ARK-1370

**All-In-One, Ultra compact
Embedded Box Computer**

User Manual

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Sub_Category.asp?Category_ID=1-TPYQ7&BU=ACG&PD=EC

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This manual is for ARK-1370 series.

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 out-of-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 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

CE

This product has passed the CE test for environmental specifications when shielded cables are used for external wiring. We recommend the use of shielded cables. This kind of cable is available from Advantech. Please contact your local supplier for ordering information.

This product has passed the CE test for environmental specifications. Test conditions for passing included the equipment being operated within an industrial enclosure. In order to protect the product from being damaged by ESD (Electrostatic Discharge) and EMI leakage, we strongly recommend the use of CE-compliant industrial enclosure products.

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 web site 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

ARK-1370 Models

Table 1.1: ARK-1370 Model list	
ARK-1370F-1J0A1E:	AMD Geode™ LX800 processor 500 MHz, 2 x Serial ports, 4 x USB 2.0, 1 x PS2, 1 x LAN, 1 x LVDS, 1x VGA 1 x PCMCIA, AUDIO
ARK-1370F-2J0A1E:	ARK-1370F-1J0A1E with 256 MB DDR SDRAM, 128 MB CF, pre-installed Windows CE 6.0 Professional Plus and License
ARK-1370F-3J0A1E:	ARK-1370F-1J0A1E with 512 MB DDR SDRAM, 1 GB CF, pre-installed Windows XP Professional Embedded FP2007 OS Image and License

Packing List

- 1 x ARK-1370 Unit
- 1 x Driver and Utility CD for ARK-1370 series V1.10 (P/N: 2066137000)
- 1 x 2-P Phoenix to DC-Jack Power Cable (P/N: 1700001394)
- 1 x DB-9 Male to Mic_in, Ln_Out, Ln_In, Audio Cable (P/N: 1700006011)
- Optional 6P-6P-6P 20cm KB and PS/2 Mouse Y cable (P/N: 1700060202)
- Optional DIN-rail mounting accessory (P/N: 1997001110, 1997001120, 1997001130, 1997001140)
- Optional VESA mounting plate, P/N: 1960008516

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

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. Lay this equipment on a reliable surface when install. A drop or fall could cause injury.
7. Do not leave this equipment in an uncontrolled environment; storage temperatures above 60°C may damage the equipment.
8. The openings on the enclosure are for air convection. Protect the equipment from overheating. DO NOT COVER THE OPENINGS.
9. Make sure the voltage of the power source is correct before connecting the equipment to the power outlet.
10. Place the power cord such a way that people cannot step on it. Do not place anything over the power cord. The power cord must be rated for the product and for the voltage and current marked on the product's electrical ratings label. The voltage and current rating of the cord should be greater than the voltage and current rating marked on the product.
11. All cautions and warnings on the equipment should be noted.
12. If the equipment is not used for a long time, disconnect it from the power source to avoid damage by transient overvoltage.
13. Never pour any liquid into an opening. This may cause fire or electrical shock.
14. Never open the equipment. For safety reasons, the equipment should be opened only by qualified service personnel.
15. If one of the following situations arises, get the equipment checked by service personnel:
    – The power cord or plug is damaged.
    – Liquid has penetrated into 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.
16. CAUTION!

    THIS COMPUTER IS PROVIDED WITH A BATTERY-POW-
    ERED REAL-TIME CLOCK CIRCUIT. THERE IS A DANGER
    OF EXPLOSION IF BATTERY IS INCORRECTLY REPLACED.
    REPLACE ONLY WITH SAME OR EQUIVLENT TYPE REC-
    OMMENDED BY THE MANUFACTURE. DISCARD USED
    BATTERIES ACCORDING TO THE MANUFACTURER°ØS
    INSTRUCTIONS.

Wichtige Sicherheishinweise

1. Bitte lesen sie Sich diese Hinweise sorgfältig durch.
2. Heben Sie diese Anleitung für den späteren Gebrauch auf.
3. Vor jedem Reinigen ist das Gerät vom Stromnetz zu trennen. Ver-
   wenden Sie Keine Flüssig-oder Aerosolreiniger. Am besten dient
   ein angefeuchtetes Tuch zur Reinigung.
4. Die NetzanschluBsteckdose soll nahe dem Gerät angebracht und
   leicht zugänglich sein.
5. Das Gerät ist vor Feuchtigkeit zu schützen.
6. Bei der Aufstellung des Gerätes ist auf sicheren Stand zu achten.
   Ein Kippen oder Fallen könnte Verletzungen hervorrufen.
7. Die Belüftungsöffnungen dienen zur Luftzirkulation die das Gerät
   vor überhitzung schützt. Sorgen Sie dafür, daB diese Öffnungen
   nicht abgedeckt werden.
8. Beachten Sie beim. AnschluB an das Stromnetz die AnschluBw-
   erte.
9. Verlegen Sie die NetzanschluBleitung so, daB niemand darüber
   fallen kann. Es sollte auch nichts auf der Leitung abgestellt werden.
10. Alle Hinweise und Warnungen die sich am Geräten befinden sind
    zu beachten.
11. Wird das Gerät über einen längeren Zeitraum nicht benutzt, sollten
    Sie es vom Stromnetz trennen. Somit wird im Falle einer Überspan-
    nung eine Beschädigung vermieden.
12. Durch die Lüftungsöffnungen dürfen niemals Gegenstände oder
    Flüssigkeiten in das Gerät gelangen. Dies könnte einen Brand bzw.
    elektrischen Schlag auslösen.

13. Öffnen Sie niemals das Gerät. Das Gerät darf aus Gründen der elektrischen Sicherheit nur von authorisiertem Servicepersonal geöffnet werden.

14. Wenn folgende Situationen auftreten ist das Gerät vom Stromnetz zu trennen und von einer qualifizierten Servicestelle zu überprüfen:

    – Netzkabel oder Netzstecker sind beschädigt.
    – Flüssigkeit ist in das Gerät eingedrungen.
    – Das Gerät war Feuchtigkeit ausgesetzt.
    – Wenn das Gerät nicht der Bedienungsanleitung entsprechend funktioniert oder Sie mit Hilfe dieser Anleitung keine Verbesserung erzielen.
    – Das Gerät ist gefallen und/oder das Gehäuse ist beschädigt.
    – Wenn das Gerät deutliche Anzeichen eines Defektes aufweist.

