PICO500

6th Generation Intel® Core™ i7/ i5/ i3 and Celeron® Processors Pico-ITX Board

User's Manual

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CAUTION

If you replace wrong batteries, it causes the danger of explosion. It is recommended by the manufacturer that you follow the manufacturer's instructions to only replace the same or equivalent type of battery, and dispose of used ones.

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ESD Precautions

Computer boards have integrated circuits sensitive to static electricity. To prevent chipsets from electrostatic discharge damage, please take care of the following jobs with precautions:

- Do not remove boards or integrated circuits from their anti-static packaging until you are ready to install them.
- Before holding the board or integrated circuit, touch an unpainted portion of the system unit chassis for a few seconds. It discharges static electricity from your body.
- Wear a wrist-grounding strap, available from most electronic component stores, when handling boards and components.

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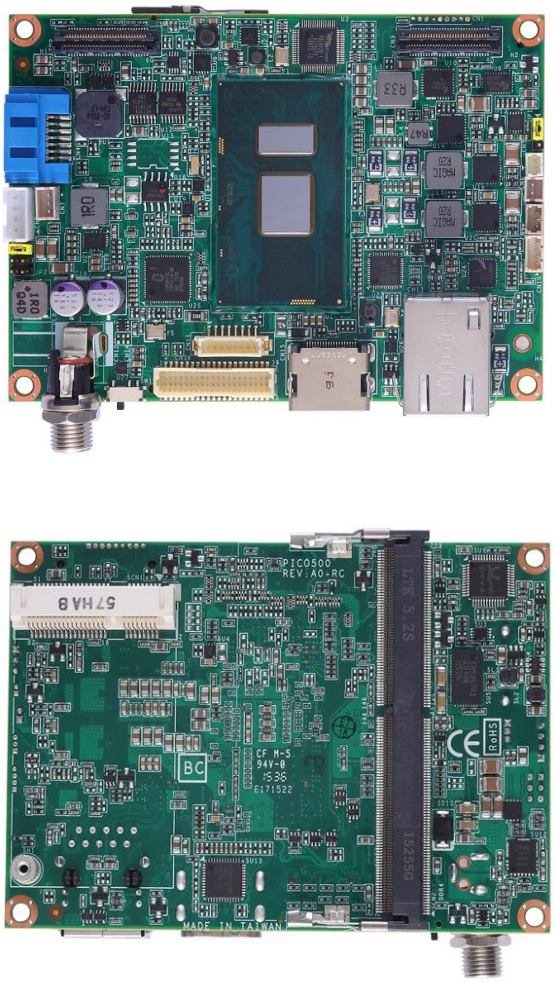
Chapter 1
Introduction



The PICO500 is a Pico-ITX board with 6th Generation Intel® Core™ i7/ i5/ i3 and Celeron® processor that delivers outstanding system performance through high-bandwidth interfaces, multiple I/O functions for interactive applications and various embedded computing solutions.

The board has one 260-pin unbuffered SO-DIMM socket for DDR4 2133MHz SO-DIMM memory, maximum memory capacity up to 16GB. It also features one Gigabit/Fast Ethernet, one SATA port with transfer rates up to 6Gb/s, one USB 2.0 high speed compliant, and built-in high definition audio codec that can achieve the best stability and reliability for industrial applications. Additionally, it provides you with unique embedded feature such as Pico-ITX form factor that applies an extensive array of PC peripherals. The board can be enhanced by its built-in watchdog timer function, a special industrial feature not commonly seen on other motherboards.

1.1 Features

- 6th Generation Intel® Core™ i7/ i5/ i3 and Celeron® processor
- 1 DDR4 SO-DIMM supports up to 16GB memory capacity
- 1 USB 2.0 port and 1 Gigabit Ethernet port
- 1 PCI-Express Mini Card
- Intel® AMT 11 supported

1.2 Specifications

- **CPU**
  - 6th Generation Intel® Core™ i7-6600U 2.6GHz dual core.
  - 6th Generation Intel® Core™ i5-6300U 2.4GHz dual core.
  - 6th Generation Intel® Core™ i3-6100U 2.3GHz dual core.
  - Intel® Celeron® 3955U 2GHz.

- **Thermal Solution**
  - Active.

- **BIOS**
  - American Megatrends Inc. UEFI (Unified Extensible Firmware Interface) BIOS.
  - 128Mbit SPI Flash, DMI, Plug and Play.
  - PXE Ethernet Boot ROM.

- **System Memory**
  - One 260-pin unbuffered DDR4 SO-DIMM socket.
  - Maximum up to 16GB DDR4 2133MHz memory.

- **Onboard Multi I/O**
  - Controller: Fintek F81803.
  - Two UARTs.

- **Serial ATA**
  - One SATA-600 connector.
  - mSATA support (optional).

- **USB Interface**
  - One USB port with fuse protection and complies with USB Spec. Rev. 2.0.

- **Display**
  - One HDMI.
  - One 2x20-pin connector for 18/24-bit single and dual channel LVDS and one 8-pin wafer connector for inverter control. LVDS resolution is up to 1920x1200 in 24-bit dual channel.

- **Watchdog Timer**
  - 1~255 seconds or minutes; up to 255 levels.

- **Ethernet**
  - One 1000/100/10Mbps Gigabit/Fast Ethernet port in RJ-45 connector.
  - Support Wake-on-LAN, PXE Boot ROM with Intel® i219LM.

- **Audio**
  - HD audio compliant with Realtek ALC662.
  - Support line-out/MIC-in.

- **Expansion Interface**
  - One full-size PCI-Express Mini Card (with mSATA supported) complies with PCI-Express Mini Card Spec. V1.2.
  - Two high speed board to board connectors.

- **Power Input**
  - DC jack power connector, co-layout with 1x2-pin right angle connector.
  - +12V only DC-in.
  - AT auto power on function supported.

- **Power Management**
  - ACPI (Advanced Configuration and Power Interface).

- **Form Factor**
  - Pico-ITX form factor.

Note

All specifications and images are subject to change without notice.

1.3 Utilities

- Chipset and graphics driver
- Ethernet driver (i219LM)
- Audio driver
- USB 3.0 driver
- Intel Management Engine Software for AMT support

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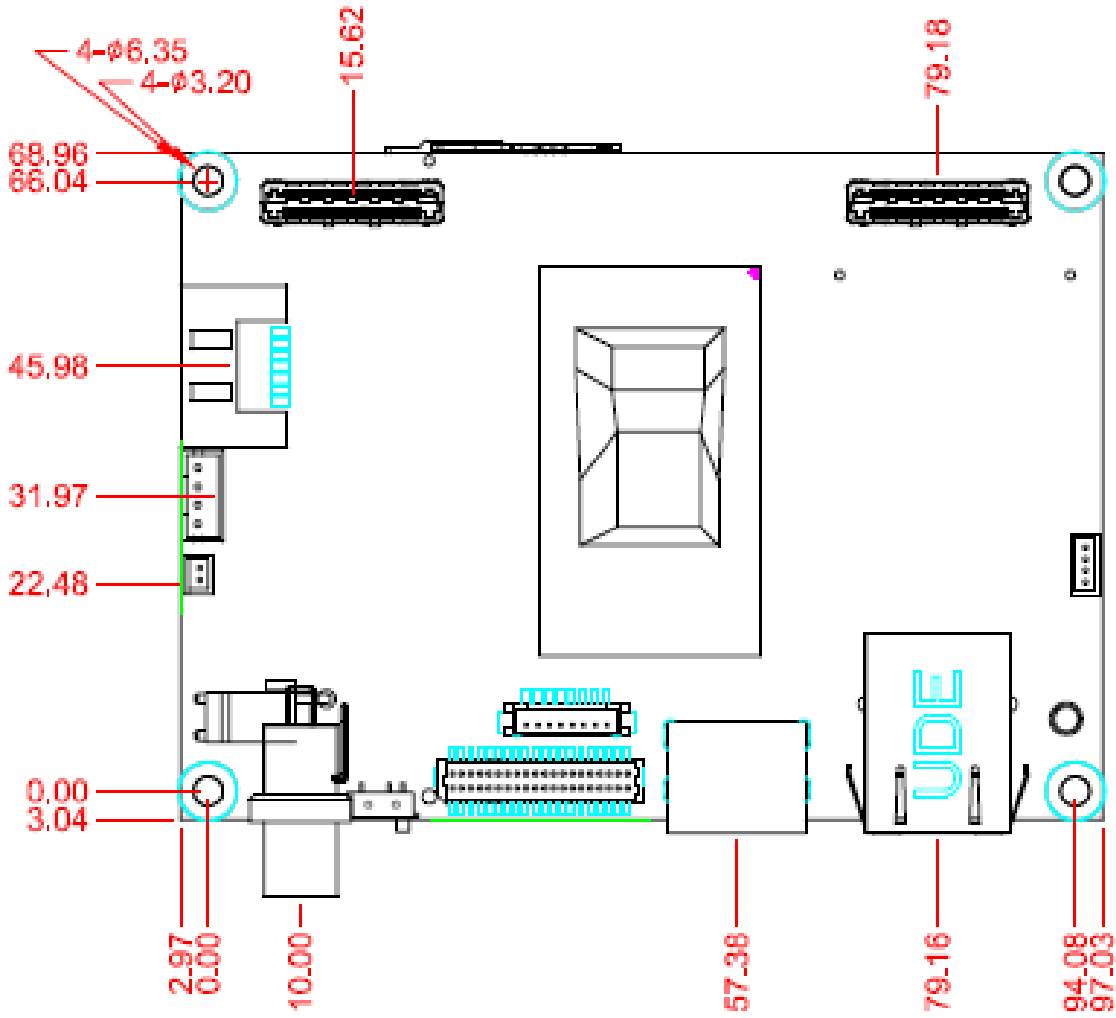
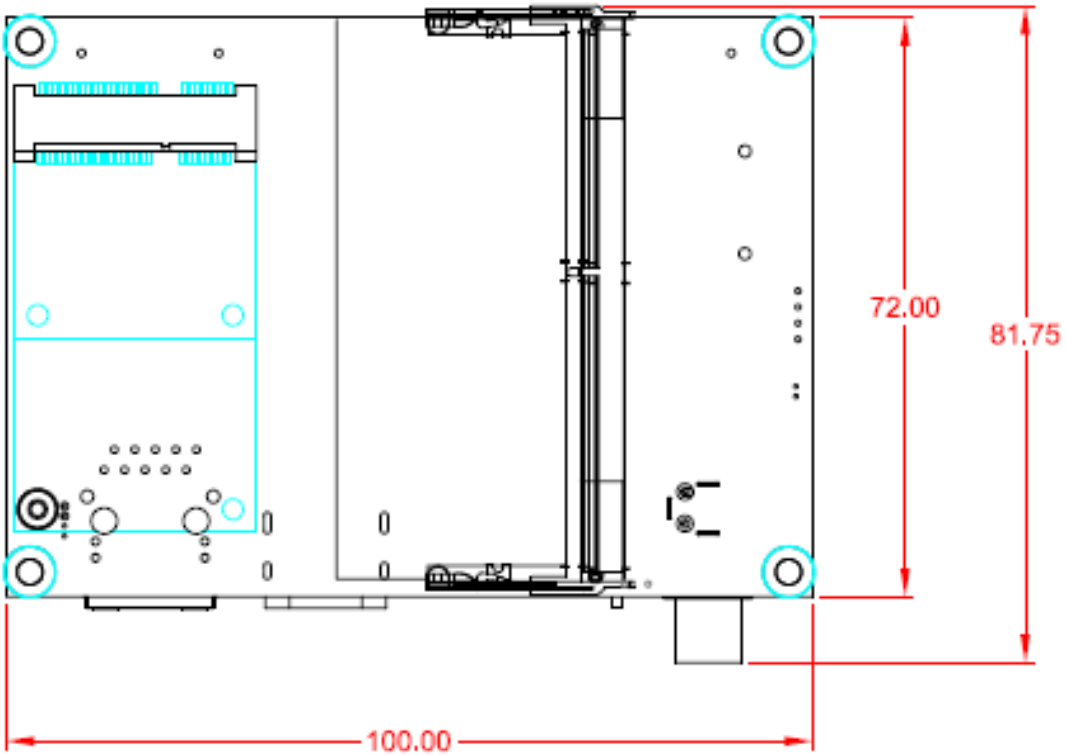
Chapter 2
Board and Pin Assignments

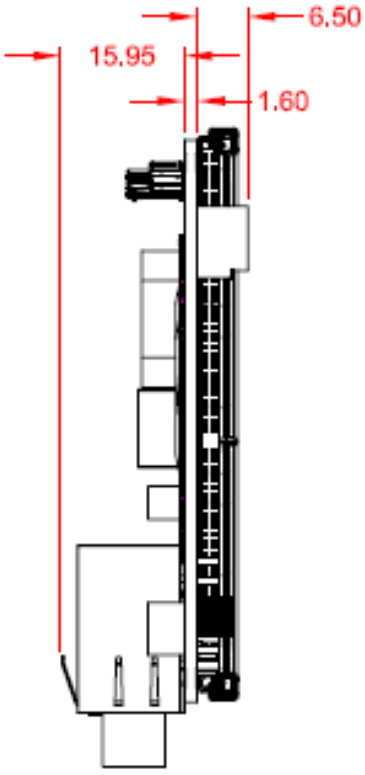
2.1 Board Dimensions and Fixing Holes



Top View

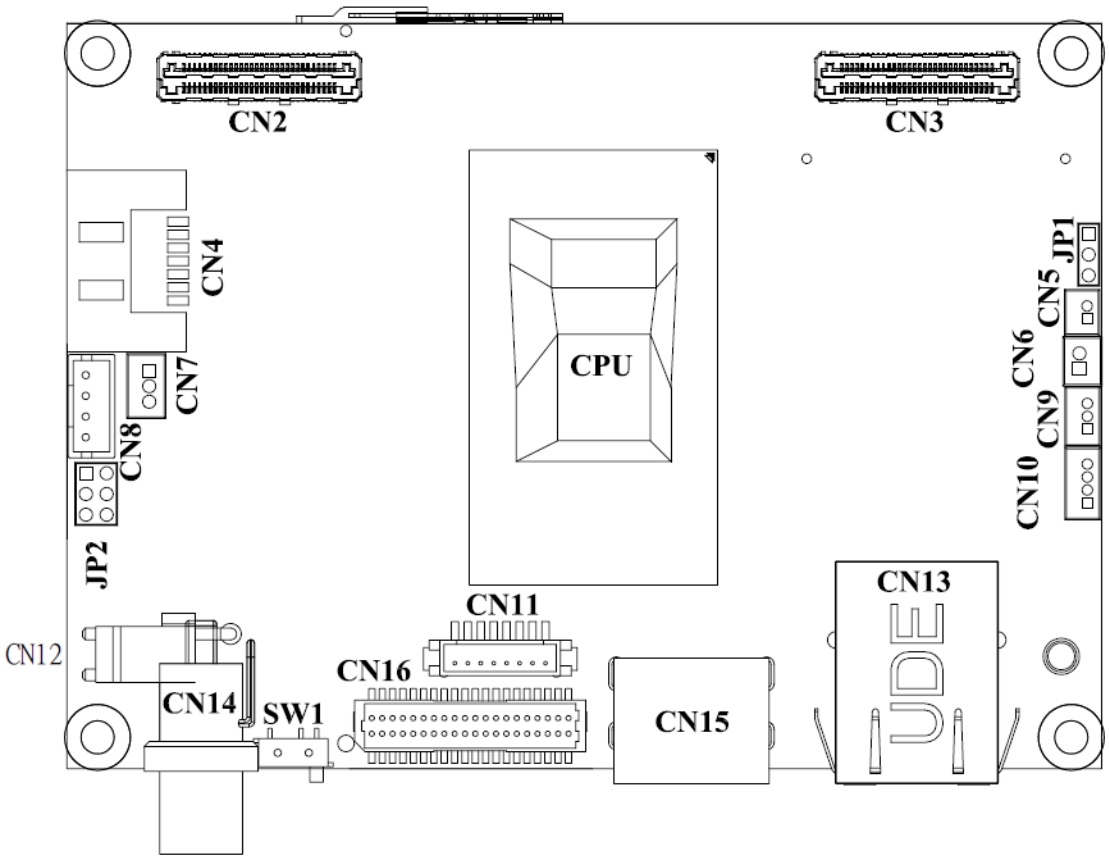


Bottom View

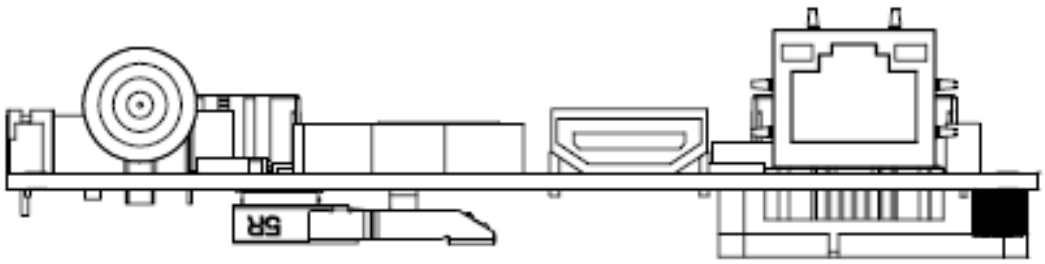


Side View

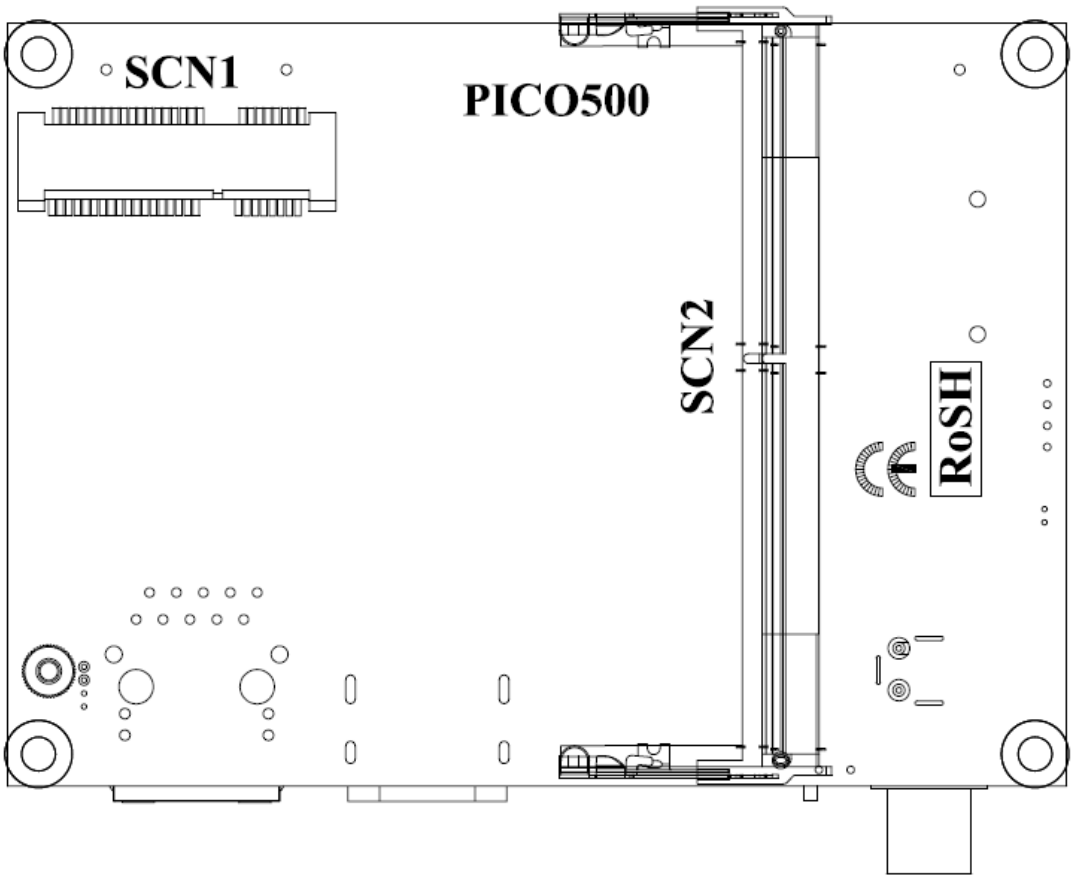
2.2 Board Layout



Top View



Side View

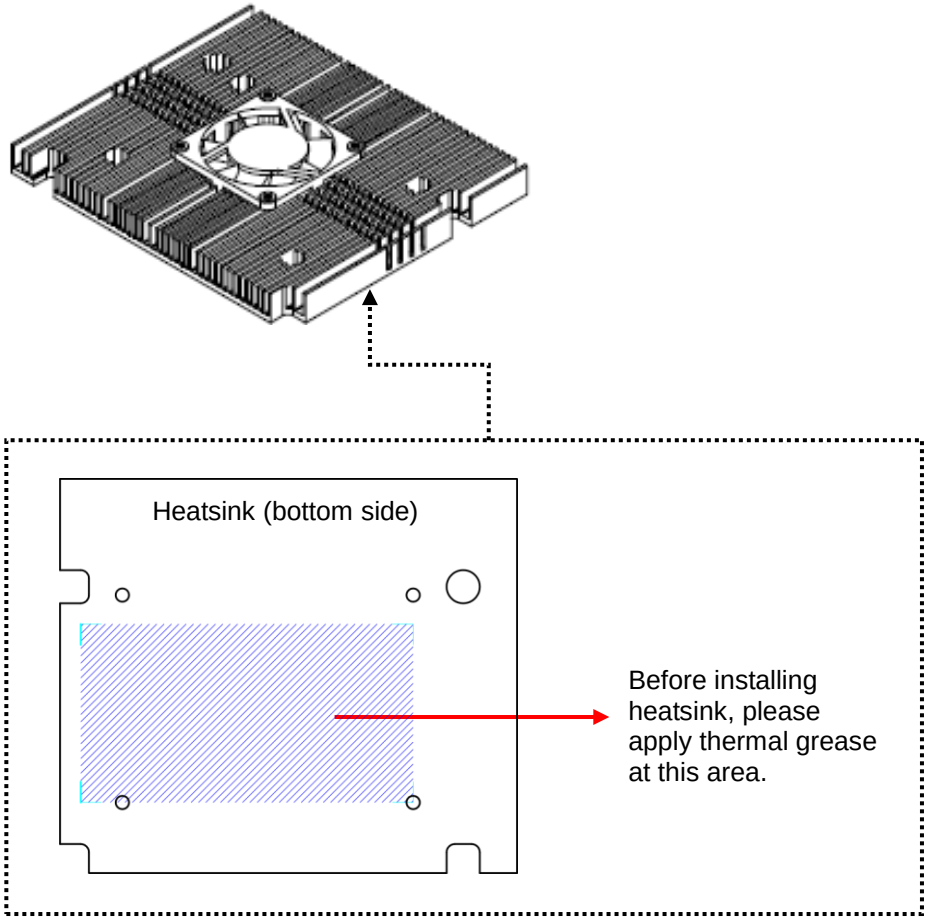


Bottom View

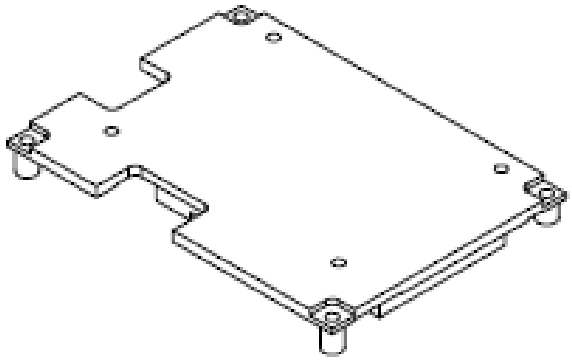
2.3 Assembly Drawing

For thermal dissipation, a thermal solution enables the PICO500's components to dissipate heat efficiently. All heat generating components are thermally conducted to the heatsink in order to avoid hot spots. Images below illustrate how to install the thermal solution on PICO500.

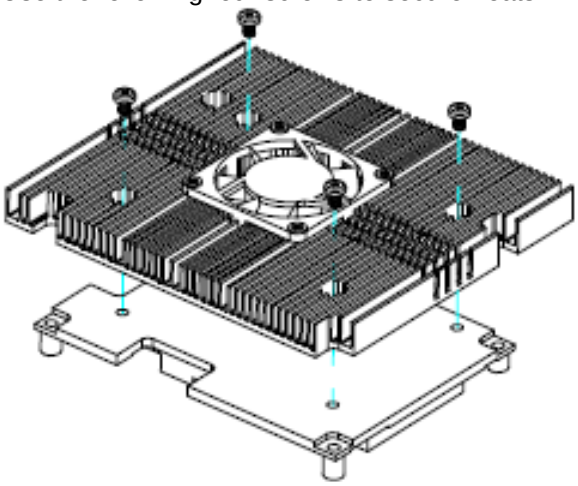
1. Heatsink for PICO500 (see image below):



2. Heatspreader for PICO500 (see image below):



3. Use the following four screws to secure heatsink on heatspreader.



 x4

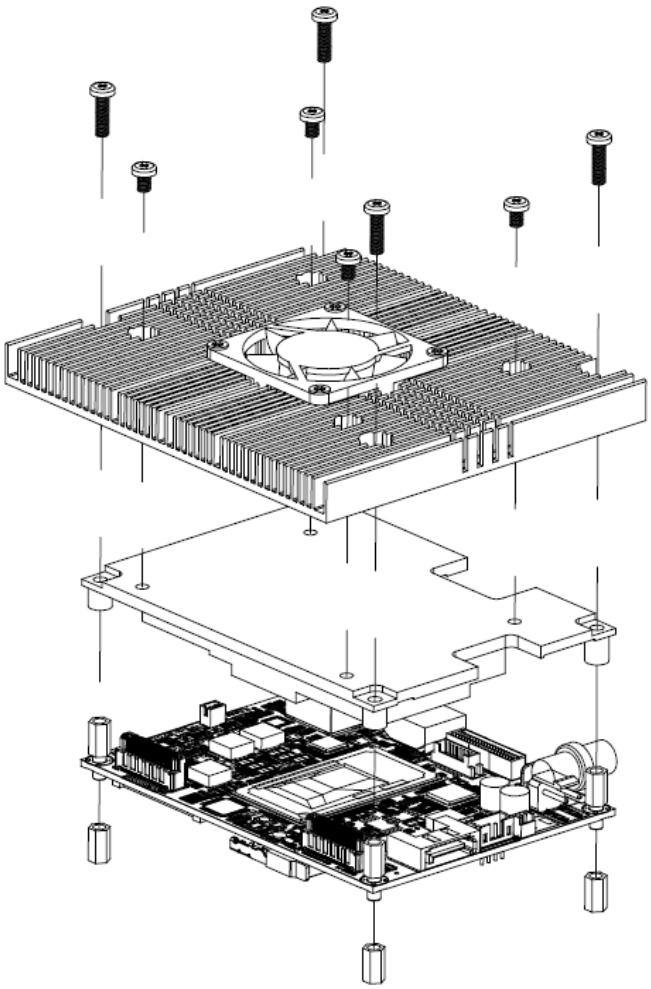
4. The PICO500 has four assembly holes for installing thermal solution. Align and firmly secure the plate to the PICO500. Be careful not to over-tighten the screws.

 x4

 x2

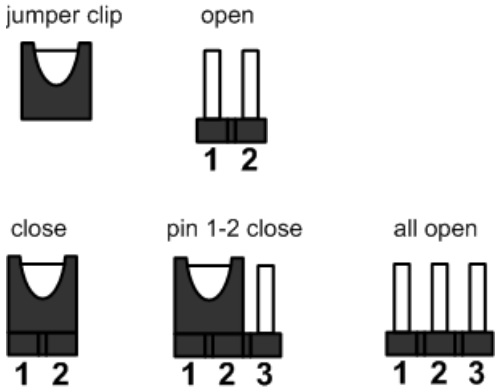
 x2

 x4



2.4 Jumper Settings

Jumper is a small component consisting of jumper clip and jumper pins. Install jumper clip on 2 jumper pins to close. And remove jumper clip from 2 jumper pins to open. Below illustration shows how to set up jumper.



Properly configure jumper and switch settings on the PICO500 to meet your application purpose. Below you can find a summary table of jumpers, switch and onboard default settings.

Note

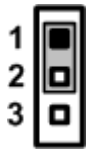
Once the default jumper or switch setting needs to be changed, please do it under power-off condition.

Jumper and Switch	Description	Setting
JP1	Restore BIOS Optimal Defaults Default: Normal Operation	1-2 Close
JP2	LVDS Voltage Selection Default: +3.3V Level	1-2 Close
SW1	Auto Power On Default: Enable	2-3 Close

2.4.1 Restore BIOS Optimal Defaults (JP1)

Put jumper clip to pin 2-3 for a few seconds then move it back to pin 1-2. Doing this procedure can restore BIOS optimal defaults.

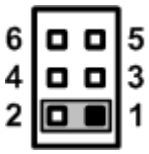
Function	Setting
Normal (Default)	1-2 close
Restore BIOS optimal defaults	2-3 close



2.4.2 LVDS Voltage Selection (JP2)

The board supports voltage selection for flat panel displays. Use this jumper to set LVDS connector (CN16) pin 1~6 VCCM to +3.3V, +5V or +12V. To prevent hardware damage, before connecting please make sure that input voltage of flat panel is correct.

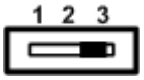
Function	Setting
+3.3V level (Default)	1-2 close
+5V level	2-4 close
+12V level	5-6 close



2.4.3 Auto Power On (SW1)

If SW1 is enabled for power input, the system will be automatically power on without pressing soft power button. If SW1 is disabled for power input, it is necessary to manually press soft power button to power on the system.

