

User Manual

ARK-DS520

Graphic-Optimized Digital Signage Player Powered by NVIDIA GT218



Copyright

The documentation and the software included with this product are copyrighted 2011 by Advantech Co., Ltd. All rights are reserved. Advantech Co., Ltd. reserves the right to make improvements in the products described in this manual at any time without notice.

No part of this manual may be reproduced, copied, translated or transmitted in any form or by any means without the prior written permission of Advantech Co., Ltd. Information provided in this manual is intended to be accurate and reliable. However, Advantech Co., Ltd. assumes no responsibility for its use, nor for any infringements of the rights of third parties, which may result from its use.

Acknowledgements

Award is a trademark of Award Software International, Inc.

IBM, PC/AT, PS/2 and VGA are trademarks of International Business Machines Corporation.

Intel® and ATOM® are trademarks of Intel Corporation.

Microsoft Windows® is a registered trademark of Microsoft Corp.

NVIDIA® and ION are trademarks of NVIDIA Corporation.

RTL is a trademark of Realtek Semi-Conductor Co., Ltd.

ESS is a trademark of ESS Technology, Inc.

UMC is a trademark of United Microelectronics Corporation.

SMI is a trademark of Silicon Motion, Inc.

Creative is a trademark of Creative Technology LTD.

CHRONTEL is a trademark of Chrontel Inc.

All other product names or trademarks are properties of their respective owners.

For more information about this and other Advantech products, please visit our website at:

http://www.advantech.com/

For technical support and service, please visit our support website at: http://support.advantech.com.tw/support/

Part No. 2006S52000 Printed in China Edition 1 May 2011

Product Warranty (2 Years)

Advantech warrants to you, the original purchaser, that each of its products will be free from defects in materials and workmanship for two years from the date of purchase.

This warranty does not apply to any products which have been repaired or altered by persons other than repair personnel authorized by Advantech, or which have been subject to misuse, abuse, accident or improper installation. Advantech assumes no liability under the terms of this warranty as a consequence of such events.

Because of Advantech's high quality-control standards and rigorous testing, most of our customers never need to use our repair service. If an Advantech product is defective, it will be repaired or replaced at no charge during the warranty period. For outof-warranty repairs, you will be billed according to the cost of replacement materials, service time and freight. Please consult your dealer for more details.

If you think you have a defective product, follow these steps:

- 1. Collect all the information about the problem encountered. (For example, CPU speed, Advantech products used, other hardware and software used, etc.) Note anything abnormal and list any onscreen messages you get when the problem occurs.
- 2. Call your dealer and describe the problem. Please have your manual, product, and any helpful information readily available.
- 3. If your product is diagnosed as defective, obtain an RMA (return merchandise authorization) number from your dealer. This allows us to process your return more quickly.
- 4. Carefully pack the defective product, a fully-completed Repair and Replacement Order Card and a photocopy of the proof of purchase date (such as your sales receipt) in a shippable container. A product returned without proof of the purchase date is not eligible for warranty service.
- 5. Write the RMA number visibly on the outside of the package and ship it prepaid to your dealer.

Declaration of Conformity

FCC Class A

Note: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

Technical Support and Assistance

- 1. Visit the Advantech website at www.advantech.com/support where you can find the latest information about the product.
- 2. Contact your distributor, sales representative, or Advantech's customer service center for technical support if you need additional assistance. Please have the following information ready before you call:
 - Product name and serial number
 - Description of your peripheral attachments
 - Description of your software (operating system, version, application software, etc.)
 - A complete description of the problem
 - The exact wording of any error messages

Warnings, Cautions and Notes

Warning! Warnings indicate conditions, which if not observed, can cause personal injury!





Caution! Cautions are included to help you avoid damaging hardware or losing data. e.g.



There is a danger of a new battery exploding if it is incorrectly installed. Do not attempt to recharge, force open, or heat the battery. Replace the battery only with the same or equivalent type recommended by the manufacturer. Discard used batteries according to the manufacturer's instructions.



Notes provide optional additional information.



Safety Instructions

- 1. Read these safety instructions carefully.
- 2. Keep this User Manual for later reference.
- 3. Disconnect this equipment from any AC outlet before cleaning. Use a damp cloth. Do not use liquid or spray detergents for cleaning.
- 4. For plug-in equipment, the power outlet socket must be located near the equipment and must be easily accessible.
- 5. Keep this equipment away from humidity.
- 6. Put this equipment on a reliable surface during installation. Dropping it or letting it fall may cause damage.
- 7. The openings on the enclosure are for air convection. Protect the equipment from overheating. DO NOT COVER THE OPENINGS.
- 8. Make sure the voltage of the power source is correct before connecting the equipment to the power outlet.
- 9. Position the power cord so that people cannot step on it. Do not place anything over the power cord.
- 10. All cautions and warnings on the equipment should be noted.
- 11. If the equipment is not used for a long time, disconnect it from the power source to avoid damage by transient overvoltage.
- 12. Never pour any liquid into an opening. This may cause fire or electrical shock.
- 13. Never open the equipment. For safety reasons, the equipment should be opened only by qualified service personnel.
- 14. If one of the following situations arises, get the equipment checked by service personnel:
 - The power cord or plug is damaged.
 - Liquid has penetrated the equipment.
 - The equipment has been exposed to moisture.
 - The equipment does not work well, or you cannot get it to work according to the user's manual.
 - The equipment has been dropped and damaged.
 - The equipment has obvious signs of breakage.
- 15. DO NOT LEAVE THIS EQUIPMENT IN AN ENVIRONMENT WHERE THE STORAGE TEMPERATURE MAY GO BELOW -20° C (-4° F) OR ABOVE 60° C (140° F). THIS COULD DAMAGE THE EQUIPMENT. THE EQUIPMENT SHOULD BE IN A CONTROLLED ENVIRONMENT.
- 16. CAUTION: DANGER OF EXPLOSION IF BATTERY IS INCORRECTLY REPLACED. REPLACE ONLY WITH THE SAME OR EQUIVALENT TYPE RECOMMENDED BY THE MANUFACTURER, DISCARD USED BATTERIES ACCORDING TO THE MANUFACTURER'S INSTRUCTIONS.

The sound pressure level at the operator's position according to IEC 704-1:1982 is no more than 70 dB (A).

RESTRICTED ACCESS AREA: The equipment should only be installed in a Restricted Access Area.

DISCLAIMER: This set of instructions is given according to IEC 704-1. Advantech disclaims all responsibility for the accuracy of any statements contained herein.

Packing List

Before installation, please ensure the following items have been shipped:

- 1 x ARK-DS520 Unit
- 1 x Power Adaptor
- 1 x Driver/Utility CD/manual
- 1 x China RoHS
- 1 x Simplified Chinese User Manual for CCC

Power Cord & Accessory Options

Part Number	Description
1702002600	3-pin power cord (US)
1700018705	3-pin power cord (EU)
1702031801	3-pin power cord (UK)
1702031836	3-pin power cord (AU)
170000237	3-pin power cord (JP)

Part Number Description

Part Number	Description
AMO-WIFI01E	WIFI 802.11 b/g/n mini PCIe module (w/antenna)
AMO-HSDPA01E	HSDPA mini PCIe module (w/antenna)



A wireless LED will be activated when inserting WLAN card into either one of the mini PCIe card slots in ARK-DS520.