15. VOSICHT: Explisionsgefahr bei unsachgemaben Austausch der Batterie.Ersatz nur durch densellben order einem vom Hersteller empfohlene-mahnlichen Typ. Entsorgung gebrauchter Batterien navh Angaben des Herstellers.

16. ACHTUNG: Es besteht die Explosionsgefahr, falls die Batterie auf nicht fach-männische Weise gewechselt wird. Verfangen Sie die Batterie nur gleicher oder entsprechender Type, wie vom Hersteller empfohlen. Entsorgen Sie Batterien nach Anweisung des Herstellers.

Der arbeitsplatzbezogene Schalldruckpegel nach DIN 45 635 Teil 1000 beträgt 70dB(A) oder weiger.

Haftungsausschluss: Die Bedienungsanleitungen wurden entsprechend der IEC-704-1 erstellt. Advantech lehnt jegliche Verantwortung für die Richtigkeit der in diesem Zusammenhang getätigten Aussagen ab.

Safety Precaution - Static Electricity

Follow these simple precautions to protect yourself from harm and the products from damage.

1. To avoid electrical shock, always disconnect the power from your PC chassis before you work on it. Don't touch any components on the CPU card or other cards while the PC is on.
2. Disconnect power before making any configuration changes. The sudden rush of power as you connect a jumper or install a card may damage sensitive electronic components.

Contents

Overview

This chapter gives background information on ARK-1370. It shows you ARK-1370 overview and specifications.

Sections include:

- Introduction
- Hardware Specifications
- Safety Precautions
- ARK-1370 Series Model and Packing List
- Chassis Dimension

Chapter 1 Overview

1.1 Introduction

ARK-1370 is an ultra-compact, fanless fully sealed, robust embedded box computer. It is designed for space critical applications that require low power consumption. All electronics are protected in a rugged, sealed housing that can be conveniently embedded in stand alone applications. No external cooling is necessary. The unit features a 24-bit LVDS interface, AC'97 Audio, one LAN, four USB, two Serial communication ports, and PC card interfaces that bring comprehensive multimedia, control and communications to meet diverse application requirements.

1.2 Features

1.2.1 Ultra Compact Size, VESA Mount with Fanless Operation

- Ultra-Compact dimensions of 189 x 41 x 136.5 mm (7.44" x 1.61" x 5.37")
- Supports VESA mounting holes (100mm x 100 mm), which allow direct assembly of ARK-1370 to any display device, making video intensive applications conveniently accessible. (Optional)
- Supports Desktop/Wall/Din Rail Mounting under space critical installation conditions. (DIN-rail mounting kit is optional)
- Aluminum Alloy chassis construction with high efficient fanless performance.

1.2.2 Dual Display Capability

- Support a wide range of video interfaces (24-bit LVDS and standard CRT interface), and AC'97 Stereo Audio. The unit is designed for diversified applications:
  - Point of Information
  - Gaming
  - Digital Signage

1.2.3 Comprehensive Communication and Connective Capacity

- A wide range of communications interfaces (Four USB, two RS-232 and Ethernet). A PC card slot enables ARK-1370 to become an ideal solution for diversified applications, such as:
  - Data communication gateway for navigation and transportation
  - POS/Kiosk control, self-service of entrance control, ticketing, payment and information preview system.

1.2.4 Optimized Integration in a Robust Casting Construction

- Few Parts, Easy Integration, Easy Maintenance to reduce investment
- Systems are supplied ready to run
- Long life cycle support for product continuity
- Wide range of DC 9 V~35 V power source offers flexibility of power input for various automation environments.

1.3 Hardware Specification

Processor Core Logic System

- **CPU**

  Embedded AMD Geode™ LX800 500MHz

- **System Chipset**

  AMD Geode™ CS5536 companion

- **BIOS**

  Award 512 KB Flash BIOS

- **System Memory**
  - One 200 pin SO-DIMM sockets
  - Support DDR SDRAM Up to 1GB

Display

- **Controller**

  Built-in to AMD Geode™ LX 800 processor

- Display Memory

  Optimized shared memory architecture, supports up to 64 MB frame buffer using system memory.

- **Display Interface support**
  - CRT Interface
  - Single channel 18-bit LVDS interface
- **Resolution**
  - CRT Mode: 1024 x 768 @ 22 bpp (85 Hz), 1600 x 1200 @ 16 bpp
  - LCD/Simultaneous Mode: 1024 x 768 @ 16 bpp

Ethernet

- **Ethernet Controller:** Intel® 82551QM Ethernet Controller
- **Speed:** 10/100MBps, IEEE 802.3u (100 BASE-T) protocol compatible

Audio

- **Audio Interface**

  Built-in Audio controller on AMD Geode™ CS5536 companion chipset AC'97 Audio stereo sound and dual output 2.2W amplifier.

USB

- Built-in USB 2.0 controller on AMD Geode™ CS5536. Supports 4 x USB 2.0 ports

Serial Port

- Built-in Winbond W83627HF LPC Super I/O Controller. Supports 2 x RS-232/422/485 ports by BIOS selection

PC Card

- **PC Card Controller:** Built-in Ricon R5C485 PC Card Controller
- **PC Card Slot Interface:** 1 x built-in PC Card that supports Card-Bus (Card-32) and 16-bit (PCMCIA 2.1/JEIDA4.2) cards 5V and 3.3V working power.

Others

- **Watchdog Timer:** 255 levels timer interval, setup by software
- **Keyboard/Mouse:** One PS/2 Port to support PS/2 Mouse and PS/2 Keyboard.

