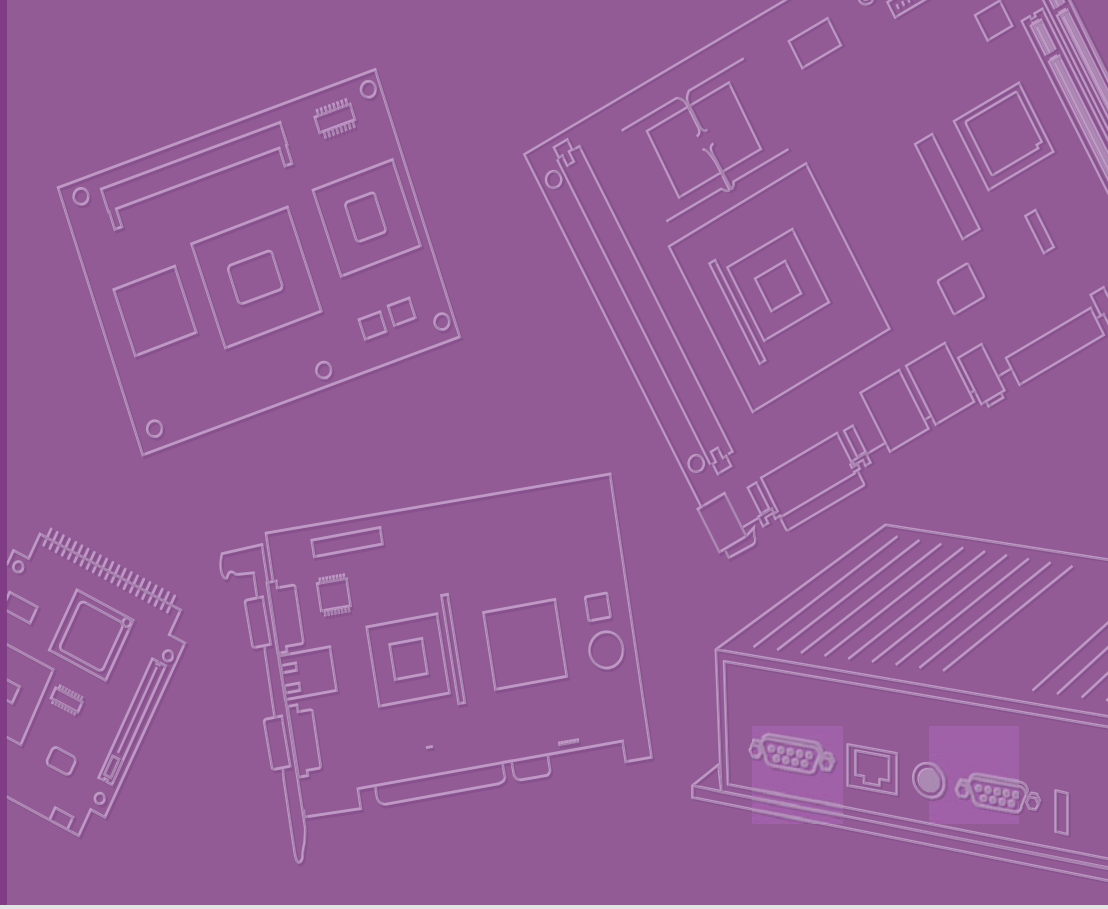

User Manual

ARK-DS262

ADVANTECH

Enabling an Intelligent Planet

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Packing List

Before setting up the system, check that the items listed below are included and in good condition. If any item does not accord with the table, please contact your dealer immediately.

- 1 x ARK-DS262 Unit
- 1 x Diver CD/Manual
- 1 x China RoHS
- 1 x Simplified Chinese User Manual for CCC
- OPS Logo label
- Advantech Warranty Card
- SUSIAccess Download Card

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Chapter 1

General Introduction

This chapter gives background information on ARK-DS262 series.

1.1 Introduction

The ARK-DS262 complies with Intel OPS (Open Pluggable Specification) standard and is powered by 3rd generation Intel Core i7/i3 with built-in graphics, enabling to generate compelling video and 3D animation. Compliant with the Open Pluggable Specification (OPS), its slot-in module design effectively lowers deployment and field maintenance costs to simplify device installation, usage, maintenance and upgrades.

ARK-DS262 OPS media player enables digital signage manufacturers to deploy systems faster, with lower costs for development and implementation. Its slot-in module is connected via a JAE 80-pin connector, and includes the HDMI, eDP, UART, and USB2.0/USB3.0 signals. The player-screen communication interface via UART and HDMI CEC provides status reporting and control, and also supports digital audio/video signals via HDMI, for picture-perfect content reproduction. ARK-DS262 also supports 1x GigaLAN, 1x COM ports, and 2x USB3.0 giving a great selection for data communication in display applications. The entire design makes digital signage applications more intelligent and connected.

1.2 Product Features

1.2.1 General

- 3rd generation Intel® Core® i7 processor-based platform
- Designed compliant with OPS (Open Pluggable Standard)
- Supports HDMI, eDP, UART, and USB2.0/USB3.0 via JAE 80-pin connector
- Slot-in integration, easy maintenance

1.2.2 Display

- Support up to 1920 x 1080 (via OPS interconnection) video playback performance (subject to the video media format and playback software)

1.2.3 Power Consumption

- **Typical:** 19 W
- **Max.:** 30 W

1.3 Hardware Specifications

- **CPU:** Intel 3rd generation Intel Core i7-3555LE 2.5 GHz or 3rd generation Intel Core i3-3217UE 1.6 GHZ
- **System Chipset:** Intel QM77 chipset
- **Graphic chipset:** Integrated graphics built in Processor
- **BIOS:** AMI 64 Mbit Flash BIOS
- **System Memory:** 2 x DDR3 204-pin SODIMM sockets, supports up to 16 GB (8 GB per SO-DIMM)
- **HDD:** Supports 1 x 2.5" SATA HDD (max 9.5 mm height)
- **I/O Interface:**
  - 1 x JAE TX25-80P-LT-H1E
  - 1 x HDMI
  - 2 x USB 3.0 compliant ports
  - 1 audio phone jack for Line-out
  - 1 x COM (RS-232)

  - 1 x MiniPCIe (Internal)
- **Ethernet Chipset:** 1 x Intel 82579LM
  - Speed: 10/100/1000 Mbps
  - Interface: 1 x RJ-45 jacks with LED
  - LED Code: Yellow (Active)/Dark (10 Mbps) / Green (100 Mbps) / Orange (1000 Mbps)
  - Standard: IEEE 802.3z/ab (1000 Base-T) or IEEE 802.3u 100 Base-T compliant
- **Resolution:**
  - HDMI/eDP: up to 1920 x 1080 (via OPS interconnection)
  - HDMI: up to 1920 x 1080

1.4 Mechanical Specifications

1.4.1 Dimensions

200 x 119 x 30 mm (OPS compliant)