Function	Setting
Disable auto power on	1-2 close
Enable auto power on (Default)	2-3 close



2.5 Connectors

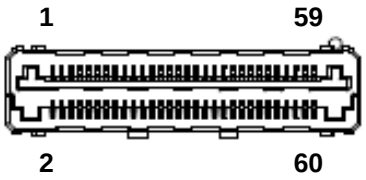
Signals go to other parts of the system through connectors. Loose or improper connection might cause problems, please make sure all connectors are properly and firmly connected. Here is a summary table which shows all connectors on the hardware.

Connector	Description
CN2	High Speed Board to Board Connector 1
CN3	High Speed Board to Board Connector 2
CN4	SATA Connector
CN5	CMOS Battery Connector
CN6	Fan Power Connector
CN7	SMBus Connector
CN8	SATA Power Connector
CN9	Power and Reset Button Connector
CN10	USB 2.0 Wafer Connector
CN11	Inverter Connector
CN12 (Optional)	Power Wafer Connector
CN13	Ethernet Port
CN14	DC Jack Power Connector w/ Screw
CN15	HDMI Connector
CN16	LVDS Connector
SCN1	Full-size PCI-Express Mini Card and mSATA Connector
SCN2	DDR4 SO-DIMM Connector

2.5.1 High Speed Board to Board Connectors (CN2 and CN3)

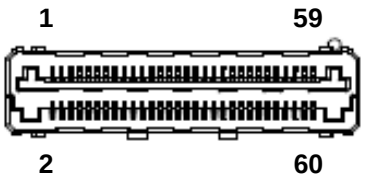
CN2 is a 2x30-pin high speed board to board connector. The pin assignments are given as follows.

Pin	Signal	Pin	Signal
1	MIC-L	2	AUDIO_OUT-L
3	MIC-R	4	AUDIO_OUT-R
5	AUDIO_GND	6	AUDIO_GND
7	DCD2	8	DSR2
9	RXD2	10	RTS2
11	TXD2	12	CTS2
13	DTR2	14	RI2
15	DCD1	16	DSR1
17	RXD1	18	RTS1
19	TXD1	20	CTS1
21	DTR1	22	RI1
23	GND	24	GND
25	SIO_PSIN#	26	GPO_485_EN_N
27	SATA_LED	28	GPO_485TERM_EN
29	HW_RESET#	30	GPO_485_MODE0
31	PLTRST_SIO	32	GPO_485_MODE1
33	USB_OC01	34	USB_OC23
35	GND	36	GND
37	DP0	38	DP2
39	DN0	40	DN2
41	GND	42	GND
43	DP1	44	DN3
45	DN1	46	DP3
47	GND	48	GND
49	NA	50	+V5_SBY
51	NA	52	+V5_SBY
53	NA	54	+V5_SBY
55	+V12S	56	+V5_SBY
57	+V3.3S	58	+V5S
59	+V3.3S	60	+V5S



CN3 is a 2x30-pin high speed board to board connector. The pin assignments are given as follows.

Pin	Signal	Pin	Signal
1	USB3_RXP1	2	PCIE_IO_RXP
3	USB3_RXN1	4	PCIE_IO_RXN
5	GND	6	GND
7	USB3_TXP1	8	PCIE_IO_TXP
9	USB3_TXN1	10	PCIE_IO_TXN
11	GND	12	GND
13	USB3_RXP2	14	B2B_PCIE_CLK
15	USB3_RXN2	16	B2B_PCIE_CLK#
17	GND	18	GND
19	USB3_TXP2	20	DDI2_TXP0
21	USB3_TXN2	22	DDI2_TXN0
23	GND	24	GND
25	USB3_RXP3	26	DDI2_TXP1
27	USB3_RXN3	28	DDI2_TXN1
29	GND	30	GND
31	USB3_TXP3	32	DDI2_TXP2
33	USB3_TXN3	34	DDI2_TXN2
35	GND	36	GND
37	USB3_RXP4	38	DDI2_TXP3
39	USB3_RXN4	40	DDI2_TXN3
41	GND	42	GND
43	USB3_TXP4	44	DDPC_CTRLDATA
45	USB3_TXN4	46	DDPC_CTRLCLK
47	GND	48	GND
49	DDPC_AUXP	50	DDPC_HPD
51	DDPC_AUXN	52	PLTRST_MINICARD
53	GND	54	PCIE_WAKE#
55	DISPLAY_M1	56	DISPLAY_M0
57	+V3.3_SBY	58	+V5S
59	+V3.3_SBY	60	+V5S



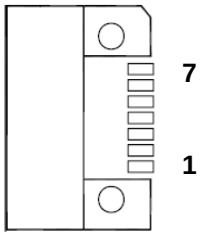
Note

It is suggested to insert I/O board (AX93275, AX93276 or AX93292) into CN2 and CN3 on PICO500 (see Appendix A for details of I/O board).

2.5.2 SATA Connector (CN4)

This Serial Advanced Technology Attachment (Serial ATA or SATA) connector is for high-speed SATA interface port. It is a computer bus interface for connecting to devices such as hard disk drives.

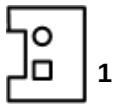
Pin	Signal
1	GND
2	TXP
3	TXN
4	GND
5	RXN
6	RXP
7	GND



2.5.3 CMOS Battery Connector (CN5)

This connector is for CMOS battery interface.

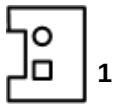
Pin	Signal
1	+3.3V
2	GND



2.5.4 Fan Power Connector (CN6)

The CN6 is a 2-pin (pitch=1.5mm) wafer connector for fan power interface.

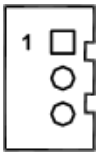
Pin	Signal
1	+5V
2	GND



2.5.5 SMBus Connector (CN7)

This is a 3-pin (pitch=1.5mm) wafer connector. The SMBus (System Management Bus) is a simple bus for the purpose of lightweight communication.

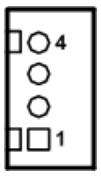
Pin	Signal
1	SMBus clock
2	SMBus data
3	GND



2.5.6 SATA Power Connector (CN8)

The CN8 is a 4-pin (pitch=2.0mm) wafer connector which is compliant with JST B4B-PH-K-S for SATA power interface.

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



2.5.7 Power and Reset Button Connector (CN9)

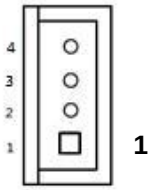
This is a 3-pin (pitch=1.25mm) wafer connector which is compliant with Molex 530470310 for power and reset button interface.

Pin	Signal
1	PS_IN
2	GND
3	HW Reset

2.5.8 USB 2.0 Wafer Connector (CN10)

This is a 4-pin (pitch=1.25mm) wafer connector which is compliant with Molex 530470410 for USB 2.0 interface.

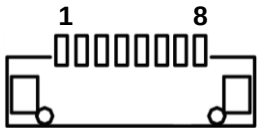
Pin	Signal
1	USB3_PWR67
2	D6+
3	D6-
4	GND



2.5.9 Inverter Connector (CN11)

This is DF13-8S-1.25C 8-pin connector for inverter. We strongly recommend you to use the matching DF13-8S-1.25C connector to avoid malfunction.

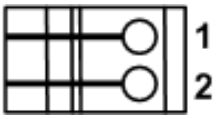
Pin	Signal
1	VBL1 (+12V level)
2	VBL1 (+12V level)
3	VBL2 (+5V level)
4	VBL_ENABLE
5	GND
6	GND
7	GND
8	VBL Brightness Control



2.5.10 Power Wafer Connector (CN12) (Optional)

The CN12 is a 2-pin (pitch=3.96mm) wafer connector in right angle for DC +12V input. This connector is co-layout with CN14.

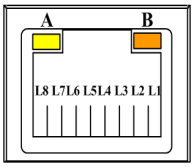
Pin	Signal
1	+12V
2	GND



2.5.11 Ethernet Port (CN13)

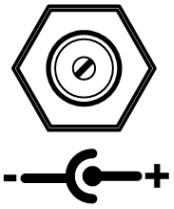
The board has one RJ-45 Ethernet connector. Connection can be established by plugging one end of the Ethernet cable into this RJ-45 and the other end (phone jack) to a 1000/100/10 Base-T hub.

Pin	Signal	Pin	Signal
L1	MDI0P	L5	MDI2P
L2	MDI0N	L6	MDI2N
L3	MDI1P	L7	MDI3P
L4	MDI1N	L8	MDI3N
A	Active LED (Yellow)		
B	100 LAN LED (Green) / 1000 LAN LED (Orange)		



2.5.12 DC Jack Power Connector w/ Screw (CN14)

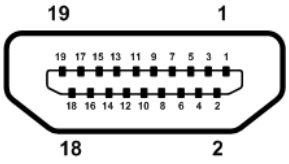
The CN14 is a DC jack with screw. Firmly insert at least 60W adapter into this connector. Loose connection may cause system instability and make sure all components/devices are properly installed before connecting.



2.5.13 HDMI Connector (CN15)

The HDMI (High-Definition Multimedia Interface) is a compact digital interface which is capable of transmitting high-definition video and high-resolution audio over a single cable.

Pin	Signal	Pin	Signal
1	HDMI OUT_DATA2+	2	GND
3	HDMI OUT_DATA2-	4	HDMI OUT_DATA1+
5	GND	6	HDMI OUT_DATA1-
7	HDMI OUT_DATA0+	8	GND
9	HDMI OUT_DATA0-	10	HDMI OUT_Clock+
11	GND	12	HDMI OUT_Clock-
13	N.C.	14	N.C.
15	HDMI OUT_SCL	16	HDMI OUT_SDA
17	GND	18	+5V
19	HDMI_HTPLG		

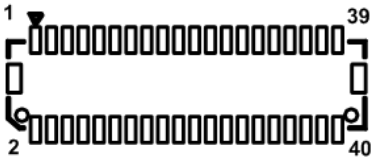


2.5.14 LVDS Connector (CN16)

This board has a 2x20-pin connector for LVDS LCD interface. It is strongly recommended to use the matching JST SHDR-40VS-B connector for LVDS interface. Pin 1~6 VCCM can be set to +3.3V, +5V or +12V by setting JP2 (see section 2.4.2).

18-bit single channel

Pin	Signal	Pin	Signal
1	VCCM	2	VCCM
3	VCCM	4	VCCM
5	VCCM	6	VCCM
7	N.C.	8	N.C.
9	GND	10	GND
11	N.C.	12	N.C.
13	N.C.	14	N.C.
15	GND	16	GND
17	N.C.	18	N.C.
19	N.C.	20	N.C.
21	GND	22	GND
23	Channel A D0-	24	N.C.
25	Channel A D0+	26	N.C.
27	GND	28	GND
29	Channel A D1-	30	N.C.
31	Channel A D1+	32	N.C.
33	GND	34	GND
35	Channel A D2-	36	Channel A CLK-
37	Channel A D2+	38	Channel A CLK+
39	GND	40	GND



24-bit single channel

Pin	Signal	Pin	Signal
1	VCCM	2	VCCM
3	VCCM	4	VCCM
5	VCCM	6	VCCM
7	N.C	8	N.C
9	GND	10	GND
11	N.C	12	N.C
13	N.C	14	N.C
15	GND	16	GND
17	N.C	18	N.C
19	N.C	20	N.C
21	GND	22	GND
23	Channel A D0-	24	N.C
25	Channel A D0+	26	N.C
27	GND	28	GND
29	Channel A D1-	30	Channel A D3-
31	Channel A D1+	32	Channel A D3+
33	GND	34	GND
35	Channel A D2-	36	Channel A CLK-
37	Channel A D2+	38	Channel A CLK+
39	GND	40	GND

18-bit dual channel

Pin	Signal	Pin	Signal
1	VCCM	2	VCCM
3	VCCM	4	VCCM
5	VCCM	6	VCCM
7	N.C	8	N.C
9	GND	10	GND
11	N.C	12	Channel B D0-
13	N.C	14	Channel B D0+
15	GND	16	GND
17	Channel B CLK-	18	Channel B D1-
19	Channel B CLK+	20	Channel B D1+
21	GND	22	GND
23	Channel A D0-	24	Channel B D2-
25	Channel A D0+	26	Channel B D2+
27	GND	28	GND
29	Channel A D1-	30	N.C
31	Channel A D1+	32	N.C
33	GND	34	GND
35	Channel A D2-	36	Channel A CLK-
37	Channel A D2+	38	Channel A CLK+
39	GND	40	GND

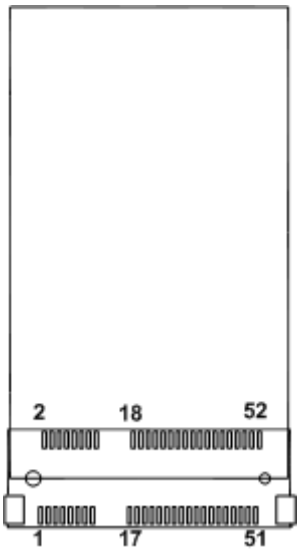
24-bit dual channel

Pin	Signal	Pin	Signal
1	VCCM	2	VCCM
3	VCCM	4	VCCM
5	VCCM	6	VCCM
7	N.C	8	N.C
9	GND	10	GND
11	Channel B D3-	12	Channel B D0-
13	Channel B D3+	14	Channel B D0+
15	GND	16	GND
17	Channel B CLK-	18	Channel B D1-
19	Channel B CLK+	20	Channel B D1+
21	GND	22	GND
23	Channel A D0-	24	Channel B D2-
25	Channel A D0+	26	Channel B D2+
27	GND	28	GND
29	Channel A D1-	30	Channel A D3-
31	Channel A D1+	32	Channel A D3+
33	GND	34	GND
35	Channel A D2-	36	Channel A CLK-
37	Channel A D2+	38	Channel A CLK+
39	GND	40	GND

2.5.15 Full-size PCI-Express Mini Card and mSATA Connector (SCN1)

This is a full-size PCI-Express Mini Card connector on the bottom side complying with PCI-Express Mini Card Spec. V1.2. It supports either PCI-Express, USB 2.0 or SATA (mSATA). To enable or disable mSATA support, please refer to BIOS setting in section 4.4.

Pin	Signal	Pin	Signal
1	WAKE#	2	+3.3VSB
3	No use	4	GND
5	No use	6	+1.5V
7	CLKREQ#	8	No use
9	GND	10	No use
11	REFCLK-	12	No use
13	REFCLK+	14	No use
15	GND	16	No use
17	No use	18	GND
19	No use	20	W_DISABLE#
21	GND	22	PERST#
23	PE_RXN/SATA_RXP	24	+3.3VSB
25	PE_RXP/SATA_RXN	26	GND
27	GND	28	+1.5V
29	GND	30	SMB_CLK
31	PE_TXN/SATA_TXN	32	SMB_DATA
33	PE_TXP/SATA_TXP	34	GND
35	GND	36	USB_D4-
37	GND	38	USB_D4+
39	+3.3VSB	40	GND
41	+3.3VSB	42	No use
43	GND	44	No use
45	No use	46	No use
47	No use	48	+1.5V
49	No use	50	GND
51	No use	52	+3.3VSB



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Chapter 3
Hardware Description

3.1 Microprocessors

The PICO500 supports 6th Generation Intel® Core™ i7/ i5 /i3 and Celeron® processor, which enables your system to operate under Windows® 8.1 and Windows® 10 environments. The system performance depends on the microprocessor. Make sure all correct settings are arranged for your installed microprocessor to prevent the CPU from damages.

3.2 BIOS

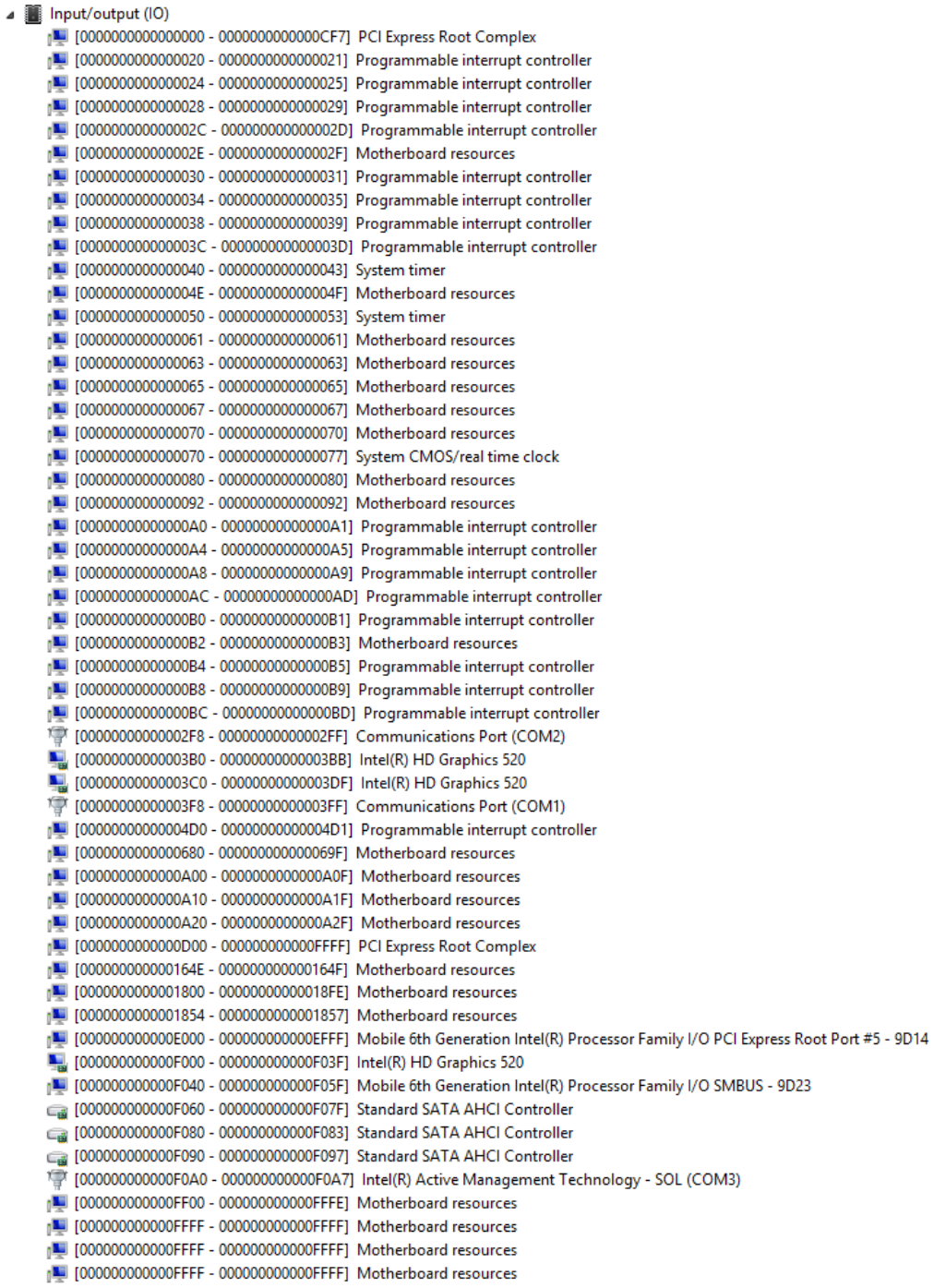
The PICO500 uses AMI Plug and Play BIOS with a single 128Mbit SPI Flash.

3.3 System Memory

The PICO500 supports one 260-pin DDR4 SO-DIMM socket for maximum memory capacity up to 16GB DDR4 SDRAMs. The memory module comes in sizes of 2GB, 4GB, 8GB and 16GB.

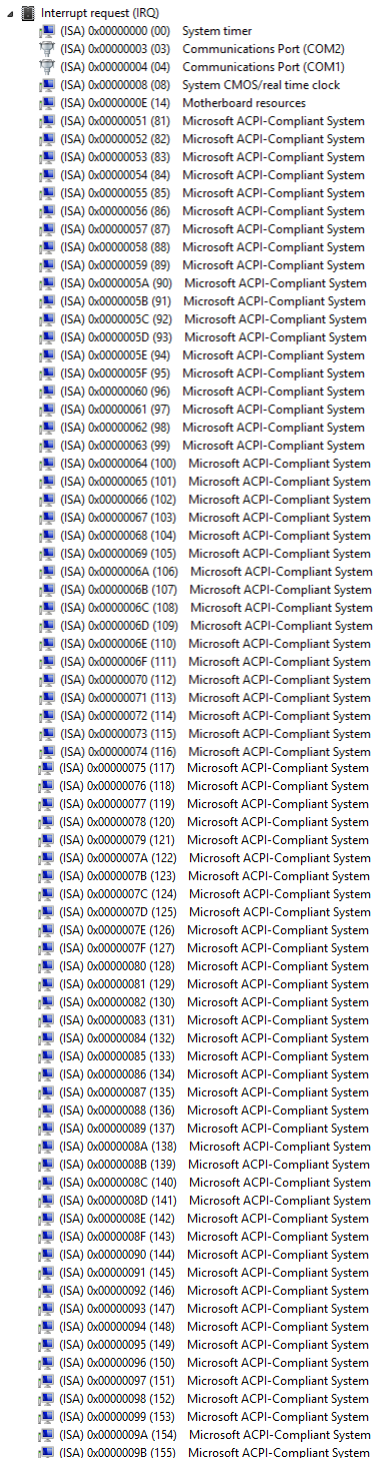
3.4 I/O Port Address Map

The 6th Generation Intel® Core™ i7/ i5/ i3 and Celeron® processor communicates via I/O ports.



3.5 Interrupt Controller (IRQ) Map

The interrupt controller (IRQ) mapping list is shown as follows:



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(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) 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) 0x000001E5 (485) Microsoft ACPI-Compliant System
(ISA) 0x000001E6 (486) Microsoft ACPI-Compliant System
(ISA) 0x000001E7 (487) Microsoft ACPI-Compliant System
(ISA) 0x000001E8 (488) Microsoft ACPI-Compliant System
(ISA) 0x000001E9 (489) Microsoft ACPI-Compliant System
(ISA) 0x000001EA (490) Microsoft ACPI-Compliant System
(ISA) 0x000001EB (491) Microsoft ACPI-Compliant System
(ISA) 0x000001EC (492) Microsoft ACPI-Compliant System
(ISA) 0x000001ED (493) 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) 0x0000000B (11) Mobile 6th Generation Intel(R) Processor Family I/O Thermal subsystem - 9D31
(PCI) 0x0000000B (11) Mobile 6th Generation Intel(R) Processor Family I/O SMBUS - 9D23
(PCI) 0x00000010 (16) High Definition Audio Controller
(PCI) 0x00000010 (16) Standard SATA AHCI Controller
(PCI) 0x00000013 (19) Intel(R) Active Management Technology - SOL (COM3)
(PCI) 0xFFFFFFFA (-6) Intel(R) Management Engine Interface
(PCI) 0xFFFFFFFB (-5) Intel(R) USB 3.0 Host Controller Adaptation Driver
(PCI) 0xFFFFFFFC (-4) Intel(R) HD Graphics 520
(PCI) 0xFFFFFFFD (-3) Intel(R) Ethernet Connection I219-LM
(PCI) 0xFFFFFFFE (-2) Mobile 6th Generation Intel(R) Processor Family I/O PCI Express Root Port #5 - 9D14

3.6 Memory Map

The memory mapping list is shown as follows:

Chapter 4
AMI BIOS Setup Utility

The AMI UEFI BIOS provides users with a built-in setup program to modify basic system configuration. All configured parameters are stored in a flash chip to save the setup information whenever the power is turned off. This chapter provides users with detailed description about how to set up basic system configuration through the AMI BIOS setup utility.

4.1 Starting

To enter the setup screens, follow the steps below:

1. Turn on the computer and press the <Del> key immediately.
2. After you press the <Del> key, the main BIOS setup menu displays. You can access the other setup screens from the main BIOS setup menu, such as the Advanced and Chipset menus.

Note

If your computer cannot boot after making and saving system changes with BIOS setup, you can restore BIOS optimal defaults by setting JP1 (see section 2.4.1).

It is strongly recommended that you should avoid changing the chipset's defaults. Both AMI and your system manufacturer have carefully set up these defaults that provide the best performance and reliability.

4.2 Navigation Keys

The BIOS setup/utility uses a key-based navigation system called hot keys. Most of the BIOS setup utility hot keys can be used at any time during the setup navigation process. These keys include <F1>, <F2>, <Enter>, <ESC>, <Arrow> keys, and so on.

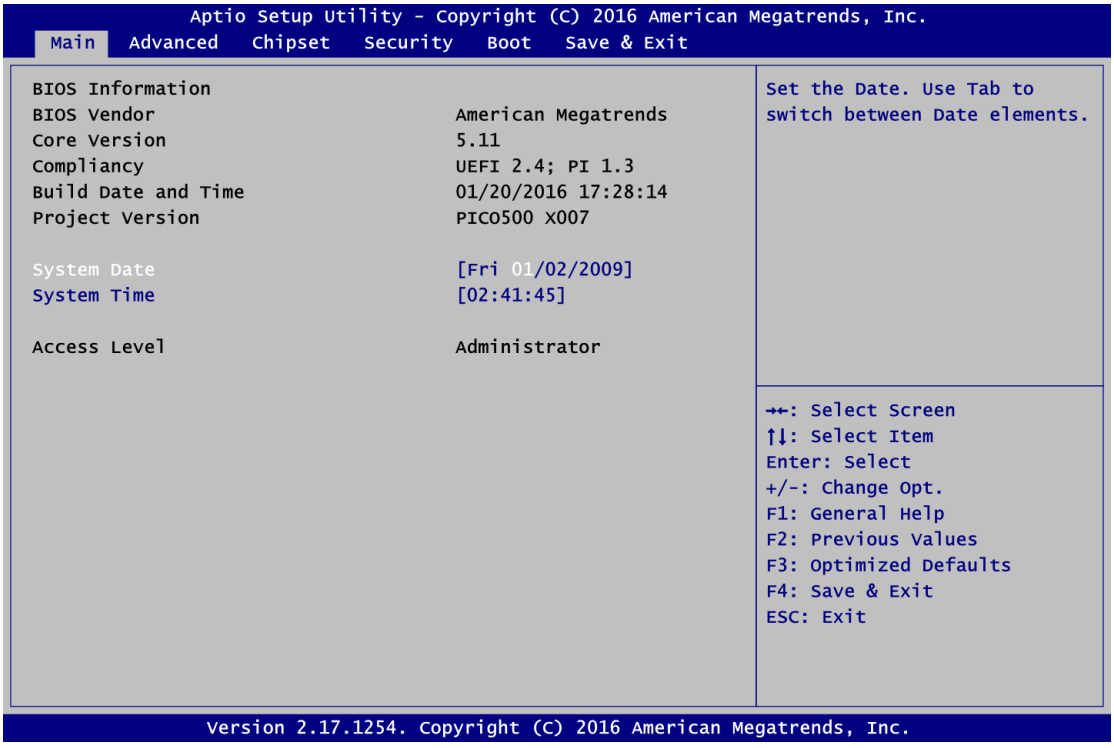
Note

Some of the navigation keys differ from one screen to another.

Hot Keys	Description
→← **Left/Right**	The Left and Right <Arrow> keys allow you to select a setup screen.
↑↓ **Up/Down**	The Up and Down <Arrow> keys allow you to select a setup screen or sub-screen.
+– Plus/Minus	The Plus and Minus <Arrow> keys allow you to change the field value of a particular setup item.
Tab	The <Tab> key allows you to select setup fields.
F1	The <F1> key allows you to display the General Help screen.
F2	The <F2> key allows you to Load Previous Values.
F3	The <F3> key allows you to Load Optimized Defaults.
F4	The <F4> key allows you to save any changes you have made and exit Setup. Press the <F4> key to save your changes.
Esc	The <Esc> key allows you to discard any changes you have made and exit the Setup. Press the <Esc> key to exit the setup without saving your changes.
Enter	The <Enter> key allows you to display or change the setup option listed for a particular setup item. The <Enter> key can also allow you to display the setup sub- screens.

4.3 Main Menu

When you first enter the setup utility, you will enter the Main setup screen. You can always return to the Main setup screen by selecting the Main tab. System Time/Date can be set up as described below. The Main BIOS setup screen is shown below.



- **BIOS Information**
  Display the auto detected BIOS information.

- **System Date/Time**
  Use this option to change the system time and date. Highlight System Time or System Date using the <Arrow> keys. Enter new values through the keyboard. Press the <Tab> key or the <Arrow> keys to move between fields. The date must be entered in MM/DD/YY format. The time is entered in HH:MM:SS format.

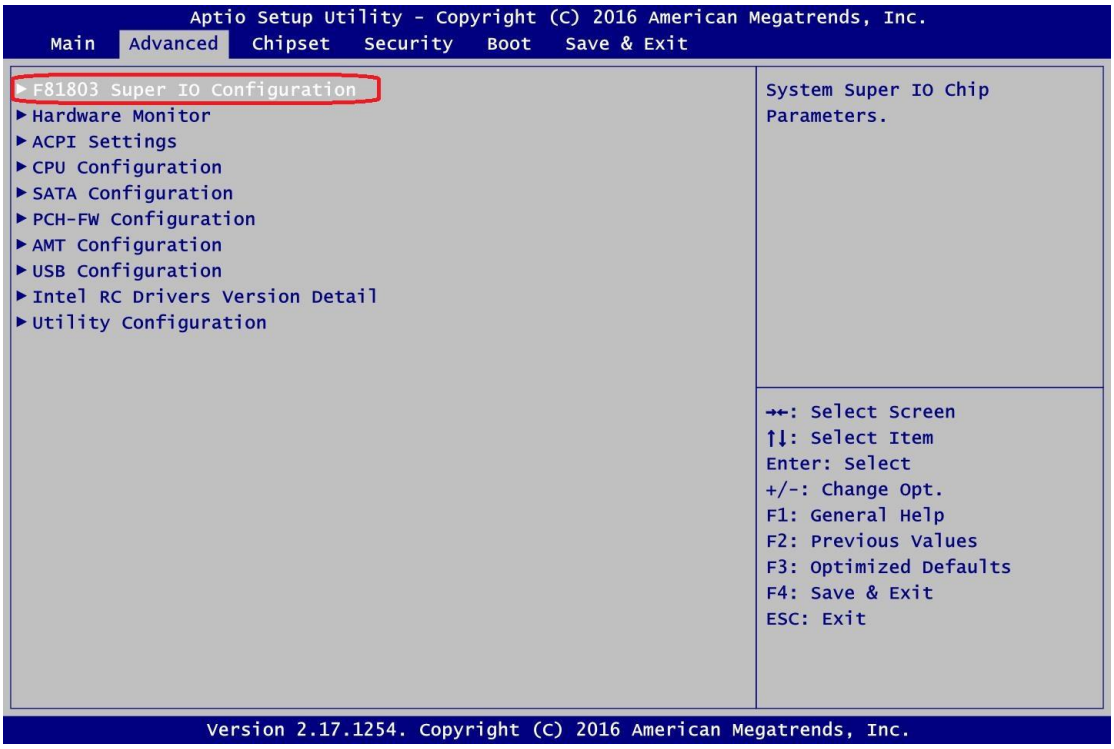
- **Access Level**
  Display the access level of current user.