Storage

- **SSD Interface:** 1 x CompactFlash socket for Type I/II Compact-Flash disk

Mechanical specifications

• **Construction:** Aluminum Alloy housing
• **Mounting:** VESA*/Desk/wall mounting
• **Dimension (W x H x D):** 189 x 41 x 136.5 mm
  (7.44" x 1.61" x 5.37")
• **Weight:** 1 KG

Power Supply

• **Output Rating:** 25 W, ATX
• **Input Voltage:**

  Supports 9 VDC ~ 35 VDC, ATX

  Supports Power Input Reversed Protection

  Supports Power Input Surge Protection

  Supports Power On after Power failure via BIOS setting

  Typical Power Input:

  9 V_{DC} @ 3 A,

  12 V_{DC} @ 2.4 A,

  16 V_{DC} @ 1.75 A,

  19 V_{DC} @ 1.5 A,

  24 V_{DC} @ 1.2 A,

  35 V_{DC} @ 0.8A,

Environment Specifications

• **Operating Temperature**
  – When system is equipped with Industrial Grade Compact Flash Disk only: -40 °C to 60 °C
• **Relative humidity:** 95 % @ 40 °C (non-condensing)
• **Vibration loading during operation**
  – When system is equipped with Compact Flash Disk: 5 Grms, IEC 68-2-64, random, 5~500Hz, 1 Oct./min, 1hr/axis. X, Y, Z three axes
• **Shock during operation**
  – When system is equipped with Compact Flash Disk: 50 Grms, IEC 68-2-27, half sine, 11 ms duration.
• **EMC Approved:** CE, FCC Class A
• **Safety Approved:** UL

1.4   Chassis Dimensions
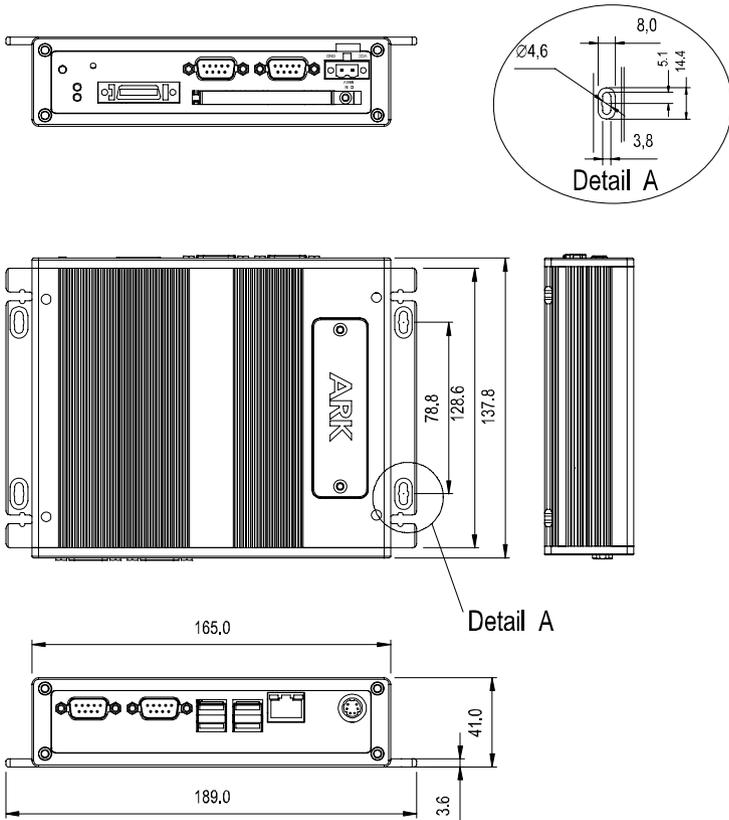
Figure 1.1: Chassis Dimensions

Hardware Functionality

This chapter shows how to set up ARK-1370's hardware functions, including connecting peripherals, switches and indicators.

Sections include:

- Introduction of External I/O connectors
- COM connectors
- USB connectors
- PS/2 Keyboard/Mouse connector
- Ethernet connector
- Power On/Off button
- LED indicators
- LVDS connector

Chapter 2 Hardware Functionality

2.1 Introduction of ARK-1370 External I/O Connectors

The following two figures show the external I/O connectors on ARK-1370. The following sections give you detail information about function of each I/O connector.
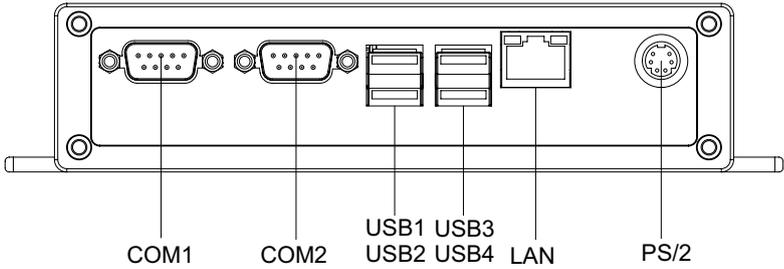
Figure 2.1: ARK-1370 front metal face plate external I/O connectors
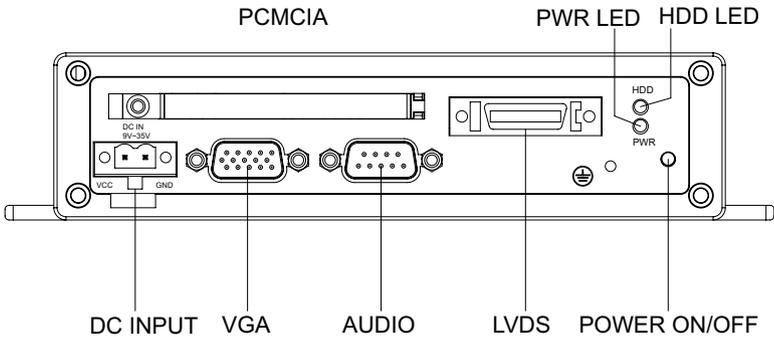
Figure 2.2: ARK-1370 rear metal face plate I/O connectors

2.2 ARK-1370 front side external I/O connectors

2.2.1 COM Connector

ARK-1370 provides two D-sub 9-pin connectors, which offers RS-232/422/485 serial communication interface ports. Please see the BIOS setting.
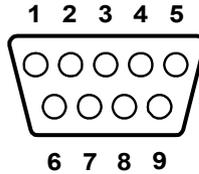
Figure 2.3: COM connector

	RS-232	RS-422	RS-485
Table 2.1: COM standard serial port pin assignments			
Pin	Signal Name	Signal Name	Signal Name
1	DCD	Tx-	DATA-
2	RxD	Tx+	DATA+
3	TxD	Rx+	NC
4	DTR	Rx-	NC
5	GND	GND	GND
6	DSR	NC	NC
7	RTS	NC	NC
8	CTS	NC	NC
9	RI	NC	NC

Note: *NC represents "No Connection".*

2.2.2 USB Connector

ARK-1370 provides four USB connectors, which give complete Plug & Play and hot swapping for up to 127 external devices. The USB interface complies with USB UHCI, Rev. 2.0. The USB interface can be disabled in the system BIOS setup. Please refer to Table. 2.2 for its pin assignments.