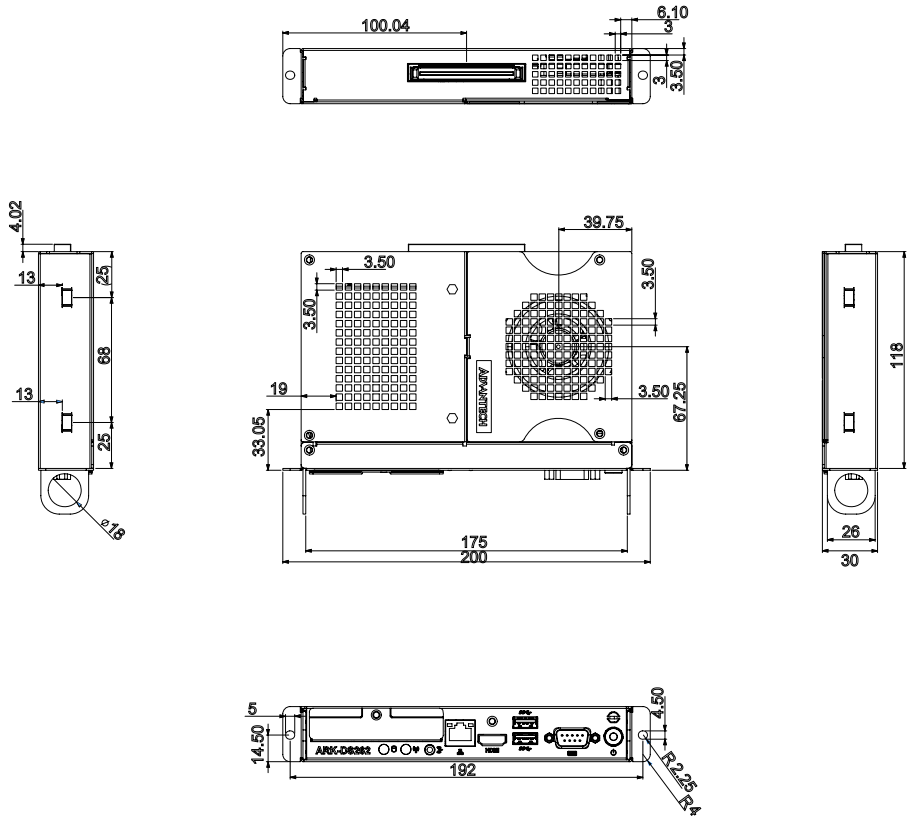


Figure 1.1 ARK-DS262 Mechanical Dimension

1.4.2 Weight

1.0 kg (2.2 lb.)

1.5 Power Requirements

1.5.1 System Power

12 V ~ 24 V DC-in (via OPS interconnection)

1.5.2 RTC Battery

3 V/195 mAH BR2032

1.6 Environmental Specifications

1.6.1 Operating Temperature

-10° C - 50° C (14 ~ 122° F)

1.6.2 Relative Humidity

95% @ 40° C (non-condensing)

1.6.3 Storage Temperature

-20~70° C (-4 ~ 167° F)

1.6.4 Vibration Loading During Operation

0.5 Grms, IEC 60068-2-64, random, 5 ~ 500 Hz, 1 Oct./min, 1 hr./axis.

1.6.5 Safety

UL, CB, CCC

1.6.6 EMC

CE, FCC Class B, BSMI, C-Tick

Chapter 2

Hardware Installation

This chapter introduces external I/O and the installation of ARK-DS262 Hardware.

2.1 ARK-DS262 I/O Connectors

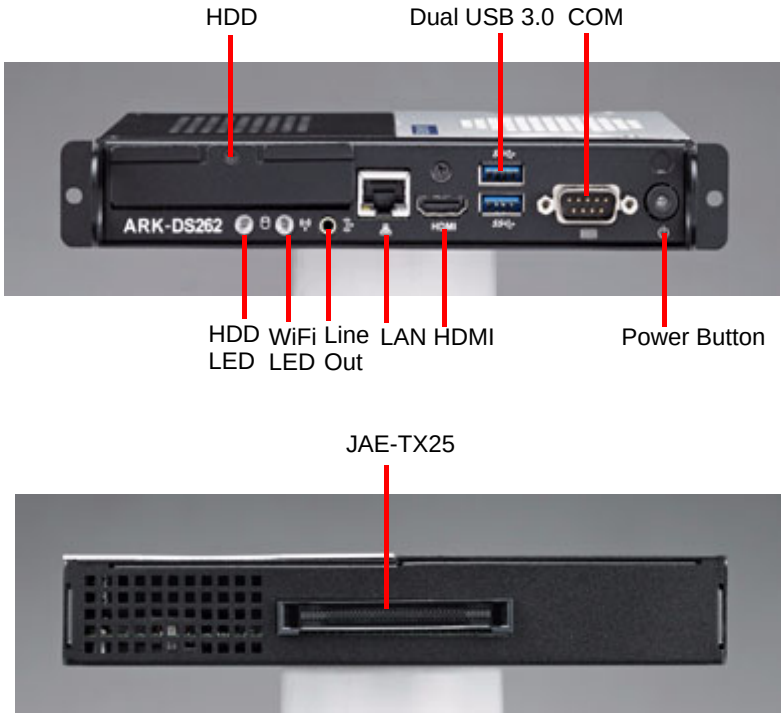


Figure 2.1 ARK-DS262 I/O connectors

2.2 ARK-DS262 External I/O Connectors

2.2.1 Power ON/OFF Button

ARK-DS262 has a power ON/OFF button on the front side. Push this button to turn the system ON and OFF. It also supports a 4 second delay soft power off.

Figure 2.2 Power ON/OFF Button

2.2.2 COM Connector

ARK-DS262 provides one D-sub 9-pin connectors serial communication interface port. The ports support RS-232 mode communications.

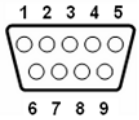


Figure 2.3 COM Connector

Table 2.1: COM Connector Pin Assignments	
Pin	**Signal Name**
1	DCD
2	RxD
3	TxD
4	DTR
5	GND
6	DSR
7	RTS
8	CTS
9	RI

2.2.3 USB 1~2 Connectors

ARK-DS262 provides two USB interface connectors, which gives complete Plug & Play and hot swapping capability for up to 127 external devices. The USB interface is compliant with USB UHCI, Rev. 3.0. The USB interface supports Plug and Play, which enables you to connect or disconnect a device without turning off the system.

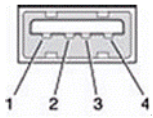


Figure 2.4 USB 1~2 Connectors

Table 2.2: USB 1~2 Port Pin Assignments	
Pin	**Signal Name**
1	VCC
2	USB Data-
3	USB Data+
4	GND

2.2.4 Ethernet Connector (LAN)

ARK-DS262 provides one RJ-45 LAN interface connector, fully compliant with IEEE802.3u 10/100/1000 Base-T CSMA/CD standards. The Ethernet port provides a standard RJ-45 jack connector with LED indicators to show its Active/Link status and speed status.

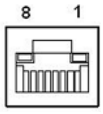


Figure 2.5 Ethernet Connector

Table 2.3: LAN Connector Pin Assignments	
Pin	**Signal Name**
1	MDI0+
2	MDI0-
3	MDI1+
4	MDI1-
5	GND
6	GND
7	MDI2+
8	MDI2-
9	MDI3+
10	MDI3-
11	VCC
12	ACT
13	+V3.3 & Link1000#
14	+V3.3 & Link100#

2.2.5 HDMI Connector

An integrated, 19-pin receptacle connector HDMI Type A Interface is provided. The HDMI link supports resolutions up to 1920x1200 @ 60 Hz.

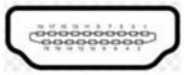


Figure 2.6 HDMI Connector

Table 2.4: HDMI receptacle connector pin assignments			
Pin	**Signal Name**	**Pin**	**Signal Name**
1	TMDS Data 2+	2	TMDS Data 2 Shiled
3	TMDS Data 2-	4	TMDS Data 1+
5	TMDS Data 1 Shiled	6	TMDS Data 1-
7	TMDS Data 0+	8	TMDS Data 0 Shiled
9	TMDS Data 0-	10	TMDS Clock+
11	TMDS Clock Shiled	12	TMDS Clock-
13	CEC	14	Reserved
15	SCL	16	SDA
17	DDC/CEC Ground	18	+5 V
19	Hot Plug Detect	20	

2.2.6 Audio Connector

Line Out: Stereo speakers, earphone or front surround speakers can be connected to the line out jack.

Figure 2.7 Line-out

2.2.7 JAE TX-25 Plug Connector

ARK-DS262 provides one 80-pin right angle blindmate JAE TX-25 Plug connector, higher tolerance on mating misalignment , enables plug and unplug mechanism between ARK-DS262 and JAE TX-24 Receptacle connectors inside the display panel.