4.4 Advanced Menu

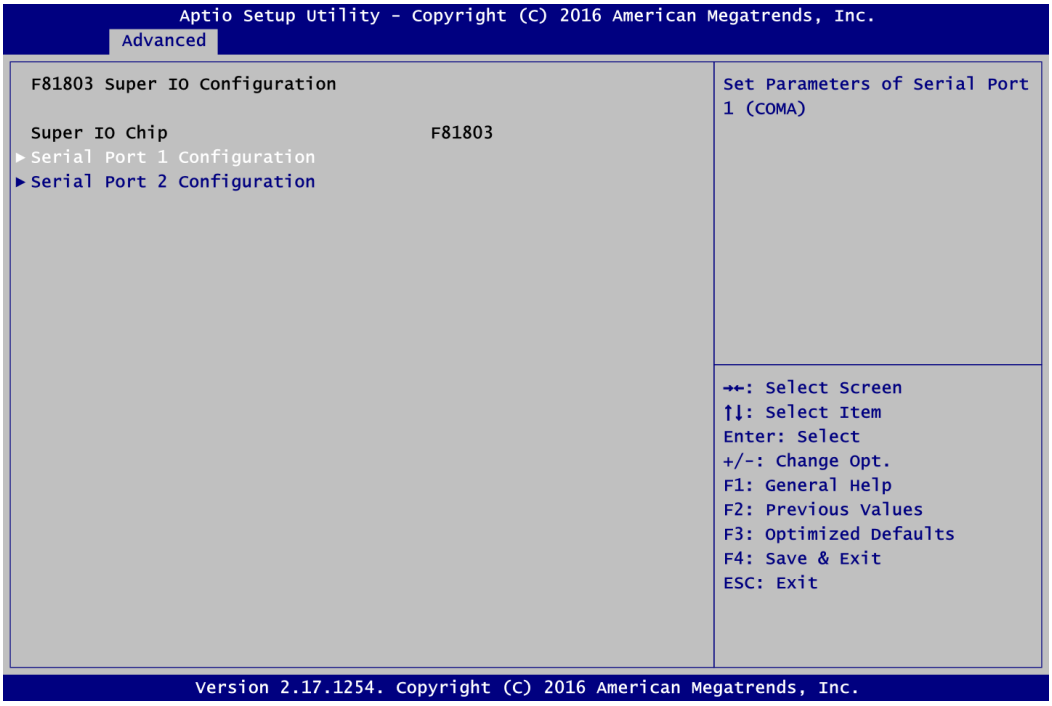
The Advanced menu also allows users to set configuration of the CPU and other system devices. You can select any of the items in the left frame of the screen to go to the sub menus:

- ► F81803 Super IO Configuration [This option appears only if I/O board is installed (see Appendix A for details of I/O Boards)]
- ► Hardware Monitor
- ► ACPI Settings
- ► CPU Configuration
- ► SATA Configuration
- ► PCH-FW Configuration
- ► AMT Configuration
- ► USB Configuration
- ► Intel RC Drivers Version Detail
- ► Utility Configuration

For items marked with "►", please press <Enter> for more options.

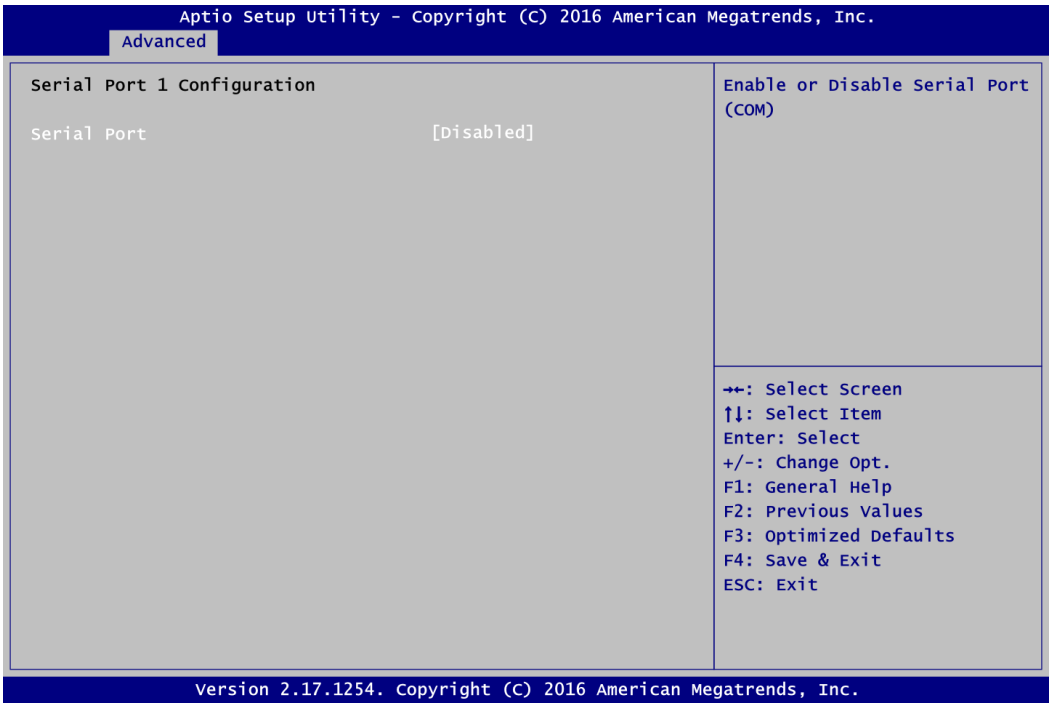


- **F81803 Super IO Configuration**
  You can use this screen to select options for the Super IO Configuration, and change the value of the selected option. A description of the selected item appears on the right side of the screen. For items marked with "►", please press <Enter> for more options.



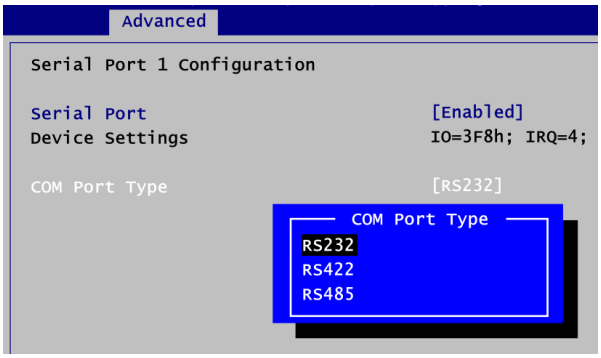
Serial Port 1~2 Configuration
Use these items to set parameters of serial port 1~2 when I/O board is installed (see Appendix A for details of I/O Boards).

- **Serial Port 1 Configuration**



Serial Port

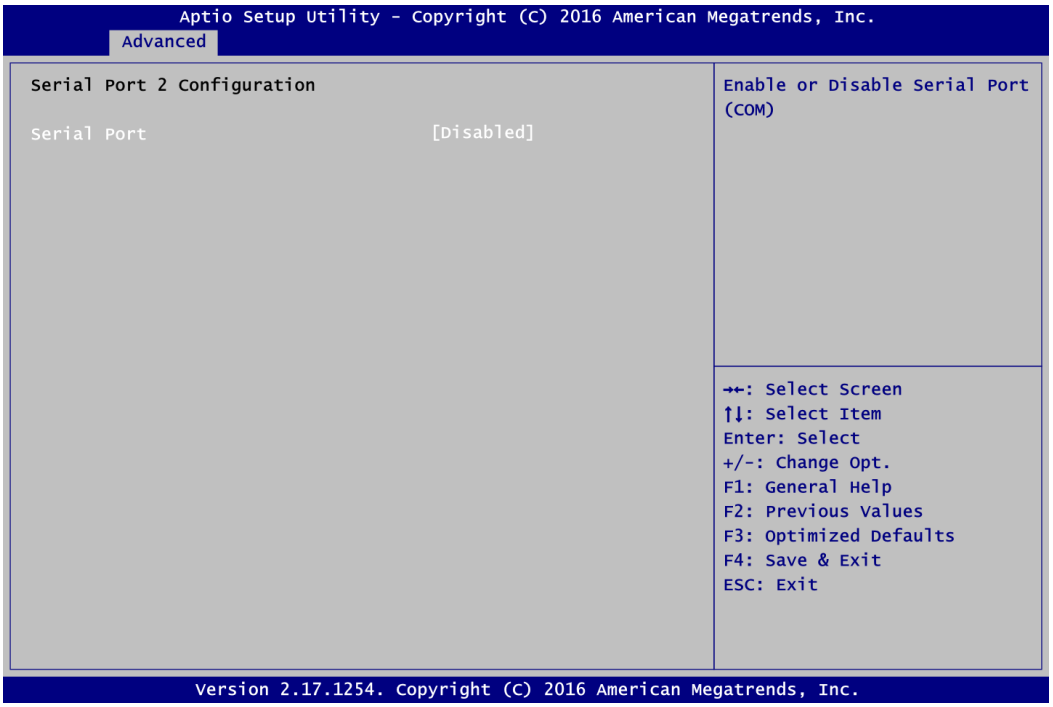
- Disabled: If I/O board is not installed.
- Enabled: If I/O board is installed, this option will be enabled automatically. The optimal setting for base I/O address is 3F8h and for interrupt request address is IRQ4, see image below.



COM Port Type

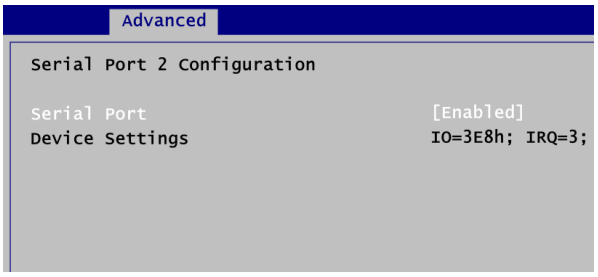
Use this option to set RS-232/422/485 mode for COM1 port on I/O board (see Appendix A for details of I/O Boards).

- **Serial Port 2 Configuration**

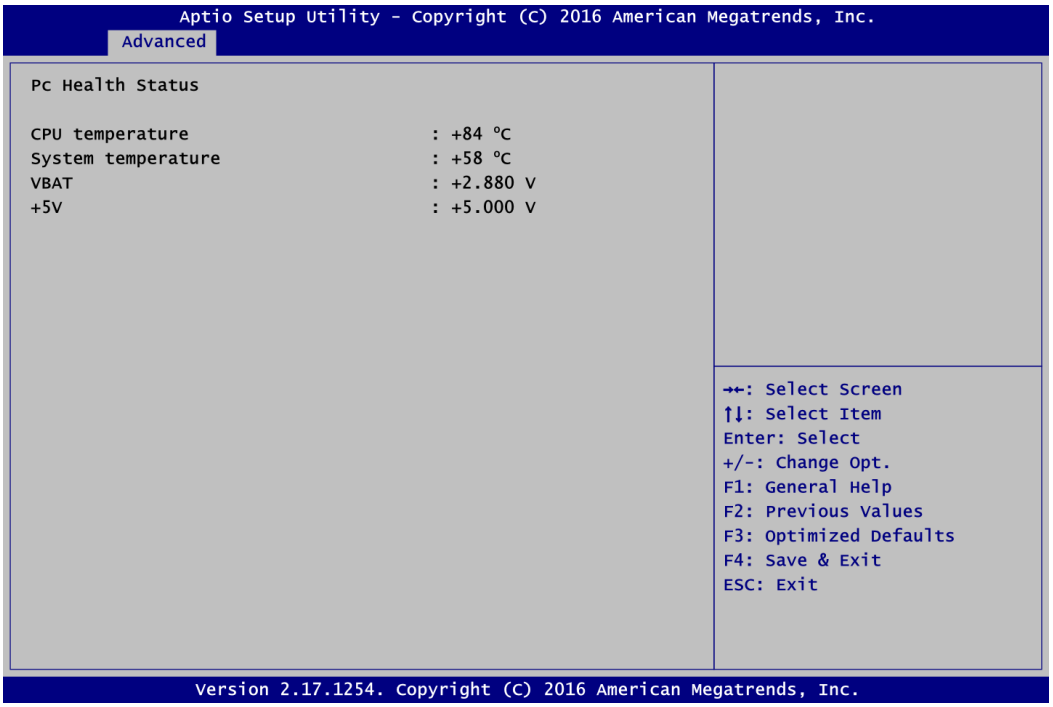


Serial Port

- Disabled: If I/O board is not installed.
- Enabled: If I/O board is installed, this option will be enabled automatically. The optimal setting for base I/O address is 3E8h and for interrupt request address is IRQ3, see image below.

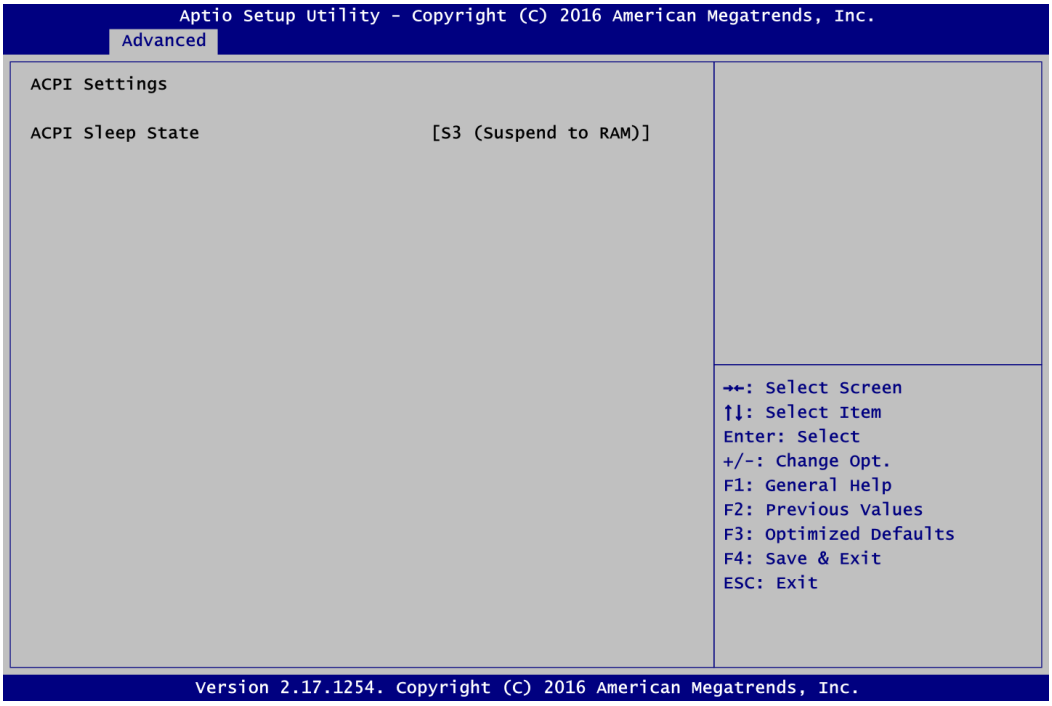


- **Hardware Monitor**
  This screen monitors hardware health status.



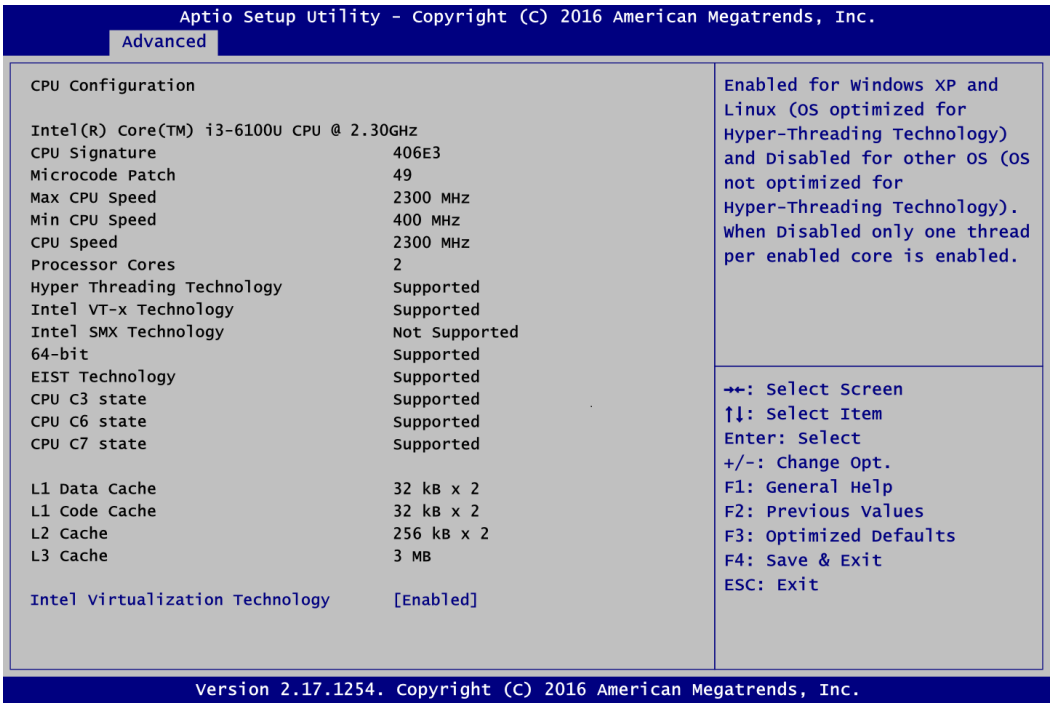
This screen displays the temperature of system and CPU, and system voltages (VBAT and +5V).

- **ACPI Settings**
  You can use this screen to select options for the ACPI configuration, and change the value of the selected option. A description of the selected item appears on the right side of the screen.



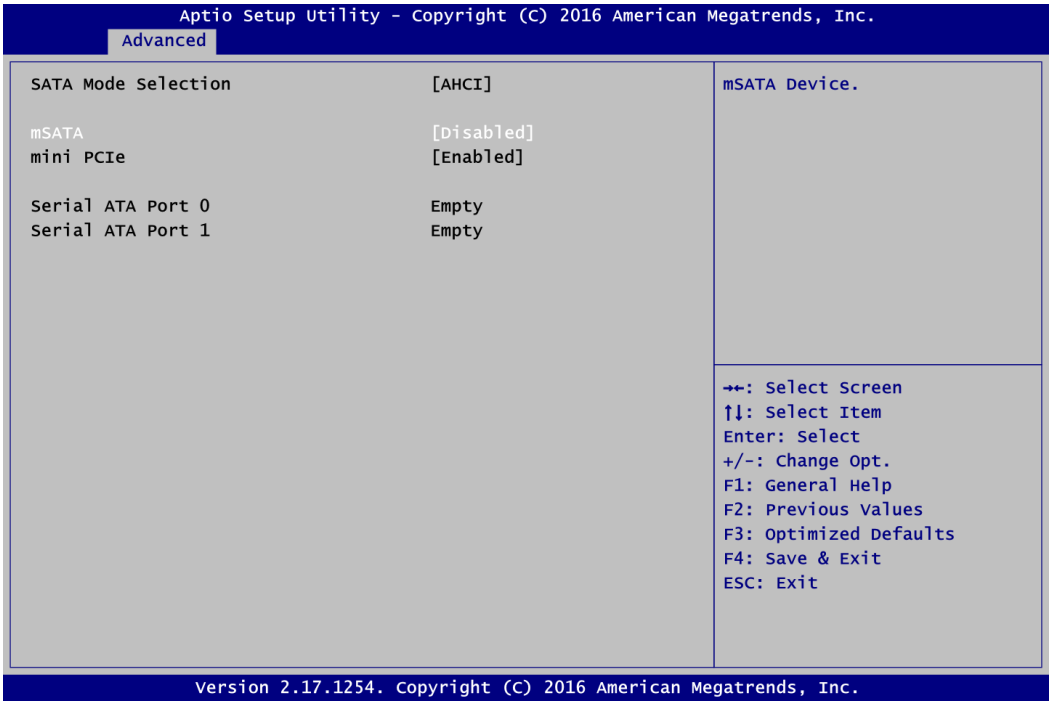
ACPI Sleep State
When the suspend button is pressed, the ACPI sleep state is S3 (Suspend to RAM).

- **CPU Configuration**
  This screen shows the CPU Configuration.



Intel Virtualization Technology
Enable or disable Intel Virtualization Technology. When enabled, a VMM (Virtual Machine Mode) can utilize the additional hardware capabilities. It allows a platform to run multiple operating systems and applications independently, hence enabling a single computer system to work as several virtual systems.

- **SATA Configuration**
  In the SATA Configuration menu, you can see the current installed hardware in the SATA ports. During system boot up, the BIOS automatically detects the presence of SATA devices.



SATA Mode Selection
AHCI (Advanced Host Controller Interface) mode is how SATA controller(s) operate.

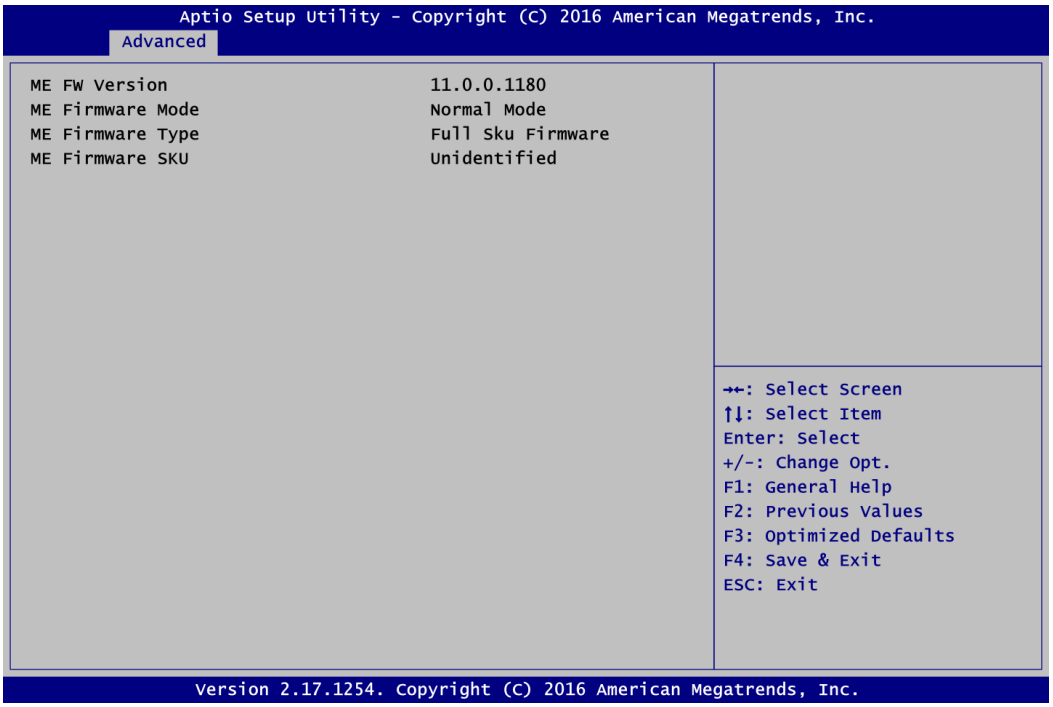
mSATA
Enable or disable mSATA device. The default is Disabled.

mini PCIe
When mSATA is enabled, mini PCIe is disabled automatically and vice versa.

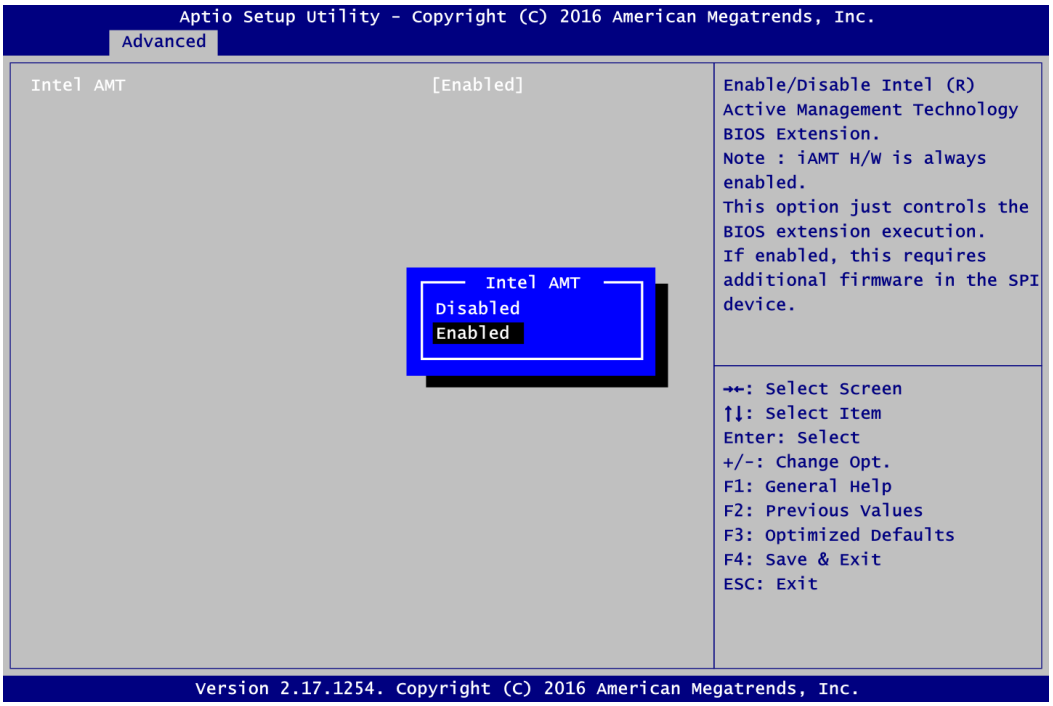
Serial ATA Port 0
It shows the device installed in connector CN4 (see section 2.5.2).

Serial ATA Port 1
It shows the mSATA card installed when mSATA is enabled.

- **PCH-FW Configuration**
  This screen displays ME Firmware information.

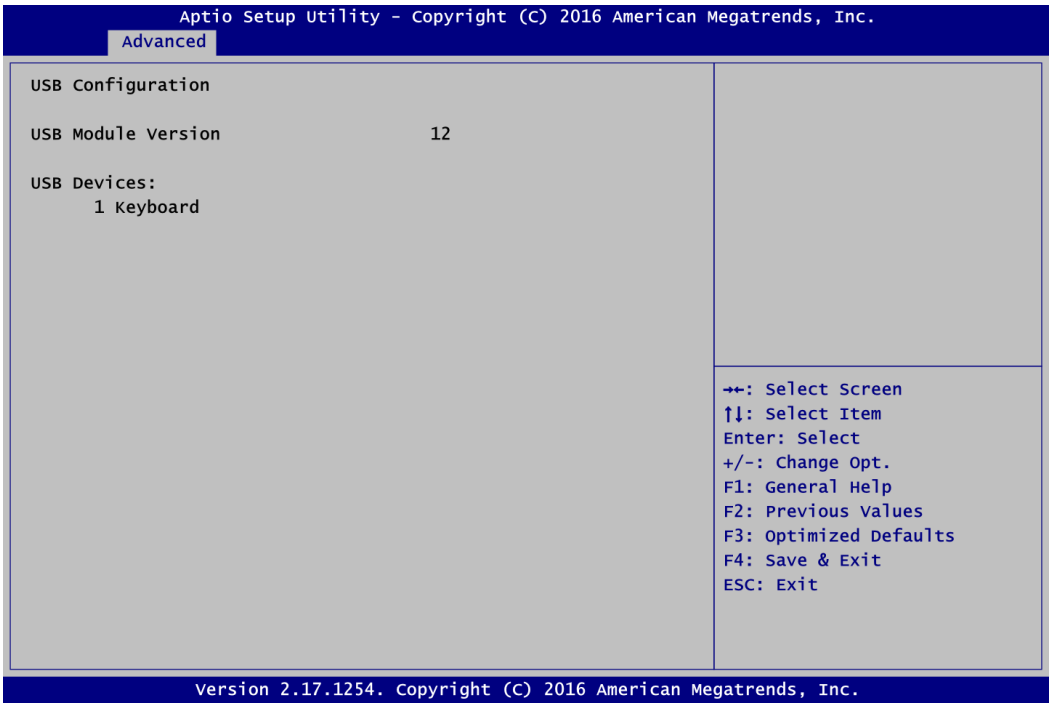


- **AMT Configuration**
  Use this screen to configure AMT parameters.