The USB connectors are used for connecting any device that conforms to the USB interface. Many recent digital devices conform to this standard. The USB interface supports Plug and Play, which enables you to connect or disconnect a device whenever you want, without turning off the computer.
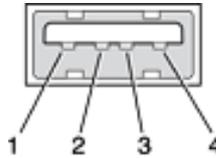
Figure 2.4: USB connector

Table 2.2: USB Connector			
Pin	**Signal Name**	**Pin**	**Signal Name**
1	VCC	2	USB_data-
3	USB_data+	4	GND

2.2.3   PS2 Keyboard/Mouse Connector

ARK-1370 provides a PS/2 keyboard/mouse connector. A 6-pin mini-DIN connector is located on the front metal face plate of ARK-1370. ARK-1370 comes with an adapter to convert from the 6-pin mini-DIN connector to two 6-pin mini-DIN connectors for PS/2 keyboard and PS/2 mouse connection. Please refer to Table 2.3 for its pin assignments.
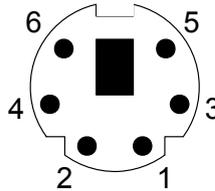
Figure 2.5: PS/2 connector

Table 2.3: PS/2 Keyboard/Mouse connector pin assignments	
Pin	**Signal Name**
1.	PS2_KBDAT
2.	PS2_MSDAT
3.	GND
4.	VCC
5.	PS2_KBCLK
6.	PS2_MSCLK

2.2.4 Ethernet Connector (LAN)

ARK-1370 is equipped with an Intel 82551QM Ethernet controller that is fully compliant with IEEE 802.3u 10/100Base-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 (Green LED) and Speed status (Yellow LED).

8   1
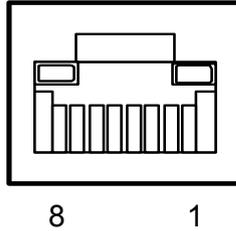
Figure 2.6: Ethernet connector

Table 2.4: RJ-45 Connector pin assignments	
Pin	**10/100BaseT Signal Name**
1	TX+
2	TX-
3	RX+
4	NC
5	NC
6	RX-
7	NC
8	NC

2.3 ARK-1370 rear side external I/O connectors

2.3.1 Power ON/OFF Button

ARK-1370 comes with a Power On/Off button, that support the dual function of Soft Power -On/Off (Instant off or Delay 4 Second) and Suspend.

2.3.2 LED Indicators

There are two LEDs on ARK-1370 front metal face plate for indicating system status: PWR LED is for power status and flashes in green color; and the HDD LED is for hard disk and compact flash disk status, which flashes in red color.

2.3.3 LVDS Connector

ARK-1370 comes with a D-Sub 26-pin connector that carries LVDS signal output, and can directly connect to LVDS LCD display via external cable.

The system also provides a jumper - CN14 on the internal motherboard for selecting the LCD signal power of 5V or 3.3V, please refer to section 3.3 of Chapter 3 for the jumper table of CN14. The default setting of CN14 is 3.3V.
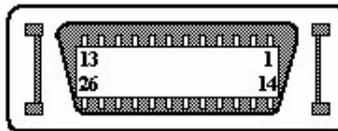
Figure 2.7: LVDS Connector

Pin	Signal Name	Pin	Signal Name
Table 2.5: LVDS Connector Pin Assignment			
1	CLK2P	14	CLK2M
2	GND	15	A0M
3	A0P	16	A1M
4	A1P	17	A2M
5	A2P	18	CLK1M
6	CLK1P	19	GND
7	VCC_LCD	20	VDD_LCD

Table 2.5: LVDS Connector Pin Assignment			
8	GND	21	A3M
9	A3P	22	A4M
10	A4P	23	A5M
11	A5P	24	A6M
12	A6P	25	A7M
13	A7P	26	NC

2.3.4 PCMCIA expansion slot

ARK-1370 comes with a PCMCIA slot for PC card expansion.

2.3.5 AUDIO Connector

ARK-1370 provides a D-sub 9-pin connector for AC97 stereo Audio output. There are Speaker_Out, Mic_In and Line_In, (The connector can be attached to 3 phone jacks via an audio cable: P/N:1700006011 which is within the accessory)

6 7 8 9

1 2 3 4 5
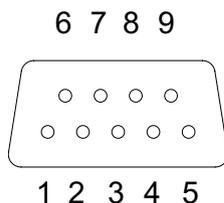
Figure 2.8: Audio connector

Table 2.6: Audio Connector Pin Assignment	
Pin	Signal Name
1	SPKR
2	GND
3	MIC2
4	LIN_R
5	GND
6	SPKL
7	NC
8	GND
9	LIN_L

2.3.6   VGA Connector

ARK-1370 provides a high resolution VGA interface via D-sub 15-pin connector to support a VGA CRT monitor. It supports display resolution up to 1600 x 1200 @ 75-Hz and up to 64 MB shared memory.
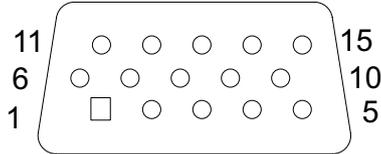
Figure 2.9: VGA connector

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	DDAT
13	H-SYNC
14	V-SYNC
15	DCLK

Table 2.7: VGA connector pin assignment

2.3.7 Power Input Connector

ARK-1370 comes with a two pin header that carries 9~35 VDC external power input.
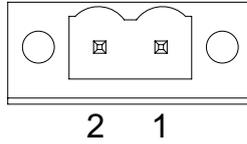
Figure 2.10: Power Input Connector

Table 2.8: Power connector pin assignments	
Pin	**Signal Name**
1	GND
2	+9~35VDC

Hardware Installation and Upgrade

This chapter introduces how to initialize ARK-1370.

