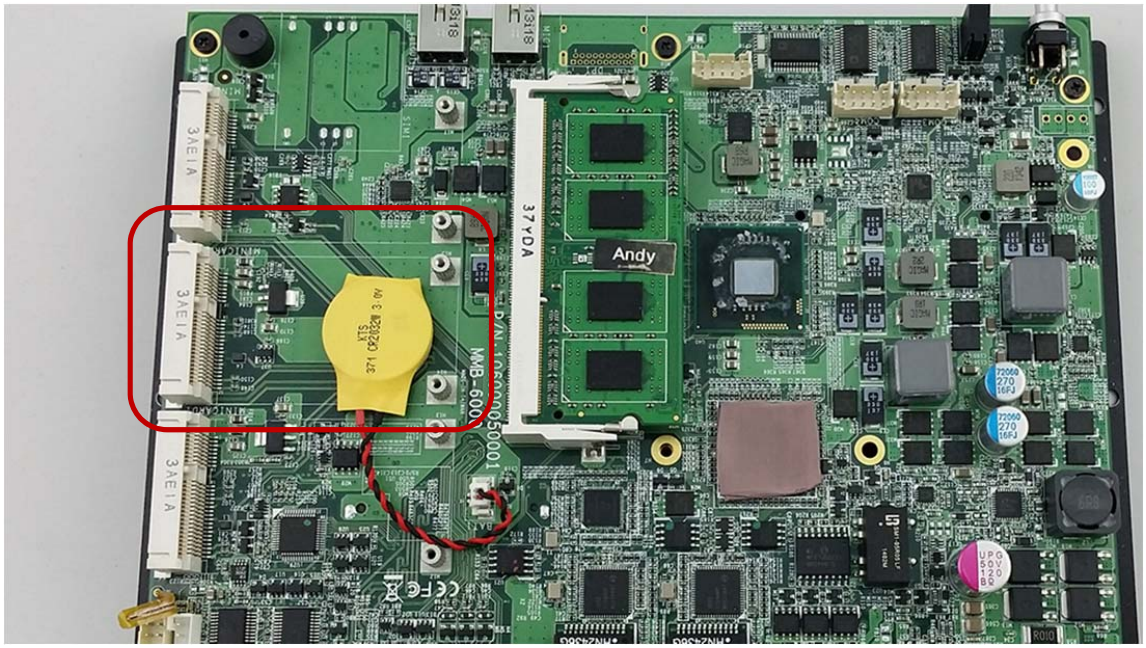


Step 4. Done as shown in the picture.

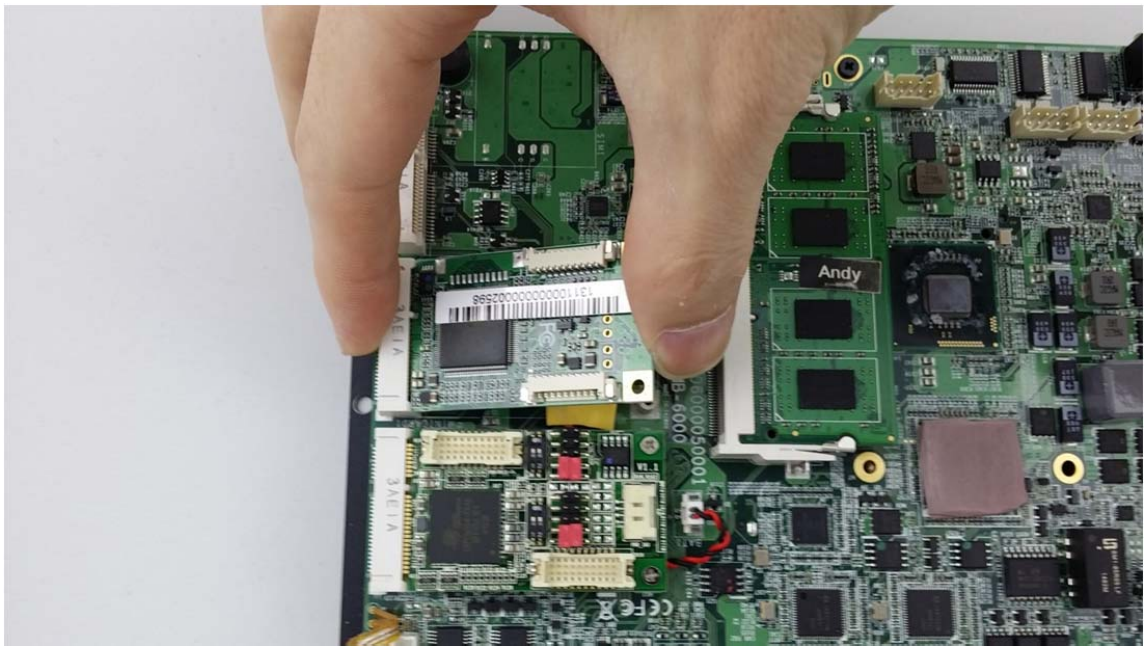


4.6 Installing MINI PCIe Expansion Card

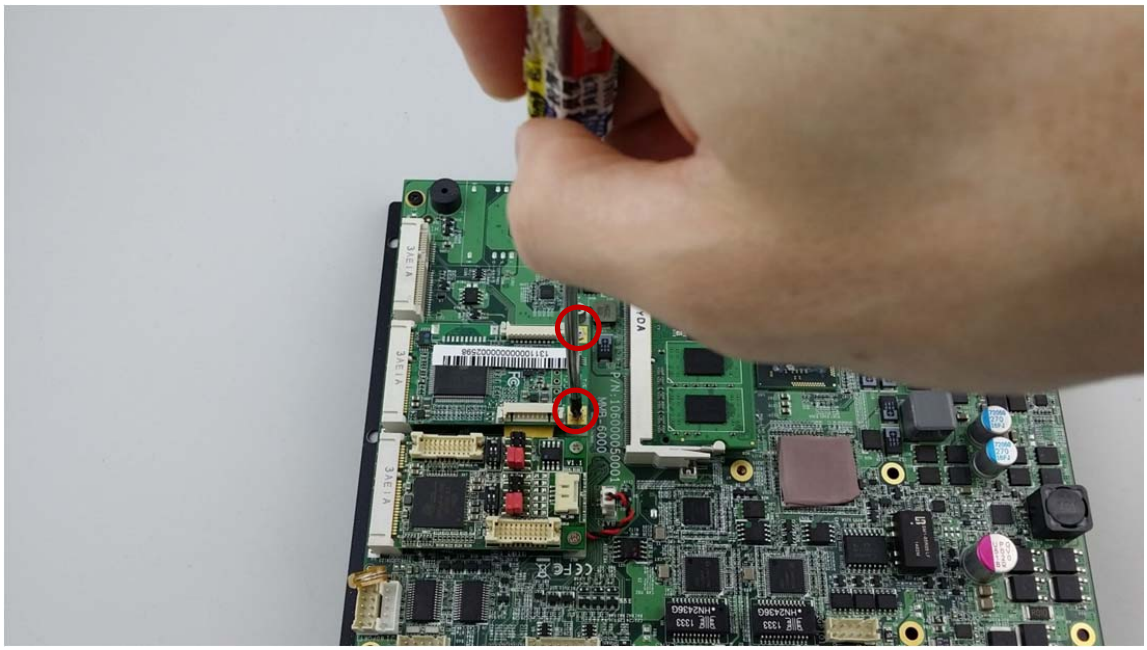
Step 1. Put MINI PCIe Expansion Card on this place as shown in the picture.