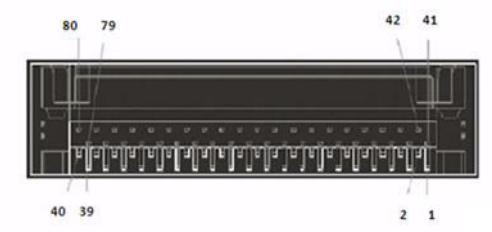


Figure 2.8 JAE TX-25 Plug Connector

Table 2.5: JAE TX-25 Plug Connector

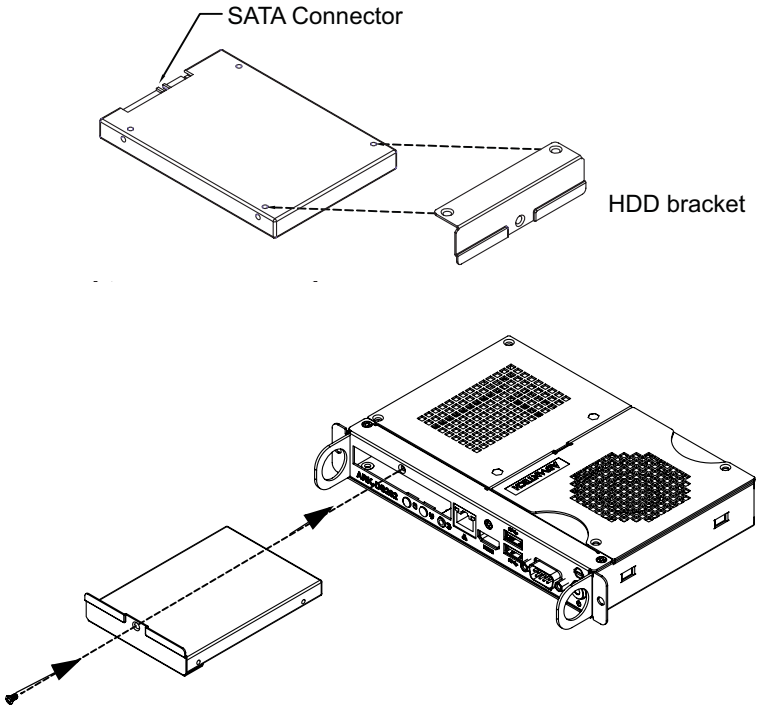
Pin	Signal Name	Pin	Signal Name
1	DDP_3N	41	RSVD
2	DDP_3P	42	RSVD
3	GND	43	RSVD
4	DDP_2N	44	RSVD
5	DDP_2P	45	RSVD
6	GND	46	RSVD
7	DDP_1N	47	RSVD
8	DDP_1P	48	RSVD
9	GND	49	RSVD
10	DDP_0N	50	SYS_FAN
11	DDP_0P	51	UART_RXD
12	GND	52	UART_TXD
13	DDP_AUXN	53	GND
14	DDP_AUXP	54	StdA_SSRX-
15	DDP_HPD	55	StdA_SSRX+
16	GND	56	GND
17	TMD_CLK-	57	StdA_SSTX-
18	TMD_CLK+	58	StdA_SSTX+
19	GND	59	GND
20	TMDS0-	60	USB_PN2
21	TMDS0+	61	USB_PP2
22	GND	62	GND
23	TMDS1-	63	USB_PN1
24	TMDS1+	64	USB_PP1
25	GND	65	GND
26	TMDS2-	66	USB_PN0
27	TMDS2+	67	USB_PP0
28	GND	68	GND
29	HDMI_DDC_DATA	69	AZ_LINEOUT_L
30	HDMI_DDC_CLK	70	AZ_LINEOUT_R
31	HDMI_HPD	71	HDMI_CEC

Table 2.5: JAE TX-25 Plug Connector			
32	GND	72	PB_
33	+12 V ~ +24 V	73	PS_ON#
34	+12 V ~ +24 V	74	PWR_STATUS
35	+12 V ~ +24 V	75	GND
36	+12 V ~ +24 V	76	GND
37	+12 V ~ +24 V	77	GND
38	+12 V ~ +24 V	78	GND
39	+12 V ~ +24 V	79	GND
40	+12 V ~ +24 V	80	GND

2.3 Hardware Installation

2.3.1 HDD Installation

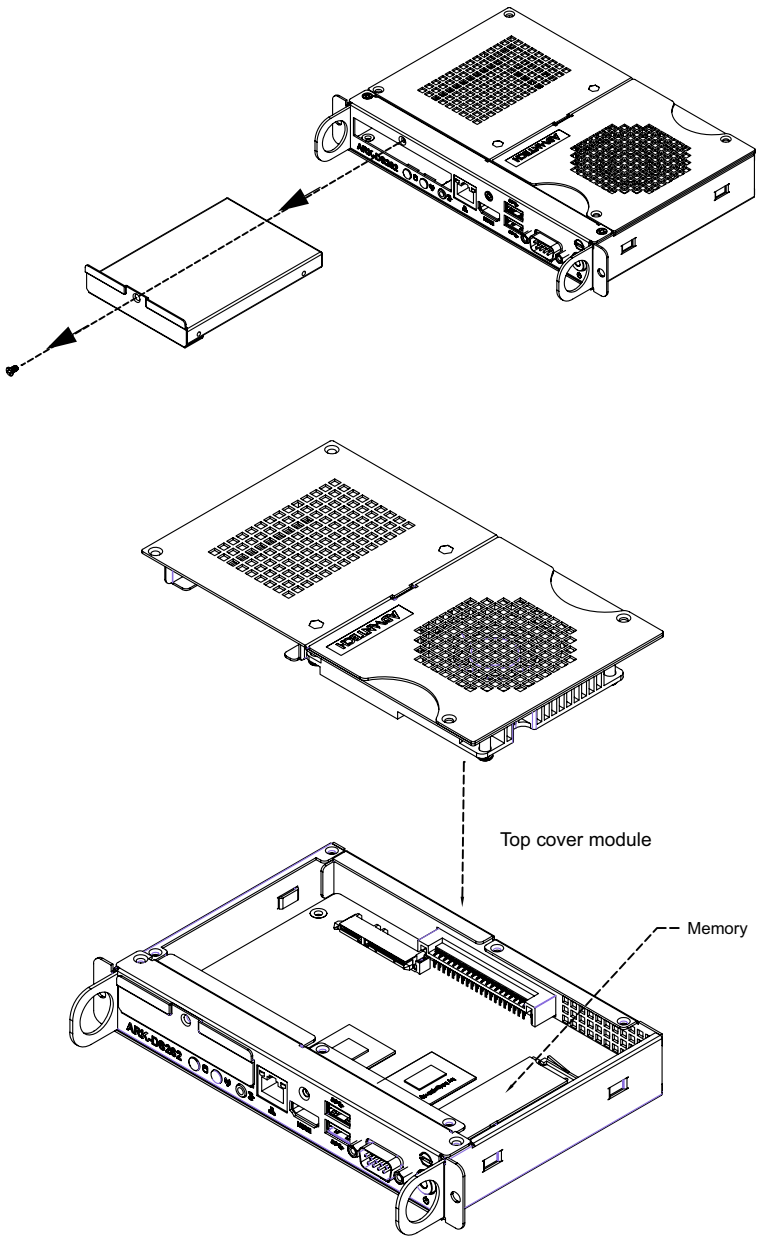
1. To assembly a HDD module, secure HDD to HDD bracket with 2 screws.
2. Insert a HDD module into ARK-DS262, then secure it with a screw.



2.4 Memory Installation

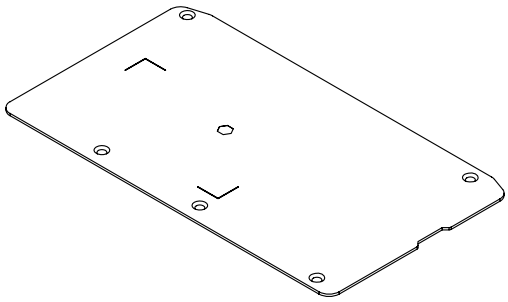
2.4.1 Memory-1 Installation

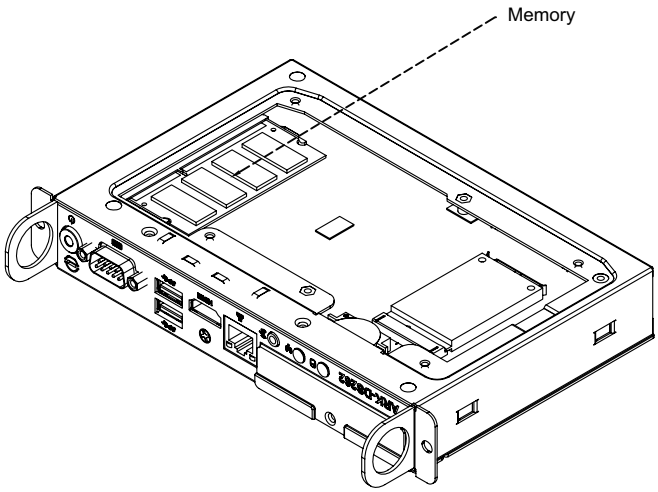
1. If there is a HDD module inserted into the system, remove the HDD module first.
2. Remove the top cover module by loosing screws.
3. Insert the memory-1 into the SODIMM-1 socket.
4. Replace the top cover module and HDD module, then secure with screws.