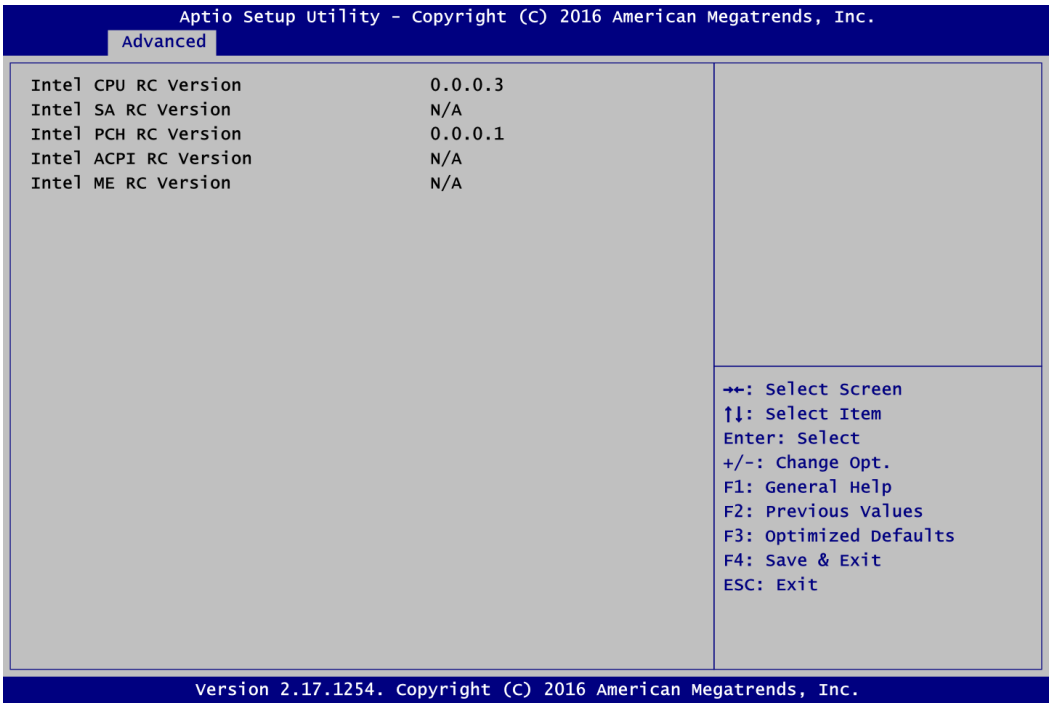
Intel AMT
Enable or disable Intel® Active Management Technology BIOS Extension. The default is Enabled. For more detailed information, please refer to Appendix C.

- **USB Configuration**

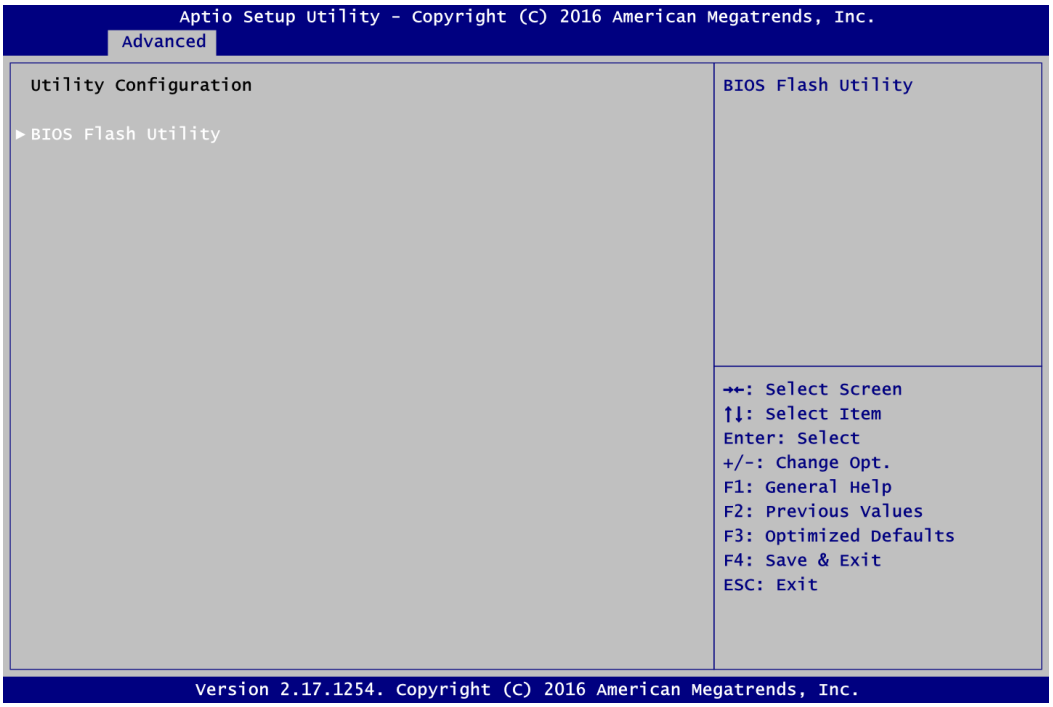


USB Devices
Display all detected USB devices which are installed in connector CN10 on PICO500, CN7 and CN8 on AX93275, CN4 and CN6 on AX93276 or CN3 on AX93292 (see section 2.5.8 and Appendix A).

- **Intel RC Drivers Version Detail**
This screen displays Intel® RC drivers version information.



- **Utility Configuration**



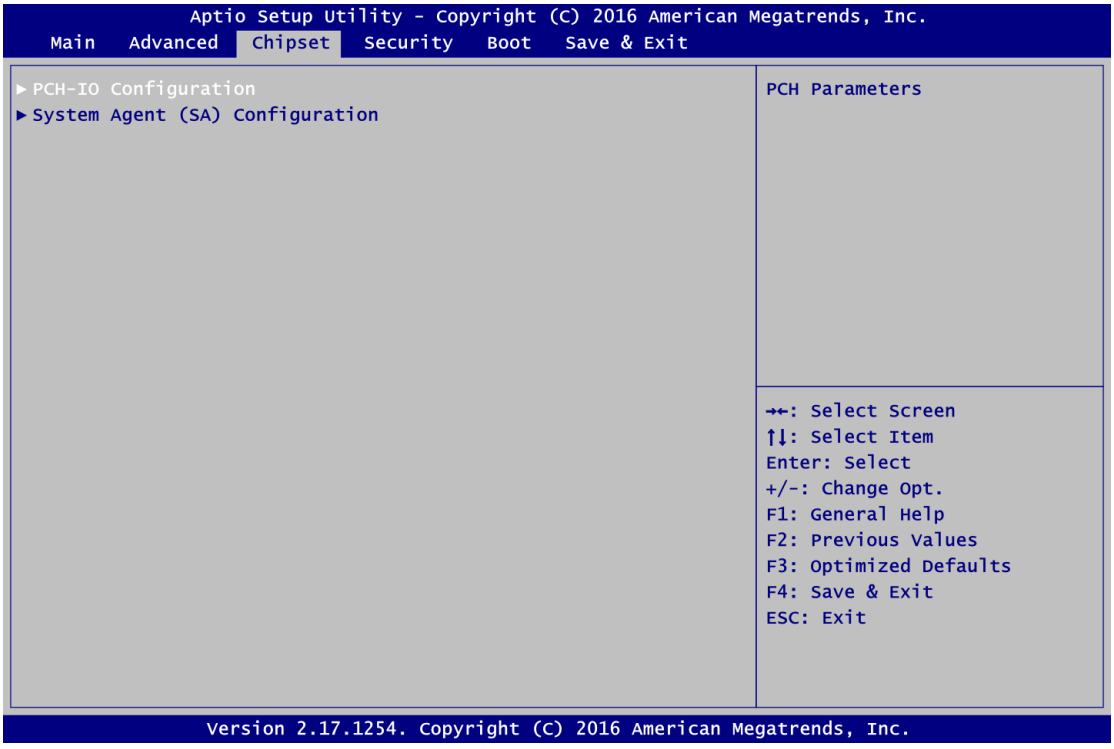
BIOS Flash Utility
BIOS flash utility configuration. For more detailed information, please refer to Appendix D.

4.5 Chipset Menu

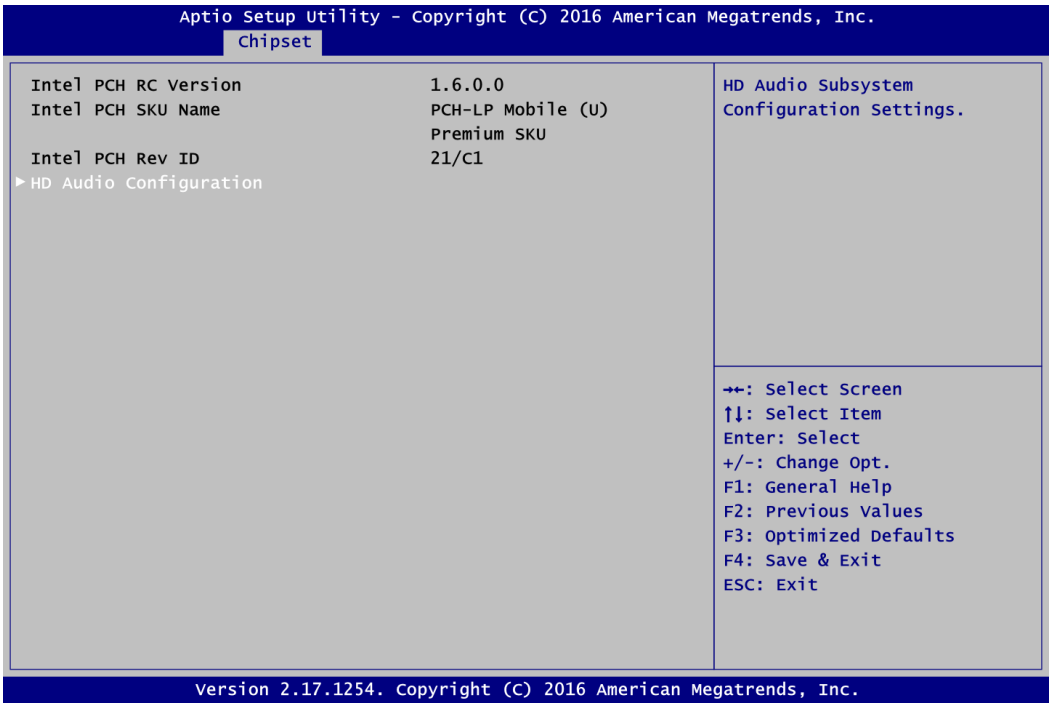
The Chipset menu allows users to change the advanced chipset settings. You can select any of the items in the left frame of the screen to go to the sub menus:

- ► PCH-IO Configuration
- ► System Agent (SA) Configuration

For items marked with "►", please press <Enter> for more options.

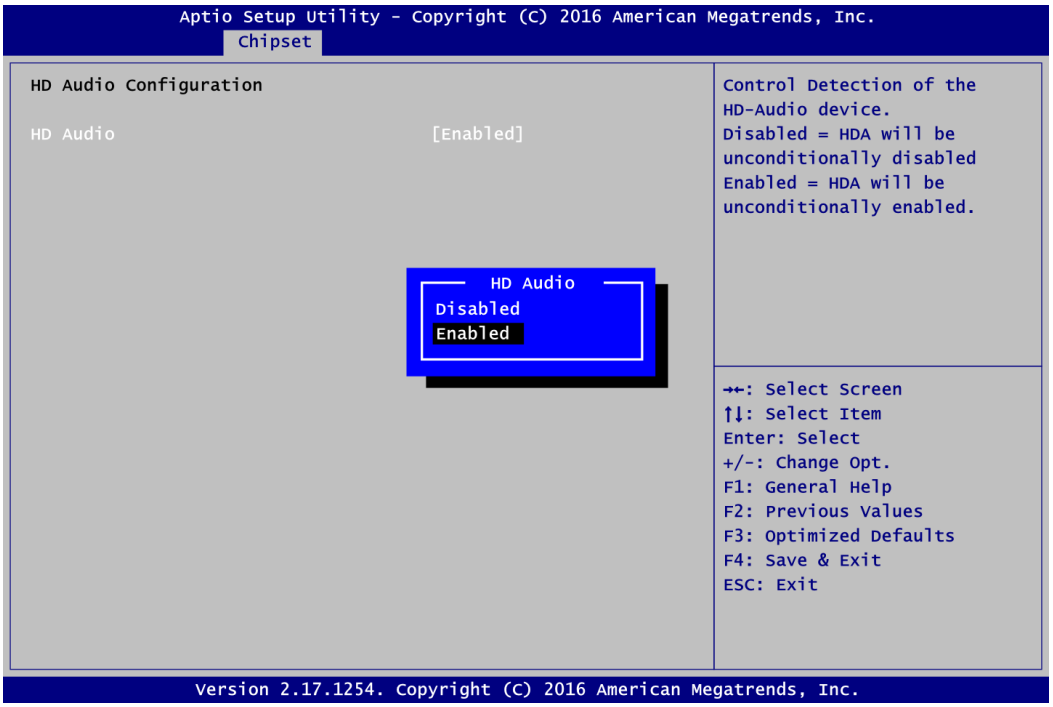


- **PCH-IO Configuration**
  This screen allows you to set PCH parameters.



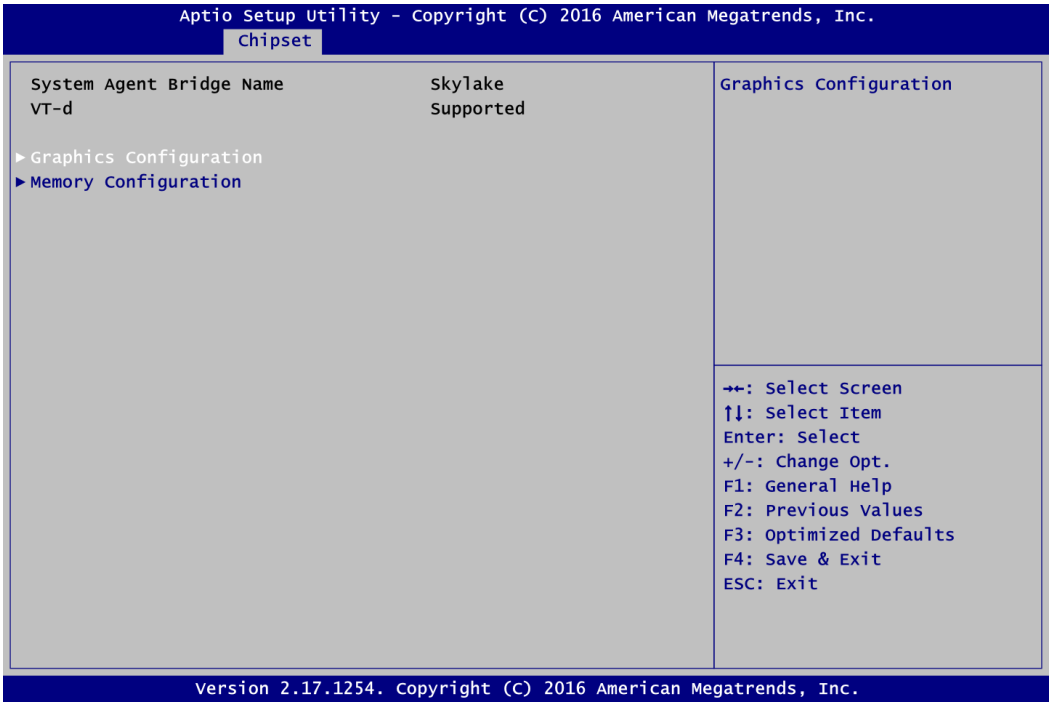
HD Audio Configuration
Use this item for HD Audio configuration settings.

- **HD Audio Configuration**



HD Audio
Control detection of the HD Audio device. Configuration options are Disabled and Enabled.

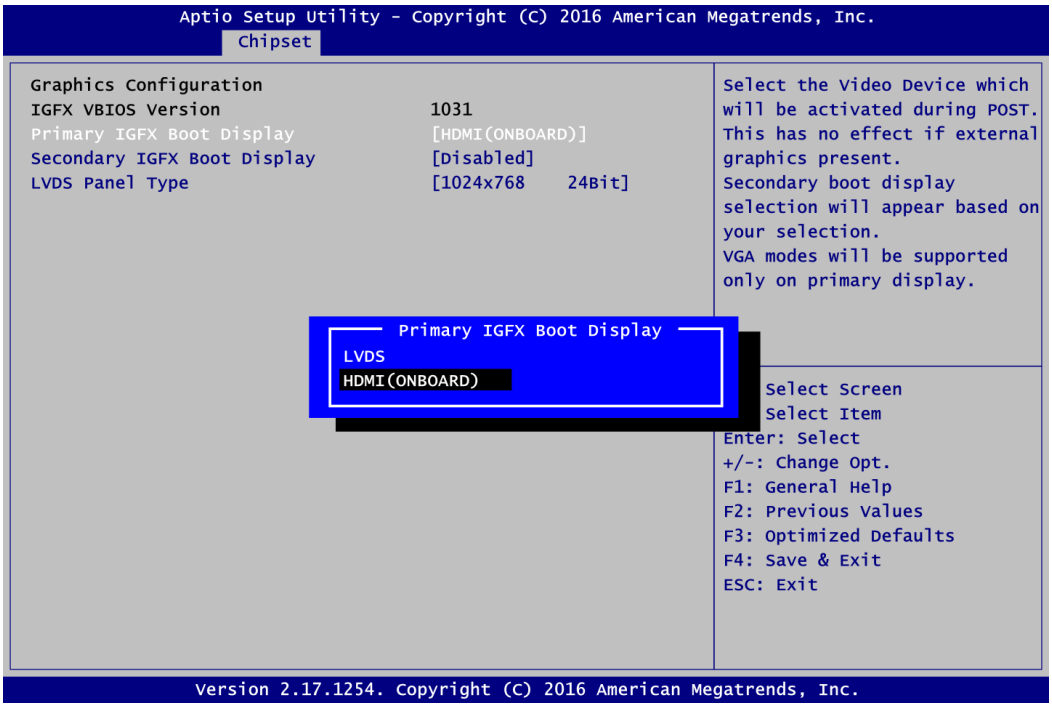
- **System Agent (SA) Configuration**
  This screen shows System Agent version information and provides function for specifying related parameters.



Graphics Configuration
Use this item to configure internal graphics controller.

Memory Configuration
Use this item to refer to the information related to system memory.

- **Graphics Configuration**

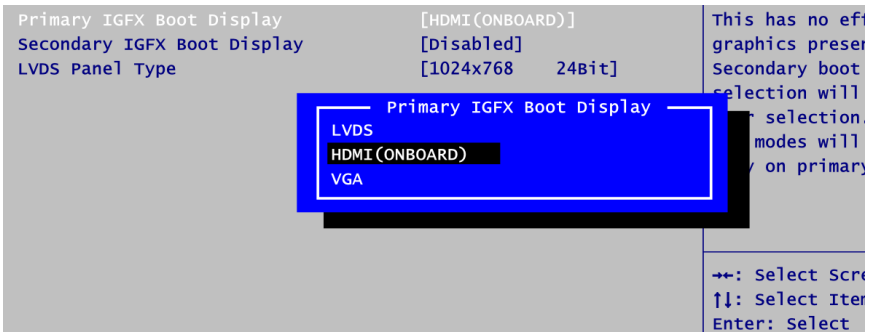


Primary IGFX Boot Display
Select the video device which will be activated during POST (Power-On Self Test). The default is HDMI(ONBOARD). The image above shows option list in Primary IGFX Boot Display when no I/O board is installed.

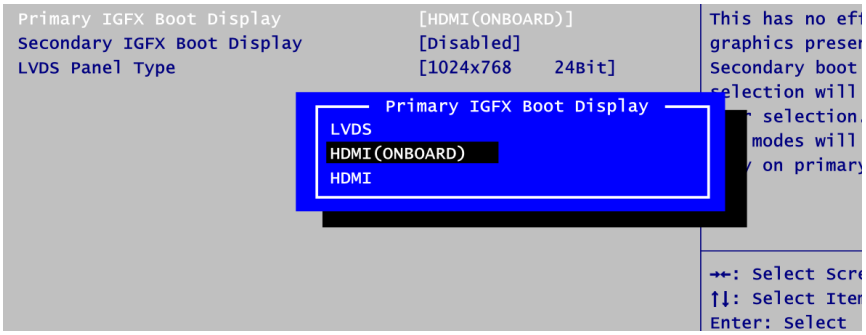
Note

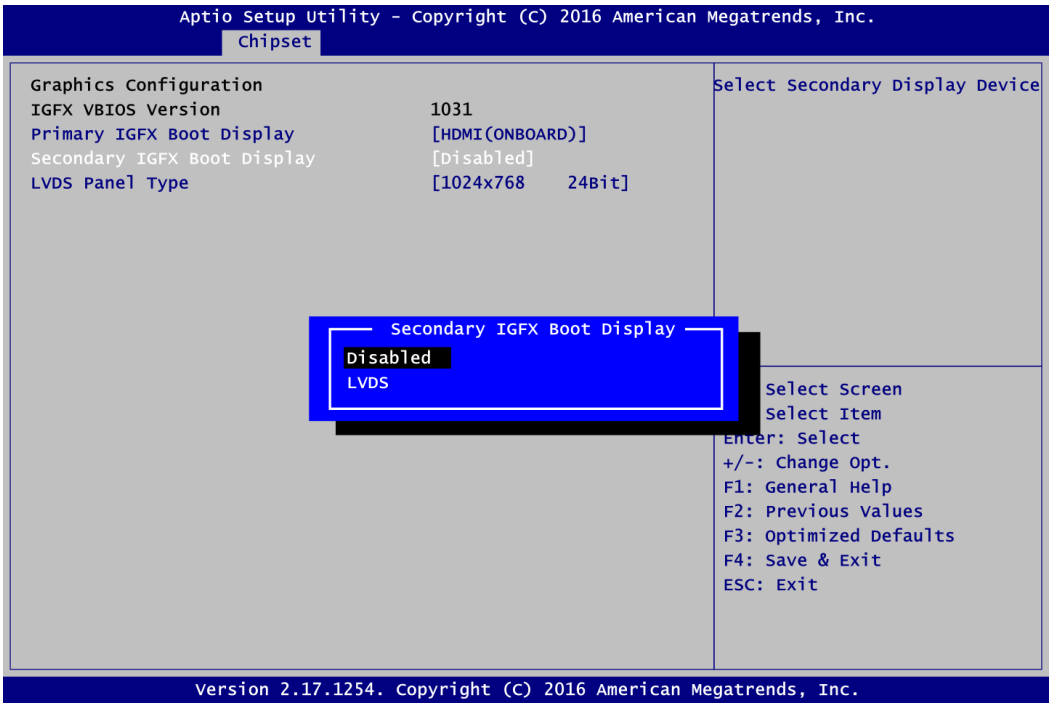
When powering on PICO500 for the first time, video device must be plugged into HDMI connector (CN15). Then, after first power on, you can set VGA on AX93275 or HDMI on AX93276 as primary IGFX boot display.

When AX93275 is installed, the Primary IGFX Boot Display option list will be LVDS, HDMI(ONBOARD) and VGA, see image below.



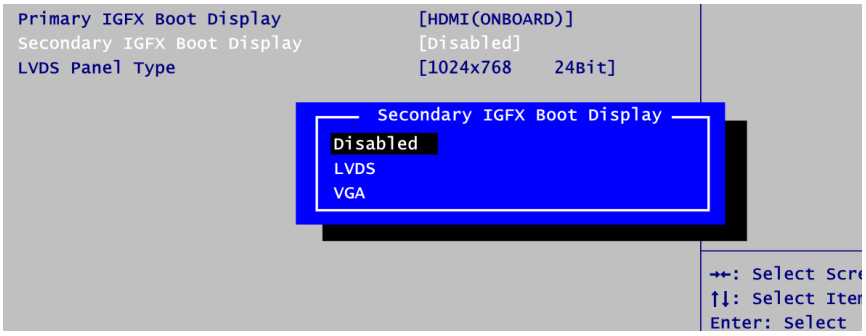
Otherwise when AX93276 is installed, the Primary IGFX Boot Display option list will be LVDS, HDMI(ONBOARD) and HDMI, see image below.



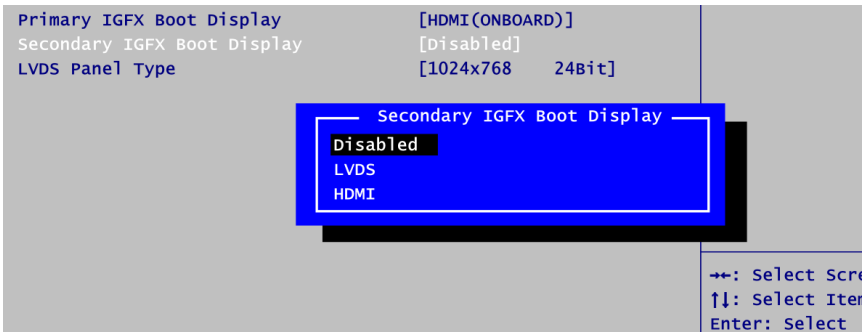


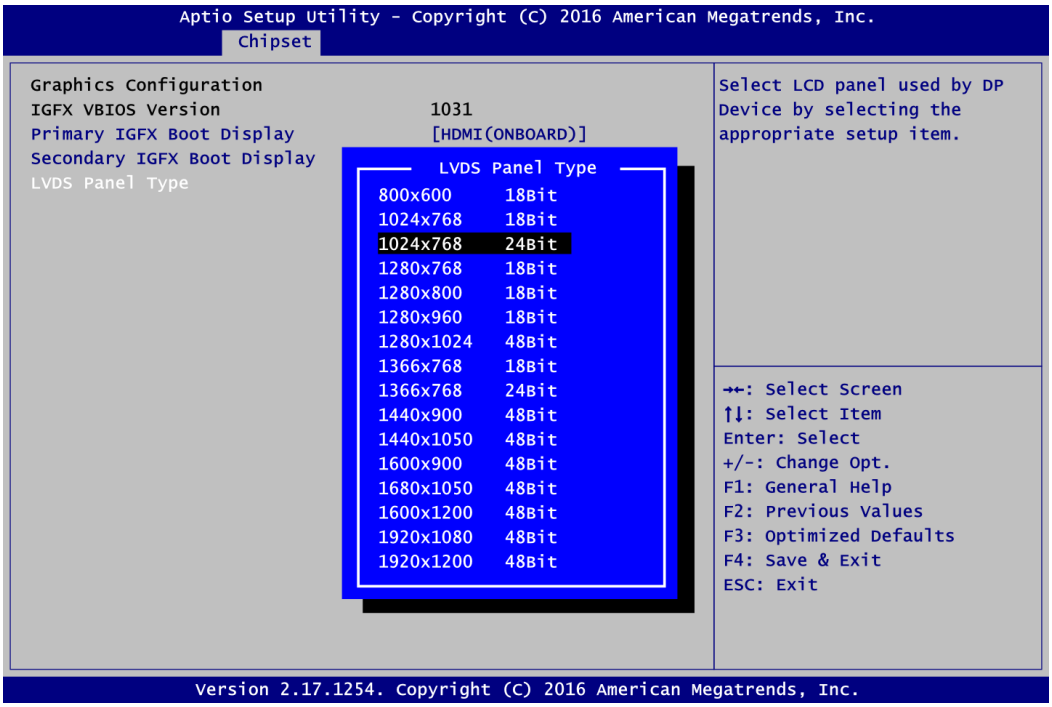
Secondary IGFX Boot Display
Select secondary display device. The default is Disabled. The image above shows option list in Secondary IGFX Boot Display when no I/O board is installed.

When AX93275 is installed, the option list in Secondary IGFX Boot Display will be Disabled, LVDS and VGA, see image below.



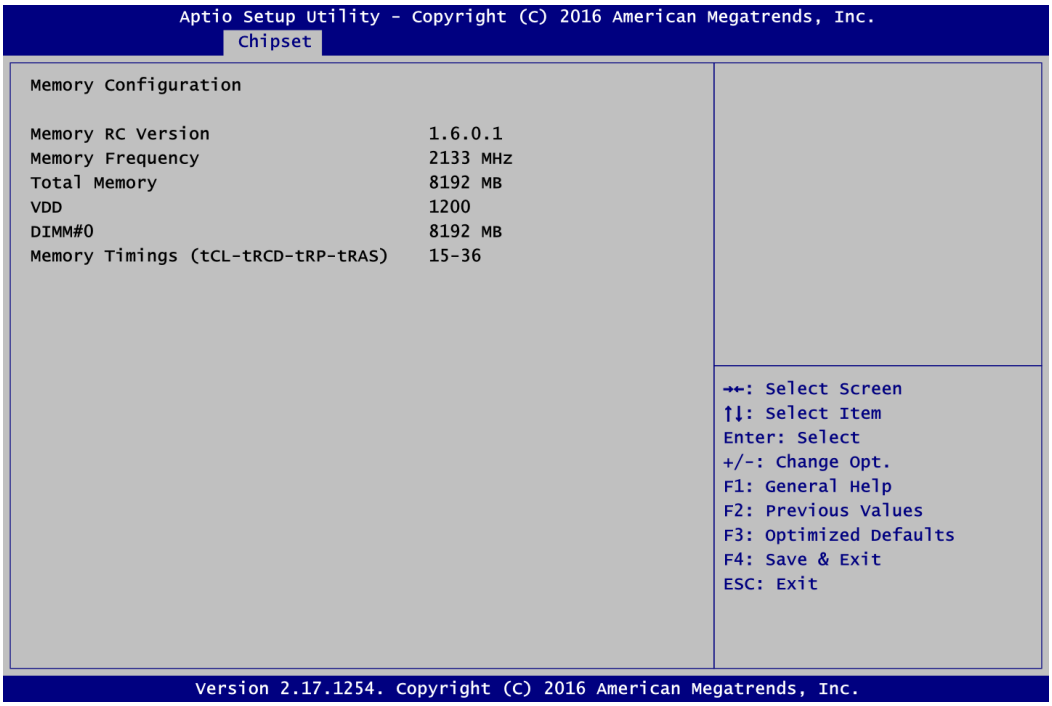
Otherwise when AX93276 is installed, the option list in Secondary IGFX Boot Display will be Disabled, LVDS and HDMI.