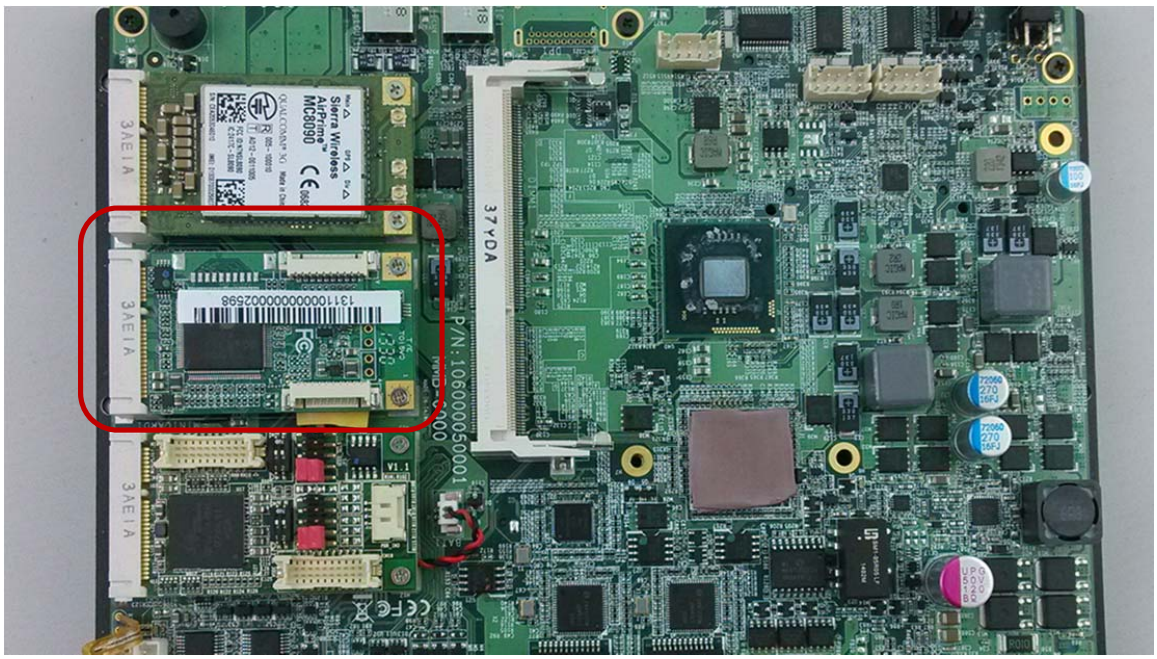
Step 2. Hold the Module with its notch aligned with the socket of the board and insert it at a 30 degree angle into the socket as shown in the picture.



Step 3. Screw two screws to the holder as shown in the picture.

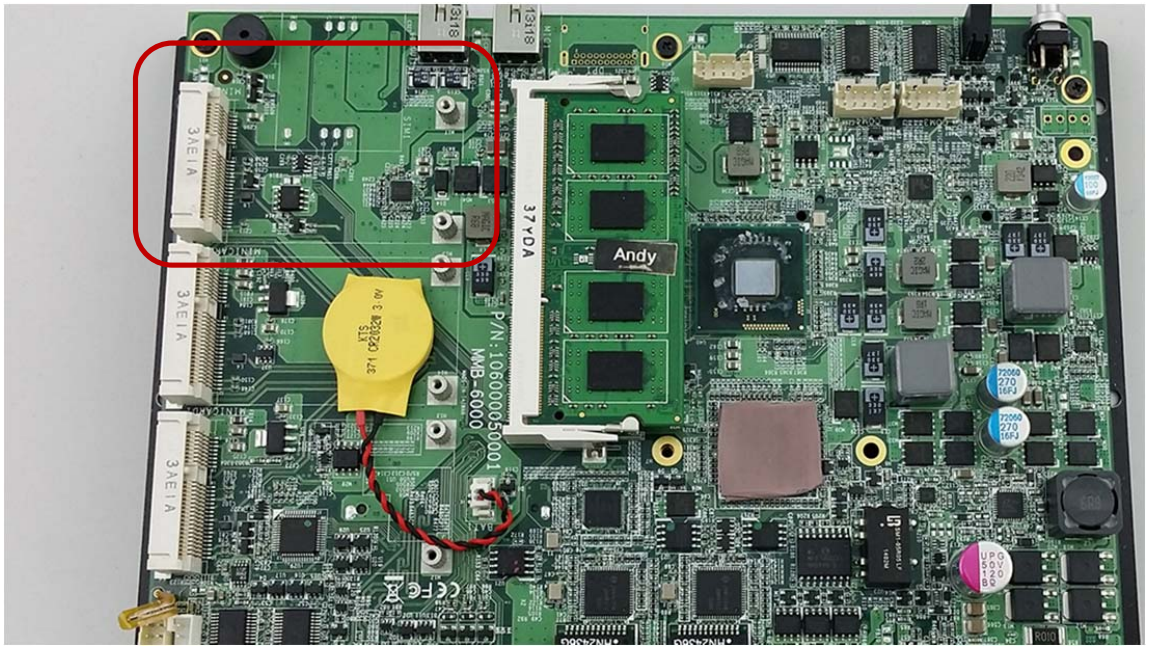


Step 4. Done as shown in the picture.



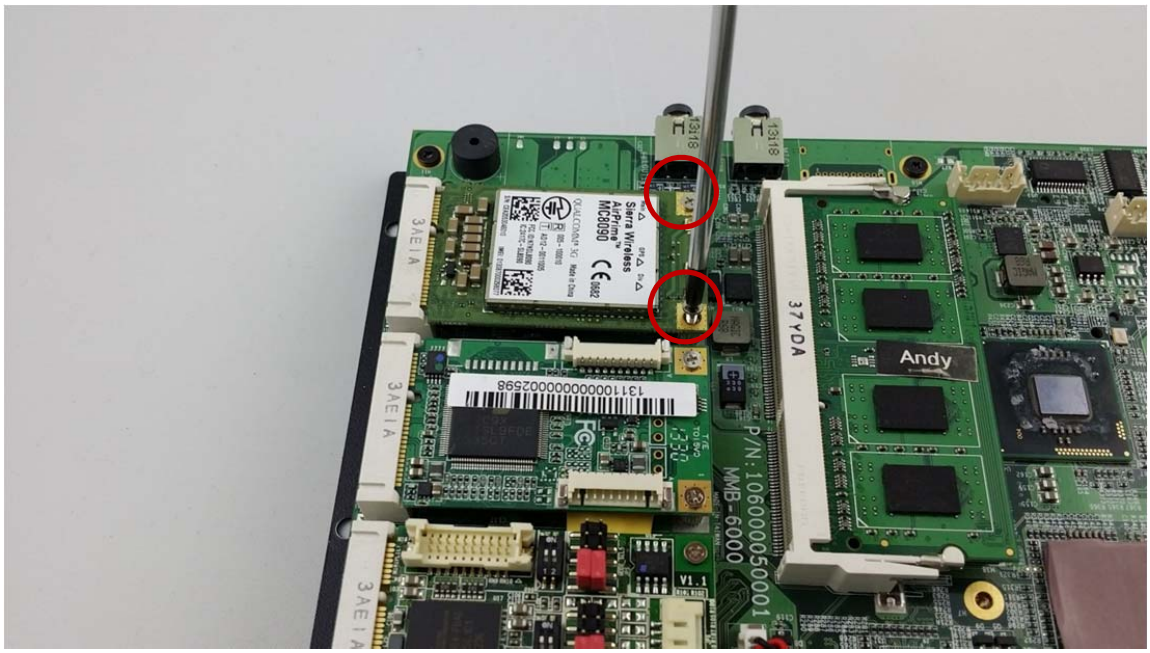
4.7 Installing MINI PCIe Expansion Card (3G only)

Step 1. Put MINI PCIe Expansion Card on this place as shown in the picture.