2.4.2 Memory-2 Installation

1. Remove the bottom cover by loosing 5 screws.
2. Insert the memory-2 into the SODIMM-2 socket.
3. Replace the bottom cover and secure with screws.





Chapter 3

BIOS Settings

This chapter introduces how to set BIOS configuration data.

3.1 BIOS Introduction

AMIBIOS has been integrated into many motherboards for over two decades. With the AMIBIOS Setup program, you can modify BIOS settings and control various system features. This chapter describes the basic navigation of the ARK-DS262 series BIOS setup screens.

AMIBIOS's ROM has a built-in setup program that allows users to modify the basic system configuration. This information is stored in battery-backed CMOS so it retains the setup information when the power is turned off.

3.2 Main Setup

When you first enter the BIOS Setup Utility, you will enter the Main setup screen. You can always return to the Main setup screen by selecting the Main tab.

The Main BIOS setup screen has two main frames. The left frame displays all the options that can be configured. Options in blue can be configured, and grayed-out options cannot be configured instead. The right frame displays the key legend.

The key legend in the top is an area reserved for a text message. When an option is selected in the left frame, it is highlighted in white. Often a text message will accompany it.

3.2.1 System Time / System Date

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 must be entered in HH:MM:SS format.

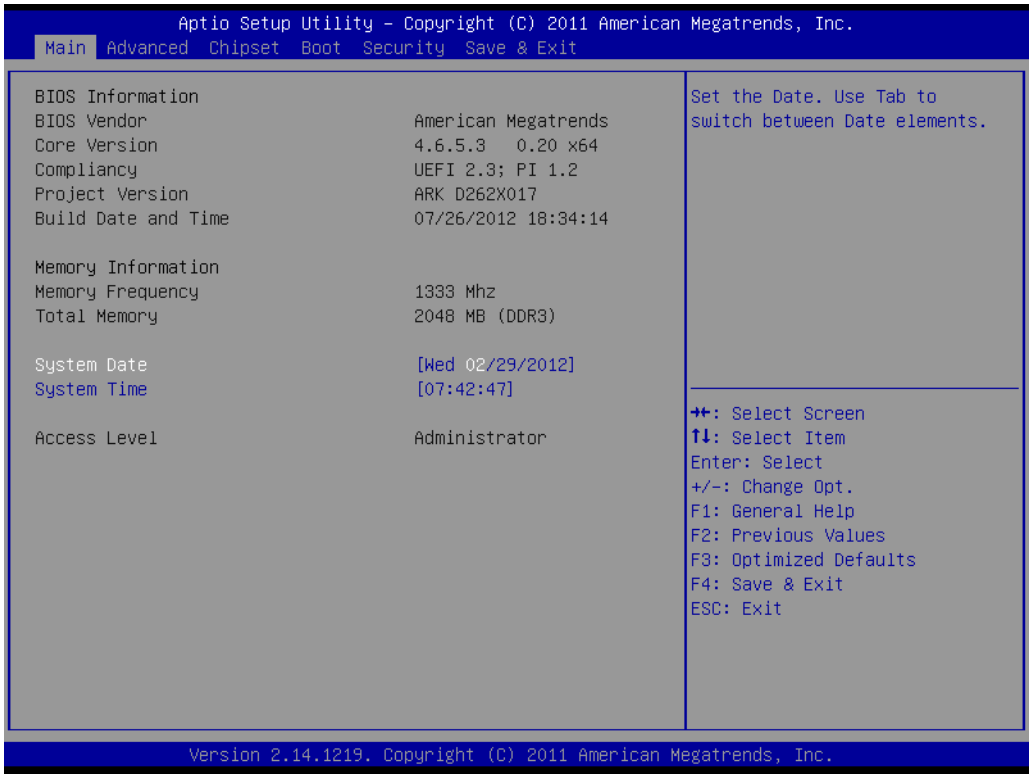


Figure 3.1 Main Setup Screen

3.2.2 Advanced BIOS Features Setup

Select the Advanced tab from the ARK-DS262 setup screen to enter the Advanced BIOS Setup screen. You can select any of the items in the left frame of the screen, such as CPU configuration, to go to the sub menu for that item. You can display an Advanced BIOS Setup option by highlighting it using the <Arrow> keys. All Advanced BIOS Setup options are described in this section. The Advanced BIOS Setup screens are shown below. The sub menus are described on the following pages.

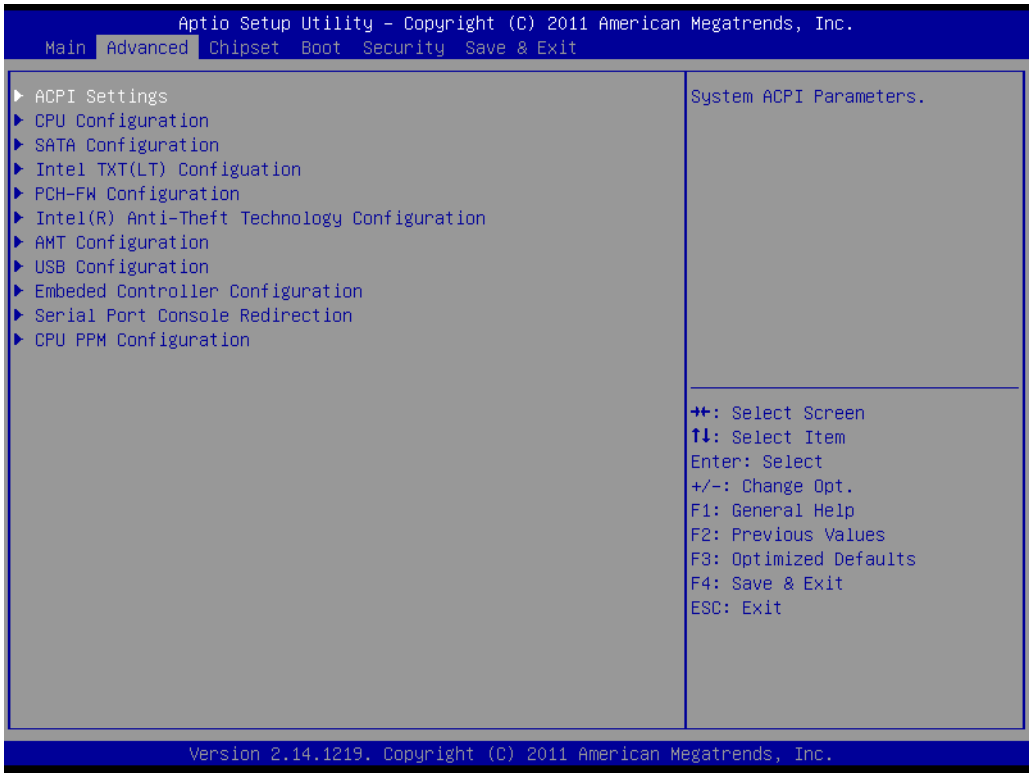


Figure 3.2 Advanced BIOS Features Setup Screen

- **ACPI Settings:** This section allows you to control hardware monitoring and power management.
- **CPU Configuration:**
  - **Hyper-threading:** Enabled for Windows XP and Linux (OS optimized for Hyper-Threading Technology) and Disabled for other OS (OS not optimized for Hyper-Threading Technology). When disabled, only one thread per enabled-core is enabled.
  - **Active Processor Cores:** Number of cores to be enabled in each processor package.
  - **Limit CPUID Maximum:** Disabled for Windows XP.
  - **Execute Disable Bit:** It can prevent certain classes of malicious buffer overflow attacks when combined with a supporting OS (Windows Server 2003 Sp1, Windows XP SP2, SuSE Linux 9.2 RedHat Enterprise 3 Update 3.).
  - **Intel Virtualization Technology:** When enabled, a VMM can utilize the additional hardware capabilities provided by Vander pool Technology.
  - **Hardware Prefetcher:** To turn on/off the Mid Level Cache (L2) streamer prefetcher.
  - **Adjacent Cache Line Prefetch:** To turn on/off prefetching of adjacent cache lines