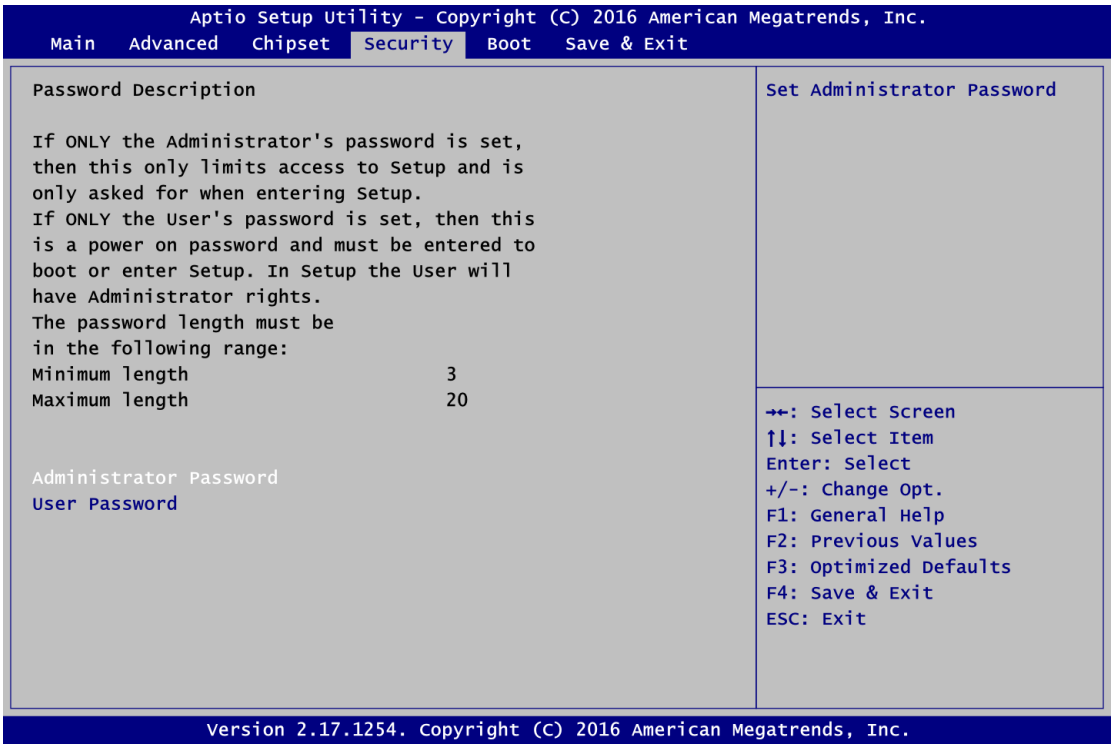
LVDS Panel Type
Select LVDS panel resolution; see the selection options in image above.

- **Memory Information**
  This screen shows the system memory information.



4.6 Security Menu

The Security menu allows users to change the security settings for the system.

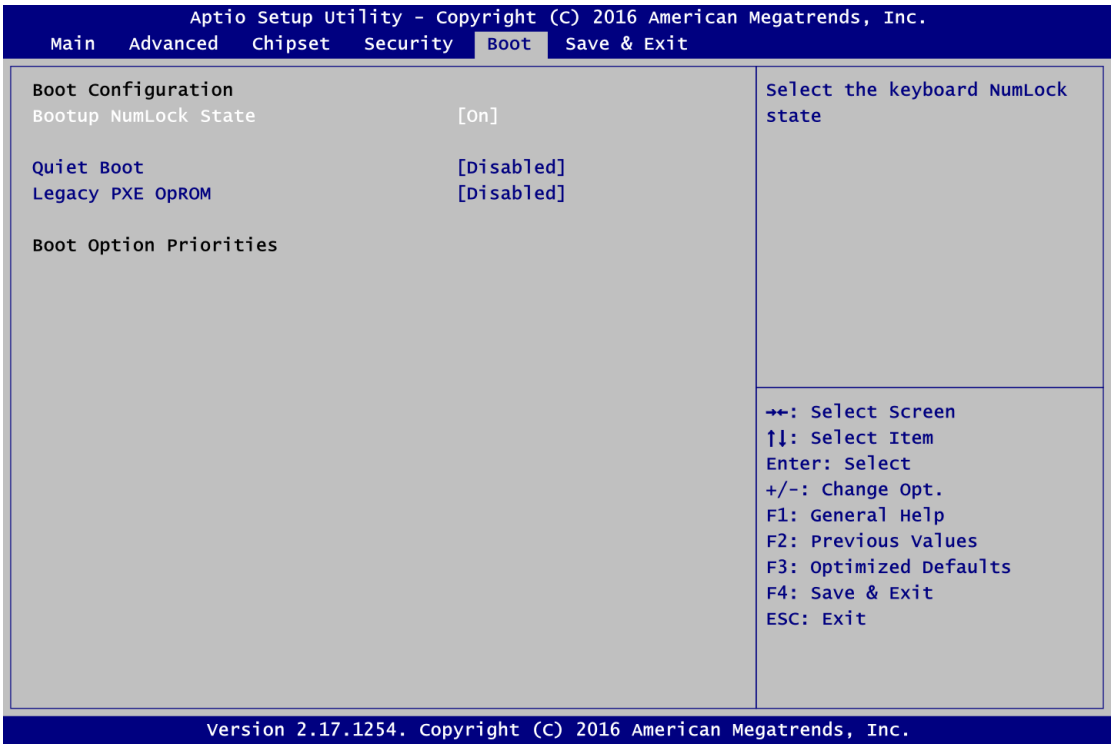


- **Administrator Password**
  This item indicates whether an administrator password has been set (installed or uninstalled).

- **User Password**
  This item indicates whether an user password has been set (installed or uninstalled).

4.7 Boot Menu

The Boot menu allows users to change boot options of the system.



- **Bootup NumLock State**
  Use this item to select the power-on state for the keyboard NumLock.

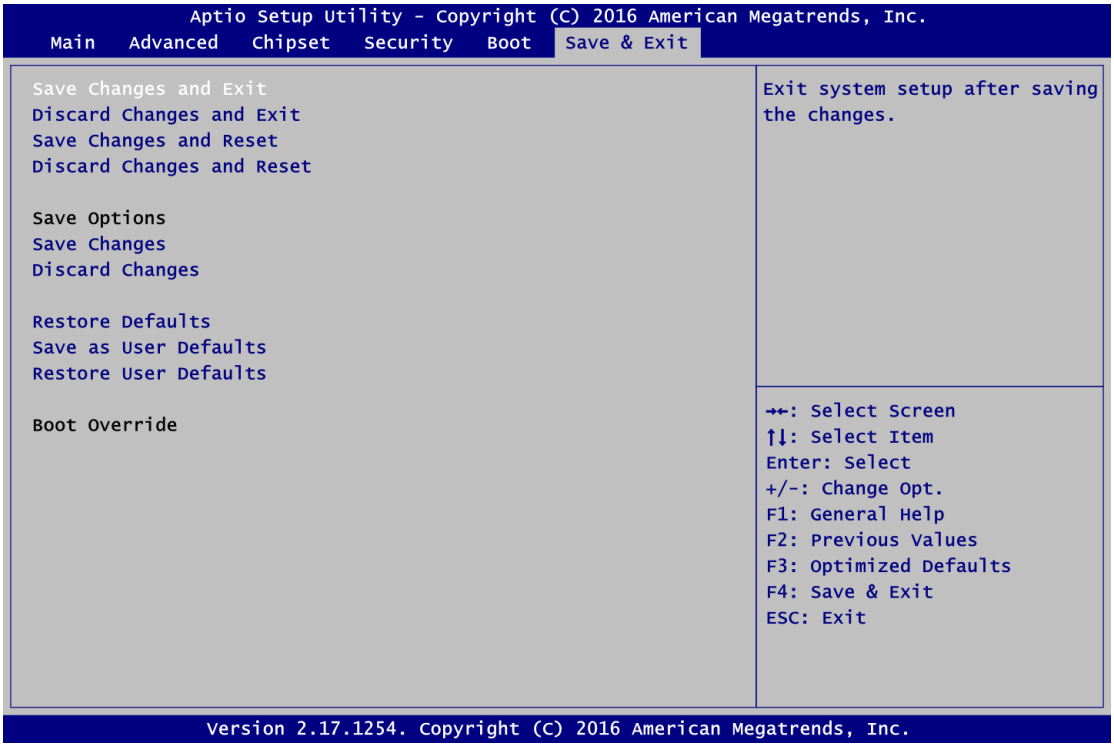
- **Quiet Boot**
  Select to display either POST output messages or a splash screen during boot-up.

- **Legacy PXE OpROM**
  Use this item to enable or disable the boot ROM function of the onboard LAN chip when the system boots up.

- **Boot Option Priorities**
  These are settings for boot priority. Specify the boot device priority sequence from the available devices.

4.8 Save & Exit Menu

The Save & Exit menu allows users to load your system configuration with optimal or fail-safe default values.



- **Save Changes and Exit**
  When you have completed the system configuration changes, select this option to leave Setup and return to Main Menu. Select Save Changes and Exit from the Save & Exit menu and press <Enter>. Select Yes to save changes and exit.

- **Discard Changes and Exit**
  Select this option to quit Setup without making any permanent changes to the system configuration and return to Main Menu. Select Discard Changes and Exit from the Save & Exit menu and press <Enter>. Select Yes to discard changes and exit.

- **Save Changes and Reset**
  When you have completed the system configuration changes, select this option to leave Setup and reboot the computer so the new system configuration parameters can take effect. Select Save Changes and Reset from the Save & Exit menu and press <Enter>. Select Yes to save changes and reset.

- **Discard Changes and Reset**
  Select this option to quit Setup without making any permanent changes to the system configuration and reboot the computer. Select Discard Changes and Reset from the Save & Exit menu and press <Enter>. Select Yes to discard changes and reset.

- **Save Changes**
  When you have completed the system configuration changes, select this option to save changes. Select Save Changes from the Save & Exit menu and press <Enter>. Select Yes to save changes.

- **Discard Changes**
  Select this option to quit Setup without making any permanent changes to the system configuration. Select Discard Changes from the Save & Exit menu and press <Enter>. Select Yes to discard changes.

- **Restore Defaults**
  It automatically sets all Setup options to a complete set of default settings when you select this option. Select Restore Defaults from the Save & Exit menu and press <Enter>.

- **Save as User Defaults**
  Select this option to save system configuration changes done so far as User Defaults. Select Save as User Defaults from the Save & Exit menu and press <Enter>.

- **Restore User Defaults**
  It automatically sets all Setup options to a complete set of User Defaults when you select this option. Select Restore User Defaults from the Save & Exit menu and press <Enter>.

- **Boot Override**
  Select a drive to immediately boot that device regardless of the current boot order.

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Appendix A
I/O Boards (Optional)

The AX93275, AX93276 and AX93292 are I/O expansion boards which are suggested to insert carefully into CN2 and CN3 on PICO500. Their specifications and detailed information are given in this chapter.

A.1 AX93275 Specifications

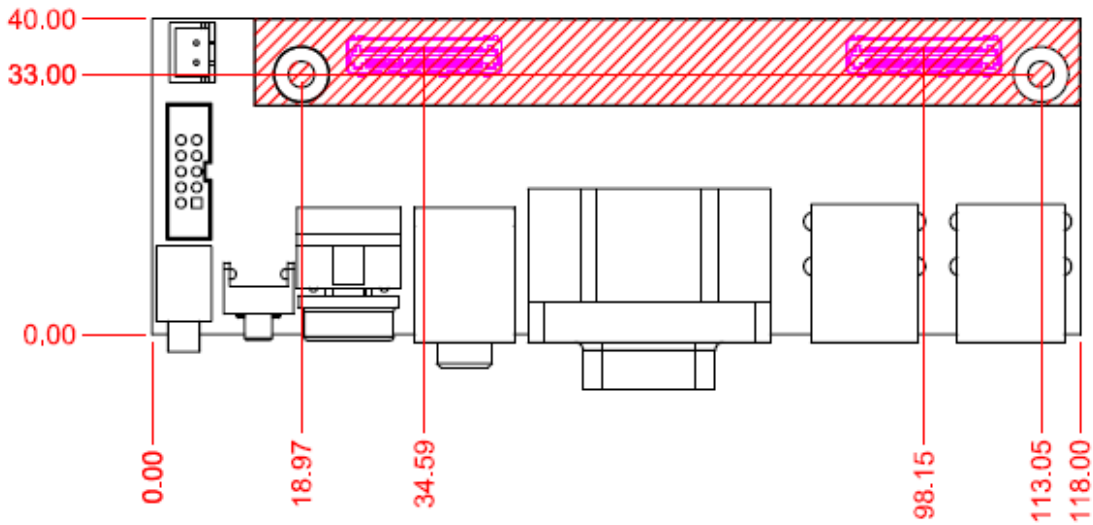
- **Size**
  - 118mm x 40mm

- **Features**
  - VGA port.
  - Audio jack (MIC-in/line-out).
  - Four USB 3.0.
  - Serial Ports: One port for RS-232/422/485 and one port for RS-232.
  - Power-on, reset and red/green LED.

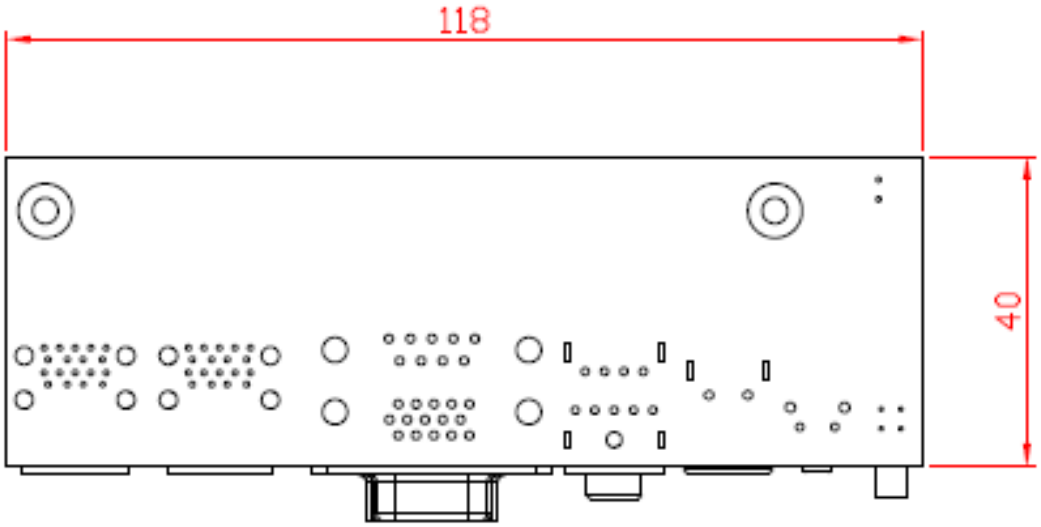
Note

All specifications and images are subject to change without notice.

A.2 AX93275 Dimensions and Fixing Holes

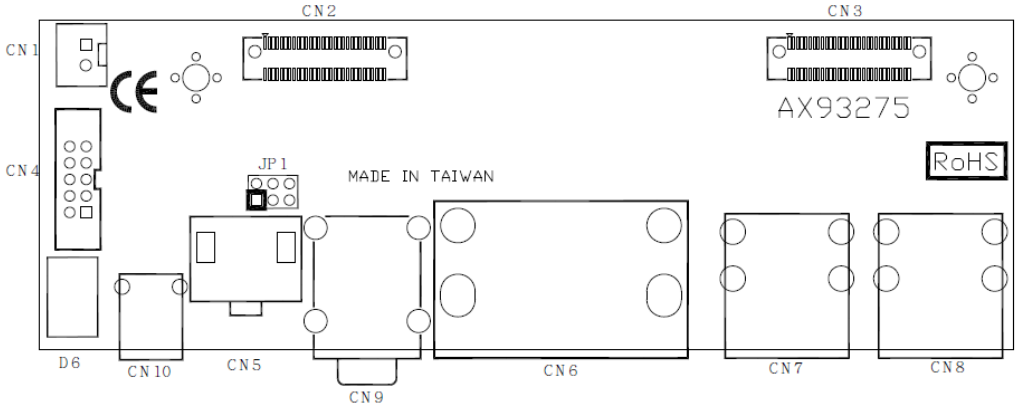


Top View

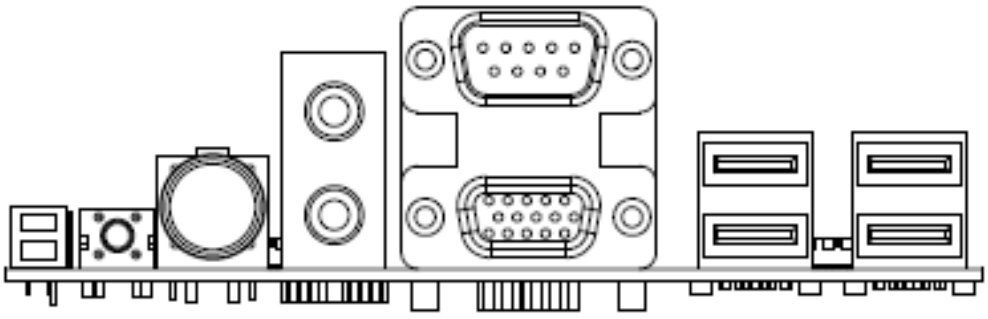


Bottom View

A.3 AX93275 Board Layout



Top View



Side View

A.4 AX93275 Assembly Drawing

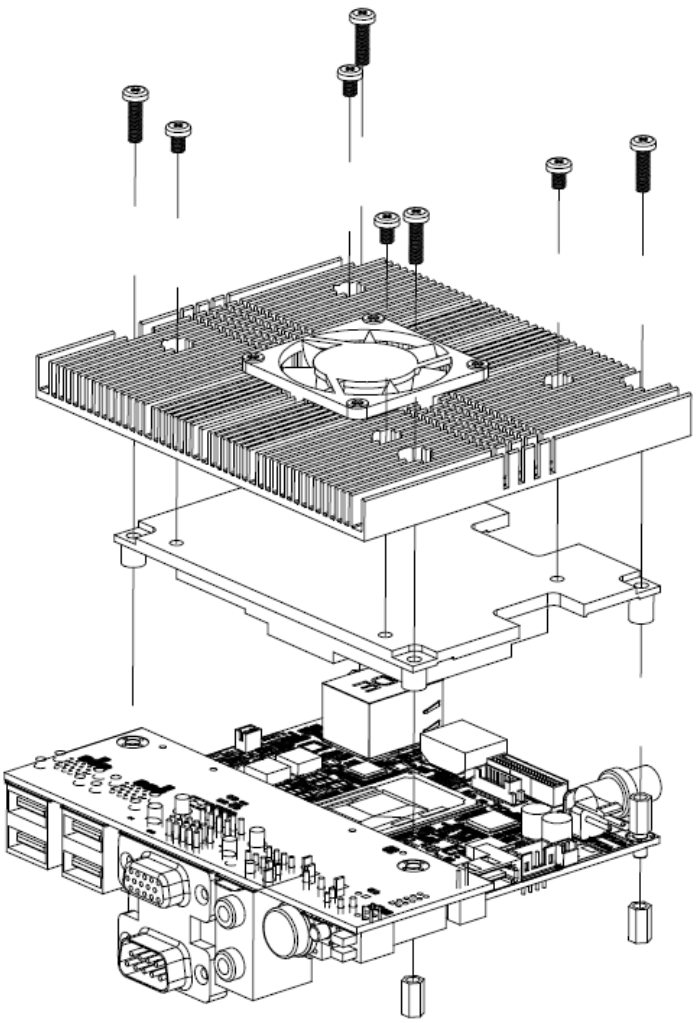
Installing Thermal Solution and I/O Board
Gently insert I/O Board into CN2 and CN3 on PICO500. Align and firmly secure the thermal solution plate and I/O board to PICO500. Be careful not to over-tighten the screws.


x4


x4


x4


x4



A.5 AX93275 Jumper Settings

Properly configure jumper settings on the AX93275 I/O board to meet your application purpose. Below you can find a summary table of all jumpers and onboard default settings.

Note

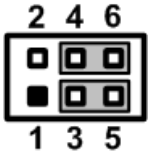
Once the default jumper setting needs to be changed, please do it under power-off condition.

Jumper	Description		Setting
JP1	COM1 Data/Power Selection Default: RS-232 Data	CN6B Pin 1: DCD	3-5 Close
		CN6B Pin 9: RI	4-6 Close

A.5.1 COM1 Data/Power Selection (JP1)

The COM1 port has +5V level power capability on DCD and +12V level on RI by setting JP1. When this port is set to +12V or +5V level, please make sure its communication mode is RS-232 (see BIOS setting in section 4.4).

Function	Setting
Power: Set CN6B pin 1 to +5V level	1-3 close
Data: Set CN6B pin 1 to DCD (Default)	3-5 close
Power: Set CN6B pin 9 to +12V level	2-4 close
Data: Set CN6B pin 9 to RI (Default)	4-6 close



A.6 AX93275 Connectors, Switches and LED

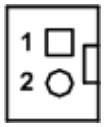
Signals go to other parts of the system through connectors. Loose or improper connection might cause problems, please make sure all connectors are properly and firmly connected. Here is a summary table which shows all connectors, buttons and LED on the hardware.

Connector	Description
CN1	Power Connector
CN2	High Speed Board to Board Connector 1
CN3	High Speed Board to Board Connector 2
CN4	COM2 Connector
CN5	System Power Switch
CN6A	VGA D-Sub Connector
CN6B	COM1 D-Sub Connector
CN7~CN8	USB 3.0 Stack Connectors
CN9	Audio Jack
CN10	System Reset Switch
D6	Power and HDD LED Indicator

A.6.1 Power Connector (CN1)

This is a 2-pin (pitch=2.5mm) connector, which outputs +5V at 1A for fan to cool down CPU and system temperature.

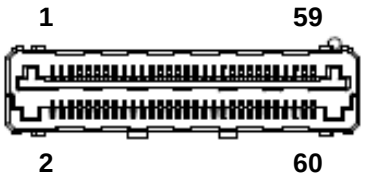
Pin	Signal
1	+5V
2	GND



A.6.2 High Speed Board to Board Connectors (CN2 and CN3)

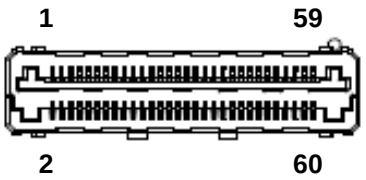
CN2 is a 2x30-pin high speed board to board connector. The pin assignments of CN2 are given as follows.

Pin	Signal	Pin	Signal
1	AUDIO_OUT-L	2	MIC-L
3	AUDIO_OUT-R	4	MIC-R
5	AUDIO_GND	6	AUDIO_GND
7	DSR2	8	DCD2
9	RTS2	10	RXD2
11	CTS2	12	TXD2
13	RI2	14	DTR2
15	DSR1	16	DCD1
17	RTS	18	RXD1
19	CTS1	20	TXD1
21	RI1	22	DTR1
23	GND	24	GND
25	GPO_485_EN_N	26	SIO_PSIN#
27	GPO_485TERM_EN	28	SATA_LED
29	GPO_485_MODE0	30	HW_RESET#
31	GPO_485_MODE1	32	PLTRST_SIO
33	USB_OC23	34	USB_OC01
35	GND	36	GND
37	DP2	38	DP0
39	DN2	40	DN0
41	GND	42	GND
43	DN3	44	DP1
45	DP3	46	DN1
47	GND	48	GND
49	+V5_SBY	50	NA
51	+V5_SBY	52	NA
53	+V5_SBY	54	NA
55	+V5_SBY	56	+V12S
57	+V5S	58	+V3.3S
59	+V5S	60	+V3.3S



CN3 is a 2x30-pin high speed board to board connector. The pin assignments of CN3 are given as follows.

Pin	Signal	Pin	Signal
1	NA	2	USB3_RXP1
3	NA	4	USB3_RXN1
5	GND	6	GND
7	NA	8	USB3_TXP1
9	NA	10	USB3_TXN1
11	GND	12	GND
13	NA	14	USB3_RXP2
15	NA	16	USB3_RXN2
17	GND	18	GND
19	DDI2_TXP0	20	USB3_TXP2
21	DDI2_TXN0	22	USB3_TXN2
23	GND	24	GND
25	DDI2_TXP1	26	USB3_RXP3
27	DDI2_TXN1	28	USB3_RXN3
29	GND	30	GND
31	NA	32	USB3_TXP3
33	NA	34	USB3_TXN3
35	GND	36	GND
37	NA	38	USB3_RXP4
39	NA	40	USB3_RXN4
41	GND	42	GND
43	NA	44	USB3_TXP4
45	NA	46	USB3_TXN4
47	GND	48	GND
49	DDPC_HPD	50	DDPC_AUXP
51	PLTRST_MINICARD	52	DDPC_AUXN
53	PCIE_WAKE#	54	GND
55	IO_BRD_BIT1	56	IO_BRD_BIT0
57	+V5S	58	+V3.3_SBY
59	+V5S	60	+V3.3_SBY



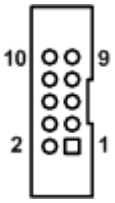
Note

Please gently insert the high speed board to board connectors into CN2 and CN3 on PICO500.

A.6.3 COM2 Connector (CN4)

The board comes with 2x5-pin box header for COM2 serial port interface, see table below.

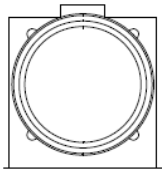
Pin	Signal
1	Data Carrier Detect (DCD)
2	Data Set Ready (DSR)
3	Receive Data (RXD)
4	Request to Send (RTS)
5	Transmit Data (TXD)
6	Clear to Send (CTS)
7	Data Terminal Ready (DTR)
8	Ring Indicator (RI)
9	Ground (GND)
10	No Connector



A.6.4 System Power Switch (CN5)

This button is for turning on/off the system power.

Function	Description
On	Turn on/off system
Off	Keep system status

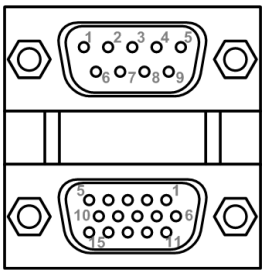


A.6.5 VGA and COM1 D-Sub Connector (CN6A and CN6B)

The lower 15-pin D-Sub connector (CN6A) is for VGA interface and the upper 9-pin D-Sub connector (CN6B) is for COM1 serial port interface. Note that CN6B is also equipped with power capability on DCD and RI pins by setting JP1 (see section A.5.1). If you need COM1 port to support RS-422 or RS-485 mode, please do it via BIOS setting (see section 4.4). The pin assignments of RS-232/422/485 are listed in table below.

CN6B Pin	RS-232	RS-422	RS-485
1	DCD	TX-	Data-
2	RXD	TX+	Data+
3	TXD	RX+	N.C
4	DTR	RX-	N.C.
5	GND	No use	No use
6	DSR	No use	No use
7	RTS	No use	No use
8	CTS	No use	No use
9	RI	No use	No use

CN6B



CN6A

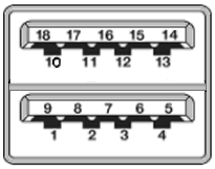
The CN6A is a standard type 15-pin D-Sub connector which is commonly used for VGA monitor. This VGA interface configuration can be configured via software utility.

CN6A Pin	Signal	Pin	Signal
1	Red	2	Green
3	Blue	4	N.C.
5	GND	6	GND
7	GND	8	GND
9	VCC	10	GND
11	N.C.	12	DDC DATA
13	Horizontal Sync	14	Vertical Sync
15	DDC CLK		

A.6.6 USB 3.0 Stack Connectors (CN7 and CN8)

The board comes with two double-deck Universal Serial Bus (compliant with USB 3.0 (5Gb/s)) connectors on the rear I/O which are for installing USB peripherals such as keyboard, mouse, scanner, etc.

Pin	Signal	Pin	Signal
1	USB_VCC (+5V level standby power)	10	USB_VCC (+5V level standby power)
2	USB_Data2-	11	USB_Data3-
3	USB_Data2+	12	USB_Data3+
4	GND	13	GND
5	SSRX2-	14	SSRX3-
6	SSRX2+	15	SSRX3+
7	GND	16	GND
8	SSTX2-	17	SSTX3-
9	SSTX2+	18	SSTX3+



A.6.7 Audio Jack (CN9)

This is audio jack with HD audio support. Install audio driver, and then attach audio devices to CN9.

Pin Color	Signal
Green	Line-out
Pink	MIC-in

A.6.8 System Reset Switch (CN10)

This button reboots your computer without turning off the power supply. It is a better way to reboot your system for a longer life of the system power supply.

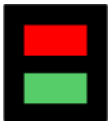
Function	Description
On	Reset system
Off	Keep system status

A.6.9 Power and HDD LED Indicator (D6)

The red LED is linked to Hard Disk Drive (HDD) activity signal. LED flashes every time HDD is accessed.

The power LED (green) lights up and will remain steady while the system is powered on.