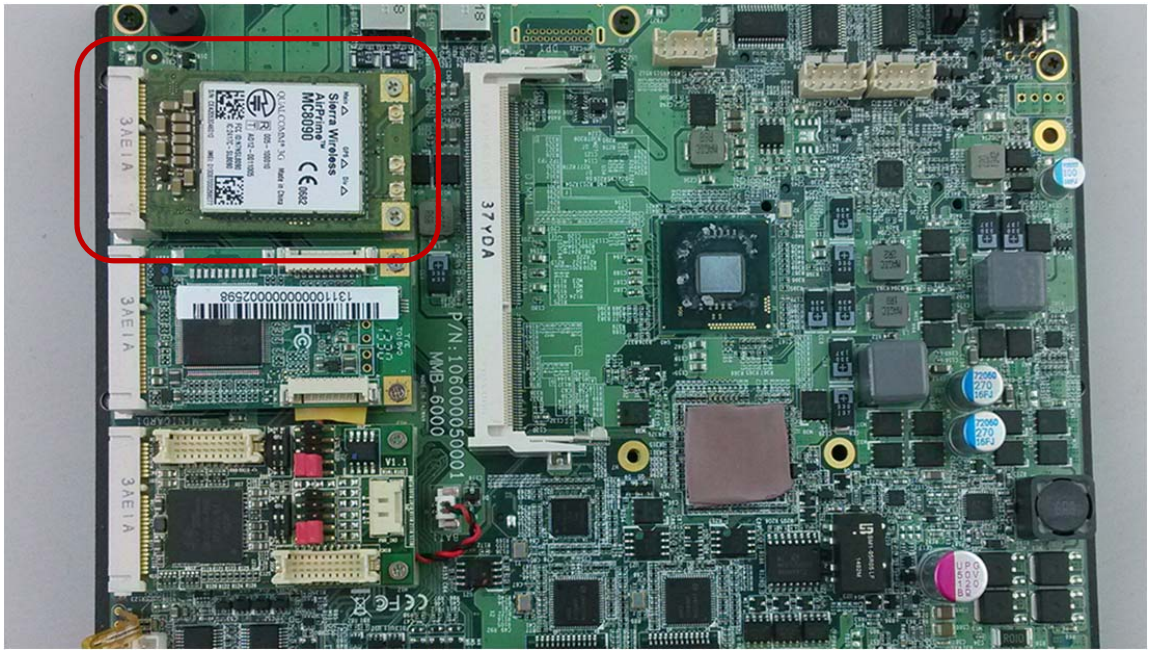


Step 2. Hold the Module with its notch aligned with the socket of the board and insert it at a 30 degree angle into the socket as shown in the picture.

Step 3. Screw two screws to the holder as shown in the picture.



Step 4. Done as shown in the picture.



5.0
BIOS

5.0 BIOS

5.1 Enter The BIOS

Power on the computer and the system will start POST (Power On Self Test) process. When the message below appears on the screen, press (DEL) key to enter Setup.

Press DEL to enter SETUP

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

Important

- The items under each BIOS category described in this chapter are under continuous update for better system performance. Therefore, the description may be slightly different from the latest BIOS and should be held for reference only.
- Upon boot-up, the 1st line appearing after the memory count is the BIOS version. It is usually in the format.

MARINEPC-6000 Mainboard V1.0 073109 where :

1st digit refers to BIOS maker as A = AMI, W = AWARD, and P = PHOENIX

2nd - 5th digit refers to the model number.

6th digit refers to the chipset as I = Intel, N = NVIDIA, A = AMD and V = VIA.

7th - 8th digit refers to the customer as MS = all standard customers.

V1.0 refers to the BIOS was released.

073109 refers to the date this BIOS was released.

Control Keys

Power on the computer and the system will start POST (Power On Self Test) process. When the message below appears on the screen, press (DEL) key to enter Setup.

<↑>	Move to the previous item
<↓>	Move to the next item
<←>	Move to the item in the left hand
<→>	Move to the item in the right hand
<Enter>	Select the item
<Esc>	Jumps to the Exit menu or returns to the main menu from a submenu
<+/PU>	Increase the numeric value or make changes
<-/PD>	Decrease the numeric value or make changes
<F1>	General Help
<F3>	Load Optimized Defaults
<F4>	Save all the CMOS changes and exit

Getting Help

After entering the Setup menu, the first menu you will see is the Main Menu.

Main Menu

The main menu lists the setup functions you can make changes to. You can use the arrow keys (↑↓) to select the item. The on-line description of the highlighted setup function is displayed at the bottom of the screen.

Sub-Menu

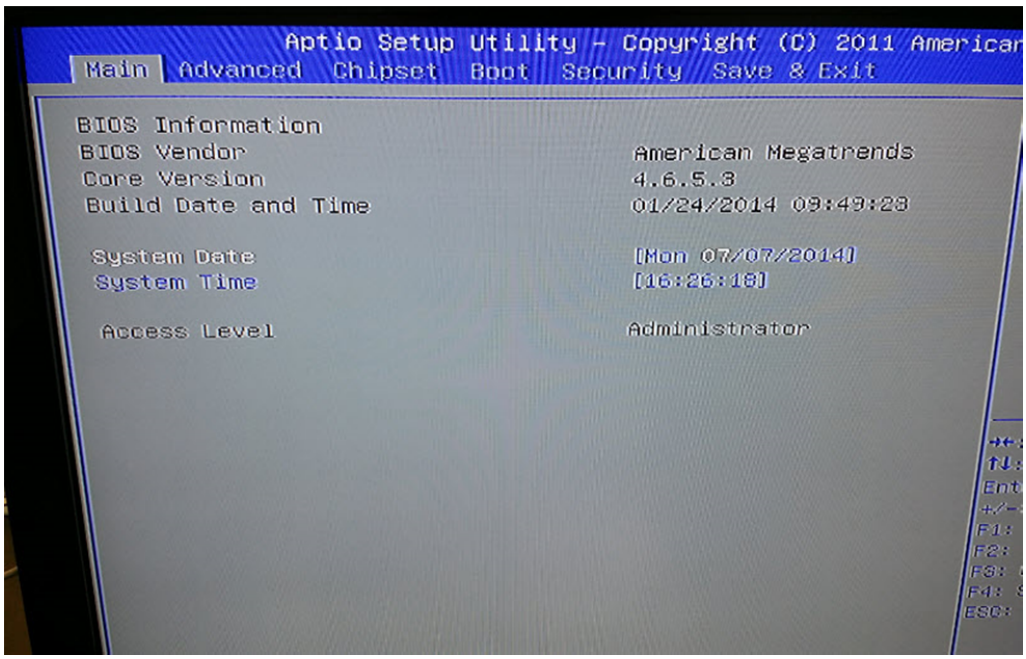
If you find a right pointer symbol (as shown in the right view) appears to the left of certain fields that means a sub-menu can be launched from this field. A sub-menu contains additional options for a field parameter. You can use arrow keys (↑↓) to highlight the field and press <Enter> to call up the sub-menu. Then you can use the control keys to enter values and move from field to field within a sub-menu. If you want to return to the main menu, just press the <Esc >.