Contents

Chapter	1	General Introduction1
	1.1	Introduction
	1.2	Product Features
		1.2.1 General
		1.2.2 Display
		1.2.3 Power Consumption
	1.3	Hardware Specifications2
	1.4	Mechanical Specifications
		1.4.1 Dimensions
		Figure 1.1 ARK-DS520 Mechanical Dimensions
		1.4.2 Weight
	1.5	Power Requirements4
		1.5.1 System Power
		1.5.2 RTC Battery
	1.6	Environmental Specifications
		1.6.1 Operating Temperature4
		1.6.2 Relative Humidity4
		1.6.3 Storage Lemperature
		1.6.4 Vibration Loading During Operation
		1.6.5 Shock During Operation4
		1.0.0 Salely
		1.0.7 EMC
Chapter	2	Hardware Installation5
	2.1	ARK-DS520 I/O Connectors6
		Figure 2.1 ARK-DS520 Front View6
		Figure 2.2 ARK-DS520 Rear View6
	2.2	ARK-DS520 Front Side External I/O Connectors
		2.2.1 Power ON/OFF Button
		Figure 2.3 Power ON/OFF Button
		2.2.2 USB 1~4 Connectors
		Figure 2.4 USB 1~4 Connectors
		Table 2.1: USB 1~4 Port Pin Assignments
		2.2.3 COM 1,2 Connector
		Figure 2.5 COM 1,2 Connector
		2.2.4 Audio Connector
		Eigure 2.6 Line out and MIC Connector
		2.2.5 Ethernet Connector (I AN)
		Figure 2.7 Ethernet Connector
		Table 2.3: I AN Connector Pin Assignments
	23	ARK-DS520 Rear Side External I/O Connectors
	2.0	2.3.1 Power Input Connector
		Figure 2.8 Power Input Connector
		2.3.2 DVI-D Connector
		Figure 2.9 DVI-D Connector
		Table 2.4: DVI-D Connector Pin Assignments
		2.3.3 HDMI Connector
		Figure 2.10HDMI Connector
		Table 2.5: HDMI Connector Pin Assignments
		2.3.4 VGA 1,2 Connector
		Figure 2.11VGA 1, 2 Connector11
		Table 2.6: VGA 1,2 Connector Pin Assignments

	2.4	Hardw 2 4 1	are Installation	12 12
			Figure 2.12Memory Installation	
		242	HDD Installation	12
			Figure 2 13HDD Installation	12
		243	CE Card Installation	13
		2.4.0	Figure 2 14CE Card Installation	10
		211	Mini Card & SIM Card Installation	13
		2.7.7	Figure 2 15SIM Card Installation	13
		215	AN Card Wireless Antenna Installation	1/
		2.4.5	Figure 2 16LAN Card Wireless Antenna Installation	14
			rigure 2. Tolari Gara Wireless Antenna Installation	14
Chapter	3	BIC	S Settings	15
	3.1	BIOS	Introduction	16
	3.2	Enterii	ng BIOS Setup	16
			Figure 3.1 Setup Program Initial Screen	16
		3.2.1	Main Setup	17
			Figure 3.2 Main Setup Screen	17
		3.2.2	Advanced BIOS Features Setup	18
			Figure 3.3 Advanced BIOS Features Setup Screen	. 18
			Figure 3.4 CPU Configuration Setting	. 18
			Figure 3.5 IDE Configuration	
			Figure 3.6 AHCI Configuration	20
			Figure 3.7 Super I/O Chipset Configuration	21
			Figure 3.8 Hardware Health Configuration	21
			Figure 3.9 ACPI Settings	
			Figure 3 10General ACPI Configuration	22
			Figure 3 11 Advanced ACPI Configuration	22
			Figure 3.12Chinset ACPI Configuration	23
			Figure 3.13ADM Configuration	23
			Figure 2.14USP Configuration	24
		2 2 2 2	POUDD Configurations	20
		3.2.3	Figure 2.45 DOL/Dr.D. Cotture (Torn)	20
		004	Figure 3. 15PCI/PhP Selup (10p)	20
		3.2.4	Boot Settings	21
			Figure 3.16Boot Setup Utility	27
			Figure 3.17 Boot Settings Configuration	27
			Figure 3.18BIOS Setup Boot Device Priority	28
			Figure 3.19BIOS Setup Hard Disk Drives	29
		3.2.5	Security Setup	29
			Figure 3.20Password Configuration	29
		3.2.6	Advanced Chipset Configurations	30
			Figure 3.21Advanced Chipset Settings	30
			Figure 3.22North Bridge Chipset Configuration	30
			Figure 3.23South Bridge Chipset Configuration	31
		3.2.7	Exit Option	32
			Figure 3.24Exit Options	32
Chapter	4	Sof	tware Installation	35
	11	Driver	Installation	26
	7.1		Chineat Driver Installation	30 26
		יד.ו.ו ⊿וי	Graphic Driver Installation	00
		+.1.∠ / 1 2	LAN Driver Installation	4 0 ⊿0
		ਸ.⊺.ਹ ⊿ 1 ⊿	LAN Driver Installation (RTL)	42 75
		7.1.4		+J



General Introduction

This chapter gives background information on ARK-DS520 series.

1.1 Introduction

ARK-DS520 is powered by an Intel® Atom[™] D525 dual-core processor with an integrated nVidia GT218 (ION2) graphic module for Full HD playback. There is also a another fanless option based on the Intel® Atom[™] N455 single-core processor. With NVIDIA Optimus technology, the system energizes media playback with over 10 times normal performance, due to its combination of integrated graphics, high performance editing and converting of videos, and rich 3D user interface. ARK-DS520 delivers advanced graphics performance with lower cost to meet your signage application requirements.

ARK-DS520 has a rich combination of video output interfaces (e.g.: $2 \times VGA$, VGA + HDMI, HDMI + DVI) to provide dual display output simultaneously. For better connectivity, it has internal support for $2 \times Mini$ PCIe interfaces for add-on functions such as wireless network and TV tuner cards to fulfill different requirements. And ARK-DS520 also supports $4 \times USB$ ports, $2 \times COM$ (RS-232) ports and DIO ports for system integration and applications.