LED Color	Description
Red	Hard disk drive activity
Green	Power on/off



A.7 AX93276 Specifications

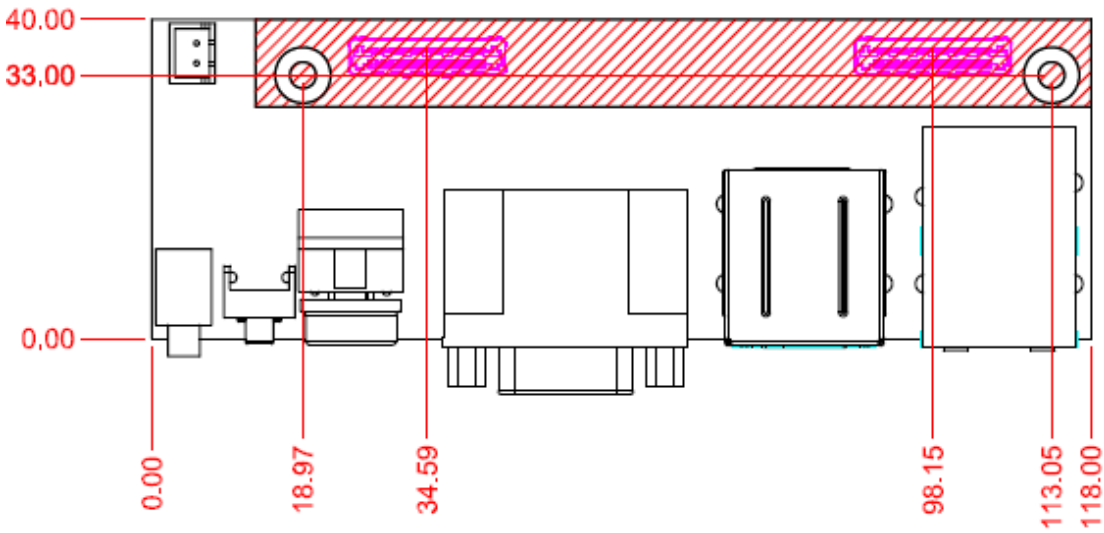
- **Size**
  - 118mm x 40mm

- **Features**
  - HDMI port.
  - LAN port.
  - Four USB 3.0.
  - Serial Ports: One port for RS-232/422/485 and one port for RS-232.
  - Power-on, reset and red/green LED.

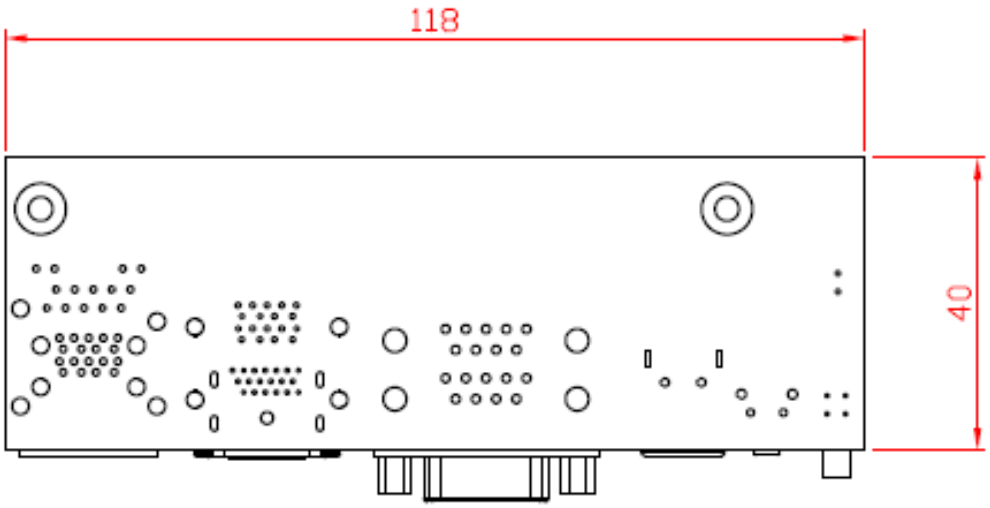
Note

All specifications and images are subject to change without notice.

A.8 AX93276 Dimensions and Fixing Holes

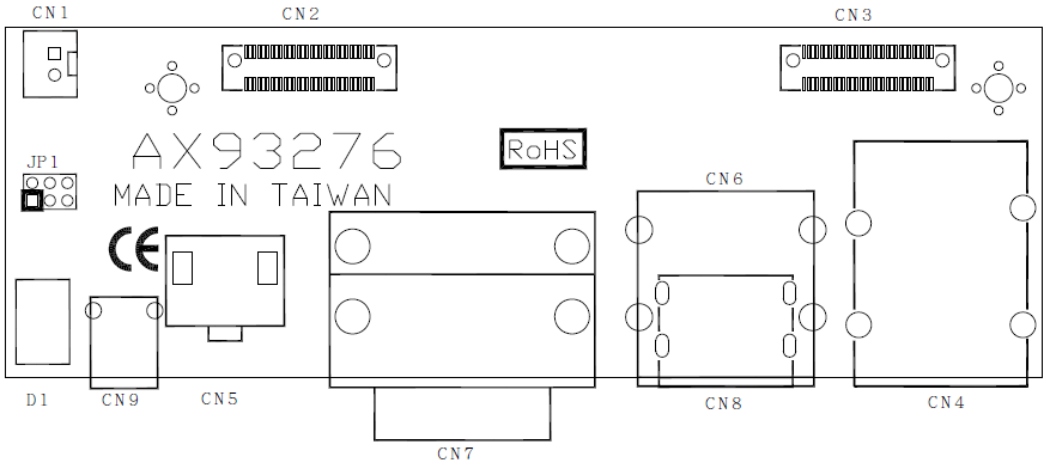


Top View

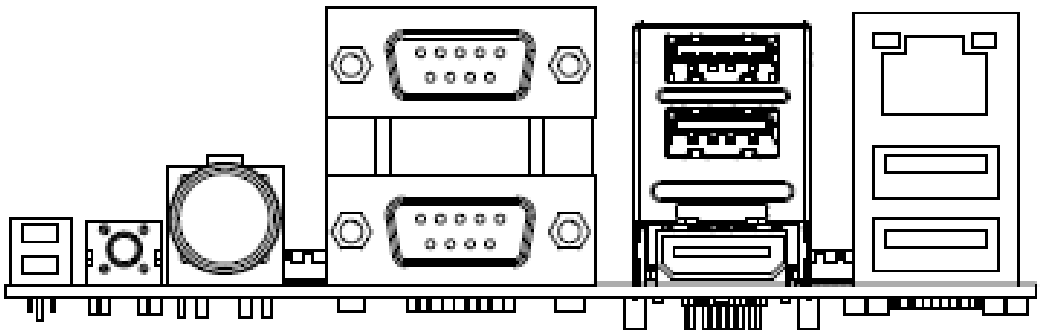


Bottom View

A.9 AX93276 Board Layout



Top View



Side View

A.10 AX93276 Assembly Drawing

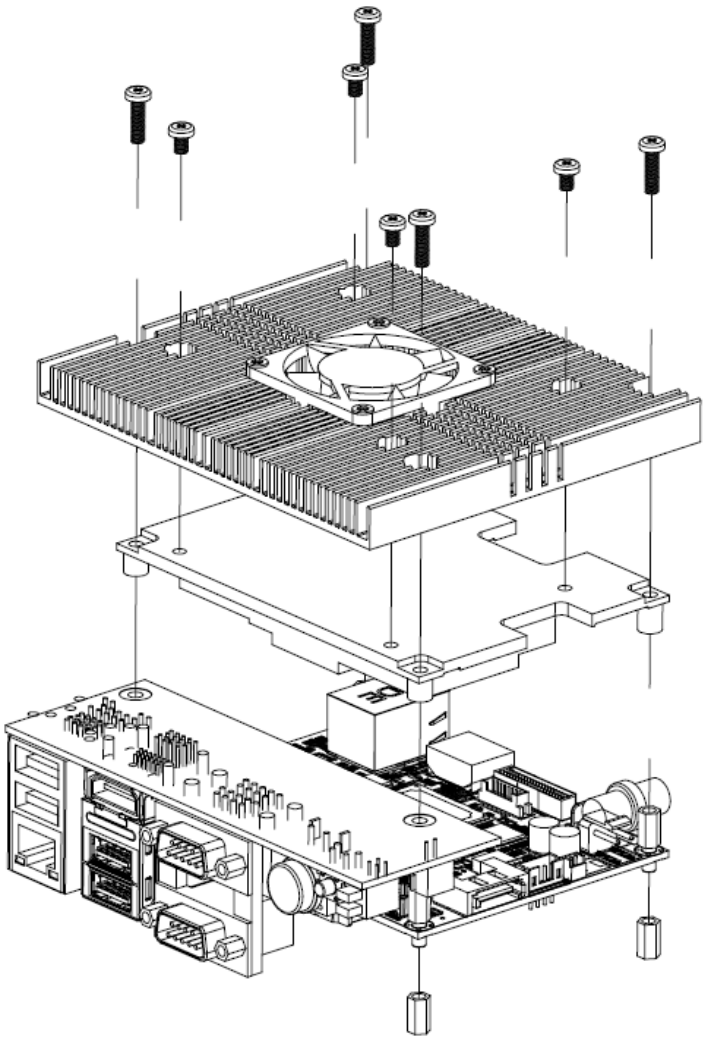
Installing Thermal Solution and I/O Board
Gently insert I/O Board into CN2 and CN3 on PICO500. Align and firmly secure the thermal solution plate and I/O board to PICO500. Be careful not to over-tighten the screws.


x4


x4


x4


x4



A.11 AX93276 Jumper Settings

Properly configure jumper settings on the AX93276 I/O board to meet your application purpose. Below you can find a summary table of all jumpers and onboard default settings.

Note

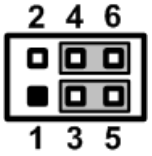
Once the default jumper setting needs to be changed, please do it under power-off condition.

Jumper	Description		Setting
JP1	COM1 Data/Power Selection Default: RS-232 Data	CN7B Pin 1: DCD	3-5 Close
		CN7B Pin 9: RI	4-6 Close

A.11.1 COM1 Data/Power Selection (JP1)

The COM1 port has +5V level power capability on DCD and +12V level on RI by setting JP1. When this port is set to +12V or +5V level, please make sure its communication mode is RS-232 (see BIOS setting in section 4.4).

Function	Setting
Power: Set CN7B pin 1 to +5V level	1-3 close
Data: Set CN7B pin 1 to DCD (Default)	3-5 close
Power: Set CN7B pin 9 to +12V level	2-4 close
Data: Set CN7B pin 9 to RI (Default)	4-6 close



A.12 AX93276 Connectors, Switches and LED

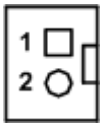
Signals go to other parts of the system through connectors. Loose or improper connection might cause problems, please make sure all connectors are properly and firmly connected. Here is a summary table which shows all connectors, buttons and LED on the hardware.

Connector	Description
CN1	Power Connector
CN2	High Speed Board to Board Connector 1
CN3	High Speed Board to Board Connector 2
CN4	LAN and USB 3.0 Connector
CN5	System Power Switch
CN6	USB 3.0 Stack Connector
CN7A~CN7B	COM1 and COM2 D-Sub Connectors
CN8	HDMI Connector
CN9	System Reset Switch
D1	Power and HDD LED Indicator

A.12.1 Power Connector (CN1)

This is a 2-pin (pitch=2.5mm) connector, which outputs +5V at 1A for fan to cool down CPU and system temperature.

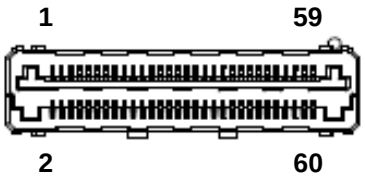
Pin	Signal
1	+5V
2	GND



A.12.2 High Speed Board to Board Connectors (CN2 and CN3)

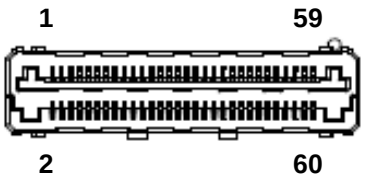
CN2 is a 2x30-pin high speed board to board connector. The pin assignments of CN2 are given as follows.

Pin	Signal	Pin	Signal
1	NA	2	NA
3	NA	4	NA
5	NA	6	NA
7	DSR2	8	DCD2
9	RTS2	10	RXD2
11	CTS2	12	TXD2
13	RI2	14	DTR2
15	DSR1	16	DCD1
17	RTS	18	RXD1
19	CTS1	20	TXD1
21	RI1	22	DTR1
23	GND	24	GND
25	GPO_485_EN_N	26	SIO_PSIN#
27	GPO_485TERM_EN	28	SATA_LED
29	GPO_485_MODE0	30	HW_RESET#
31	GPO_485_MODE1	32	PLTRST_SIO
33	USB_OC23	34	USB_OC01
35	GND	36	GND
37	DP2	38	DP0
39	DN2	40	DN0
41	GND	42	GND
43	DN3	44	DP1
45	DP3	46	DN1
47	GND	48	GND
49	+V5_SBY	50	NA
51	+V5_SBY	52	NA
53	+V5_SBY	54	NA
55	+V5_SBY	56	+V12S
57	+V5S	58	+V3.3S
59	+V5S	60	+V3.3S



CN3 is a 2x30-pin high speed board to board connector. The pin assignments of CN3 are given as follows.

Pin	Signal	Pin	Signal
1	PCIE_IO_RXP	2	USB3_RXP1
3	PCIE_IO_RXN	4	USB3_RXN1
5	GND	6	GND
7	PCIE_IO_TXP	8	USB3_TXP1
9	PCIE_IO_TXN	10	USB3_TXN1
11	GND	12	GND
13	B2B_PCIE_CLK	14	USB3_RXP2
15	B2B_PCIE_CLK#	16	USB3_RXN2
17	GND	18	GND
19	DDI2_TXP0	20	USB3_TXP2
21	DDI2_TXN0	22	USB3_TXN2
23	GND	24	GND
25	DDI2_TXP1	26	USB3_RXP3
27	DDI2_TXN1	28	USB3_RXN3
29	GND	30	GND
31	DDI2_TXP2	32	USB3_TXP3
33	DDI2_TXN2	34	USB3_TXN3
35	GND	36	GND
37	DDI2_TXP3	38	USB3_RXP4
39	DDI2_TXN3	40	USB3_RXN4
41	GND	42	GND
43	DDPC_CTRLDATA	44	USB3_TXP4
45	DDPC_CTRLCLK	46	USB3_TXN4
47	GND	48	GND
49	DDPC_HPD	50	NA
51	PLTRST_MINICARD	52	NA
53	PCIE_WAKE#	54	GND
55	IO_BRD_BIT1	56	IO_BRD_BIT0
57	+V5S	58	+V3.3_SBY
59	+V5S	60	+V3.3_SBY



Note

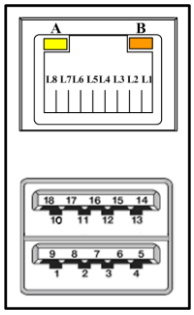
Please gently insert the high speed board to board connectors into CN2 and CN3 on PICO500.

A.12.3 LAN and USB 3.0 Connector (CN4)

The board comes with one high performance plug and play Ethernet interface (RJ-45) which is fully compliant with the IEEE 802.3 standard. Connection can be established by plugging one end of the Ethernet cable into this RJ-45 connector and the other end to a 1000/100/10 Base-T hub.

The Universal Serial Bus (compliant with USB 3.0 (5Gb/s)) connectors on the rear I/O are for installing USB peripherals such as keyboard, mouse, scanner, etc.

Pin	LAN Signal	Pin	LAN Signal
L1	MDI0+	L5	MDI2+
L2	MDI0-	L6	MDI2-
L3	MDI1+	L7	MDI3+
L4	MDI1-	L8	MDI3-
A	100 LAN LED (Green)/ 1000 LAN LED (Orange)		
B	Active LED		

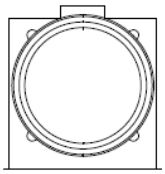


Pin	USB Signal	Pin	USB Signal
1	USB_VCC (+5V level standby power)	10	USB_VCC (+5V level standby power)
2	USB_Data2-	11	USB_Data3-
3	USB_Data2+	12	USB_Data3+
4	GND	13	GND
5	SSRX2-	14	SSRX3-
6	SSRX2+	15	SSRX3+
7	GND	16	GND
8	SSTX2-	17	SSTX3-
9	SSTX2+	18	SSTX3+

A.12.4 System Power Switch (CN5)

This button is for turning on/off the system power.

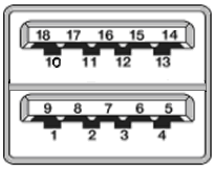
Function	Description
On	Turn on/off system
Off	Keep system status



A.12.5 USB 3.0 Stack Connector (CN6)

The board comes with a high rise double-deck Universal Serial Bus (compliant with USB 3.0 (5Gb/s)) connector on the rear I/O which are for installing USB peripherals such as keyboard, mouse, scanner, etc.

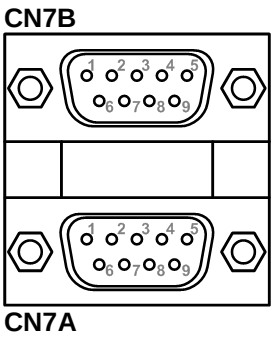
Pin	Signal	Pin	Signal
1	USB_VCC (+5V level standby power)	10	USB_VCC (+5V level standby power)
2	USB_Data2-	11	USB_Data3-
3	USB_Data2+	12	USB_Data3+
4	GND	13	GND
5	SSRX2-	14	SSRX3-
6	SSRX2+	15	SSRX3+
7	GND	16	GND
8	SSTX2-	17	SSTX3-
9	SSTX2+	18	SSTX3+



A.12.6 COM1 and COM2 D-Sub Connector (CN7A and CN7B)

The CN7 is a double-deck 9-pin D-Sub connector. The lower connector (CN7A) is for COM2 and the upper connector (CN7B) is for COM1. Note that only COM1 port comes with power capability on DCD and RI pins by setting jumper (see section A.11.1). If you need COM1 port to support RS-422 or RS-485 mode, please do it via BIOS setting (see section 4.4). The pin assignments of RS-232/422/485 are listed in table below.

CN7B Pin	RS-232	RS-422	RS-485
1	DCD	TX-	Data-
2	RXD	TX+	Data+
3	TXD	RX+	N.C
4	DTR	RX-	N.C.
5	GND	No use	No use
6	DSR	No use	No use
7	RTS	No use	No use
8	CTS	No use	No use
9	RI	No use	No use

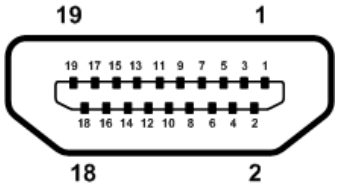


CN7A Pin	Signal
1	Data Carrier Detect (DCD)
2	Receive Data (RXD)
3	Transmit Data (TXD)
4	Data Terminal Ready (DTR)
5	Ground (GND)
6	Data Set Ready (DSR)
7	Request to Send (RTS)
8	Clear to Send (CTS)
9	Ring Indicator (RI)

A.12.7 HDMI Connector (CN8)

The HDMI (High-Definition Multimedia Interface) is a compact digital interface which is capable of transmitting high-definition video and high-resolution audio over a single cable. Its interface is available through connector CN8.

Pin	Signal	Pin	Signal
1	HDMI OUT_DATA2+	2	GND
3	HDMI OUT_DATA2-	4	HDMI OUT_DATA1+
5	GND	6	HDMI OUT_DATA1-
7	HDMI OUT_DATA0+	8	GND
9	HDMI OUT_DATA0-	10	HDMI OUT_Clock+
11	GND	12	HDMI OUT_Clock-
13	CEC	14	N.C.
15	HDMI OUT_SCL	16	HDMI OUT_SDA
17	GND	18	+5V
19	HDMI_HTPLG		



A.12.8 System Reset Switch (CN9)

This button reboots your computer without turning off the power supply. It is a better way to reboot your system for a longer life of the system power supply.

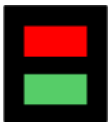
Function	Description
On	Reset system
Off	Keep system status

A.12.9 Power and HDD LED Indicator (D1)

The red LED is linked to Hard Disk Drive (HDD) activity signal. LED flashes every time HDD is accessed.

The power LED (green) lights up and will remain steady while the system is powered on.

LED Color	Description
Red	Hard disk drive activity
Green	Power on/off



A.13 AX93292 Specifications

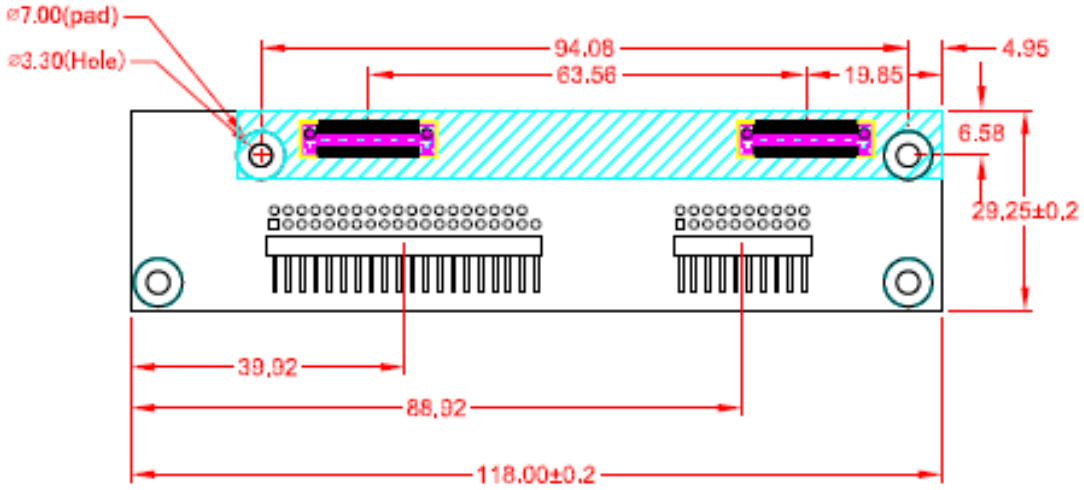
- **Size**
  - 118mm x 29.25mm

- **Features**
  - Audio (MIC-in/line-out/line-in). When connected to PICO500, the audio feature supports only MIC-in and line-out.
  - Four USB 2.0.
  - Serial Ports: One port for RS-232/422/485 and one port for RS-232.
  - Power-on, reset and power/HDD LED.

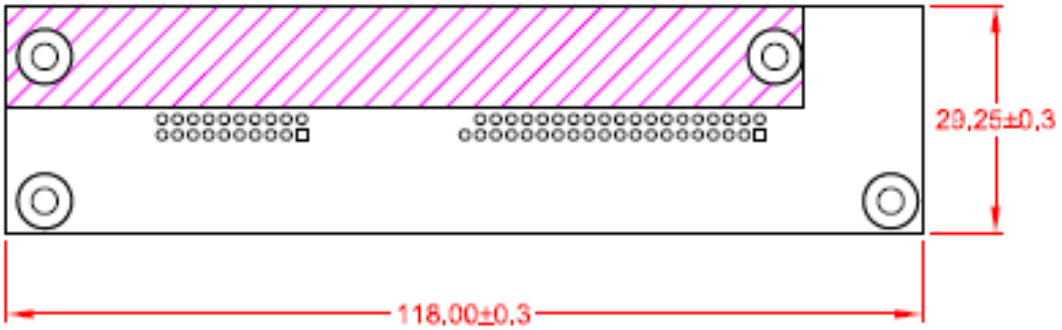
Note

All specifications and images are subject to change without notice.

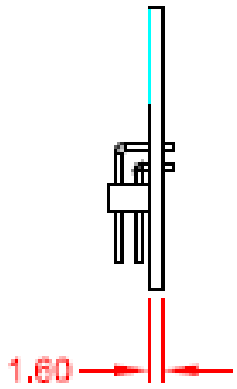
A.14 AX93292 Dimensions and Fixing Holes



Top View

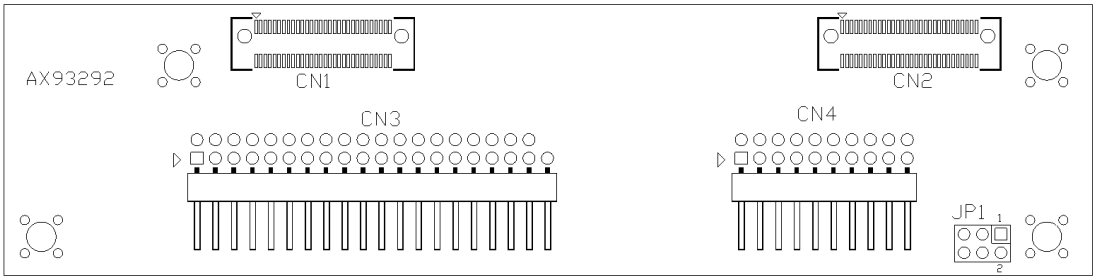


Bottom View



Side View

A.15 AX93292 Board Layout



Top View

A.16 AX93292 Assembly Drawing

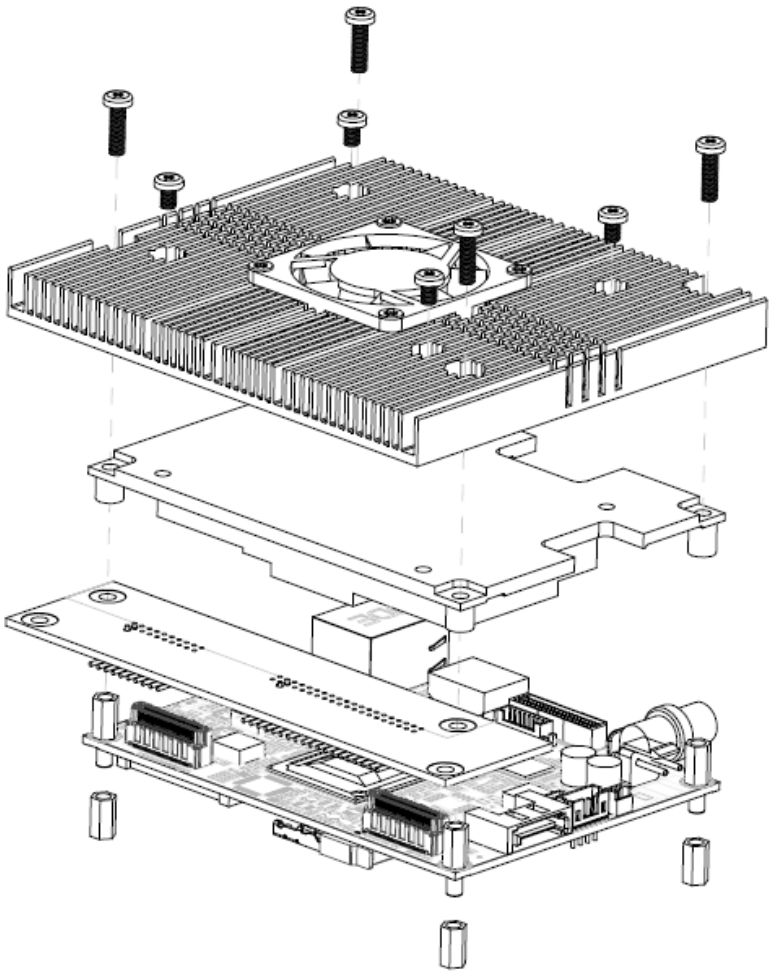
Installing Thermal Solution and I/O Board
Gently insert I/O Board into CN2 and CN3 on PICO500. Align and firmly secure the thermal solution plate and I/O board to PICO500. Be careful not to over-tighten the screws.

 x4

 x4

 x4

 x4



A.17 AX93292 Jumper Settings

Properly configure jumper settings on the AX93292 I/O board to meet your application purpose. Below you can find a summary table of all jumpers and onboard default settings.

Note

Once the default jumper setting needs to be changed, please do it under power-off condition.

Jumper	Description		Setting
JP1	COM1 Data/Power Selection Default: RS-232 Data	CN4 Pin 11: DCD1	3-5 Close
		CN4 Pin 18: RI1	4-6 Close

A.17.1 COM1 Data/Power Selection (JP1)

The COM1 port has +5V level power capability on DCD and +12V level on RI by setting JP1. When this port is set to +12V or +5V level, please make sure its communication mode is RS-232 (see BIOS setting in section 4.4).

Function	Setting
Power: Set CN4 pin 11 to +5V level	1-3 close
Data: Set CN4 pin 11 to DCD1 (Default)	3-5 close
Power: Set CN4 pin 18 to +12V level	2-4 close
Data: Set CN4 pin 18 to RI1 (Default)	4-6 close

A.18 AX93292 Connectors

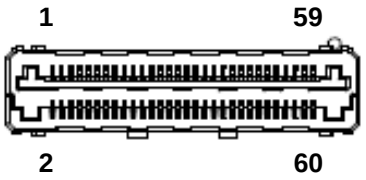
Signals go to other parts of the system through connectors. Loose or improper connection might cause problems, please make sure all connectors are properly and firmly connected. Here is a summary table which shows all connectors on the hardware.

Connector	Description
CN1	High Speed Board to Board Connector 1
CN2	High Speed Board to Board Connector 2
CN3	Low Speed IO Connector
CN4	COM1 and COM2 Connector

A.18.1 High Speed Board to Board Connectors (CN1 and CN2)

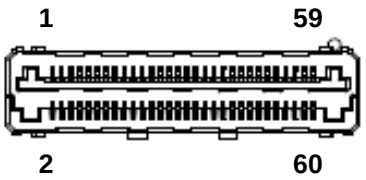
CN1 is a 2x30-pin high speed board to board connector. The pin assignments of CN1 are given as follows.

Pin	Signal	Pin	Signal
1	AUDIO_OUT-L	2	MIC-L
3	AUDIO_OUT-R	4	MIC-R
5	AUDIO_GND	6	AUDIO_GND
7	DSR2	8	DCD2
9	RTS2	10	RXD2
11	CTS2	12	TXD2
13	RI2	14	DTR2
15	DSR1	16	DCD1
17	RTS1	18	RXD1
19	CTS1	20	TXD1
21	RI1	22	DTR1
23	GND	24	GND
25	GPO_485_EN_N	26	SIO_PSIN#
27	GPO_485TERM_EN	28	SATA_LED
29	GPO_485_MODE0	30	HW_RESET#
31	GPO_485_MODE1	32	PLTRST_SIO
33	USB_OC23	34	USB_OC01
35	GND	36	GND
37	DP2	38	DP0
39	DN2	40	DN0
41	GND	42	GND
43	DN3	44	DP1
45	DP3	46	DN1
47	GND	48	GND
49	NA	50	LINE_IN_L
51	NA	52	LINE_IN_R
53	NA	54	AUDIO_GND
55	NA	56	+V12S
57	+V5S	58	+V3.3S
59	+V5S	60	+V3.3S



CN2 is a 2x30-pin high speed board to board connector. The pin assignments of CN2 are given as follows.