Sections include:

- Jumpers and Connectors
- Setting Jumpers
- LCD Power Jumper Setting
- Installing the DDR SDRAM Memory Module
- Inserting a Compact Flash Card
- Connecting Power

Chapter 3   Hardware Installation and Upgrade

3.1   Jumpers and Connectors

ARK-1370 Box Computer consists of a PC-based computer that is housed in an Aluminum alloy casting chassis. Any maintenance or hardware upgrades can be easily completed by removing the front or the rear face plate. If you are a system integrator and need to know how to completely disassemble the embedded box computer, you can find more useful information in Chapter 6.

Warning!   *Do not remove any mechanical parts, such as the front cover and rear cover until you have verified that no power is flowing within the Embedded Box Computer. Power must be switched off and the power cord must be unplugged. Every time you service the Embedded Box Computer, you should be aware of this.*

3.2   Setting jumpers

You can configure your ARK-1370 to match the needs of your application by setting jumpers. A jumper is the simplest kind of electrical switch. It consists of two metal pins and a small metal clip (often protected by a plastic cover) that slides over the pins to connect them. To "close" a jumper, you connect the pins with the clip. To "open" a jumper you remove the clip. Sometimes a jumper will have three pins, labeled 1, 2, and 3. In this case, you would connect either pins 1 and 2 or pins 2 and 3.
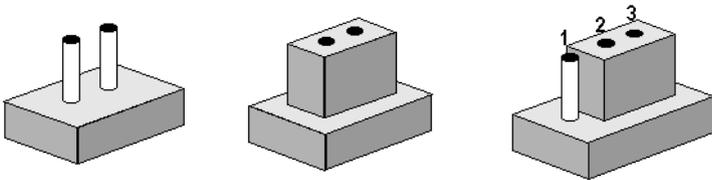
The jumper settings are schematically depicted in this manual as follows:
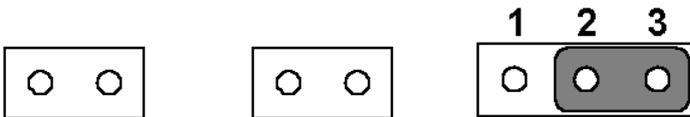
A pair of needle-nose pliers may be helpful when working with jumpers. If you have any doubts about the best hardware configuration for your application, contact your local distributor or sales representative before you make any changes.

3.3 LCD Power Jumper setting (CN14)

ARK-1370 series of embedded box computer provide a jumper - CN14 located on the internal carrier board for selecting the LCD signal power of 5V or 3.3V. When you connect your LVDS LCD panel display, you need to set up this CN14 for LCD power setting selection for your LVDS panel display.

Table 3.1: LCD Power Setting (CN14)	
Close pins	**Function**
1-2	+5V
2-3	+3.3V*

(*): means default setting of the jumper/function.
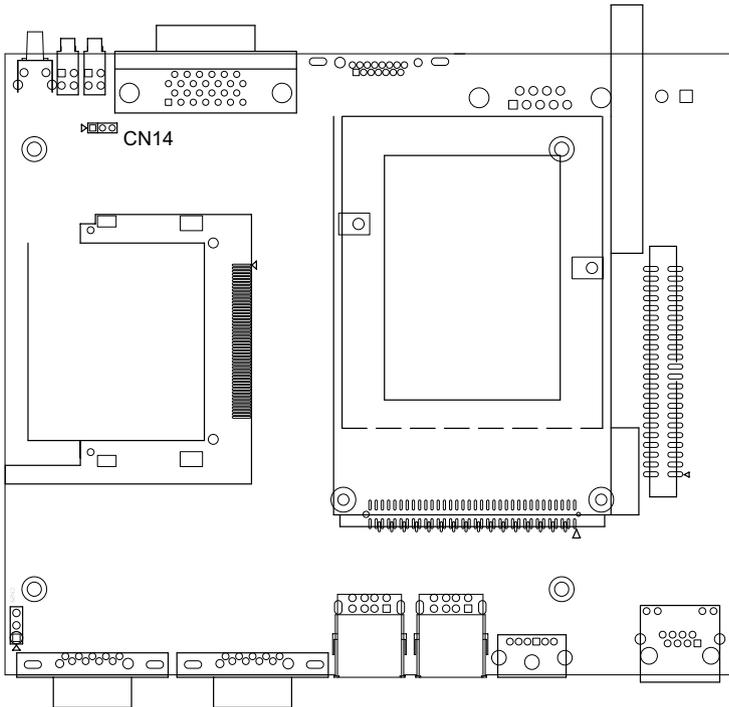
Figure 3.1: The carrier board layout

3.4 Installing the DDR SDRAM Memory Module

ARK-1370 provides one 200-pin SODIMM (Small Outline Dual Inline Memory Module) socket and supports 2.5V DDR SDRAM. You can install from 64 MB to 1 GB of DDR SDRAM memory. Please see Chapter 6 for the installation procedure.

3.5 Inserting the Compact Flash card

ARK-1370 provides one Compact Flash slot for Type I/II Compact Flash disk. Please see Chapter 6 for the insertion procedure.

3.6 Connecting Power

Connect ARK-1370 to a 9~35 V_{DC} power source. The power source can either be from a power adapter or an in-house power source.

CHAPTER

4

Award BIOS Setup

Chapter 4   Award BIOS Setup

4.1   Introduction

Award's BIOS ROM has a built-in setup program that allows users to
modify the basic system configuration. This type of information is stored
in battery-backed memory (CMOS RAM) so that it retains the setup
information when the power is turned off.

4.1.1   CMOS RAM Auto-backup and Restore

The CMOS RAM is powered by an onboard button cell battery. When
you finish the BIOS setup, the data in CMOS RAM will be automatically
backed up to Flash ROM. If operation in harsh industrial environments
causes a soft error, the BIOS will recheck the data in CMOS RAM and
automatically restore the original data in the Flash ROM to CMOS RAM
for booting.

Note: *If you intend to change the CMOS setting without
restoring the previous backup, you have to click on
"DEL" within two seconds of the "CMOS checksum
error." display screen message appearing. Then enter
the "Setup" screen to modify the data. If the "CMOS
checksum error..." message appears again and again,
please check to see if you need to replace the battery
in your system.*

4.2 Entering 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 Advantech's applications engineer to obtain an up-to-date patch code file.

ARK-1370 has the Award BIOS with CMOS SETUP utility which allows the user to configure required settings or to activate certain system features.