1.2 Product Features

1.2.1 General

- Intel® Atom[™] D525 1.8 GHz, Intel® Atom[™] N455 1.66 GHz
- Rich video I/O combination supports dual display (e.g.: 2 x VGA, VGA + HDMI, HDMI + DVI)
- Supports 2 x GbE, 4 x USB 2.0, 2 x COM and 8-bit GPIO ports
- Internal 2.5-inch SATA HDD drive bay
- Built-in MiniPCIe slot for easy expansion e.g. WiFi, TV-tuner, etc.
- Easy integration and easy maintenance

1.2.2 Display

 Dual-display support; up to 1080p full HD video playback performance (subject to the video media format and playback software)

1.2.3 Power Consumption

- **Typical:** 18 W (CPU is Intel Atom D525 1.8 GHz and w/o expansion)
- Max.: 30 W (CPU is Intel Atom D525 1.8 GHz and w/o expansion)

1.3 Hardware Specifications

- **CPU:** Intel Atom D525 1.8 GHz (or Intel Atom N455 1.66 GHz)
- System Chipset: Intel Atom D525/N455 + ICH8M
- BIOS: AMI 16 Mbit Flash BIOS
- System Memory: 2 x DDR3 SODIMM sockets, supports DDR3 800 MHz up to 4 GB (D525) & supports DDR3 667 MHz up to 2 GB (N455)
- Graphic chipset: nVidia GT218-ILV-B1Video Memory Size: independent display memory 512 MB
- SSD: Supports 1 x CF Card TYPE I/II
- HDD: Supports 1 x 2.5" SATA HDD
- Watchdog Timer: Single chip watchdog 255-level interval timer, setup by software
- I/O Interface: 2 x RS-232 ports

- USB: 4 x USB 2.0 compliant ports
- Audio: Supports line-out, microphone-in
- Ethernet Chipset: 1 x Intel WG82567V + 1 x Realtek RTL8111D-GR (Gigabit LAN)
 - Speed: 10/100/1000 Mbps
 - Interface: 2 x RJ-45 jacks with LED
 - Standard: IEEE 802.3z/ab (1000 Base-T) or IEEE 802.3u 100 Base-T compliant
- Expansion

miniPCIe: 2 sockets

- Resolution
 - VGA: up to 2048 x 1536 at 60 Hz;
 - DVI-D: single link 1600 x 1200 at 60 Hz;
 - HDMI: Up to 1920 x 1080 at 60 Hz (1080P)

Dual Independent Outputs:

- VGA1+VGA2
- VGA1+HDMI
- VGA1+DVI-D
- VGA2+HDMI
- VGA2+DVI-D
- HDMI+DVI-D

1.4 Mechanical Specifications

1.4.1 Dimensions

220 x 44.2 x 150 mm (8.67" x 1.74" x 5.91"), without mounting brackets.



Figure 1.1 ARK-DS520 Mechanical Dimensions

1.4.2 Weight

1.7 kg (3.74 lb.)

1.5 Power Requirements

- 1.5.1 System Power Minimum power input: DC 12 V, 5 A
- 1.5.2 RTC Battery 3 V/200 mAH BR2032

1.6 Environmental Specifications

- **1.6.1 Operating Temperature** 0° C - 40° C (32~104° 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
 0.3 Grms, IEC 60068-2-64, random, 5 ~ 500 Hz, 1 Oct./min, 1 hr./axis.
- **1.6.5** Shock During Operation 20 G, IEC 60068-2-27, half sine, 11 ms duration
- 1.6.6 Safety BSMI, CCC
- **1.6.7 EMC** CE, FCC



Hardware Installation

This chapter introduces external I/O and the installation of ARK-DS520 Hardware.

2.1 ARK-DS520 I/O Connectors



Figure 2.1 ARK-DS520 Front View



2.2 ARK-DS520 Front Side External I/O Connectors

2.2.1 Power ON/OFF Button

ARK-DS520 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 2.3 Power ON/OFF Button

2.2.2 USB 1~4 Connectors

The ARK-DS520 provides four USB interface connectors (2 x USB ports on the frontside; and 2 x USB ports on the rear-side), which gives complete Plug & Play and hot swapping capability for up to 127 external devices. The USB interface is compliant with USB UHCI, Rev. 2.0. The USB interface supports Plug and Play, which enables you to connect or disconnect a device without turning off the computer.



Figure 2.4 USB 1~4 Connectors

Table 2.1: USB 1~4 Port Pin Assignments					
Pin	Signal Name				
1	VCC				
2	USB Data-				
3	USB Data+				
4	GND				

2.2.3 COM 1,2 Connector

ARK-DS520 provides two D-sub 9-pin connectors serial communication interface ports. The ports support RS-232 mode communications.



Table 2.2: (Table 2.2: COM 1,2 Connector Pin Assignments					
Pin	Signal Name					
1	DCD					
2	RxD					
3	TxD					
4	DTR					
5	GND					
6	DSR					
7	RTS					
8	CTS					
9	RI					

Figure 2.5 COM 1,2 Connector

2.2.4 Audio Connector

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

MIC In: Microphone must be connected to MIC In jack.



Figure 2.6 Line-out and MIC Connector

2.2.5 Ethernet Connector (LAN)

ARK-DS520 provides two RJ-45 LAN interface connectors (1 x LAN connector on the front-side; 1 x LAN connector on the rear-side); they are fully compliant with IEEE 802.3u 10/100/1000 Base-T CSMA/CD standards. The Ethernet port provides a standard RJ-45 jack connector with LED indicators on the front side to show its Active/ Link status and speed status.



Figure 2.7 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#				

2.3 ARK-DS520 Rear Side External I/O Connectors

2.3.1 Power Input Connector

ARK-DS520 comes with a DC-Jack header that takes 12 VDC external power input.



Figure 2.8 Power Input Connector

2.3.2 DVI-D Connector

ſ	1	2	3	4	5	6	7	8	
	9	10	11	12	13	14	15	16	
l	17	18	19	20	21	22	23	24	C5

Figure 2.9 DVI-D Connector

Table 2.4: DVI-D C	onnector Pin Assignments
Pin	Signal Name
1	TMDS Data2-
2	TMDS Data2+
3	GND
4	NC
5	NC
6	SCL
7	SDA
8	NC
9	TMDS Data1-
10	TMDS Data1+
11	GND
12	NC
13	NC
14	+5 V Power
15	GND
16	Hot Plug Detect
17	TMDS Data0-
18	TMDS Data0+
19	GND
20	NC
21	NC
22	GND
23	TMDS Clock+
24	TMDS Clock-
C5	NC

2.3.3 HDMI Connector

The HDMI (High-Definition Multimedia Interface) provides an all-digital audio/video interface to transmit the uncompressed audio/video signals and is HDCP compliant. Connect the HDMI audio/video device to this port. HDMI technology can support a maximum resolution of 1920 x 1080p but the actual resolutions supported depend on the monitor being used.



Figure 2.10 HDMI Connector

Table 2.5: HDMI Connector Pin Assignments

Pin	Signal Name
1	TMDS Data2+
2	GND
3	TMDS Data2-
4	TMDS Data1+
5	GND
6	TMDS Data1-
7	TMDS Data0+
8	GND
9	TMDS Data0-
10	TMDS Clock+
11	GND
12	TMDS Clock-
13	NC
14	NC
15	SCL
16	SDA
17	GND
18	+5 V Power
19	Hot Plug Detect

Chapter 2 Hardware Installation

2.3.4 VGA 1,2 Connector

The ARK-DS520 provides two high resolution VGA interfaces connected by a D-sub 15-pin connector to support VGA CRT compatible monitors. It supports display resolutions of up to 2048 x 1536 @ 60 Hz.