Pin	Signal	Pin	Signal
1	NA	2	NA
3	NA	4	NA
5	GND	6	GND
7	NA	8	NA
9	NA	10	NA
11	GND	12	GND
13	NA	14	NA
15	NA	16	NA
17	GND	18	GND
19	NA	20	NA
21	NA	22	NA
23	GND	24	GND
25	NA	26	NA
27	NA	28	NA
29	GND	30	GND
31	NA	32	NA
33	NA	34	NA
35	GND	36	GND
37	NA	38	NA
39	NA	40	NA
41	GND	42	GND
43	NA	44	NA
45	NA	46	NA
47	GND	48	GND
49	NA	50	NA
51	NA	52	NA
53	RI#	54	GND
55	DISPLAY_M1	56	DISPLAY_M0
57	+V5S	58	+V3.3_SBY
59	+V5S	60	+V3.3_SBY



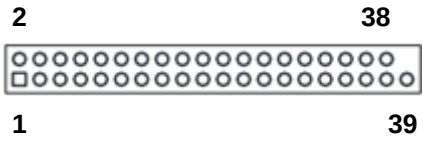
Note

Please gently insert the high speed board to board connectors into CN2 and CN3 on PICO500.

A.18.2 Low Speed IO Connector (CN3)

CN3 is a 39-pin connector which is compliant with AMP 4-1734507-0 for low speed signal interface consisting of a set of HD Audio, four USB 2.0 ports, power/reset button and power/HDD LED indicator signals. Note that if connected to PICO500, the audio feature supports only MIC-in and line-out.

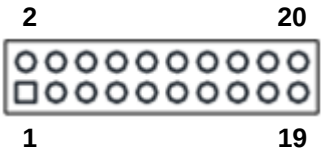
Pin	Signal	Pin	Signal
1	MIC	2	LINE_OUT_L
3	LINE_IN_L	4	LINE_OUT_R
5	LINE_IN_R	6	AUDIO_GND
7	AUDIO_GND	8	GND
9	GND	10	GND
11	USB_VCC (+5V level)	12	USB_VCC (+5V level)
13	USB_Data0-	14	USB_Data1-
15	USB_Data0+	16	USB_Data1+
17	GND	18	GND
19	GND	20	GND
21	USB_VCC (+5V level)	22	USB_VCC (+5V level)
23	USB_Data2-	24	USB_Data3-
25	USB_Data2+	26	USB_Data3+
27	GND	28	GND
29	GND	30	GND
31	+V5S	32	SIO_PSIN#
33	HW_RESET#	34	GND
35	+V5S	36	NA
37	HDD_LED	38	NA
39	GND		



A.18.3 COM1 and COM2 Connector (CN4)

CN4 is a 2x10-pin connector which is compliant with AMP 2-1734507-0 for COM1 and COM2 serial port interface. Only COM1 port has +5V level power capability on DCD and +12V level on RI by setting JP1 (see section A.17.1). If you need COM1 port to support RS-422 or RS-485, please refer to BIOS setting in section 4.4. The COM2 port supports only RS-232. The pin assignments of RS-232/422/485 are listed in table below.

Pin	RS-232	RS-422	RS-485
1	DCD2		
2	DSR2		
3	RXD2		
4	RTS2		
5	TXD2		
6	CTS2		
7	DTR2		
8	RI2		
9	GND	GND	GND
10	+V5S	+V5S	+V5S
11	DCD1	TX-	Data-
12	DSR1	No use	No use
13	RXD1	TX+	Data+
14	RTS1	No use	No use
15	TXD1	RX+	No use
16	CTS1	No use	No use
17	DTR1	RX-	No use
18	RI1	No use	No use
19	GND	GND	GND
20	+V5S	+V5S	+V5S



Appendix B
Watchdog Timer

B.1 About Watchdog Timer

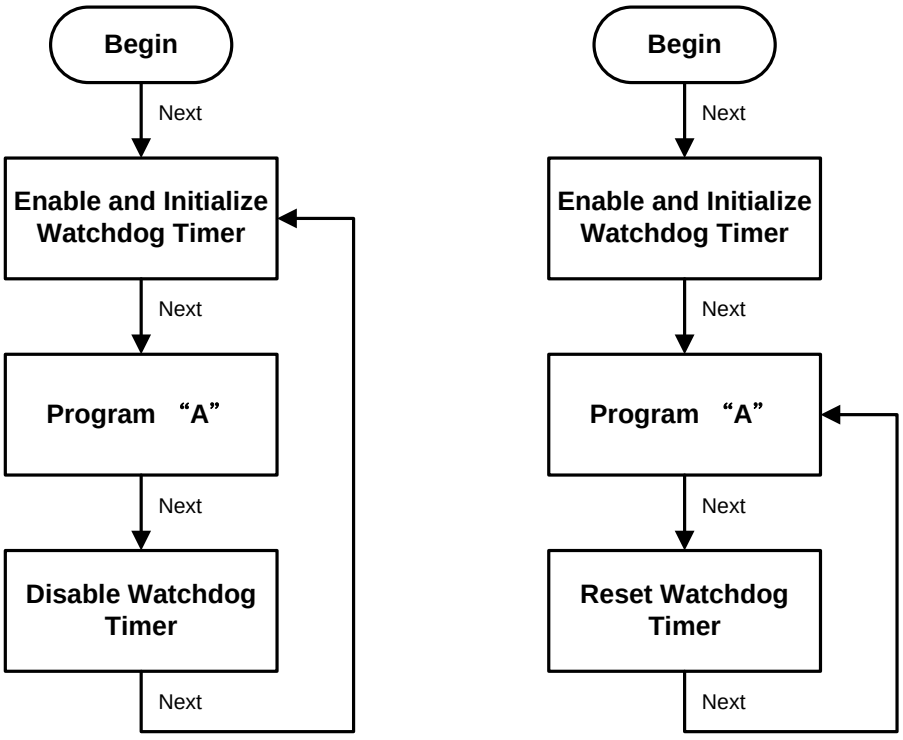
Software stability is major issue in most application. Some embedded systems are not watched by human for 24 hours. It is usually too slow to wait for someone to reboot when computer hangs. The systems need to be able to reset automatically when things go wrong. The watchdog timer gives us solution.

The watchdog timer is a counter that triggers a system reset when it counts down to zero from a preset value. The software starts counter with an initial value and must reset it periodically. If the counter ever reaches zero which means the software has crashed, the system will reboot.

B.2 How to Use Watchdog Timer

The I/O port base addresses of watchdog timer are 2E (hex) and 2F (hex). The 2E (hex) and 2F (hex) are address and data port respectively.

Assume that program A is put in a loop that must execute at least once every 10ms. Initialize watchdog timer with a value bigger than 10ms. If the software has no problems; watchdog timer will never expire because software will always restart the counter before it reaches zero.



B.3 Sample Program

Assembly sample code :

```
;Enable WDT:
mov     dx,2Eh
mov     al,87            ;Un-lock super I/O
out     dx,al
out     dx,al

;Select Logic device:
mov     dx,2Eh
mov     al,07h
out     dx,al
mov     dx,2Fh
mov     al,07h
out     dx,al

;Enable WDT base address:
mov     dx,2Eh
mov     al,30h
out     dx,al
mov     dx,2Fh
mov     al,01h
out     dx,al

;Active WDT :
mov     dx,2Eh
mov     al,0F0h
out     dx,al
mov     dx,2Fh
mov     al,80h
out     dx,al

;Set base timer :
mov     dx,2Eh
mov     al,0F6h
out     dx,al
mov     dx,2Fh
mov     al,Mh            ;M=00h,01h,...FFh (hex),Value=0 to 255
out     dx,al            ;(see Note below)

;Set Second orMinute :
mov     dx,2Eh
mov     al,0f5h
out     dx,al
mov     dx,2Fh
mov     al,Nh            ;N=71h or 79h(see Note below)
out     dx,al
```

***Note**:*
*If **N**=71h, the time base is set to second.*
***M** = time value*
00: Time-out Disable
01: Time-out occurs after 1 second
02: Time-out occurs after 2 seconds
03: Time-out occurs after 3 seconds
.
.
FFh: Time-out occurs after 255 seconds

*If **N**=79h, the time base is set to minute.*
***M** = time value*
00: Time-out Disable
01: Time-out occurs after 1 minute
02: Time-out occurs after 2 minutes
03: Time-out occurs after 3 minutes
.
.
FFh: Time-out occurs after 255 minutes

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Appendix C
iAMT Settings

The Intel® Active Management Technology (Intel® iAMT) has decreased a major barrier to IT efficiency that uses built-in platform capabilities and popular third-party management and security applications to allow IT a better discovering, healing, and protection their networked computing assets.

In order to utilize Intel® iAMT you must enter the ME BIOS (<Ctrl + P> during system startup), change the ME BIOS password, and then select "Intel® iAMT" as the manageability feature.

C.1 Entering MEBx

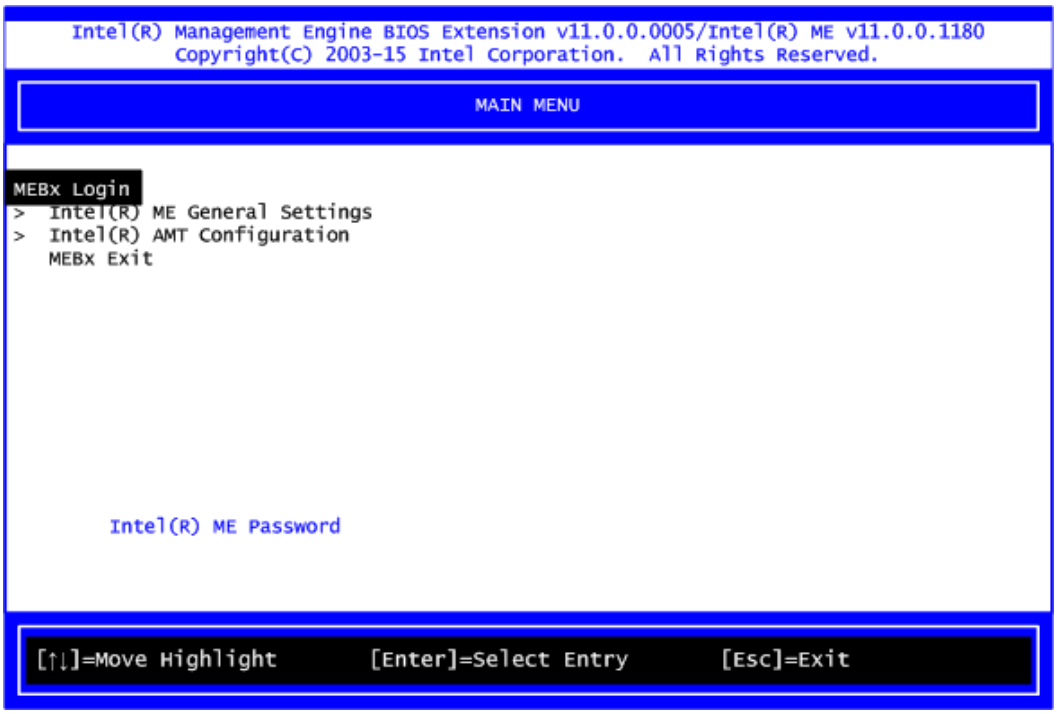
1. Go to BIOS to enable iAMT function (see section 4.4).
2. Exit from BIOS after starting iAMT, and press <Ctrl + P> to enter MEBx Setting.

Note

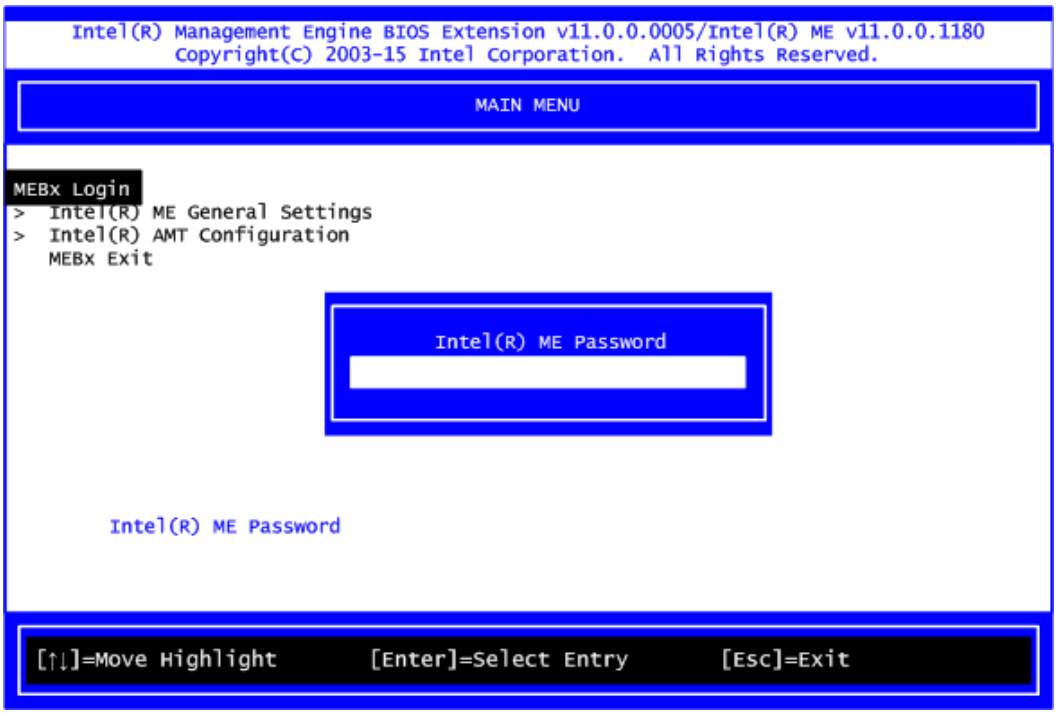
It is better to press <Ctrl + P> before the screen popping out.

C.2 Set and Change Password

1. You will be asked to set a password when first log in. The default password is "admin".



2. You will be asked to change the password before setting ME.

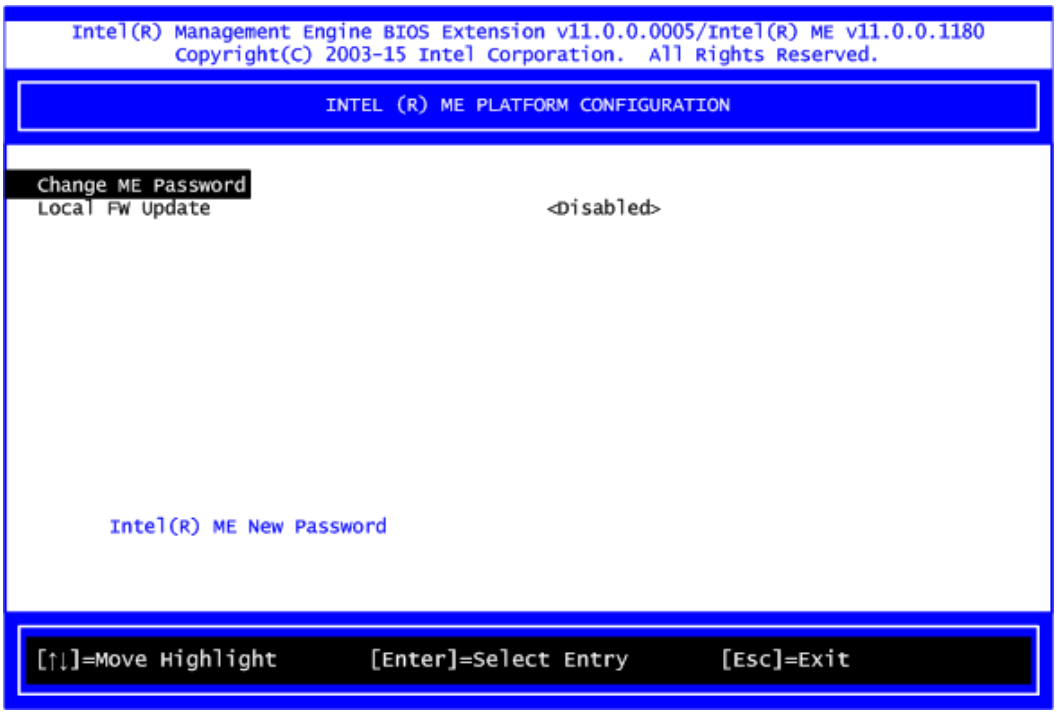


3. You must confirm your new password while revising. The new password must contain: (example: **!!11qqQQ**) (default value).

   - Eight characters
   - One upper case
   - One lower case
   - One number
   - One special symbol, such as ! 、 $ or ; ，(、 " , excepted)

   Underline (_) and space are valid characters for password, but they won't make higher complexity.

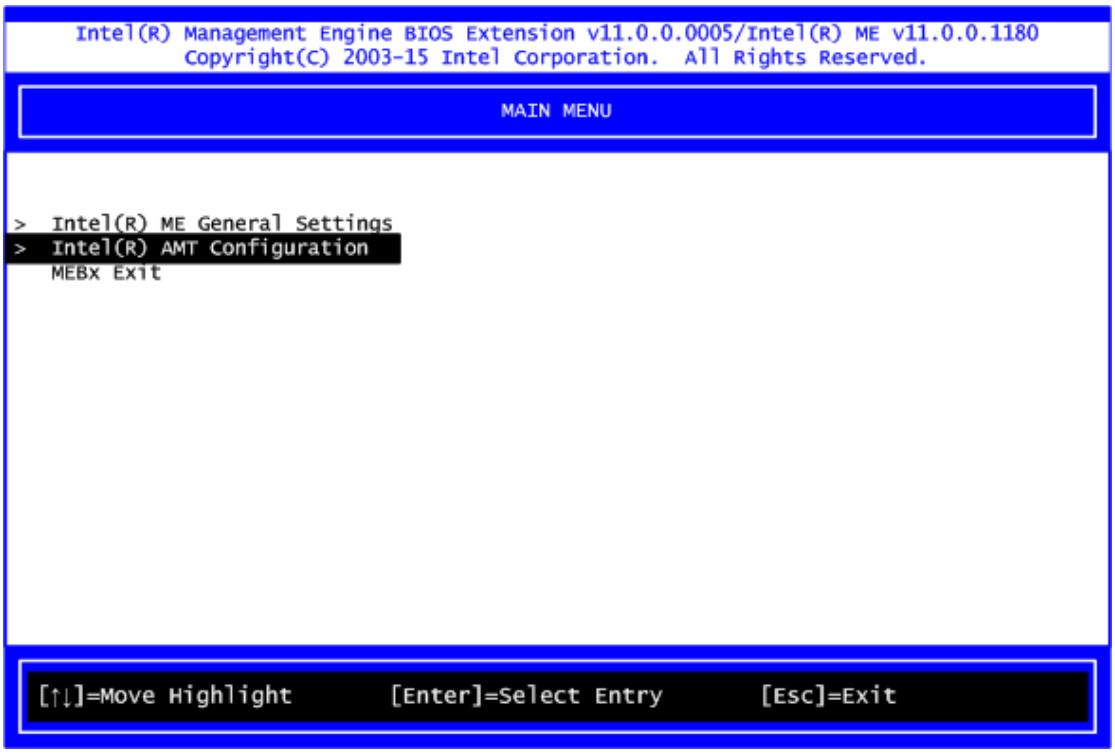
4. From Main Menu, select ME General Settings to get into ME Platform Configuration screen. In this screen you can modify Local FW Update setting.



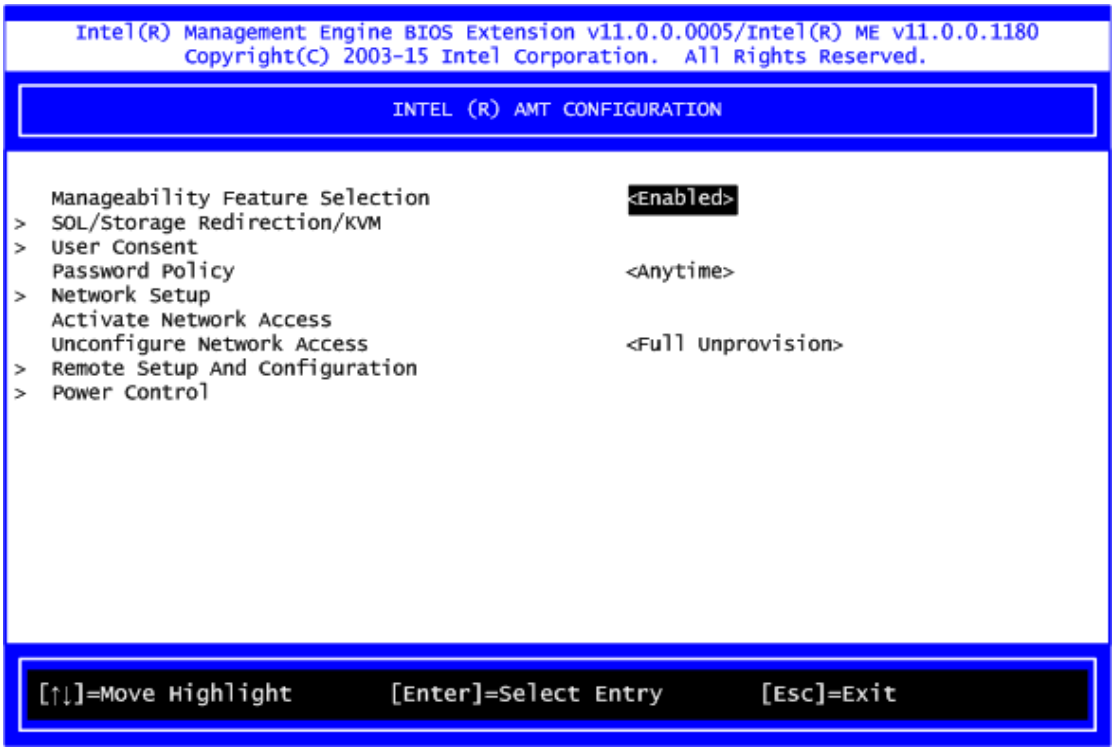
5. Return to Main Menu.

C.3 iAMT Settings

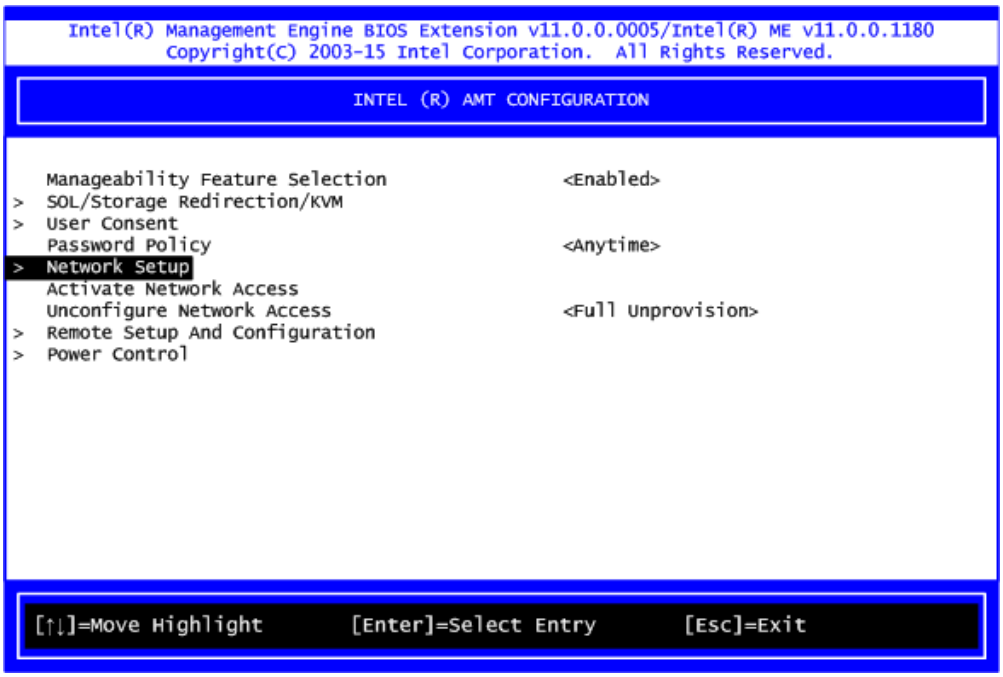
Select Intel® AMT configuration and press <Enter>.



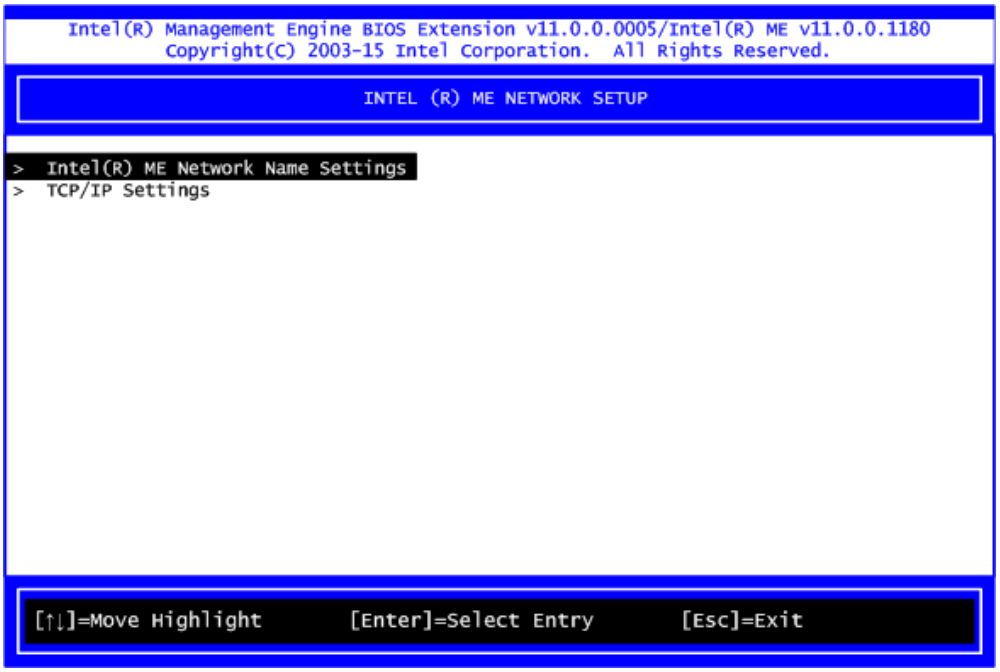
From AMT Configuration menu, select Manageability Feature Selection and set it to Enabled. This item allows you to enable or disable Intel® AMT feature.

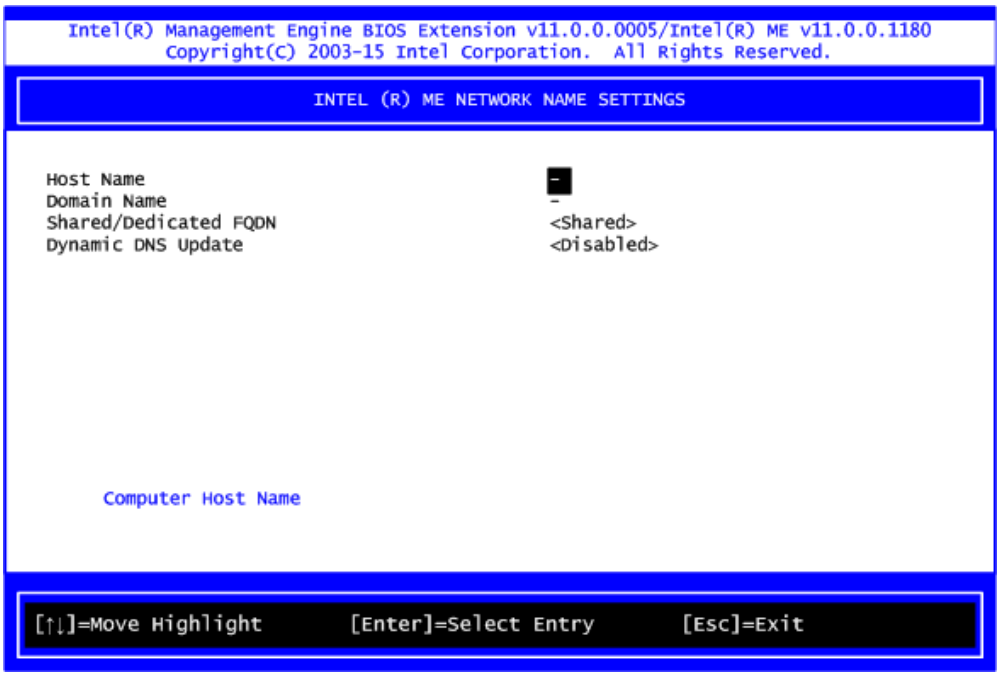


- **Network Setup**
  1. Select Network Setup to configure iAMT.