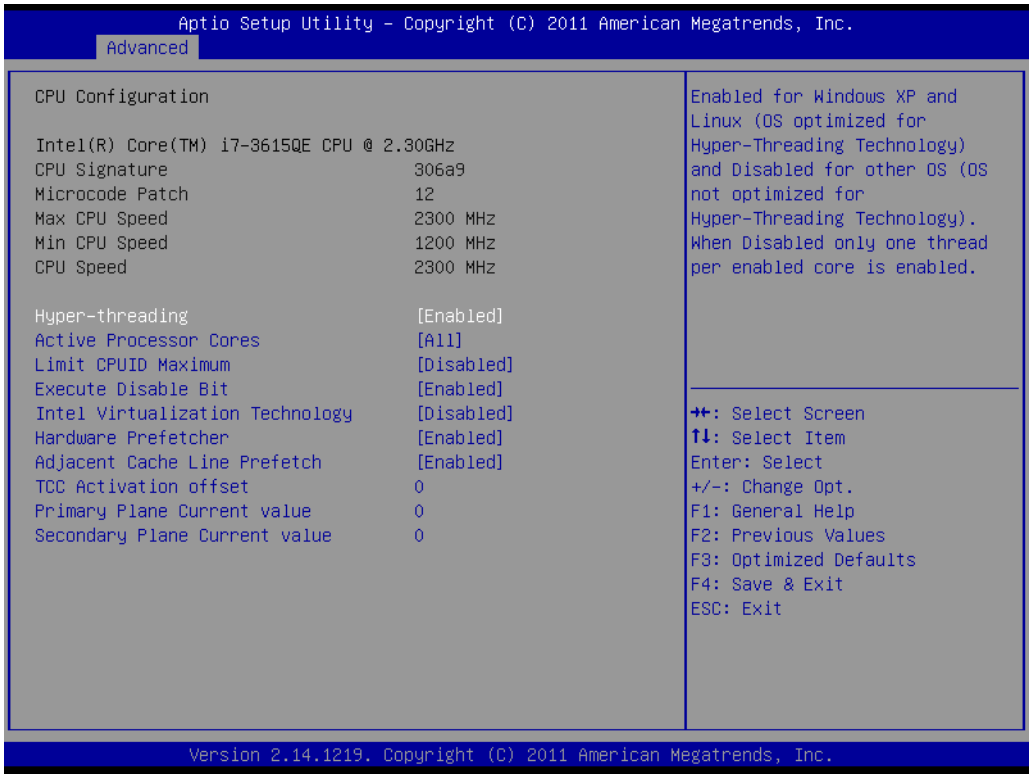


Figure 3.3 CPU Setting page

- **SATA Configuration:** This section allows you to set up SATA devices configuration.
  - **SATA Controller(s):** Enable or disable SATA Device.
  - **SATA Mode Selection:** Determines how SATA controller(s) operate. The choice: IDE, AHCI, RAID

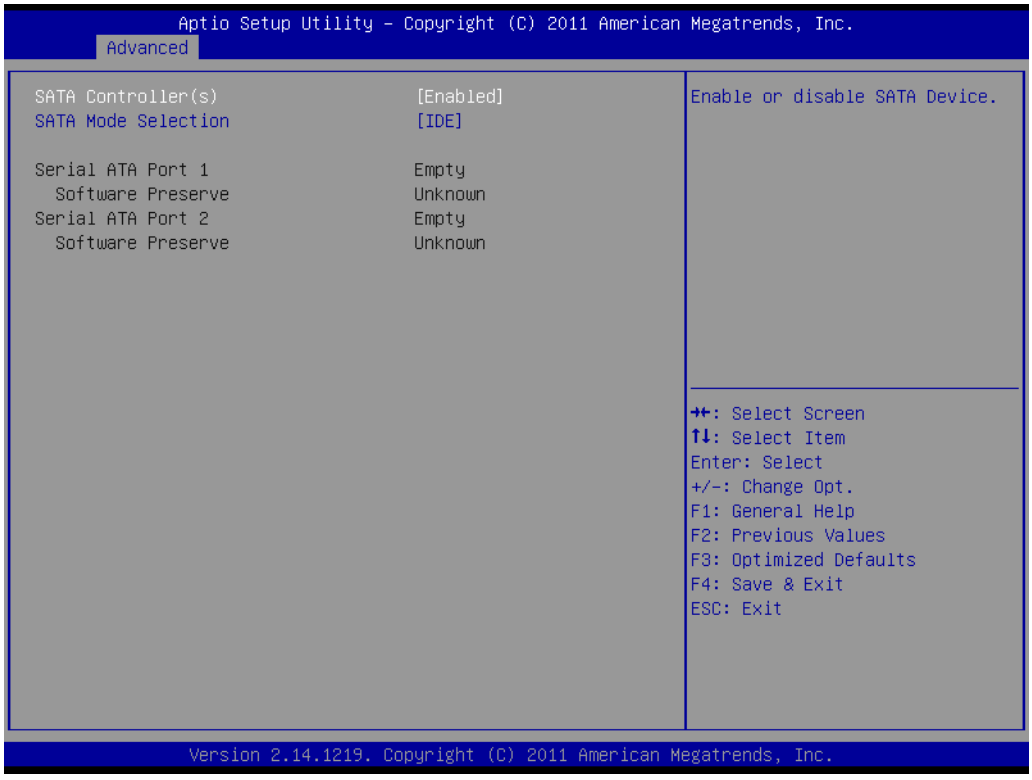


Figure 3.4 SATA Setting page

- **Intel TXT(LT) Configuration:** Intel Trusted Execution Technology
- **PCH-FW Configuration:** Configuration Management Engine Technology Parameters.
- **Intel Anti-Theft Technology Configuration:** Disabling Intel AT Allow user to login to platform. This is strictly for testing only. This does not disable AT Services in ME.
  - **Intel Anti-Theft Technology:** Enable/Disable Intel AT in BIOS for testing only.
- **Intel Anti-Theft Technology Recovery:** Set the number of times Recovery attempted will be allowed. Range: 1- 64
- **Enter Intel AT Suspend Mode:** Request that platform enter Intel AT Suspend Mode.

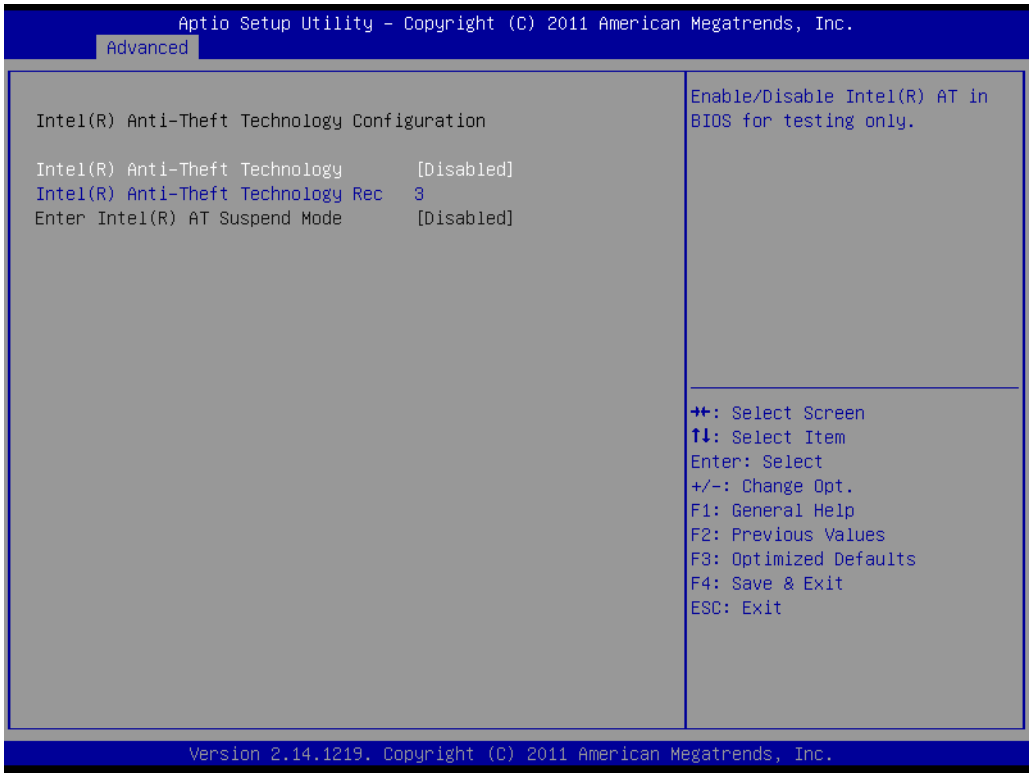


Figure 3.5 Intel Anti-Theft Technology Configuration

- **AMT Configuration:** Configuration Active Management Technology parameters.
  - **Intel AMT:** Enable/Disable Intel(R) Active Management Technology BIOS Extension.