Figure 2.11 VGA 1, 2 Connector

Table 2.6: VGA 1,2 Connector Pin Assignments					
Pin	Signal Name				
1	RED				
2	GREEN				
3	BLUE				
4	NC				
5	GND				
6	GND				
7	GND				
8	GND				
9	NC				
10	GND				
11	NC				
12	DDC DAT				
13	H-SYNC				
14	V-SYNC				
15	DDC CLK				

2.4 Hardware Installation

2.4.1 Memory Installation

- 1. Remove Mini-PCIe cover, HDD cover by loosening the 5 fixing screws.
- 2. Remove the heatsink by loosening the 4 fixing screws on front and rear panels, and 2 fixing screws inside the chassis.
- 3. Insert the memory into memory socket.
- 4. Reverse the above-mentioned steps to assemble the system.



Figure 2.12 Memory Installation

2.4.2 HDD Installation

- 1. Assemble the 2.5-inch SATA HDD on HDD bracket with 4 HDD screws.
- 2. Install the HDD module into the system.
- 3. Assemble back the HDD cover with the screws.



Figure 2.13 HDD Installation

Chapter 2 Hardware Installation

2.4.3 CF Card Installation

- 1. Remove the Mini PCIe cover by loosening the 3 fixing screws.
- 2. Insert the CF card into CF card socket.
- 3. Assemble back the Mini PCIe cover with the screws.



Figure 2.14 CF Card Installation

2.4.4 Mini Card & SIM Card Installation

- 1. Remove the Mini PCIe cover by loosening the 3 fixing screws.
- 2. Insert the Mini card into Mini PCIe card /SIM card into SIM card socket.
- 3. Re-assemble the Mini PCIe cover with the screws.



Figure 2.15 SIM Card Installation

2.4.5 LAN Card Wireless Antenna Installation

- 1. Remove Mini-PCIe cover, HDD cover by loosening the 5 fixing screws.
- 2. Remove the heatsink by loosening the 4 fixing screws on front and rear I/O panels, and 2 fixing screws inside the chassis.
- 3. Fix the antenna onto the front I/O panel.
- 4. Reverse the above-mentioned steps to assemble the system.



Figure 2.16 LAN Card Wireless Antenna Installation



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-DS520 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 Entering BIOS Setup

Turn on the computer and check for the patch code. If there is a number assigned to the patch code, it means that the BIOS supports your CPU. If there is no number assigned to the patch code, please contact an Advantech application engineer to obtain an up-to-date patch code file. This will ensure that your CPU's system status is valid. After ensuring that you have a number assigned to patch code, press and you will immediately be allowed to enter setup.

e Tratal Agentin Trata II	4		BIOS SE	TUP UTILITY		
Main Adva	inced	PCIPnP	Boot	Security	Chip	set Exit
System Overv	iew					Use [ENTER], [TAB]
AMIBIOS Version :0 Build Date:0 ID :f)8.00.1!)4/11/1 ì520X00'	5 L }				use [+] or [-] to configure system Time.
Processor Intel(R) Ato Speed :1 Count :1	om (TM) (1800MHz 1	CPU D525	@ 1.80G	Hz		
System Memo Size :1	`y Lo24MB					← Select Screen ↑↓ Select Item +- Change Field
System Time System Date			[05 : 2 [Tue	5:11] 04/12/2011]		Tab Select Field F1 General Help F10 Save and Exit ESC Exit
u()2.61 (C) Copyrig	ht 1985-2	006, America	ın Mega	trends, Inc.

Figure 3.1 Setup Program Initial Screen

3.2.1 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. There are two Main Setup options. They are described in the section. The Main BIOS Setup screen is shown below.

Main	Advanced	PCIPnP	BIOS SE Boot	Security	Chipset	Exit
System	Overv iew				Use	[ENTER], [TAB]
AMIBIOS Version Build D ID	i :08.00.1 late:04/11/1 :A520X00	.5 .1)9			- or	ct a field. [+] or [-] to `igure system Time.
Process Intel(R Speed Count	or () Atom (TM) :1800MHz :1	CPU D525	@ 1.800	iHz		
System	Memory				e +1	Select Screen
51ZE	: 102400				+-	Change Field
System System	lime Date		IUS : 2 [Tue	04/12/2011]	F1 F10 ESC	Select Field General Help Save and Exit Exit

Figure 3.2 Main Setup Screen

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

Above the key legend 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.

3.2.1.1 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.

3.2.2 Advanced BIOS Features Setup

Select the Advanced tab from the ARK-DS520 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 3.3 Advanced BIOS Features Setup Screen

3.2.2.1 CPU Configuration

BIOS SETUP UTILITY	
Havanced	
Configure advanced CPU settings Module Version:3F.14	Disabled for WindowsXP
Manufacturer:Intel Intel(R) Atom(TM) CPU D525 @ 1.80GHz Frequency :1.80GHz Cache L1 :48 KB Cache L2 :1024 KB Ratio Actual Value:9	
Max CPUID Value Limit Disabled Execute-Disable Bit Capability [Enabled] Hyper Threading Technology [Enabled] Intel(R) C-STATE tech [Enabled] Enhanced C-States [Enabled]	 ← Select Screen ↑↓ Select Item ← Change Option F1 General Help F10 Save and Exit ESC Exit
v02.61 (C)Copyright 1985-2006, American M	egatrends, Inc.

Figure 3.4 CPU Configuration Setting

- Max CPUID Value Limit This item allows you to limit CPUID maximum value.
- Execute-Disable Bit Capability This item allows you to enable or disable the No-Execution page protection technology.
- Hyper Threading Technology This item allows you to enable or disable Intel® Hyper Threading technology.
 Intel® C-STATE Tech
- This item allows the CPU to save more power under idle mode.
- Enhanced C-States CPU idle set to enhanced C-States, disabled by Intel® C-STATE tech item.

3.2.2.2 IDE Configuration

IDE Configuration		Options
ATA/IDE Configuration Configure SAIA as	[Enhanced] [IDE]	Disabled Compatible Enhanced
 Primary IDE Master Primary IDE Slave Secondary IDE Master Third IDE Master 	: [Not Detected] : [Not Detected] : [Not Detected] : [Not Detected]	annunce
Hard Disk Write Protect IDE Detect Time Out (Sec)	Disabled] [35]	← Select Screen
▶ AHCI Configuration		+- Chrussultiscree F1 General Help F10 Save and Exit ESC Exit

Figure 3.5 IDE Configuration

■ ATA/IDE Configuration

This item allows you to select Disabled / Compatible / Enhanced.

Legacy IDE Channels

When set to Enhanced mode you can select IDE or AHCI mode. When selecting Compatible mode you can select SATA only, SATA primary, PATA secondary, or PATA only.

Primary/Secondary/Third IDE Master/Slave

BIOS auto detects the presence of IDE device, and displays the status of auto detection of IDE device.

- Type: Select the type of SATA driver. [Not Installed][Auto][CD/DVD][ARMD]
- LBA/Large Mode: Enables or Disables LBA mode.
- Block(Multi-Sector Transfer): Enables or disables data multi-sectors transfers.
- PIO Mode: Selects PIO mode.
- DMA Mode: Selects DMA mode.
- S.M.A.R.T.: Selects smart monitoring, analysis, and reporting technology.
- 32-Bit Data Transfer: Enables or disables 32-bit data transfer.

Hard Disk Write Protect

Disable/Enable device write protection. This will be effective only if the device is accessed through BIOS.

IDE Detect Time Out (Sec)

This item allows you to select the time out value for detecting ATA/ATAPI device(s).