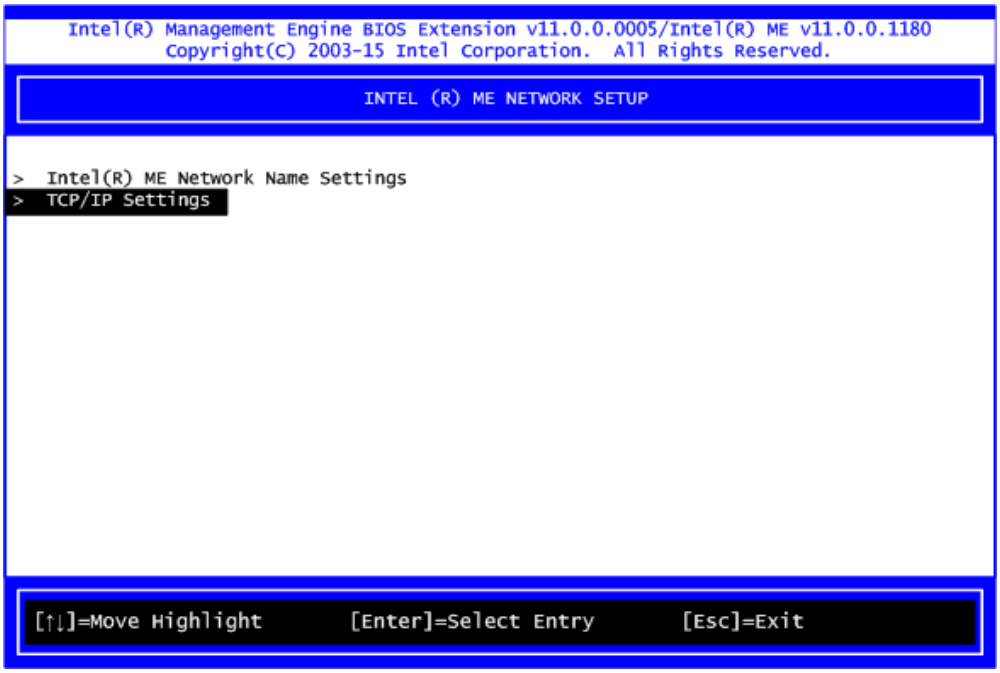


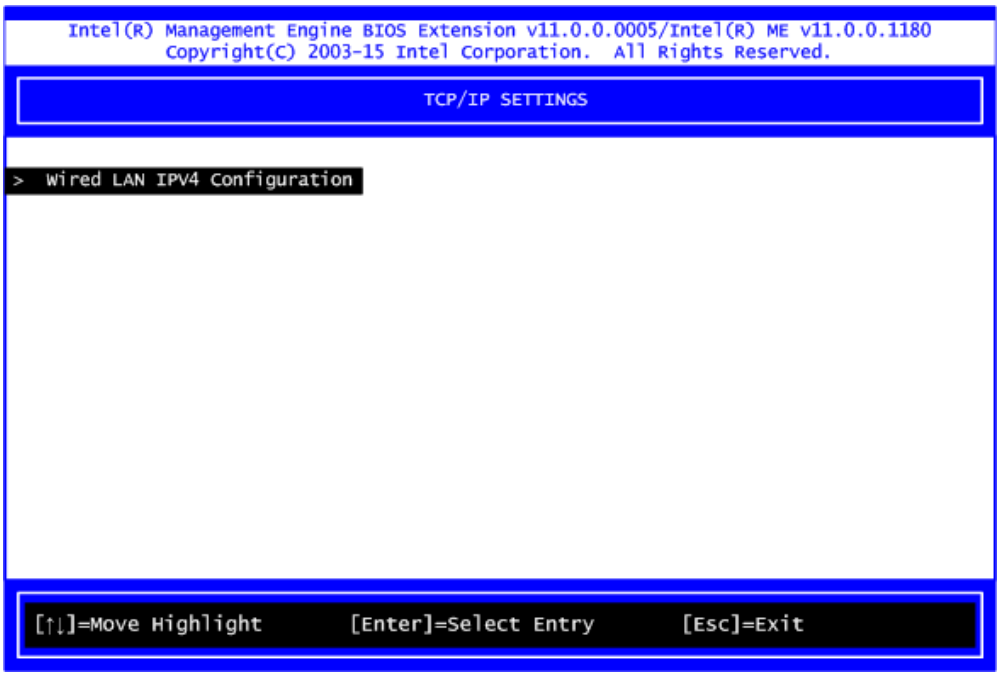
  2. Select ME Network Name Settings to set computer host and domain name.

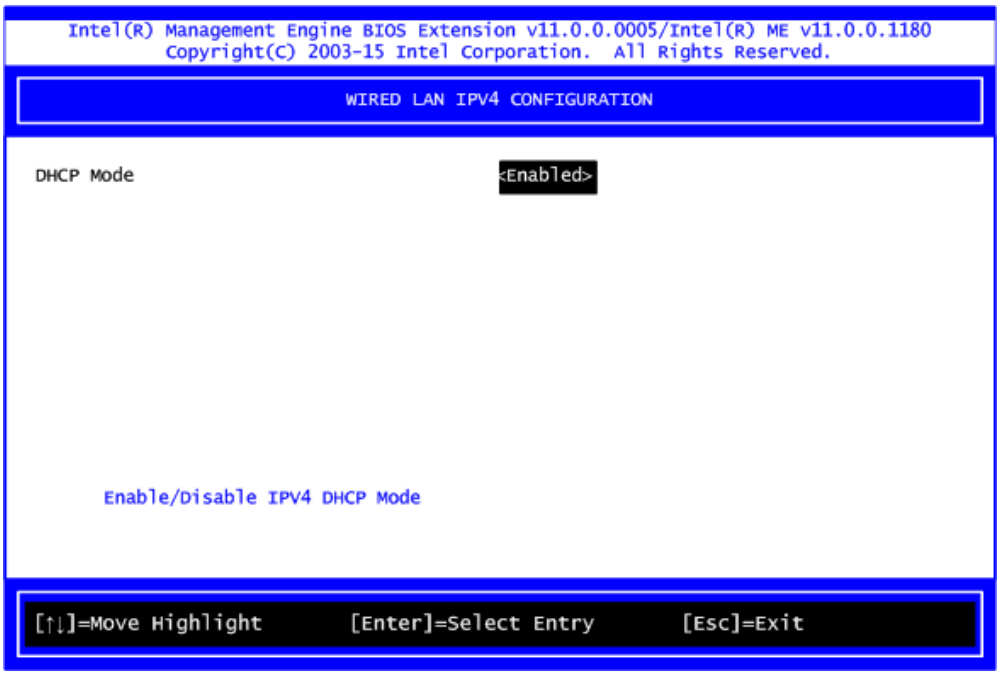




3. Select TCP/IP to get into Network interface and set it to Enabled. Get into DHCP Mode and set it to Disabled.

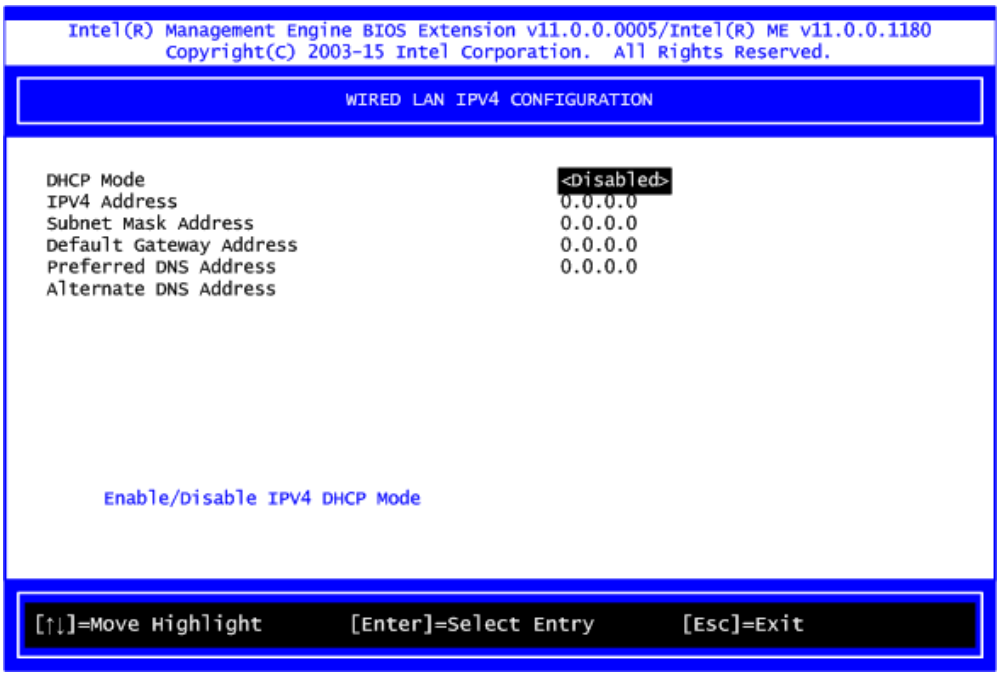




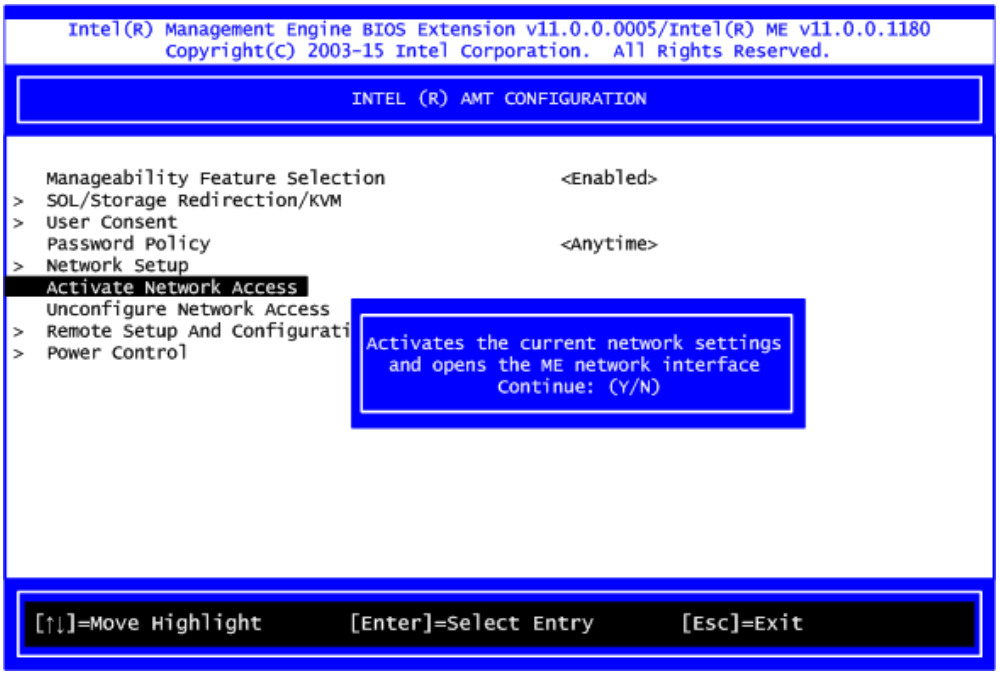


4. If DHCP Mode is disabled, set the following settings:

   - IP address
   - Subnet mask



5. Go back to Intel® iAMT Configuration, then select Activate Network Access and press <Enter>.

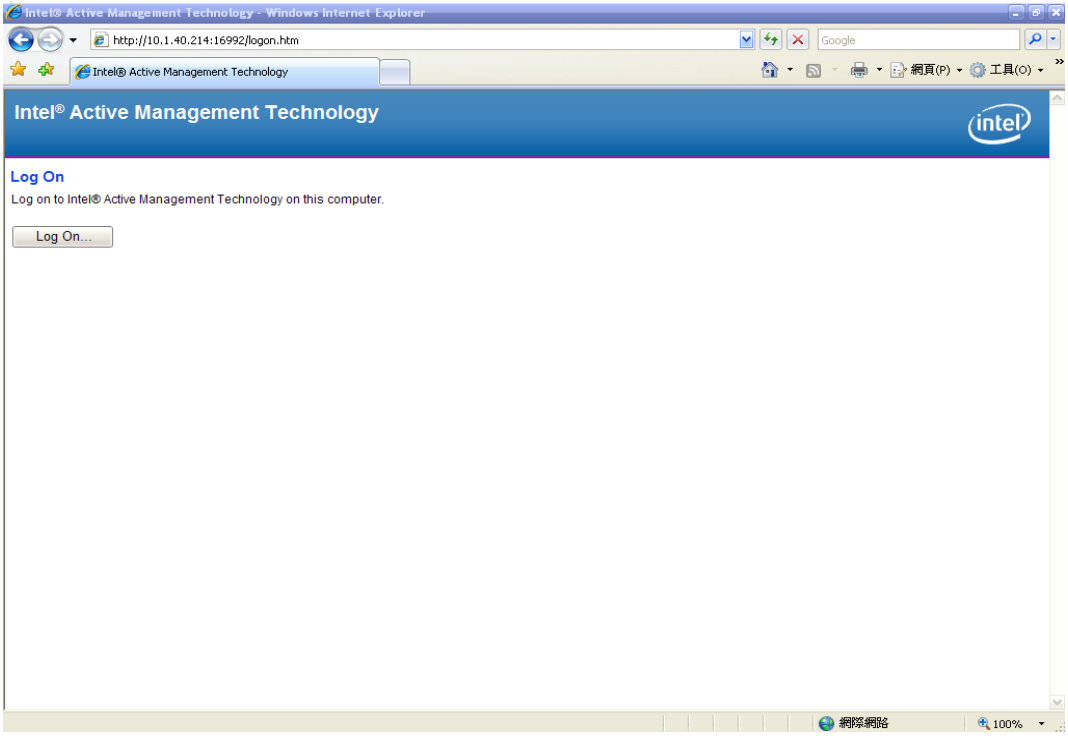


6. Exit from MEBx after completing the iAMT settings.

C.4 iAMT Web Console

1. From a web browser, please type http:///(IP ADDRESS):16992, which connects to iAMT Web.

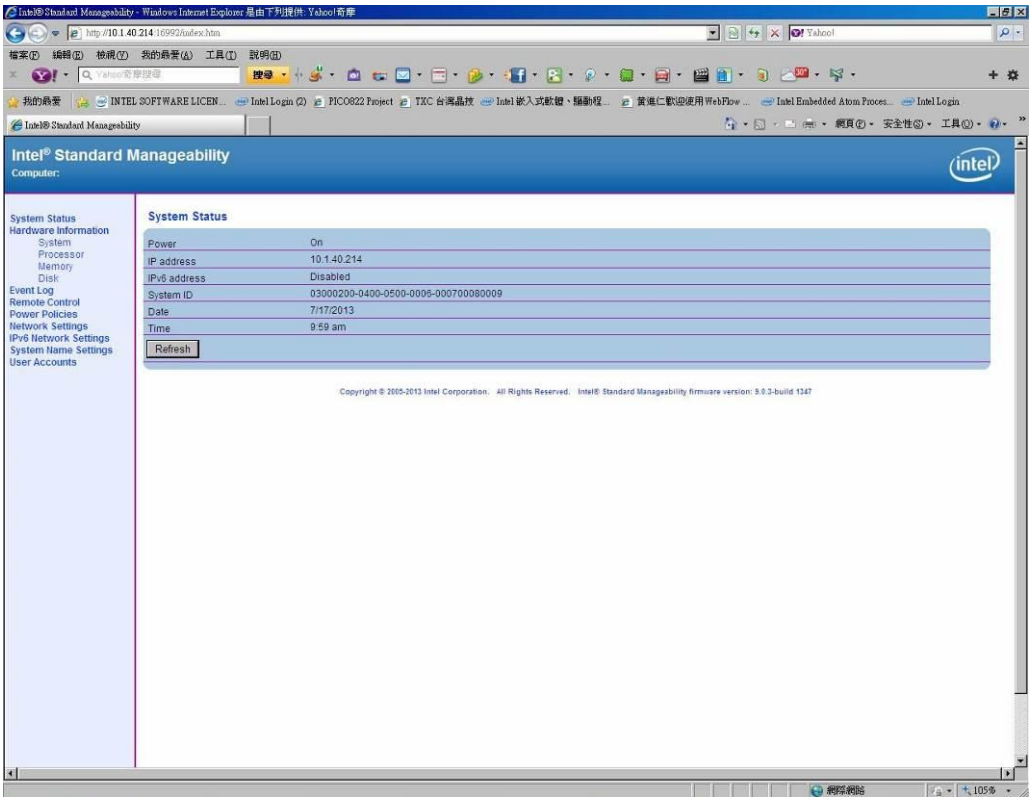
   Example: http://10.1.40.214:16992



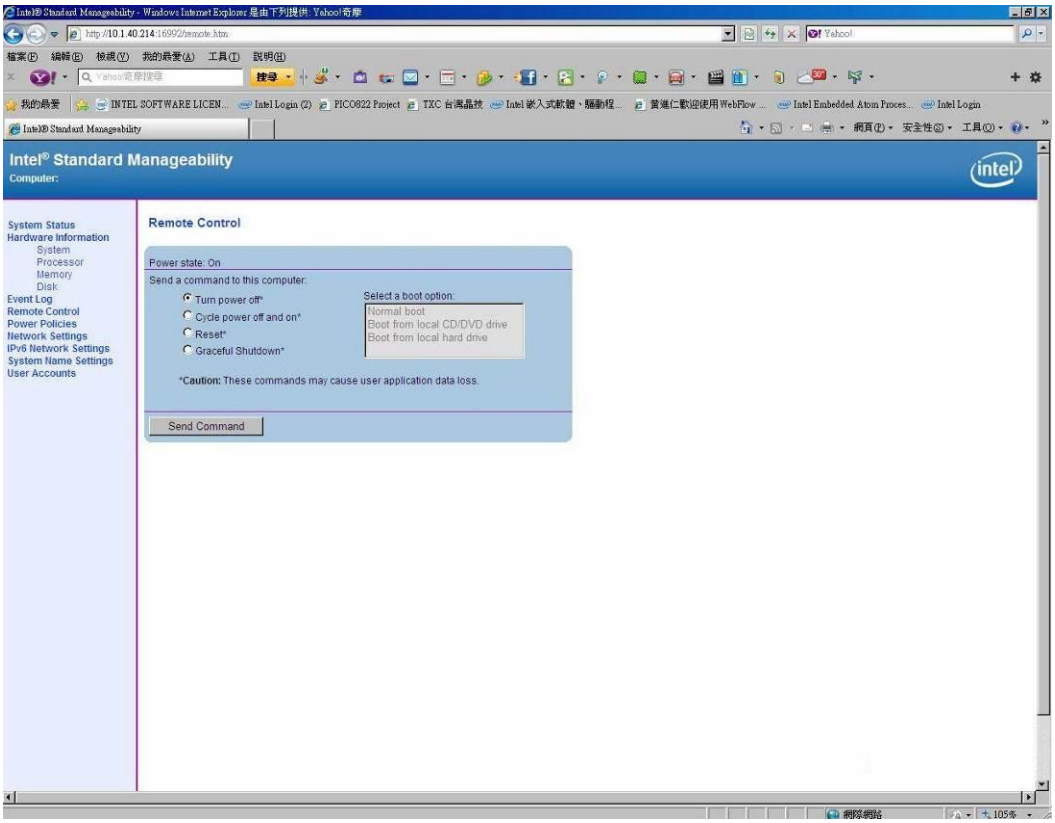
2. To log on, you will be required to type in username and password for access to the Web.

   USER: admin (default value)
   PASS: (MEBx password)

3. Enter the iAMT Web.



4. Click Remote Control, and select commands on the right side.



5. When you have finished using the iAMT Web console, close the Web browser.

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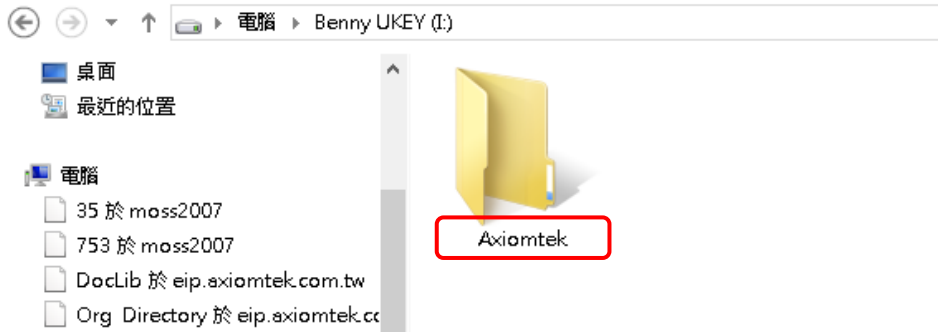
Appendix D
BIOS Flash Utility

The BIOS Flash utility is a new helpful function in BIOS setup program. With this function you can easily update system BIOS without having to enter operating system. In this appendix you may learn how to do it in just a few steps. Please read and follow the instructions below carefully.

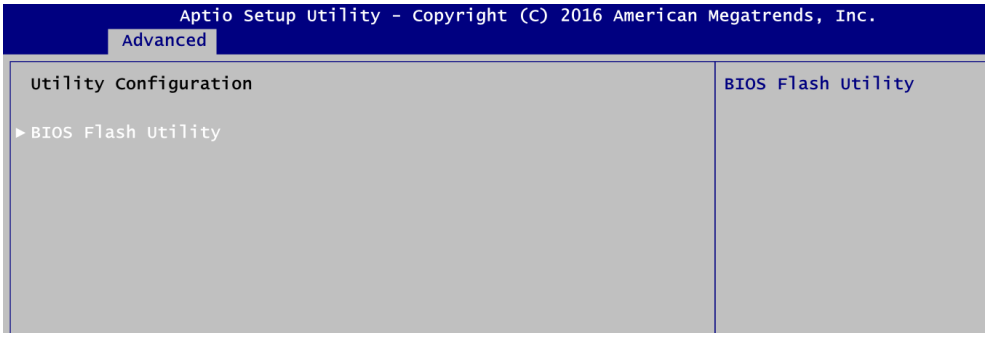
1. In your USB flash drive, create a new folder and name it “Axiomtek”, see figure below.



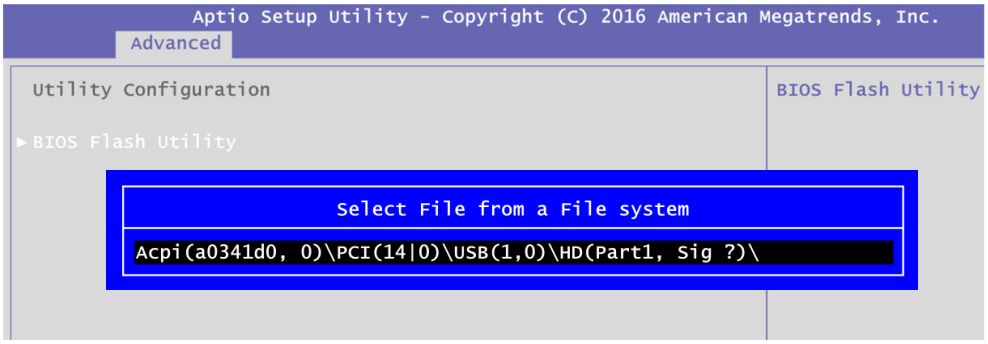
2. Copy BIOS ROM file (e.g. PICO500.005) to “Axiomtek” folder.

3. Insert the USB flash drive to your system.

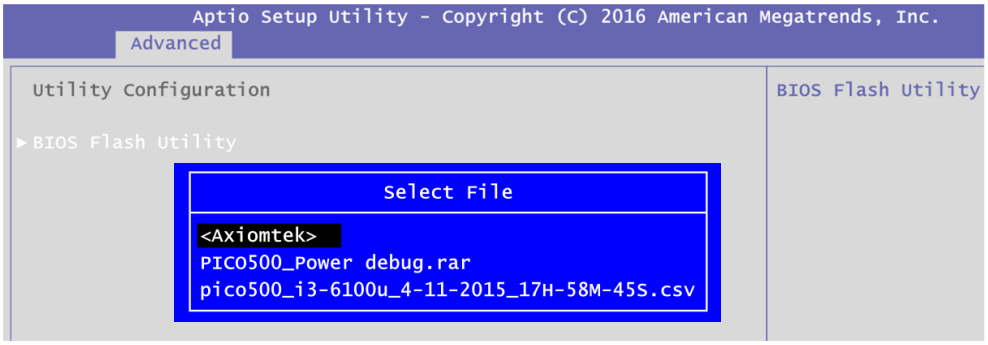
4. Enter BIOS setup menu and go to Advanced\Utility Configuration. Select BIOS Flash Utility and press <Enter>.



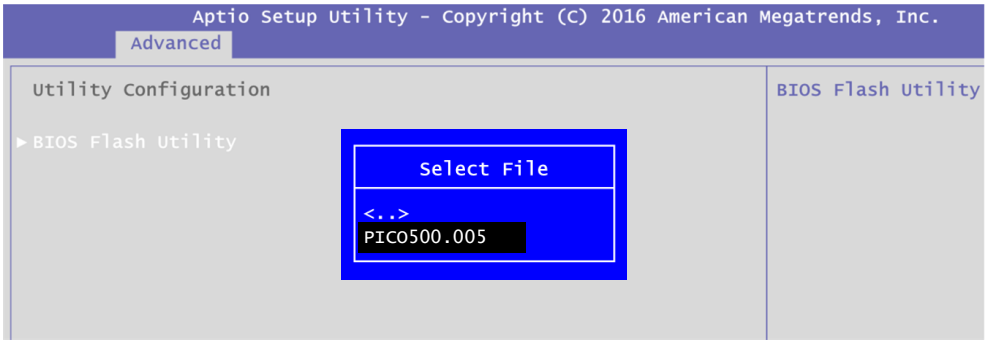
5. BIOS automatically detect all USB drive(s) attached to the system. In this example only one USB drive is attached to the system. That's why, you can see only one device is displayed in figure below.



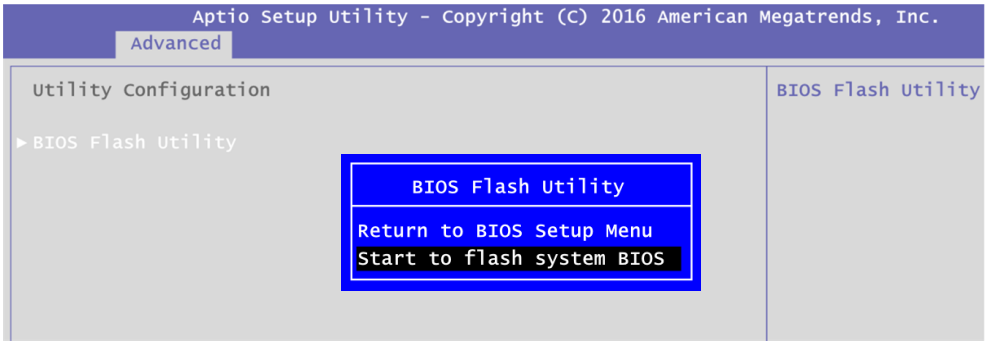
6. Select the USB drive containing BIOS ROM file you want to update using the <↑> or <↓> key. Then press <Enter> to get into "Axiomtek" folder.



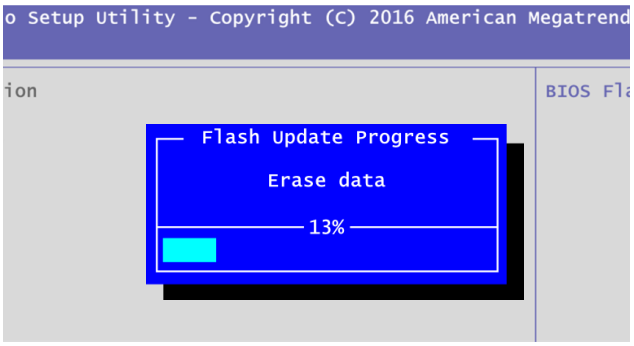
7. Now you can see the BIOS ROM file on the screen, press <Enter> to select.

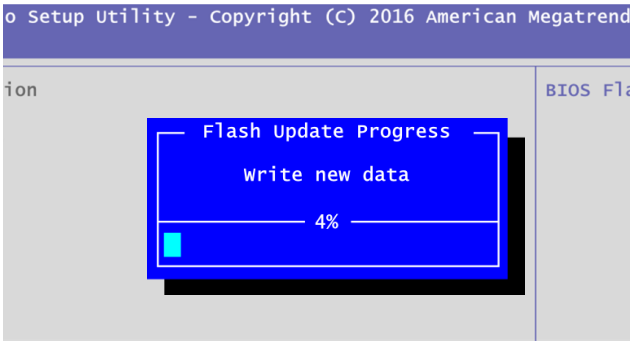


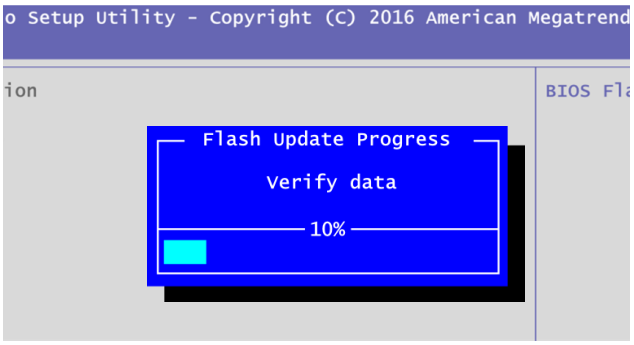
8. Select Start to flash system BIOS option to begin updating procedure.



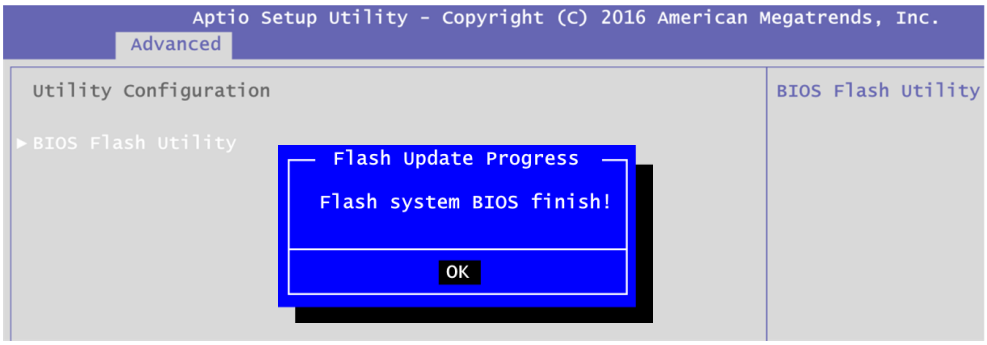
9. Please wait while BIOS completes the entire flash update process: erase data, write new data and verify data.







10. When you see the following figure, press <Enter> to finish the update process. After that the system will shut down and restart immediately.



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