Note! *iAMT H/W is always enabled. This option just controls the BIOS extension. If enabled, this requires additional firmware in the SPI device.*

  - **BIOS Hotkey Pressed:** OEMFLag Bit 1: Enable/Disable BIOS hotkey press.
  - **MEBx Selection Screen:** OEMFLag Bit 2: Enable/Disable MEBx selection screen.
  - **Hide Un-Configure ME Confirmation:** OEMFLag Bit 6: Hide Un-Configure ME without password Confirmation Prompt.

- **MEBx Debug Message Output:** OEMFLag Bit 14: Enable MEBx debug message Output.
- **Un-Configure ME:** OEMFLag Bit 15: Un-Configure ME without password.
- **Amt Wait Timer:** Set timer to wait before sending ASF_GET_BOOT_OPTIONS.
- **ASF:** Enable/Disable Alert Specification Format
- **Activate Remote Assistance Process:** Trigger CIRA boot.
- **USB Configure:** Enable/Disable USB Configure function.
- **PET Progress:** User can Enable/Disable PET Events progress to receive PET events or not.
- **WatchDog:** Enable/Disable WatchDog Timer.

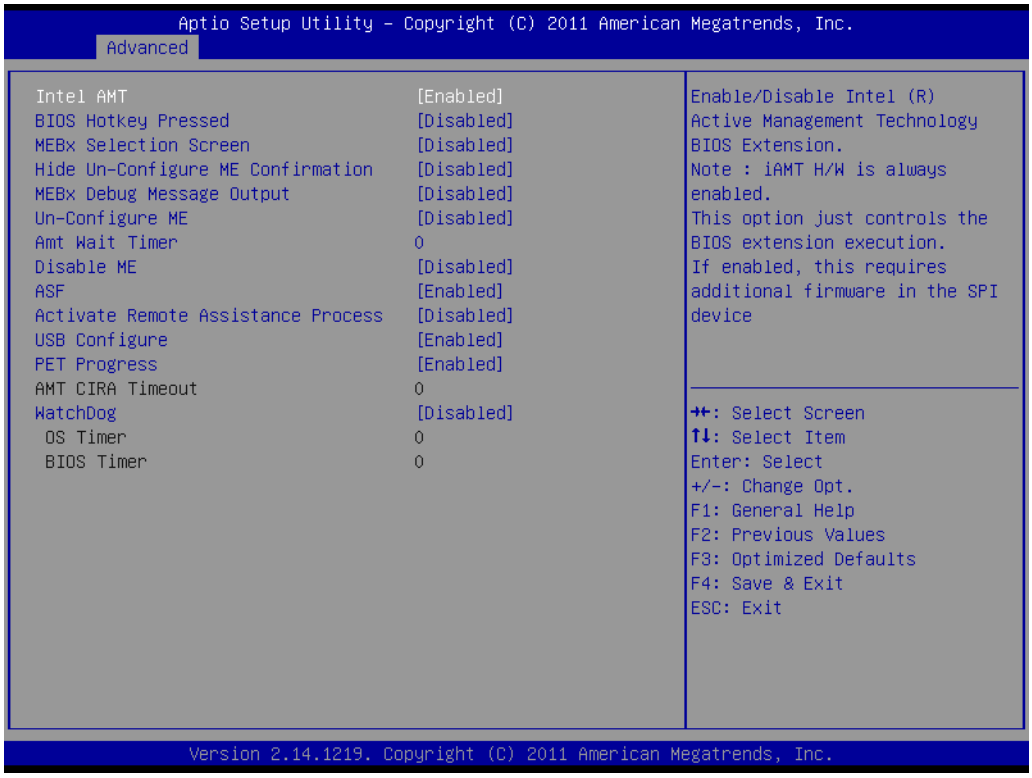


Figure 3.6 AMT Configuration setting

- **USB Configuration:** USB Configuration Parameters.
  - **Legacy USB Support:** Enable Legacy USB support. AUTO option disables legacy support if no USB devices are connected. DISABLE option will keep USB devices available only for EFI applications
  - **EHCI Hand-off:** This is a workaround for 0Ses without EHCI hand-off support. The EHCI ownership change should be claimed by EHCI driver.
  - **USB transfer time-out:** The time-out value for Control, Bulk, and Interrupt transfers. The choice: 1 sec, 5 sec, 10 sec, 20 sec
  - **Device reset time-out:** USB mass storage device Start Unit Command time-out. The choice: 10 sec, 20 sec, 30 sec, 40 sec
  - **Device power-up delay:** USB mass storage device Start Unit Command time-out.

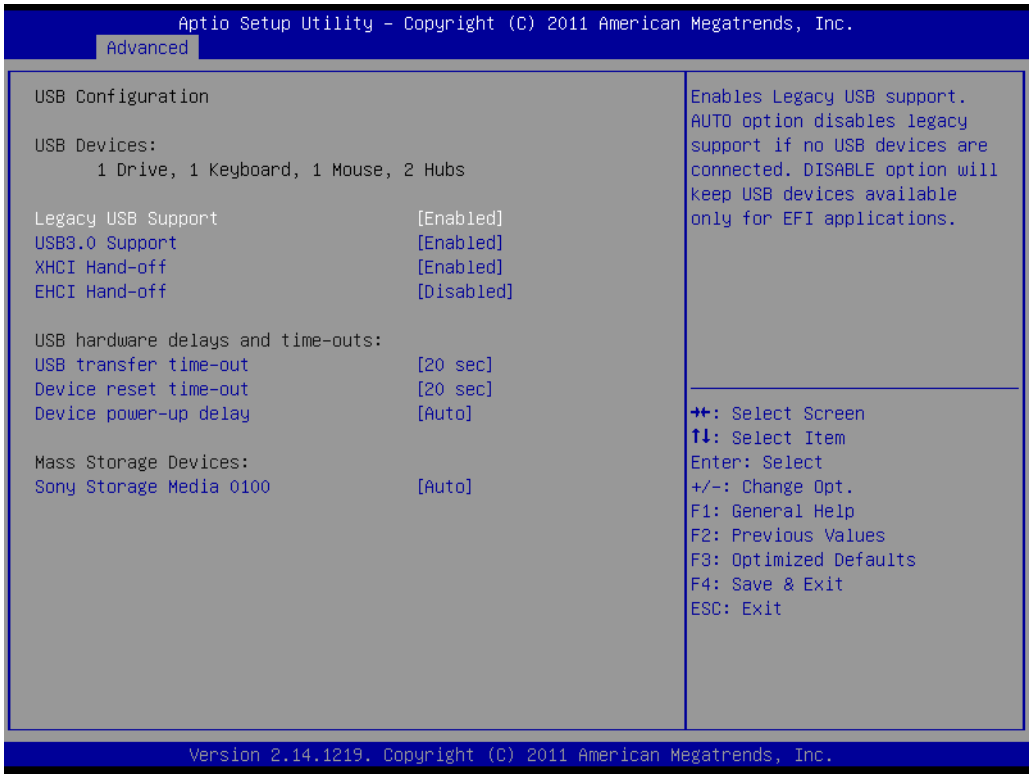


Figure 3.7 USB Configuration setting

- **Serial Port 0 / 1 Configuration:** Set Parameters of Serial port 0 /1 (COM)