3.2.2.3 AHCI Configuration



Figure 3.6 AHCI Configuration

AHCI Port0 / Port1 / Port2

While entering setup, BIOS auto detects the presence of IDE devices. This displays the status of auto detection of IDE device.

3.2.2.4 Super I/O Chipset Configuration

Advanced	BIOS SETUP UTILITY	
Configure Win627DHG Super	IO Chipset	Allows BIOS to Select
Serial Port1 Address Serial Port2 Address	[3F8/1RQ4] [2F8/1RQ3]	Addresses.
		 ← Select Screen ↑↓ Select Item ← Change Option F1 General Help F10 Save and Exit ESC Exit
v02.61 (C) Copyr:	ight 1985-2006, Americ	an Megatrends, Inc.

Figure 3.7 Super I/O Chipset Configuration

Serial Port1 / Port 2 Address

This item allows you to select Serial Port1~Port2 base addresses.

3.2.2.5 Hardware Health Configuration

Hardware Health Configurat	ion	Options
CPU Warning Temperature ACPI Shutdown Temperature	Disabled] Disabled]	Disabled 60°C/140°F 65°C/149°F
System Temperature CPU Temperature	:38°C/100°F :83°C/181°F	70°C/158°F 75°C/167°F 80°C/176°F
CPUFANO Speed	:1591 RPM	00 C/110 F
Vcore	:0.920 V	
BUCC	:3.392 V :3.392 V	← Select Screen
+120 + 50	:12.032 V :5.056 U	↑↓ Select Item
SUSB	:5.056 V	F1 General Help
3VSB URAT	:3.392 V :3.024 U	F10 Save and Exit

Figure 3.8 Hardware Health Configuration

H/W Health Function

This item allows you to control hardware monitoring.

- Temperature Show
 CPU/System Temperature.
- Fan0 Speed Show
 Display Fan0 Speed RPM.
- Voltage Show Vcore / AVCC / 3VCC / +5Vin / +12Vin / 5VSB / 3VSB / VBAT.

3.2.2.6 ACPI Settings



Figure 3.9 ACPI Settings

General ACPI Configuration

This item allows you to control hardware monitoring.

BIOS SETUP UTILI Advanced	TY
General ACPI Configuration	Select the ACPI
Suspend mode [Auto] Repost Video on S3 Resume [No]	System Suspend.
	 ← Select Screen ↑↓ Select Item ← Change Option F1 General Help F10 Save and Exit ESC Exit

Figure 3.10 General ACPI Configuration

- $\ \ Suspend \ mode$
 - Select the ACPI state used for system suspend.
- Report Video on S3 Resume This item allows you to invoke VA BIOS POST on S3/STR resume.

Chapter 3 BIOS Settings

Advanced ACPI Configuration

Advanced	BIOS SETUP UTILITY	
Advanced ACPI Configuratio	n	Enable RSDP pointers
ACPI Version Features ACPI APIC support AMI OEMB table Headless mode	(ACPI v3.0) (Enabled) (Enabled) (Disabled)	— to 64-bit Fixed System Description Tables. Di ACPI version has some
		 Select Screen Select Item Change Option F1 General Help F10 Save and Exit ESC Exit
v02.61 (C) Copyri	ght 1985-2006, America	n Megatrends, Inc.

Figure 3.11 Advanced ACPI Configuration

- ACPI Version Features
 This item allows you to enable RSDP pointers to 64-bit fixed system description tables.
- ACPI APIC support Include APIC table pointer to RSDT pointer list.
- AMI OEMB table Include OEMB table pointer to R(x)SDT pointer lists.
- Headless mode
 Enable / Disable Headless Operation mode through ACPI.

Chipset ACPI Configuration

Advanced	BIOS SETUP UTILITY	
South Bridge ACPI Configuration	ວກ	Options
Energy Lake Feature APIC ACPI SCI IRQ USB Device Wakeup From S3 High Performance Event Timer HPET Memory Address	Disabled] Disabled] Disabled] Enabled] [FED00000h]	Enabled Disabled
		 ← Select Screen ↑↓ Select Item +- Change Option F1 General Help F10 Save and Exit ESC Exit
v02.61 (C) Comuriant	1985-2006, America	n Megatrends, Inc.

Figure 3.12 Chipset ACPI Configuration

- Energy Lake Features Allows you to configure Intel's Energy Lake power management technology.
- APIC ACPI SCI IRQ
 Enable/Disable APIC ACPI SCI IRQ.
- USB Device Wakeup From S3 Enable/Disable USB Device Wakeup from S3.
- High Performance Event Timer
 Enable / Disable High performance Event timer.

3.2.2.7 APM Configuration

BIOS SETUP UTILIT	TY .
Advanced	
APM Configuration	Enable or disable
Power Management/APM EEnabled] Restore on AC Power Loss IPower Off] Resume On Ring [Disabled] Resume On RTC Alarm [Disabled]	APM. ← Select Screen ↑↓ Select Item ↓ Otherwood Detion
	+- Change Uption F1 General Help F10 Save and Exit ESC Exit
v02.61 (C)Copyright 1985-2006, Amer	ican Megatrends, Inc.

Figure 3.13 APM Configuration

Power Management/APM

Enable or disable APM.

Restore on AC Power Loss

Use this to set up the system response after a power failure. The "Off" setting keeps the system powered off after power failure, the "On" setting boots up the system after failure, and the "Last State" returns the system to the status just before power failure.

Resume On Ring

Enable / Disable RI to generate a wake event.

Resume On RTC Alarm

Enable / Disable RTC to generate a wake event.

3.2.2.8 USB Configuration

Advanced BIOS SETUP UTILITY	
USB Configuration	Enables support for
Module Version - 2.24.3-13.4 USB Devices Enabled : 1 Keyboard	legacy USB. Holu option disables legacy support if no USB devices are connected.
Legacy USB Support [Enabled] USB 2.0 Controller Mode [HiSpeed] BIOS EHCI Hand-Off [Enabled]	
	 ← Select Screen ↑↓ Select Item ← Chron-GRu*Screen F1 General Help F10 Save and Exit ESC Exit
v02.61 (C)Copyright 1985-2006, American Me	gatrends, Inc.

Figure 3.14 USB Configuration

Legacy USB Support

Enables support for legacy USB. Auto option disables legacy support if no USB devices are connected.

USB 2.0 Controller Mode

This item allows you to select HiSpeed (480 Mbps) or FullSpeed (12 Mbps).

BIOS EHCI Hand-Off

This is a workaround for an OS without EHCI hand-off support. The EHCI ownership change should be claimed by EHCI driver.

3.2.3 PCI/PnP Configurations

Select the PCI/PnP tab from the ARK-DS520 setup screen to enter the Plug and Play BIOS Setup screen. You can display a Plug and Play BIOS Setup option by highlighting it using the <Arrow> keys. All Plug and Play BIOS Setup options are described in this section. The Plug and Play BIOS Setup screen is shown below.