General Help <F1>

The BIOS setup program provides a General Help screen. You can call up this screen from any menu by simply pressing <F1>. The Help screen lists the appropriate keys to

use and the possible selections for the highlighted item. Press <Esc> to exit the Help screen.

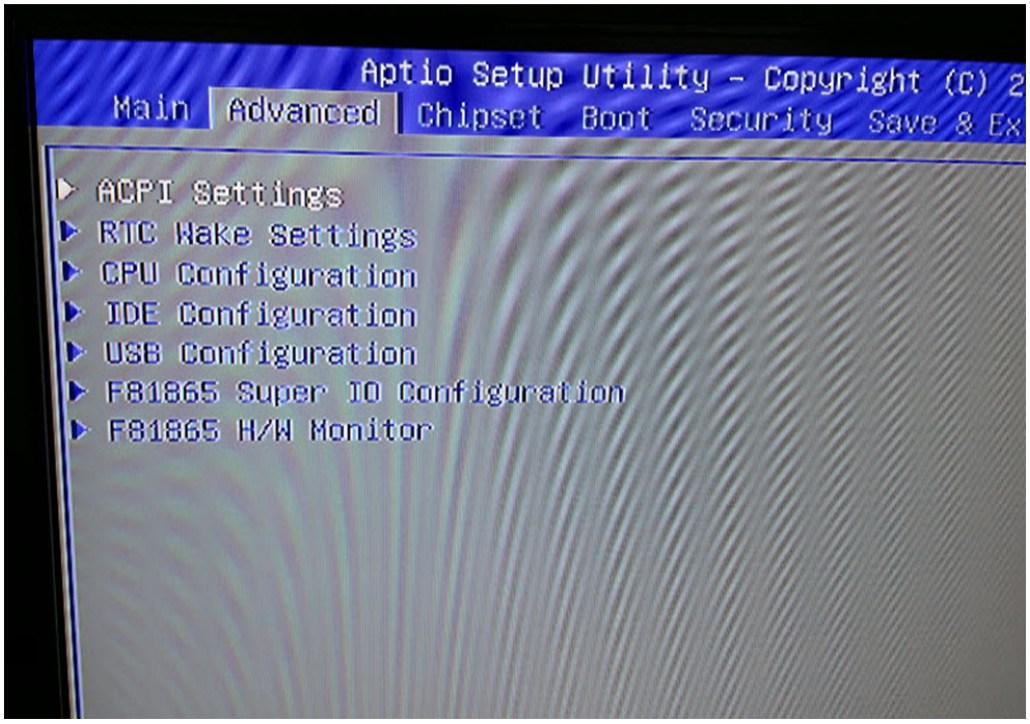
5.2 Main



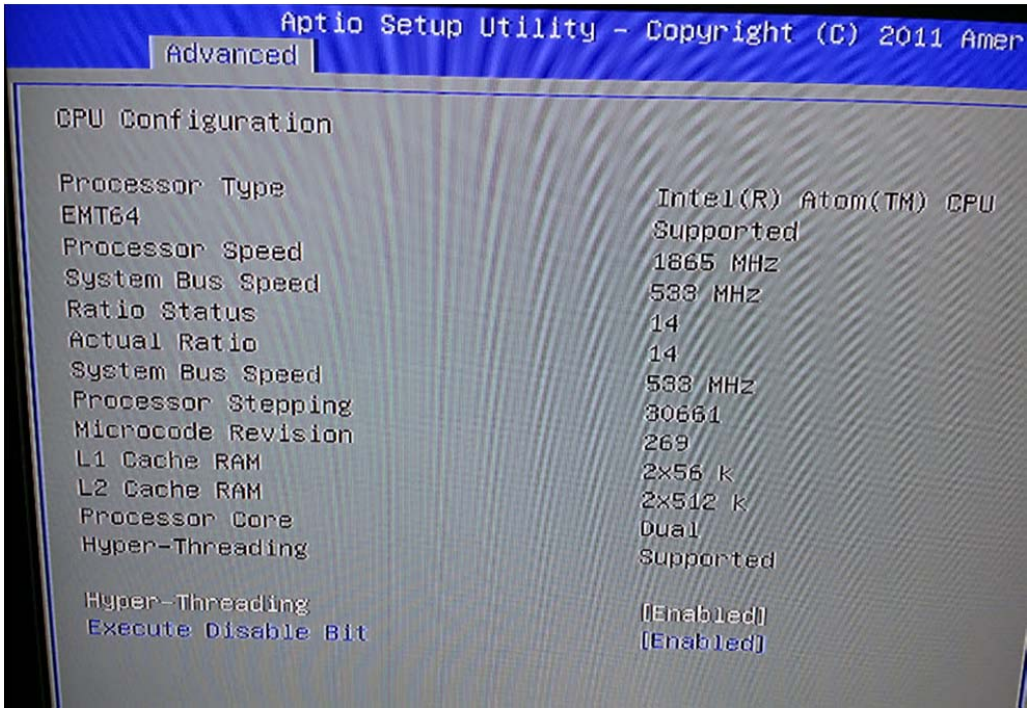
System Time
This setting allows you to set the system time. The time format is <Hour> <Minute> <Second>.

System Date
This setting allows you to set the system Date. The time format is <Day> <Month> <Date> <Year>.

5.3 Advanced



CPU Configuration



» Max CPUID Value Limit

The Max CPUID Value Limit BIOS feature allows you to circumvent problems with older operating systems that do not support the Intel Pentium 4 processor with Hyper-Threading Technology. When enabled, the processor will limit the maximum CPUID input value to 03h when queried, even if the processor supports a higher CPUID input value. When disabled, the processor will return the actual maximum CPUID input value of the processor when queried.

» Execute Disable Bit Capability

Intel's Execute Disable Bit functionality can prevent certain classes of malicious "buffer overflow" attacks when combined with a supporting operating system. This functionality allows the processor to classify areas in memory by where application code can execute and where it cannot. When a malicious worm attempts to insert code in the buffer, the processor disables code execution, preventing damage or worm propagation.

» Hyper Threading Technology

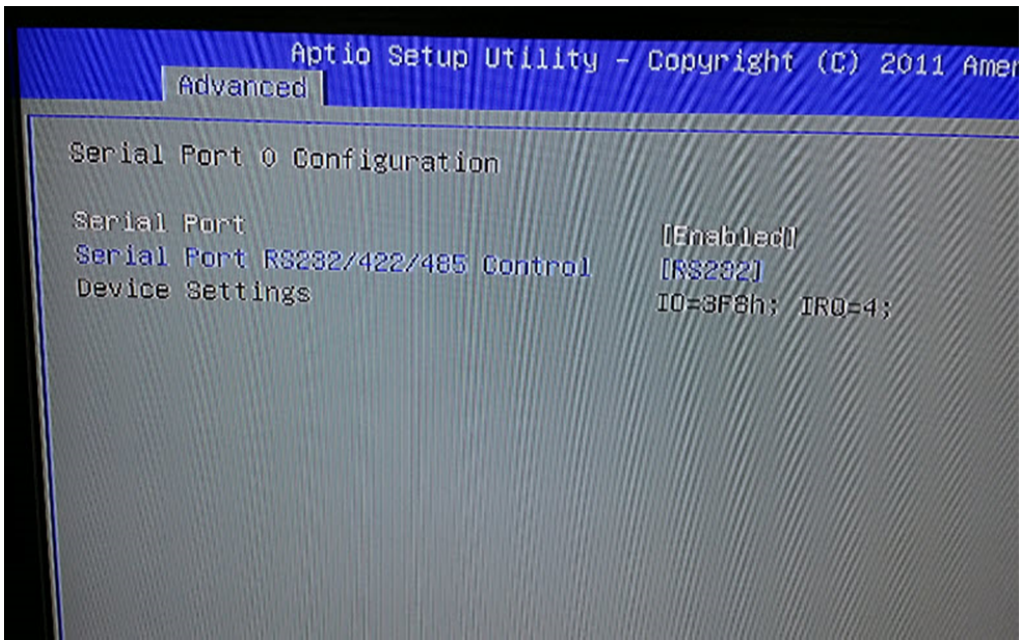
The processor uses Hyper Threading technology to increase transaction rates and reduces end-user response times. The technology treats the two cores inside the processor as two logical processors that can execute instructions simultaneously. In this way, the system performance is highly improved. If you disable the function, the processor will use only one core to execute the instructions. Please disable this item if