The CMOS SETUP saves the configuration in the CMOS RAM on the motherboard. When the power is turned off, the battery on the board supplies the necessary power to the CMOS RAM.

When the power is turned on, press the <Del> button during the BIOS POST (Power-On Self Test) which will take you to the CMOS SETUP screen.

CONTROL KEYS

< ↑ >< ↓ >< ← >< → >	Move to select item
<Enter>	Select Item
<Esc>	Main Menu - Quit and not save changes into CMOS
	Sub Menu - Exit current page and return to Main Menu
<Page Up/+>	Increase the numeric value or make changes
<Page Down/->	Decrease the numeric value or make changes
<F1>	General help, for Setup Sub Menu
<F2>	Item Help
<F5>	Load Previous Values
<F7>	Load Optimized Default
<F10>	Save all CMOS changes

4.2.1   Main Menu

Press <Del> to enter the Award BIOS CMOS Setup Utility, the Main
Menu will appear on the screen. Use arrow keys to select among the items
and press <Enter> to accept or enter the sub-menu.

```
              Phoenix - AwardBIOS CMOS Setup Utility

   ▶ Standard CMOS Features          ▶ PC Health Status

   ▶ Advanced BIOS Features            Load Optimized Defaults

   ▶ Advanced Chipset Features         Set Password

   ▶ Integrated Peripherals            Save & Exit Setup

   ▶ Power Management Setup            Exit Without Saving

   ▶ PnP/PCI Configurations


   Esc : Quit      F9 : Menu in BIOS    ↑ ↓ → ←  : Select Item
   F10 : Save & Exit Setup

                   Time, Date, Hard Disk Type...
```

•   **Standard CMOS Features**

This setup page includes all the items in standard compatible BIOS.

•   **Advanced BIOS Features**

 This setup page includes all the items of Award BIOS enhanced features.

•   **Advanced Chipset Features**

This setup page includes all the items for Chipset configuration features.

•   **Integrated Peripherals**

This setup page includes all onboard peripheral devices.

•   **Power Management Setup**

This setup page includes all the items of Power Management features.

•   **PnP/PCI Configurations**

This setup page includes PnP OS and PCI device configuration.

•   **PC Health Status**

This setup page includes the system auto detect CPU and system temper-
ature, voltage, fan speed.

- **Load Optimized Defaults**

This setup page includes the Load System Optimized value, for best performance configuration.

- **Set Password**

Establish, change or disable password.

- **Save & Exit Setup**

Save CMOS value settings to CMOS and exit BIOS setup.

- **Exit Without Saving**

Abandon all CMOS value changes and exit BIOS setup.

4.2.2   Standard CMOS Features
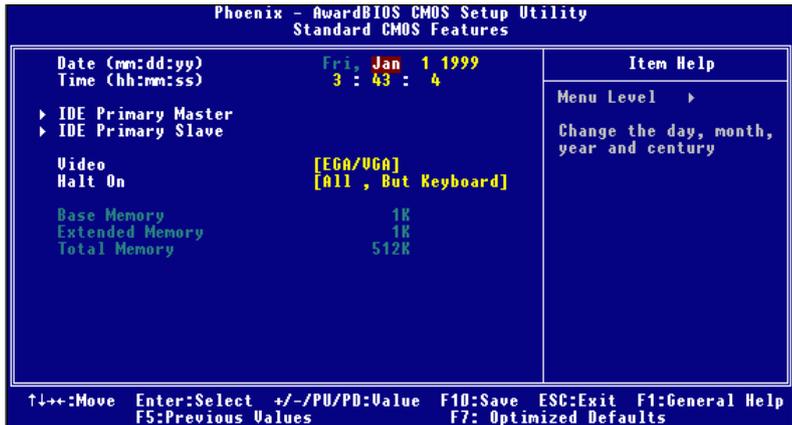
- **Date**

The date format is <week>, <month>, <day>, <year>.

Week	From Sun to Sat, determined and display by BIOS only
Month	From Jan to Dec
Day	From 1 to 31
Year	From 1999 through 2099

- **Time**

The times format in <hour> <minute> <second>, base on the 24-hour time.

- **IDE Primary Master/Slave**

IDE HDD and Compact Flash Auto-Detection Press "Enter" for automatic device detection.

- **Halt on**

The item determines whether the computer will stop if an error is detected during power up.

All Errors	Whenever the BIOS detects a non-fatal error the system will be stopped.
No Errors	The system boot will not stop for any error
All, But Keyboard	The system boot will not stop for a keyboard error; it will stop for all other errors. (Default value)
All, But Diskette	The system boot will not stop for a disk error; it will stop for all other errors.
All, But Disk/Key	The system boot will not stop for a keyboard or disk error; it will stop for al other errors.

- **Base Memory**

The POST of the BIOS will determine the amount of base (or conventional) memory installed in the system.

- **Extended Memory**

The POST of the BIOS will determine the amount of extended memory (above 1MB in CPU's memory address map) installed in the system.

- **Total Memory**

This item displays the total system memory size.

4.2.3 Advanced BIOS Features

```
              Phoenix - AwardBIOS CMOS Setup Utility
                       Advanced BIOS Features
 ┌─────────────────────────────────────────────────┬──────────────────────┐
 │  Blank Boot                    [Disabled]        │      Item Help       │
 │  POST Beep                     [Enabled]         ├──────────────────────┤
 │  Virus Warning                 [Disabled]        │  Menu Level    ▶     │
 │  CPU Internal Cache            [Enabled]         │                      │
 │  Quick Power On Self Test      [Enabled]         │                      │
 │  First Boot Device             [HDD-0]           │                      │
 │  Second Boot Device            [USB-CDROM]       │                      │
 │  Third Boot Device             [Disabled]        │                      │
 │  Boot Other Device             [Disabled]        │                      │
 │  Boot Up NumLock Status        [On]              │                      │
 │  Gate A20 Option               [Fast]            │                      │
 │  Typematic Rate Setting        [Disabled]        │                      │
 │ x Typematic Rate (Chars/Sec)   6                 │                      │
 │ x Typematic Delay (Msec)       250               │                      │
 │  Security Option               [Setup]           │                      │
 │  Summary Screen Show           [Enabled]         │                      │
 │  Cyrix 6x86/MII CPUID          [Enabled]         │                      │
 │                                                  │                      │
 └─────────────────────────────────────────────────┴──────────────────────┘
  ↑↓→←:Move  Enter:Select  +/-/PU/PD:Value  F10:Save  ESC:Exit  F1:General Help
             F5:Previous Values                F7: Optimized Defaults
```

- **Blank Boot   [Disabled]**

This item allows the user to choose blank screen when the system boots.