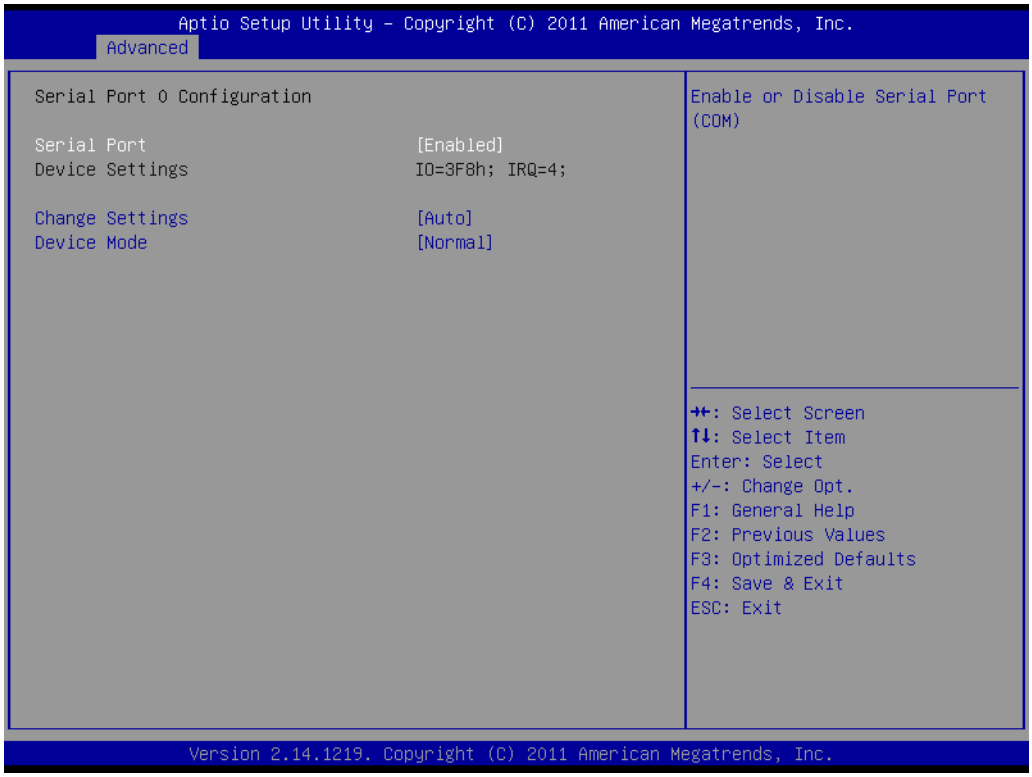


Figure 3.8 Serial Port 0 Configuration setting

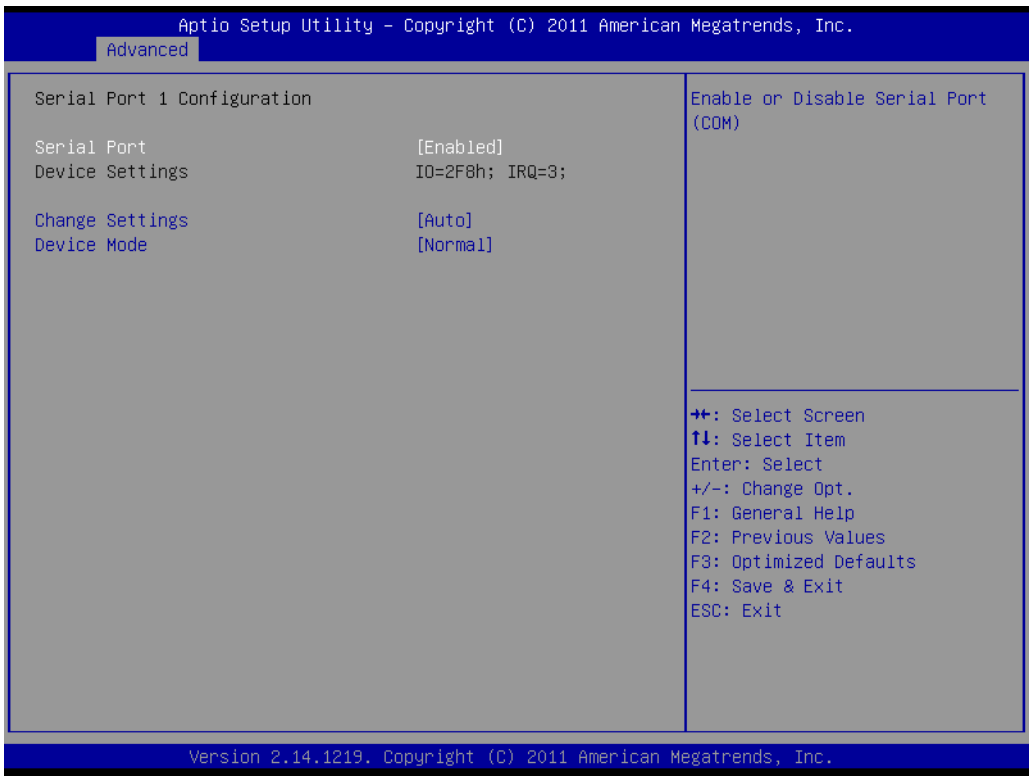


Figure 3.9 Serial Port 1 Configuration setting

- **CPU PPM Configuration:** CPU PPM Configuration Parameters
  - **EIST:** Enable/Disable Intel SpeedStep
  - **Turbo Mode:** Turbo Mode
  - **CPU C3 Report:** Enable/Disable CPU C3(ACPI C2) report to OS

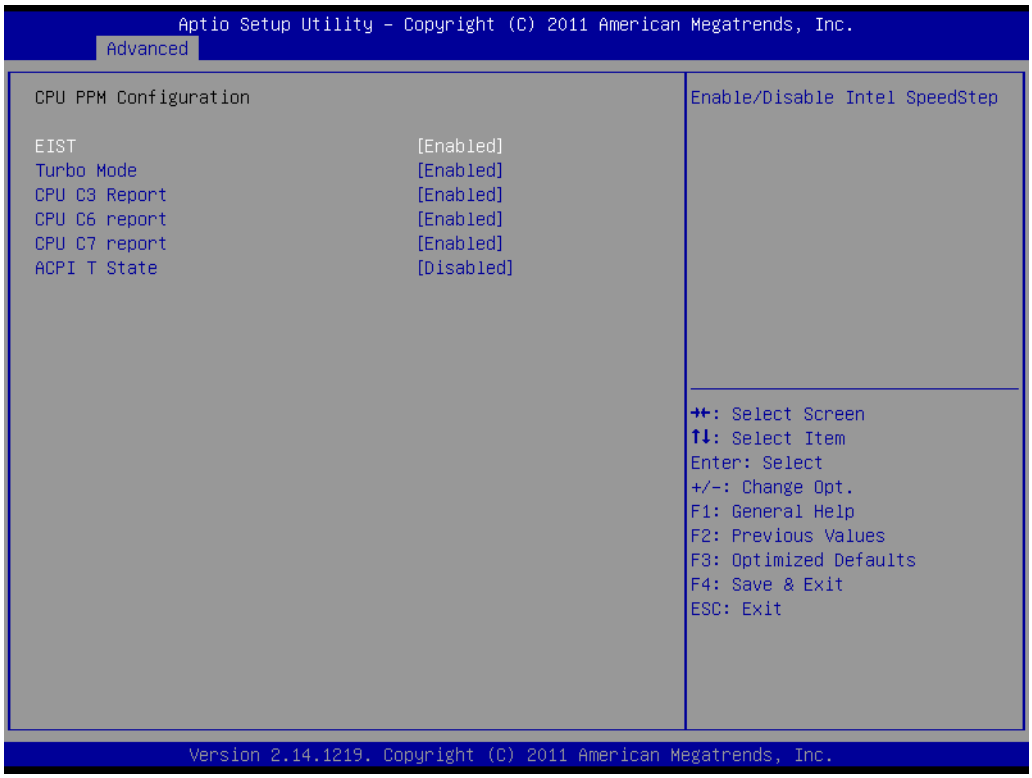


Figure 3.10 CPU PPM Configuration setting

3.2.3 Chipset BIOS Feature Setup

Select the Chipset tab from the ARK-DS262 setup screen to enter the Chipset BIOS Setup screen. Users can select any item in the left frame of the screen, such as PCH-IO Configuration and System Agent Configuration.