Advanced PCI/PnP Settings Clear NURAM during System Boot. WARNING: Setting wrong values in below sections may cause system to malfunction. Clear NURAM during System Boot. Clear NURAM INO Plug & Play 0/S INO PCI Latency Timer I641 Allocate IRQ to PCI UGA IYes] Palette Snooping IDisabled] PCI JDE BusMaster Enabled] OffBoard PCI/ISA IDE Card IAutol IRQ3 IAvailable] IRQ4 IAvailable] IRQ7 IAvailable] IRQ9 IAvailable] IRQ10 IAvailable] IRQ10 IAvailable] IRQ11 IAvailable]	Main Advanced <mark>PCIPnP</mark>	BIOS SETUP UTILITY Boot Security	Chipset Exit
WARNING: Setting wrong values in below sections may cause system to malfunction. Image: Constraint of the system to malfunction. Clear NURAM INol Plug & Play 0/S INol PCI Latency Timer IG41 Allocate IRQ to PCI VGA IYesJ Palette Snooping IDisabledJ PCI IDE BusMaster IEnabledJ OffBoard PCI/ISA IDE Card IAutol RQ3 IAvailableJ IRQ4 IAvailableJ IRQ5 IAvailableJ IRQ9 IAvailableJ IRQ10 IAvailableJ IRQ11 IAvailableJ	Advanced PCI/PnP Settings		Clear NVRAM during System Boot.
Plug & Play 0/S INol PCI Latency Timer I641 Allocate IRQ to PCI VGA IYesJ Palette Snooping IDisabledJ PCI IDE BusMaster IEnabledJ OffBoard PCI/ISA IDE Card IAutol * Select Screen IRQ3 IAvailableJ IRQ4 IAvailableJ IRQ5 IAvailableJ IRQ7 IAvailableJ IRQ9 IAvailableJ IRQ10 IAvailableJ IRQ11 IAvailableJ	WARNING: Setting wrong valu may cause system t	es in below sections o malfunction.	
PCI Latency Timer IG41 Allocate IRQ to PCI VGA IYesJ Palette Snooping IDisabledJ PCI IDE BusMaster IEnabledJ OffBoard PCI/ISA IDE Card IAutol * Select Screen IRQ3 IAvailableJ IRQ4 IAvailableJ IRQ5 IAvailableJ IRQ7 IAvailableJ IRQ9 IAvailableJ IRQ10 IAvailableJ IRQ11 IAvailableJ	Dlug & Dlau 079	INOJ INOJ	
Allocate IRQ to PCI VGA IYes] Palette Snooping IDisabled] PCI IDE BusMaster IEnabled] OffBoard PCI/ISA IDE Card IAutol RQ3 IAuailable] IRQ4 IAvailable] IRQ5 IAvailable] IRQ7 IAvailable] IRQ9 IAvailable] IRQ10 IAvailable] IRQ11 IAvailable]	PCT Latency Timer	[64]	
Palette Snooping IDisabled] PCI IDE BusMaster IEnabled] OffBoard PCI/ISA IDE Card IAuto] * Select Screen IRQ3 IAvailable] IRQ4 IAvailable] IRQ5 IAvailable] IRQ7 IAvailable] IRQ9 IAvailable] IRQ10 IAvailable] IRQ11 IAvailable]	Allocate IRO to PCI UGA	[Yes]	
PCI IDE BusMaster IEnabledi OffBoard PCI/ISA IDE Card IAutol IRQ3 IAvailablel IRQ4 IAvailablel IRQ5 IAvailablel IRQ7 IAvailablel IRQ9 IAvailablel IRQ9 IAvailablel IRQ10 IAvailablel IRQ10 IAvailablel IRQ11 IAvailablel	Palette Spooning	[Disabled]	
OffBoard PCI/ISA IDE Card[Auto]*Select ScreenIRQ3[Available]14Select ItemIRQ4[Available]+Change OptionIRQ5[Available]F1General HelpIRQ7[Available]F10Save and ExitIRQ9[Available]F10Save and ExitIRQ10[Available]F10Save and ExitIRQ11[Available]VV	PCI IDE BusMaster	[Enabled]	
IRQ3IAvailablel*Select ScreenIRQ4IAvailablel14Select ItemIRQ5IAvailablel+Change OptionIRQ7IAvailablelF1General HelpIRQ9IAvailablelF10Save and ExitIRQ10IAvailablelIAvailablelIRQ11IAvailablelV	OffBoard PCI/ISA IDE Card	[Auto]	
IRQ3IAvailablel14Select ItemIRQ4IAvailablel+-Change OptionIRQ5IAvailablelF1General HelpIRQ7IAvailablelF10Save and ExitIRQ9IAvailablelF10Save and ExitIRQ10IAvailablelIAvailablelF10IRQ11IAvailablelVV			← Select Screen
IRQ4 IAvailablel +- Change Option IRQ5 IAvailablel F1 General Help IRQ7 IAvailablel F10 Save and Exit IRQ9 IAvailablel ESC Exit IRQ10 IAvailablel V V	IRQ3	[Available]	↑↓ Select Item
IRQ5 [Available] F1 General Help IRQ7 [Available] F10 Save and Exit IRQ9 [Available] ESC Exit IRQ10 [Available] V ESC	IRQ4	[Available]	+- Change Option
IRQ7 [Available] IRQ9 [Available] IRQ10 [Available] IRQ11 [Available] ▼ F10 Save and Exit ESC Exit 02.61 (000 mill 1005 2006 A mill 1005 A mill 1005 2006 A mill 1005 2006 A mill 1005 2006 A mill 1005 2006	IRQ5	[Ava i lable]	F1 General Help
IRQ9 [Available] IRQ10 [Available] IRQ11 [Available] IRQ11 [Available]	IRQ7	[Available]	F10 Save and Exit
IRQ10 [Available] IRQ11 [Available] V	IRQ9	[Available]	ESC Exit
IRQ11 [Available]	IRQ10	[Available]	
00 C1 700 0 111 100E 200C A 11 M 10 - 1 - T	IRU11	[Available]	•
		14 100E 200C Auguston	n Magatamada Tan

Figure 3.15 PCI/PnP Setup (Top)

3.2.3.1 Clear NVRAM

Set this value to force the BIOS to clear the Non-Volatile Random Access Memory (NVRAM). The Optimal and Fail-Safe default setting is 'No'.

3.2.3.2 Plug & Play O/S

When set to 'No', BIOS configures all the devices in the system. When set to 'Yes' and if you install a Plug and Play operating system, the operating system configures Plug and Play devices not required for bootup.

3.2.3.3 PCI Latency Timer

Value in units of PCI clocks for PCI device latency timer register.

3.2.3.4 Allocate IRQ to PCI VGA

When set to 'Yes', assigns IRQ to PCI VGA card if card requests IRQ. When set to 'No', will not assign IRQ to PCI VGA card even if card requests an IRQ.

3.2.3.5 Palette Snooping

This item is designed to solve problems caused by some non-standard VGA cards.

3.2.3.6 PCI IDE BusMaster

When set to 'Enabled' BIOS uses PCI busmastering for reading/writing to IDE drives.

3.2.3.7 OffBoard PCI/ISA IDE Card

Some PCI IDE cards may require this to be set to the PCI slot number that is holding the card. Setting to 'Auto' will work for most PCI IDE cards.

3.2.3.8 IRQ3 / 4 / 5 / 7 / 9 / 10 / 11

This item allows you respectively assign an interruptive type for IRQ-3,4,5,7,9,10,11.