- **Post Beep   [Enabled]**

This item allows the user to enable a beep sound during POST test status.

- **Virus Warning   [Disabled]**

This item allows the user to choose the VIRUS warning feature for IDE Hard Disk and Compact Flash boot sector protection.

- **CPU Internal Cache   [Enabled]**

This item allows the user to enable CPU internal cache.

- **First   [HDD-0]**

  Second   [USB-CDROM]

  Third   [Disabled]

  Other Boot Drive   [Disabled]

HDD-0	Select boot device priority by HDD-0.
CDROM	Select boot device priority by CDROM.
HDD-1	Select boot device priority by HDD-1.
USB-FDD	Select boot device priority by USB-FDD.
USB-CDROM	Select boot device priority by USB-CDROM.
USB-HDD	Select boot device priority by USB-HDD.

LAN   Select boot device priority by LAN.

Disabled   Disable this boot function.

- **Boot Up NumLock Status**   **[On]**

This item enables the user to activate the Number Lock function upon system boot

- **Gate A20 Option**   **[Fast]**

This item enables the user to switch A20 control by port 92 or not.

- **Typematic Rate Setting**   **[Disabled]**

This item enables the user to set the two typematic controls items.

- **Typematic Rate (Chars/Sec)**

This item controls the speed at system registers repeated keystrokes.

There are eight settings 6, 8, 10, 12, 15, 20, 24 and 30.

- **Typematic Delay (Msec)**

This item sets the time interval for displaying the first and second characters. Four delay rate options are 250, 500, 750 and 1000.

- **Security Option**   **[Setup]**

This field allows you to limit access to the System and Setup.

    Setup   When you select "Setup", the system always boots up and prompts for the Supervisor Password only when the Setup utility is called up.

    System   When you select "System", the system prompts for the User Password every time you boot up.

    The default value is "Setup"

- **Show Summary Screen**   **[Enabled]**

This item allows the user to choose the summary screen to be either displayed or not on boot up. The options are Enable or Disable.

- **Cyrix 6X86/MII CPUID**   **[Enabled]**

This item allows the user to control BIOS enabled or disabled CPUID for CPU Cyrix/MII.

4.2.4   Advanced Chipset Features

```
            Phoenix - AwardBIOS CMOS Setup Utility
                    Advanced Chipset Features
 ┌──────────────────────────────────────────┬──────────────────────┐
 │ CPU Frequency              [Auto]         │      Item Help       │
 │x Memory Frequency           200 MHz       │                      │
 │ CAS Latency                [Auto]         │ Menu Level    ►      │
 │ Interleave Select          [LOI]          │                      │
 │ XOR BA0                    [Enabled]      │                      │
 │ XOR BA1                    [Disabled]     │                      │
 │ XOR MB0                    [Disabled]     │                      │
 │ XOR Bit Select             [18]           │                      │
 │ Video Memory Size          [   8 M]       │                      │
 │                                           │                      │
 │ Output display             [Panel & CRT]  │                      │
 │► Flat Panel Configuration  [Press Enter]  │                      │
 │                                           │                      │
 │ Onboard Audio              [Enabled]      │                      │
 │                                           │                      │
 │ Overcurrent reporting      [Disabled]     │                      │
 │ Port 4 assigment           [Host]         │                      │
 │                                           │                      │
 └──────────────────────────────────────────┴──────────────────────┘
 ↑↓→←:Move  Enter:Select  +/-/PU/PD:Value  F10:Save  ESC:Exit  F1:General Help
            F5:Previous Values              F7: Optimized Defaults
```

Note: The "Advanced Chipset Features" option controls the
configuration of the board's chipset for fine tuning sys-
tem performance. It is strongly recommended only
technical users make changes to the default settings.

- **CPU Frequency   [Auto]**

This item enables users to set the CPU Host clock by system automatic
detection or manually.

- **Memory Frequency   [200 MHz] (Show Only)**

This item enables users to set the Memory Host clock by system auto-
matic detection or by manual.

- **CAS Latency   [Auto]**

This item allows the user to control the configuration Column Address
Select latency.

- **Interleave Select   [LOI]**

This item allows the user to choose the setting of the interleaving to either
LOI (Low Order Interleaving) to HOI (High Order Interleaving).

- **XOR BA0 / BA1 / MB0   [Disabled]**

These items allows the user to choose the enable or disable of the XOR-ing of module bank BA1or BA0 with upper GLIU address bit. Options are Enable and Disable.

- **XOR Bit Select   [18]**

This item allows the user to select which upper GLIU address bit to XOR with MB0, BA1 or BA0.

- **Video Memory Size   [8 M]**

This item allows the user to adjust VGA share memory size for personal purpose.

- **Output Display   [Panel & CRT]**

This item allows the user to choose screen display of type. BIOS default value is set to "Panel & CRT"

- **Flat Panel Configuration   [Press Enter]**

This item provides Flat panel function for the user to adjust.

- **Onboard Audio   [Enabled]**

This item sets onboard audio to enabled or disabled

- **Overcurrent Reporting   [Disabled]**

This item sets USB overcurrent reporting function. BIOS default is set to Disabled.

4.2.5 Integrated Peripherals

```
              Phoenix - AwardBIOS CMOS Setup Utility
                       Integrated Peripherals
  On-Chip IDE Channel 1      [Enabled]        ▲          Item Help
  Master Drive PIO Mode      [Auto]
  Slave  Drive PIO Mode      [Auto]                  Menu Level    ▶
  IDE Primary Master UDMA    [Auto]
  IDE Primary Slave  UDMA    [Auto]
  IDE DMA transfer access    [Enabled]
  OnBoard LAN Controller     [Enabled]
  Onboard Serial Port 1 Mode [RS232]
  Onboard Serial Port 2 Mode [RS232]
  Onboard LAN ROM            [Enabled]
  IDE HDD Block Mode         [Enabled]
  Onboard Serial Port 1      [3F8/IRQ4]
  Onboard Serial Port 2      [2F8/IRQ3]
  UART Mode Select           [Normal]
  RxD , TxD Active           [Hi,Lo]
  IR Transmission Delay      [Enabled]
  UR2 Duplex Mode            [Half]
  Use IR Pins                [IR-Rx2Tx2]
  Onboard Parallel Port      [378/IRQ7]     ▼
 ↑↓→←:Move  Enter:Select +/-/PU/PD:Value  F10:Save  ESC:Exit  F1:General Help
            F5:Previous Values              F7: Optimized Defaults
```

- **On-Chip IDE Channel 1**

This item enables chipset IDE device 1 controller.