3.2.4 Security BIOS Feature Setup

Select the BOOT tab from the setup screen to enter the Security BIOS Setup screen.

- **Administrator Password**
  Set up Administrator Password. When set, limits access to BIOS Setup.
- **User Password**
  Set User Password. When set, limits machine boot and access to BIOS Setup.

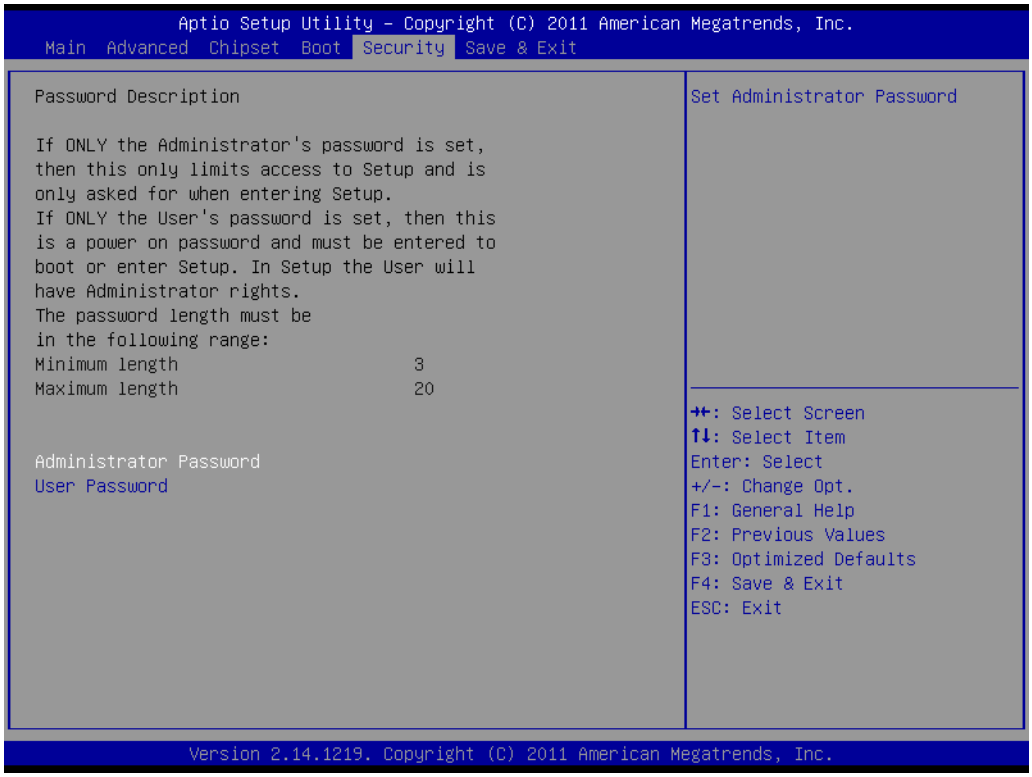


Figure 3.11 Security Configuration setting

3.2.5 Save & Exit BIOS Feature Setup

Select the BOOT tab from the setup screen to enter the save BIOS Setup screen.

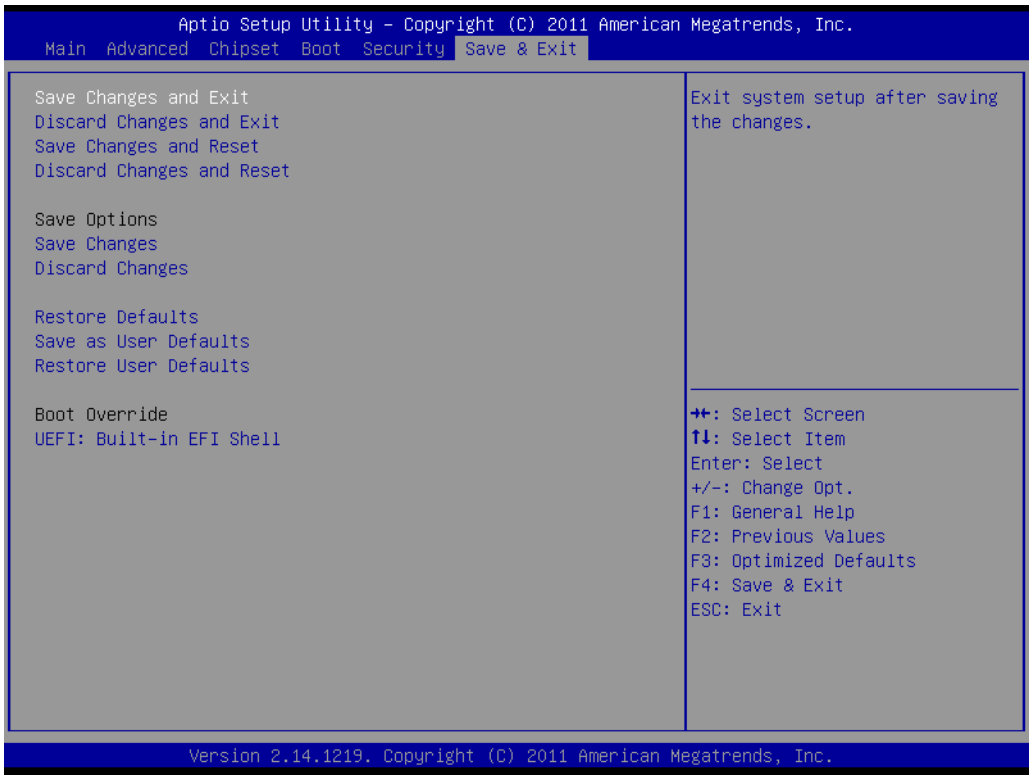


Figure 3.12 Save & Exit Configuration setting

- **Save Changes and Exit**
  Exit system setup after saving the changes.
- **Discard Changes and Exit**
  Exit system setup without saving any changes.
- **Save Changes and Reset**
  Reset the system after saving the changes.
- **Discard Changes and Reset**
  Reset system setup without saving any changes.
- **Save Changes**
  Save Changes done so far to any of the setup options.
- **Discard Changes**
  Discard Changes done so far to any of the setup options.
- **Restore Defaults**
  Restore/Load Defaults values for all the setup options.
- **Save as User Defaults**
  Save the changes done so far as User Defaults.
- **Restore User Defaults**
  Restore the User Defaults to all the setup options.

Appendix A

SUSIAccess

A.1 SUSIAccess

Advantech has designed an industrial remote management program to provide our customers with remote device monitoring, desktop connection, system recovery and system protection features that will help customers to access multiple clients through a single console for remote device management. SUSIAccess will immediately recognize sudden equipment malfunctions and provide real-time equipment maintenance, as well as system security protection mechanisms that significantly improve maintenance efficiency. Plus, an active update feature will improve system stability and reliability.

- **Remote Monitoring:** Monitors system status of remote devices, including hard disk temperature, hard drive health, network connection, system / CPU temperatures, system / CPU fan speeds and system voltages. Support for email alarms and function logs so that managers can regularly keep on top of their remote devices.
- **Remote On/Off:** Control on/off times according to each device, or pre-set time cycles to switch a device on/off. For example, a public service machine can be set for 6:00 am start and 23:00 pm shutdown. Ideal for night time and energy saving applications.
- **Remote KVM:** Controls the desktops of remote devices. IT technicians or maintenance engineers can manipulate a remote computer directly for maintenance and updates. Pre-configure settings without the need to enter individual IP, username and passwords - providing significant reduction in service times required.
- **System Recovery:** Controls system backup and restore of remote devices, or pre-set system backup types and restore times. For example, a bank ATM machine is set for system backup every Monday at 1:00 am. If a system crashes, you can immediately gain access via the remote console, and perform a system recovery so that the equipment maintains normal operation. (System recovery programs use Acronis True Image backup and restore technology which must be installed before use.)
- **System Protection:** Controls remote equipment, system protection and monitoring, and security. If a machine is threatened by a virus, the program will automatically detect and prevent intrusions.
  *System Saver program integrates McAfee's Embedded Security System Protection program which must be installed before use.

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