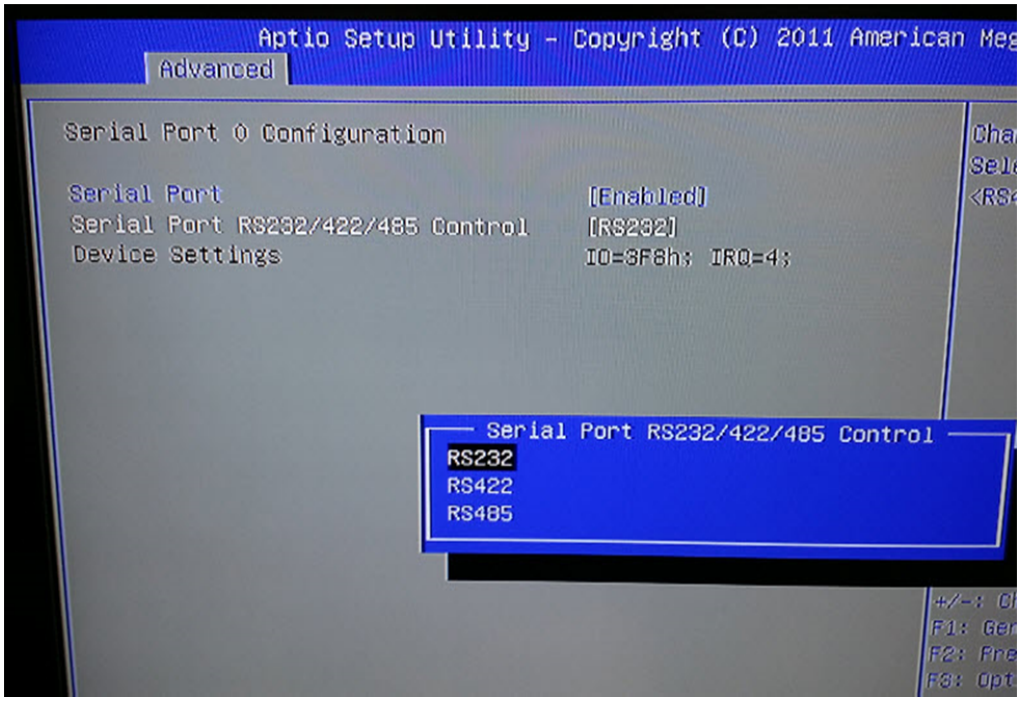
your operating system doesn't support HT Function, or unreliability and instability may occur.

» Intel(R) SpeedStep(tm) Tech

EIST (Enhanced Intel SpeedStep Technology) allows the system to dynamically adjust processor voltage and core frequency, which can result in decreased average power consumption and decreased average heat production.

Super IO Configuration





» Serial Port 0/1/2/3/4/5 Enable or Disable

Select an Enable or Disable for the specified serial ports.

» Serial Port 0 Mode

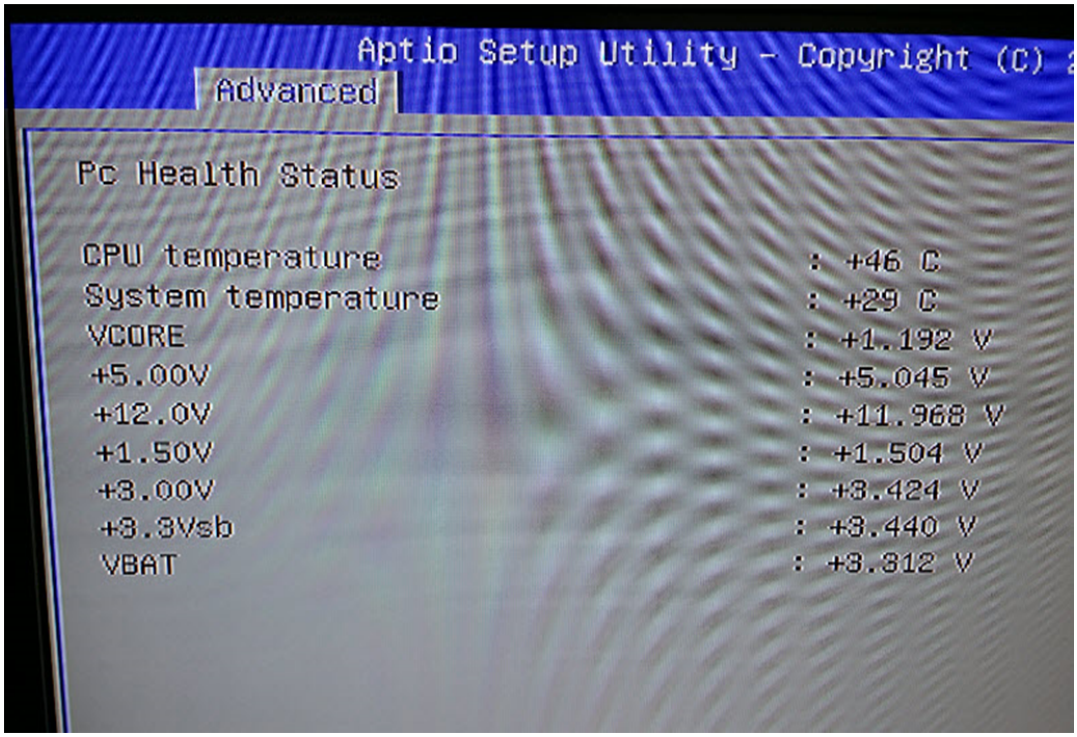
The settings specify the RS-232/RS-422/RS-485 mode of the serial port 0.