Chapter 3 BIOS Settings

3.2.3.9 DMA channel 0 / 1 / 3 / 5 / 6 / 7

When set to 'Available' will specify which DMA channel is available to be used by PCI/PnP devices. When set to 'Reserved' will be reserved for use by legacy ISA devices.

3.2.3.10 Reserved Memory Size

This item allows you to reserve the size of memory block for legacy ISA device.

3.2.4 Boot Settings

			BIOS SE	TUP UTILITY			
Main	Advanced	PCIPnP	Boot	Secur i ty	Chip	iset	Exit
Boot S	ettings					Confi	gure Settings g Sustem Boot
► Boot ► Boot ► Hard	Settings Co Device Prio Disk Drives	mfiguratio rity					g ogsten 2005.
						↓ ↑↓ Enter F1 F10	Select Screen Select Item GoatgeSup.Sonorn General Help Save and Exit
	v02.61 (C) Copyr iał	t 1985-2	006, America	n Mega	ESC	Exit

Figure 3.16 Boot Setup Utility

3.2.4.1 Boot Settings Configuration

	BIOS SETUP UTILITY Boot	
Boot Settings Configuration		Allows BIOS to skip
Quick Boot Quiet Boot AddOn ROM Display Mode Bootup Num-Lock PS/2 Mouse Support Wait For 'F1' If Error Hit 'DEL' Message Display Interrupt 19 Capture Bootsafe function	IEnabled] Disabled] IForce BIOS] (Onl IAuto] IEnabled] IEnabled] [Disabled] [Disabled]	booting. This will decrease the time needed to boot the system.
		 ← Select Screen ↑↓ Select Item ← Change Option F1 General Help F10 Save and Exit ESC Exit
v02.61 (C) Copyrigh	t 1985-2006, American M	legatrends, Inc.

Figure 3.17 Boot Settings Configuration

Quick Boot

This item allows BIOS to skip certain tests while booting. This will decrease the time needed to boot the system.

Quiet Boot

If this option is set to 'Disabled', the BIOS displays normal POST messages. If 'Enabled', an OEM Logo is shown instead of POST messages.

AddOn ROM Display Mode

Set display mode for option ROM.

Bootup Num-Lock

Select the Power-on stage for Numlock.

- PS/2 Mouse Support
 Select support for PS/2 Mouse.
- Wait For "F1" If Error
 Wait for the F1 key to be pressed if an error occurs.

Hit "DEL" Message Display

Displays-Press DEL to run Setup in POST.

Interrupt 19 Capture

This item allows options for ROMs to trap interrupt 19.

Bootsafe Function

This item allows you to enable or disable the bootsafe function.

3.2.4.2 Boot Device Priority

Boot Device Priority		Specifies the boot
1st Boot Device	CUSB:JetFlash Trans]	 A device enclosed in parenthesis has been disabled in the corresponding type menu. Select Screen 14 Select Item +- Change Option F1 General Help F10 Save and Exit ESC Exit

Figure 3.18 BIOS Setup Boot Device Priority

1st Boot Device

This item specifies the boot sequence from available devices. A device enclosed in parenthesis has been disabled in the corresponding type menu. Press <+/-> to change 1st Boot device.

3.2.4.3 Hard Disk Drives



Figure 3.19 BIOS Setup Hard Disk Drives

1st / 2nd Device

This item allows you to check the quantity of hard disk drives.

3.2.5 Security Setup

		BIOS SE	TUP UTILITY		
Main Advanced	PCIPnP	Boot	Security	Chipset	Exit
Security Settings				Insta	ll or Change the
Supervisor Passwor User Password Change Supervisor Change User Passwo Boot Sector Virus	d :Not Ins :Not Ins Password rd Protection	stalled stalled n Disa	bledl	— passi	JOPA .
				t↓ Enter F1 F10 ESC	Select Screen Select Item Change General Help Save and Exit Exit
v02.61 (C) Copyr igł	it 1985-2	2006, America	n Megatrend	ls, Inc.

Figure 3.20 Password Configuration

Select 'Security Setup' from the ARK-DS520 Setup main BIOS setup menu. All Security Setup options, such as password protection and virus protection are described in this section. To access the sub menu for the following items, select the item and press <Enter>:

3.2.5.1 Change Supervisor / User Password

Boot Sector Virus protection

The boot sector virus protection will warn if any program tries to write to the boot sector.

3.2.6 Advanced Chipset Configurations



Figure 3.21 Advanced Chipset Settings

3.2.6.1 North Bridge Chipset Configuration

BIOS SETUP UTILITY	Chipset
North Bridge Chipset Configuration	Options
PCI MMIO Allocation: 4GB To 3072MB DRAM Frequency [Auto] Configure DRAM Timing by SPD [Enabled]	Auto Max MHz
	 ← Select Screen ↑↓ Select Item ← Change Option F1 General Help F10 Save and Exit ESC Exit
v02.61 (C)Copyright 1985-2006, American	Megatrends, Inc.

Figure 3.22 North Bridge Chipset Configuration

DRAM Frequency

This item allows you to manually change DRAM frequency.

Configure DRAM Timing by SPD
 This item allows you to enables or disable detection by DRAM SPD.

3.2.6.2 South Bridge Chipset Configuration

	BIOS SETUP UTILITY	Chipset
South Bridge Chipset Configura	ation	Options
USB 2.0 Controller LAN1 Controller LAN1 Option-ROM Resume On LAN1 LAN2 Controller LAN2 Option-ROM Resume On LAN2 HDA Controller SMBUS Controller	[Enabled] [Enabled] [Disabled] [Disabled] [Enabled] [Disabled] [Disabled] [Enabled] [Enabled]	Enabled Disabled
SLP_S4# Min. Assertion Width	[1 to 2 seconds]	 Select Screen Select Item Change Option General Help Save and Exit ESC Exit

Figure 3.23 South Bridge Chipset Configuration

USB 2.0 Controller

Enables or disables the USB 2.0 controller.

- LAN1 Controller
 Enables or Disables the Lan1 controller.
- Resume On LAN1 Enables or Disables resume on Lan1.
- LAN2 Controller
 Enables or Disables the Lan2 controller.
- Resume On LAN2 Enables or Disables resume on Lan2.
- HAD Controller
 Enables or Disables the HAD controller.
- SMBUS Controller
 Enables or Disables the SMBUS controller.
- SLP_S4#Min. Assertion Width

SPL_S4# is a signal for power plane control. This signal shuts off power to all non-critical systems when in the S4 (Suspend to disk) or S5 (Soft off) state. This setting indicates minimum assertion width of the SLP_S4# signal to ensure that the DRAMs have been safety power-cycled.

3.2.7 Exit Option

			BIOS SE	TUP UTILITY	and the second
Main	Advanced	PCIPnP	Boot	Security	Chipset Exit
Exit (lptions				Exit system setup
Save (Discar Discar Load [Load F	Changes and E rd Changes ar rd Changes Dptimal Defau Pailsafe Defa	xit d Exit ults ults			 after saving the changes. F10 key can be used for this operation. * Select Screen * Select Item Enter Go to Sub Screen F10 General Help F10 Save and Exit ESC Exit
	v02.61 (C) Copyr igł	it 1985-2	006, America	n Megatrends, Inc.

Figure 3.24 Exit Options

3.2.7.1 Save Changes and Exit

When you have completed system configuration, select this option to save your changes, exit BIOS setup and reboot the computer so the new system configuration parameters can take effect.

- Select 'Exit Saving Changes' from the Exit menu and press <Enter>. The following message appears: Save Configuration Changes and Exit Now? [OK][Cancel]
- 2. Select OK or cancel.

3.2.7.2 Discard Changes and Exit

Select this option to quit Setup without making any permanent changes to the system configuration.

- Select 'Exit Discarding Changes' from the Exit menu and press <Enter>. The following message appears: Discard Changes and Exit SetupNow? [OK][Cancel]
- 2. Select OK to discard changes and exit. Discard Changes.
- 3. Select Discard Changes from the Exit menu and press < Enter>.

3.2.7.3 Load Optimal Defaults

The ARK-DS520 automatically configures all setup items to optimal settings when you select this option. Optimal defaults are designed for maximum system performance, but may not work best for all computer applications. In particular, do not use the Optimal Defaults if your computer is experiencing system configuration problems. Select Load Optimal Defaults from the Exit menu and press <Enter>.

3.2.7.4 Load Fail-Safe Defaults

The ARK-DS520 automatically configures all setup options to fail-safe settings when you select this option. Fail-Safe Defaults are designed for maximum system stability, but not maximum performance. Select Fail-Safe Defaults if your computer is experiencing system configuration problems.

- Select 'Load Fail-Safe Defaults' from the Exit menu and press <Enter>. The following message appears: Load Fail-Safe Defaults: [OK][Cancel]
- 2. Select OK to load Fail-Safe defaults.



Software Installation

This chapter introduces driver installation.

4.1 Driver Installation

4.1.1 Chipset Driver Installation

1. Change folder address to \Drivers\Chipset. And double click to execute infinst_autol.exe.



Chapter 4 Software Installation

2. Click "Next" button to proceed.



3. Click "Yes" to accept the License Agreement.



4. Click "Next" to exit Readme File Information window.

ntel® Chipset Device icense Agreement	Software		(inte
ou must accept all of the terms of the lice rogram. Do you accept the terms? INTEL SOFTWARE LICENSE AGREEMENT	ense agreement in order I (Alpha / Beta, Organizati	to continue the	e setup
IMPORTANT - READ BEFORE COPYING, I	INSTALLING OR USING.		1= 0 ID
Up not use or load this software and any	associated materials (col	iectively, the	Software)
until you have carefully read the followin Software, you agree to the terms of this install or use the Software.	g terms and conditions. B Agreement. If you do no	y loading or us t wish to so aç	sing the gree, do not
until you have carefully read the followin Software, you agree to the terms of this install or use the Software. The Software contains pre-release "alpha and which Intel Corporation ("Intel") may	g terms and conditions. B Agreement, If you do no a" or "beta" code, which n substantially modify in p	y loading or us t wish to so aç nay not be full [,] roducing any "	sing the gree, do not y functional 'final"

5. Click "Next" button to continue.

tel® Chipset Device Software	
Intel® Chipset Device S Readme File Information	Software
Refer to the Readme file below to view the Press the Page Down key to view the rest * Product: Intel(R) Chip * Release: Beta * Version: 9.1.1.1009 * Target Chipset#: Intel * Date: March 09 2009 *****	e system requirements and installation information. of the file.
()	
	<pre>< Back Next > Cancel Intel® Installation Framework</pre>

6. Click "Finish" button to go on the next step.



7. Select "Yes, I want to restart this computer now" and click "Finish" at the bottom. The computer will restart automatically and the driver installation will be complete.



4.1.2 Graphic Driver Installation

1. Change folder address to \Drivers\VGA and double click Setup.exe.



2. Select the path you want to install. Click "OK" button to continue installation.

NVIDIA Display Driver v258.96 - English Package	
Please enter the folder where you want to save the NVIDIA driver files. If the folder does not exist, it will be created for you.	
C:\NVIDIA\DisplayDriver\258.96\WinXP\English	0
OK Cancel	

3. Click "Next" button to skip through welcome window.



4. Click "Yes" to accept the License Agreement.



5. Select "Yes, I want to restart my computer now" and click "Finish" at the bottom. The computer will restart automatically and the driver installation will be complete.



4.1.3 LAN Driver Installation

1. Change folder address to \Drivers\LAN. And double click to execute Setup.exe.



2. Click the "Next" button to proceed to the next step.



3. Select "I accept the terms in the license agreement" and click "Next" button to accept License Agreement.

👹 Intel(R) Network Connections -	InstallShield Wizard	
License Agreement Please read the following license agree	ement carefully.	(intel)
INTEL SOFTWARE LICE <u>IMPORTANT - READ BEFO</u> Do not use or load this software an "Software") until you have carefully loading or using the Software, you do not wish to so agree, do not inst	NSE AGREEMENT (Final, RE COPYING, INSTALLING d any associated materi / read the following term agree to the terms of thi all or use the Software.	License) <u>G OR USING</u> . ials (collectively, the is and conditions. By s Agreement. If you
LICENSES: Please Note.	ment	Print
OI do not accept the terms in the license InstallShield	e agreement	

4. Select "Drivers\Intel(R) PROSet for Windows* Device Manger\Advanced Network Services" and click "Next" button.

Intel(R) Network Connections	
Setup Options Select the program features you want installed.	(intel)
Install:	
Feature Description	> Cancel

5. Click "Install" button to continue installation.

🕼 Intel(R) Network Connections - InstallShield Wizard	
Ready to Install the Program The wizard is ready to begin installation.	(intel)
Click Install to begin the installation. If you want to review or change any of your installation settings, exit the wizard.	click Back. Click Cancel to
InstallShield	ıstall Cancel

6. The network driver installation is now complete. Click the "Finish" button to exit InstallShield.



4.1.4 LAN Driver Installation (RTL)

1. Change folder address to \Drivers\LAN\RTL. And double click to execute Setup.exe.



2. Click "Next" button to proceed to the next step.



3. Click "Install" button to continue installation.



4. The network driver installation is now complete. Click the "Finish" button to exit InstallShield.

REALTEK GbE & FE Ethernet	PCI-E NIC Driver - InstallShield Wizard
	InstallShield Wizard Complete
	The InstallShield Wizard has successfully installed REALTEK GbE & FE Ethernet PCI-E NIC Driver. Click Finish to exit the wizard.
InstallShield	Lance)

4.1.5 Audio Driver Installation

1. Change folder address to \Drivers\Audio. And double click to execute WDM_R255.exe.



2. Click "Next" button to skip welcome message.



3. Select "Yes, I want to restart this computer now." and click "Finish" at the bottom. The computer will restart automatically and the driver installation will be complete.





www.advantech.com

Please verify specifications before quoting. This guide is intended for reference purposes only.

All product specifications are subject to change without notice.

No part of this publication may be reproduced in any form or by any means, electronic, photocopying, recording or otherwise, without prior written permission of the publisher.

All brand and product names are trademarks or registered trademarks of their respective companies.

© Advantech Co., Ltd. 2011