» Serial Port 1 Mode

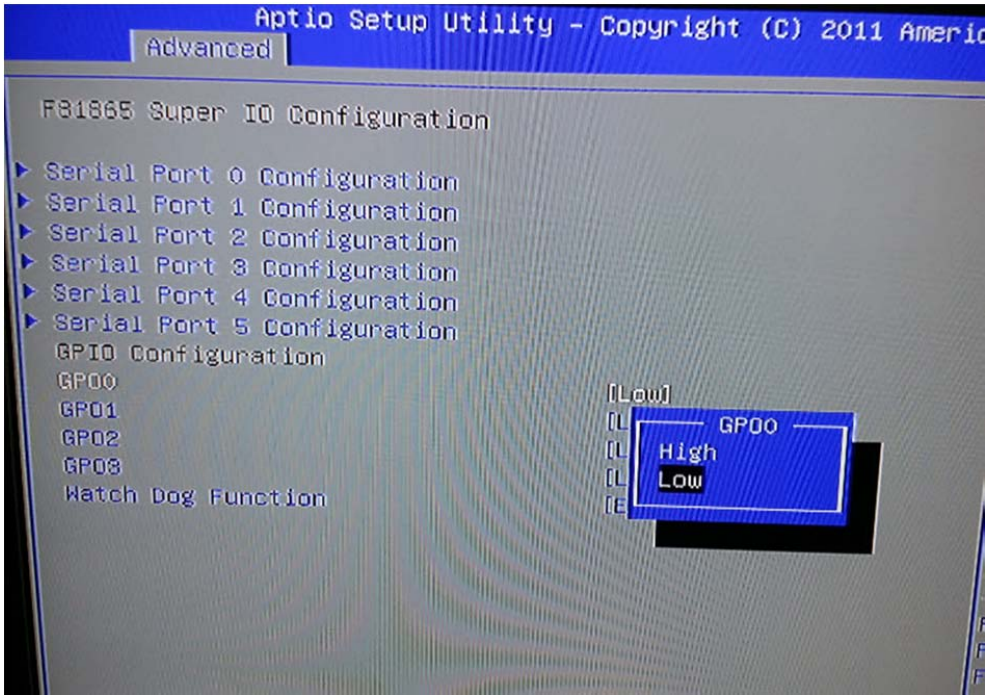
The settings specify the RS-232/RS-485 mode of the serial port 1

Hardware Health Configuration

These items display the current status of all monitored hardware devices/components such as voltages, temperatures and all fans' speeds.



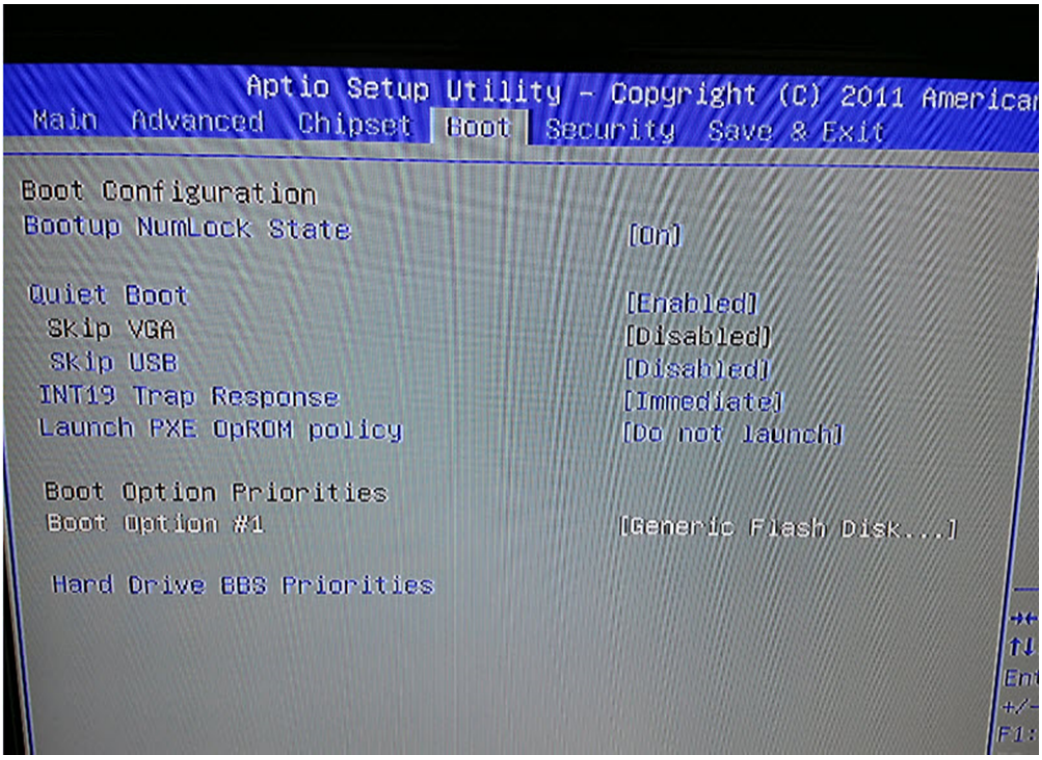
GPIO Configuration



» GPO 0/ 1/ 2/ 3/ Data

These settings configure special GPIO data.

5.4 Boot



» 1st/2nd/3rd Boot Device

The items allow you to set the sequence of boot devices where BIOS attempts to load the disk operating system.

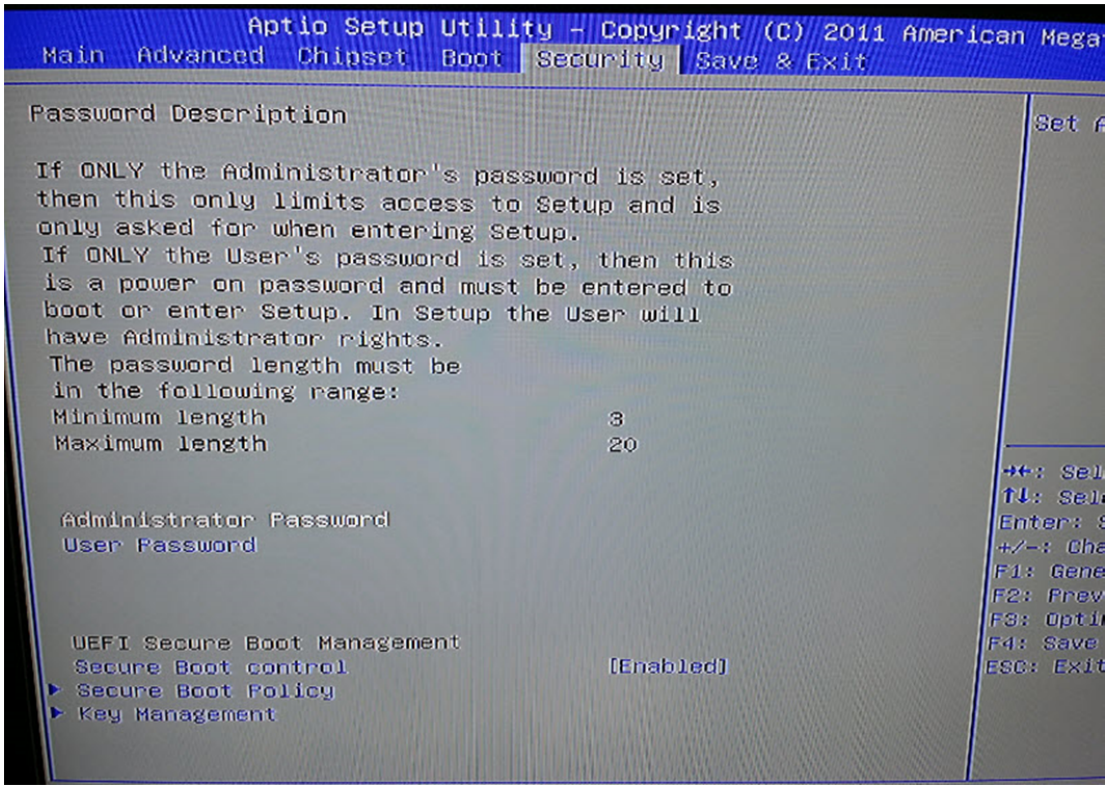
» Try Other Boot Devices

Setting the option to [Enabled] allows the system to try to boot from other device if the system fail to boot from the 1st/2nd/3rd boot device.

» Hard Disk Drives, CD/DVD Drives, USB Drives

These settings allow you to set the boot sequence of the specified devices.

5.5 Security



» Administrator Password

Administrator Password controls access to the BIOS Setup utility. These settings allow you to set or change the administrator password.

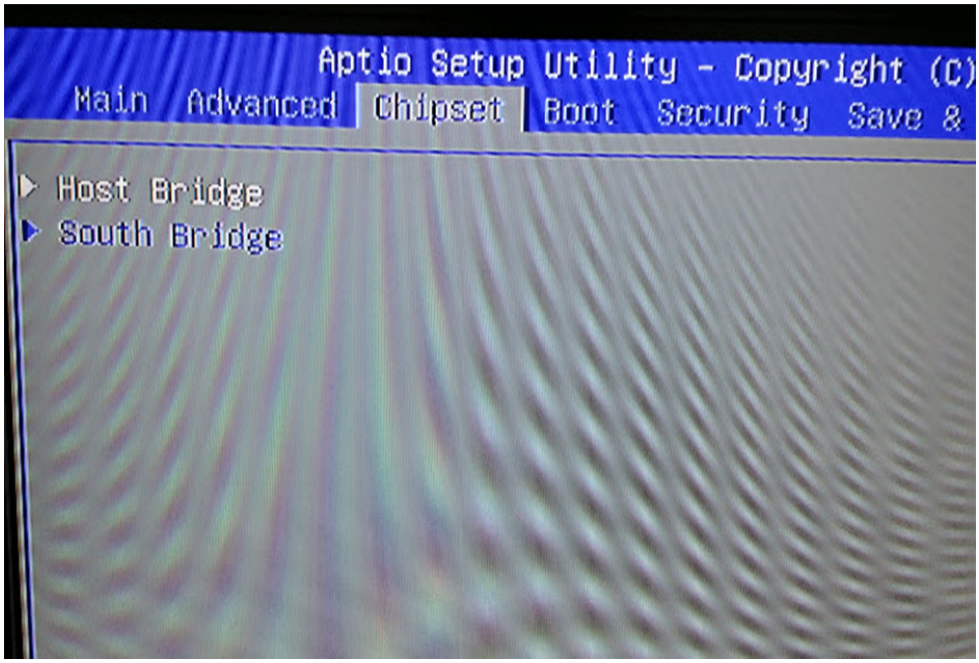
» User Password

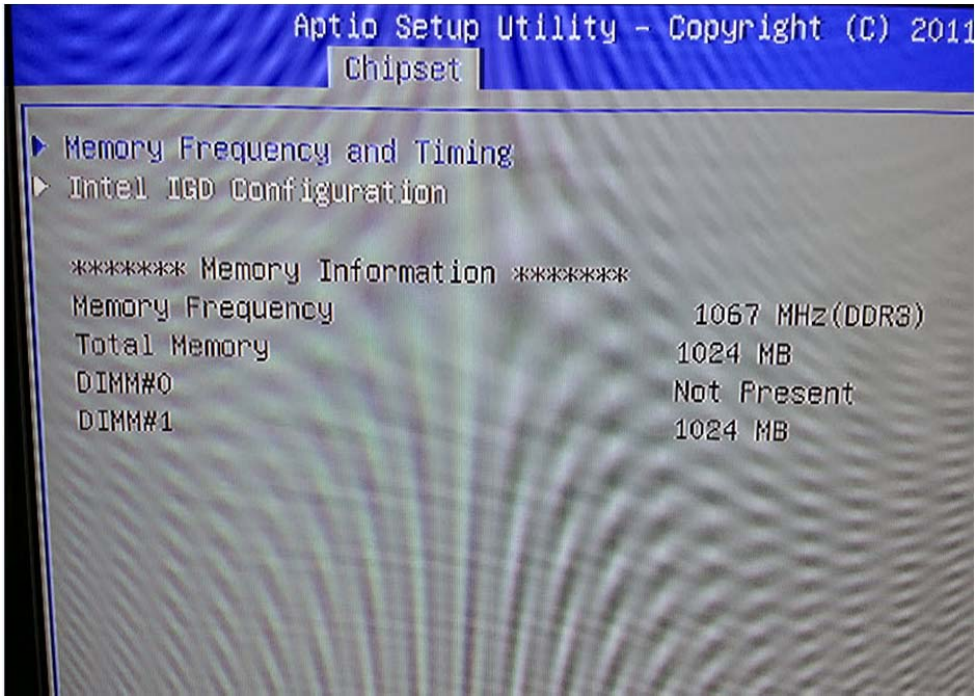
User Password controls access to the system at boot. These settings allow you to set or change the user password.

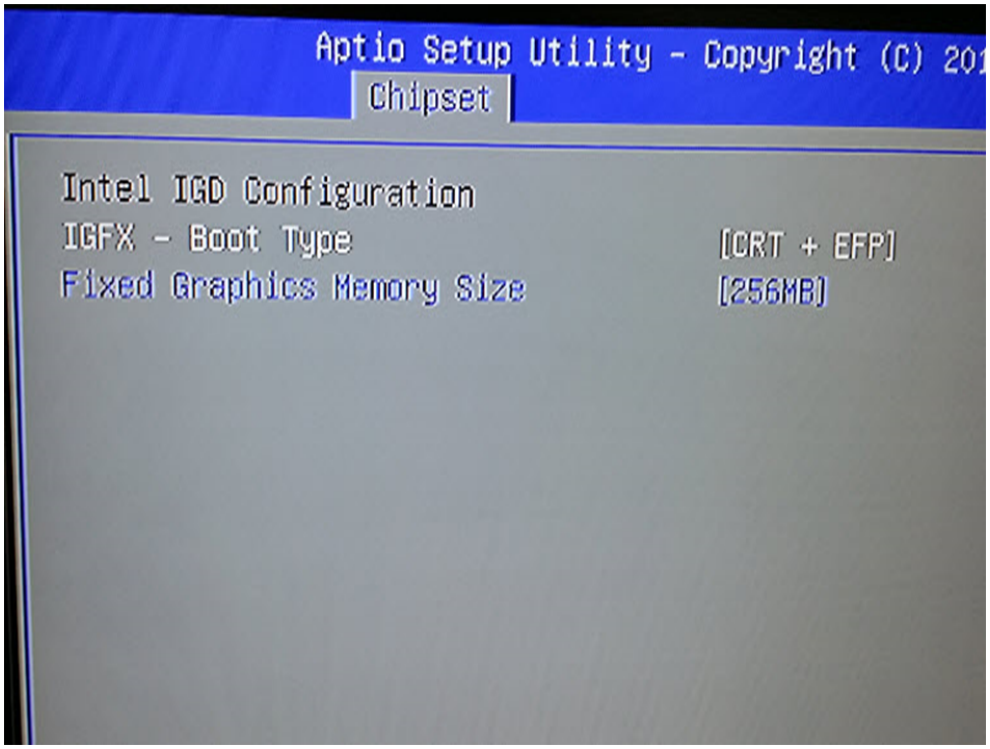
» Boot Sector Virus Protection

This function protects the BIOS from accidental corruption by unauthorized users or computer viruses. When enabled, the BIOS data cannot be changed when attempting to update the BIOS with a Flash utility. To successfully update the BIOS, you will need to disable this Flash Protection function.

5.6 Chipset

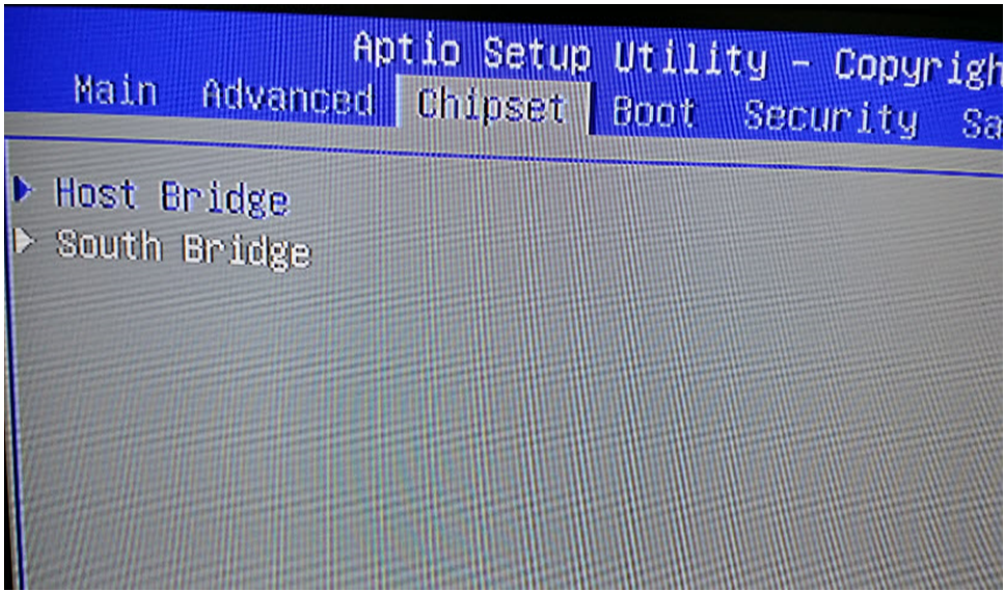

Aptio Setup Utility - Copyright (C)
Main Advanced Chipset Boot Security Save &
Host Bridge
South Bridge

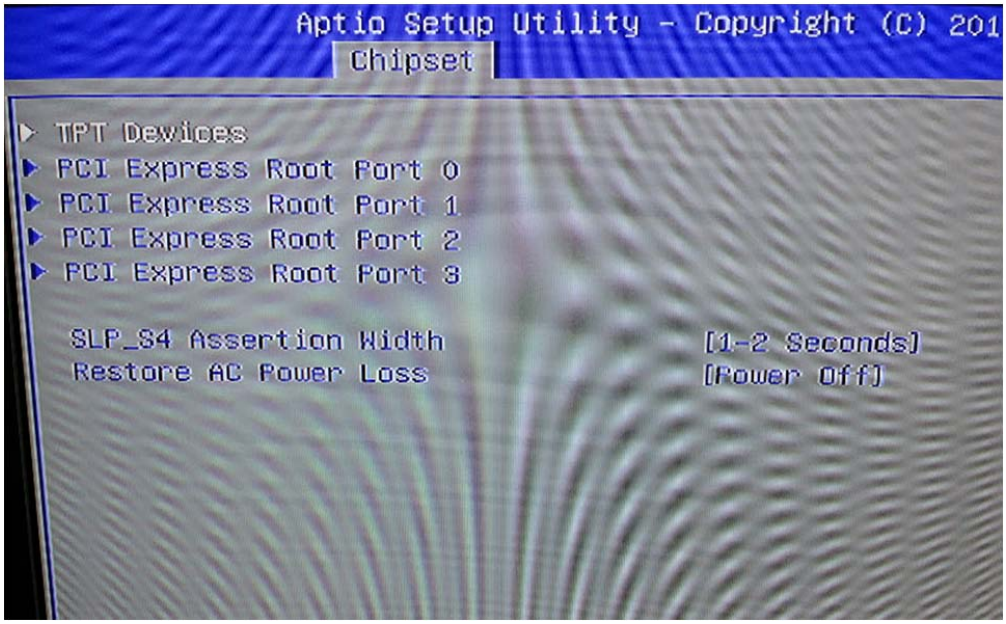

Aptio Setup Utility - Copyright (C) 2011
Chipset
Memory Frequency and Timing
Intel IGD Configuration
******* Memory Information *******
Memory Frequency 1067 MHz(DDR3)
Total Memory 1024 MB
DIMM#0 Not Present
DIMM#1 1024 MB



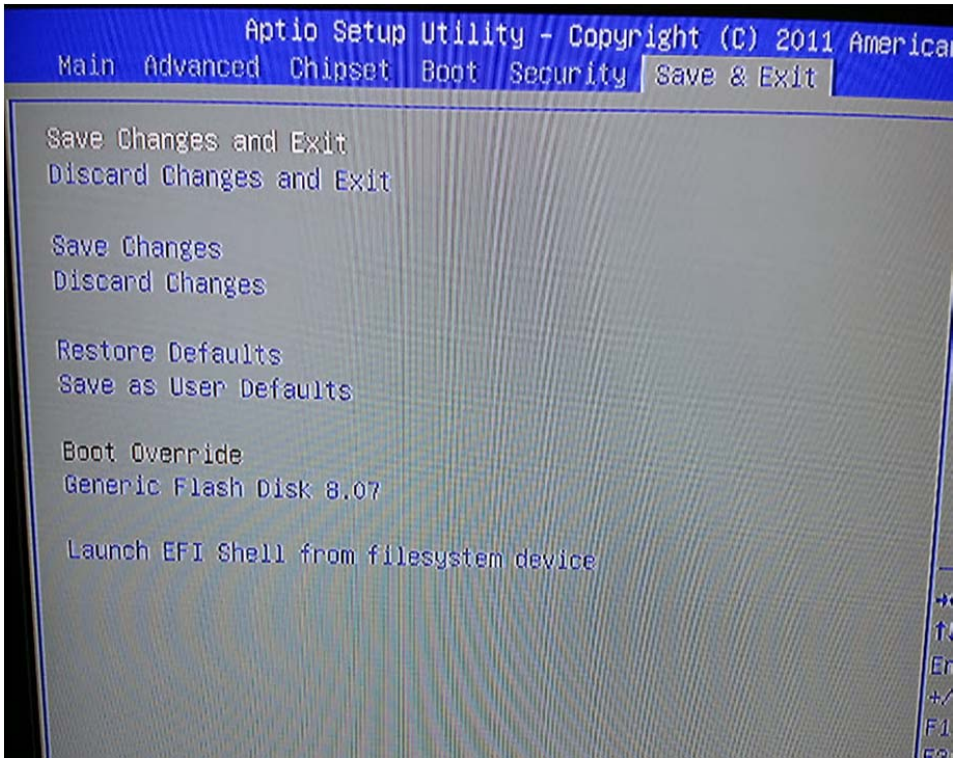
» Select Graphic Output Mode

PCI/PCIE Device Configuration





5.7 Exit



» Save Changes and Exit
Save changes to CMOS and exit the Setup Utility.

» Discard Changes and Exit
Abandon all changes and exit the Setup Utility.

» Discard Changes
Abandon all changes and continue with the Setup Utility.

» Load Optimal Defaults
Use this menu to load the default values set by the mainboard manufacturer specifically for optimal performance of the mainboard.

» Load Failsafe Defaults
Use this menu to load the default values set by the BIOS vendor for stable system performance.