- **Master Drive PIO Mode   [Auto]**

This item allows users to adjust master IDE mode. BIOS default value is set to "Auto".

- **Slave Drive PIO Mode   [Auto]**

This item allows users to adjust slave IDE mode. BIOS default value is set to "Auto".

- **IDE Primary Master UDMA   [Auto]**

This item allows the user to adjust primary master IDE mode. BIOS default value is set to "Auto".

- **IDE Primary Slave UDMA   [Auto]**

This item allows users to adjust primary slave IDE mode of type for modification purpose. BIOS default value suggest to "Auto".

- **IDE DMA transfer access   [Enabled]**

This item allows users to adjust IDE DMA mode. It will increase IDE Data transfer speed. BIOS default value is set to "Enabled".

- **On Board LAN Controller   [Enabled]**

This item is for the LAN controller. BIOS default value is set to "Enabled".

- **On Board Serial Port 1 Mode   [RS232]**

This item sets the Mode of Serial Port 1. It can support RS232/RS422/RS485. BIOS default value is set to "RS232".

- **On Board Serial Port 2 Mode   [RS232]**

This item sets the Mode of Serial Port 2. It can support RS232/RS422/RS485. BIOS default value is set to "RS232".

- **IDE HDD Block Mode   [Enabled]**

This item sets the IDE block data transfer mode to setup HDD data transfer efficiency. BIOS default value is set to "Enabled".

- **Onboard Serial Port 1   [3F8/IRQ4]**

This item allows the user to change the COM 1 address and IRQ. BIOS default value is set to "3F8/IRQ4".

- **Onboard Serial Port 2   [2F8/IRQ3]**

This item allows the user to change the COM 2 address and IRQ. BIOS default value suggest to "2F8/IRQ3".

- **UART Mode Select   [Normal]**

This item allows the selection for the mode of operation of the serial port.

- **Onboard Parallel Port   [378/IRQ7]**

This item allows the user to change the parallel port address. BIOS default value is set to "378/IRQ7".

- **Parallel Port Mode   [SPP]**

This item allows the user to change the parallel port mode. The user can choose "SPP", "EPP", "±ECP" and "ECP+EPP"; SPP (Standard Parallel Port); ECP (Extended Capabilities Port); and EPP (Enhanced Parallel Port). The BIOS default value is set to "Normal".

- **EPP Mode Select   [EPP1.7]**

This item allows the user to change the EPP Mode for the parallel port. The BIOS default value is set to "EPP1.7".

- **ECP Mode Use DMA   [3]**

This item allows the user to change the DMA channel for the parallel port. The BIOS default value is set to "3".

4.2.6 Power Management Setup

```
                 Phoenix - AwardBIOS CMOS Setup Utility
                        Power Management Setup

   x  ACPI Function            Enabled           │        Item Help
      ACPI Suspend Type        [S1(POS)]         │
      Power Management         [ACPI]            │   Menu Level   ►
                                                 │
            ** PM Timers **                      │
   x  Standby Mode             Disabled          │
   x  Suspend Mode             Disabled          │
                                                 │
      MODEM Use IRQ            [N/A]             │
      PME Event Function       [Enabled]         │
      Soft-Off by PWR-BTTN     [Instant-Off]     │
      Power-On by Alarm        [Disabled]        │
   x  Time (hh:mm:ss) Alarm        0             │
   x                               0             │
   x                               0             │
   ► IRQ Wakeup Events         [Press Enter]     │
      PWRON After PWR-Fail     [Off]             │

   ↑↓→←:Move  Enter:Select +/-/PU/PD:Value  F10:Save  ESC:Exit  F1:General Help
              F5:Previous Values              F7: Optimized Defaults
```

Note: *This "Power management Setup" option configures system to the most energy efficient while operating in a manner consistent with your computer style.*

- **ACPI Function   [Enabled] (Show Only)**

This item defines the ACPI (Advanced Configuration and Power Management) feature that makes hardware status information available to the operating system, and communicates PC and system device information for improving the power management.

- **ACPI Suspend Type   [S1(POS)]**

This item allows the user to select ACPI S1 suspend Type.

- **Power Management   [ACPI]**

   Legacy   There are two items for adjusting "Standby Mode" and "Suspend Mode".

   APM   APM (Advanced Power Management function)

   ACPI   ACPI (Advanced Configuration and Power Management)

- **Standby Mode   [Disabled]**

This item allows the user to select the standby time; ranges from 1 sec to 120 Min.

- **Suspend Mode   [Disabled]**

This item allows the user to select suspend time; range from 1 sec to 120 Min.

- **Modem IRQ   [N/A]**

This item allows the user to determine the IRQ which the MODEM can use.

- **PME Event Function   [Enabled]**

This item allows the user to select PME event function which wakes up the system from soft off.

- **Soft-Off by PWR-BTTN   [Instant-Off]**

This item allows the user to define function of power button.

Instant-Off   Press power button then Power off instantly.

Delay 4 Sec   Press power button 4 sec. to Power off.

- **Power-On by Alarm[Disabled]**

This item allows the user to enable and key in Date/time to power on system

Disabled   Disable this function.

Enabled   Enable alarm function to power on system

Time (HH:MM:SS) Alarm (0-23): (0-59) : 0-59)

- **IRQ Wakeup Events   [Press Enter]**

This item allows the user to control wakeup from which IRQ event.

- **PWRON After PWR-Fail   [Off]**

This item allows the user to select the power fail function.

4.2.7 PnP/PCI Configurations

```
          Phoenix - AwardBIOS CMOS Setup Utility
                    PnP/PCI Configurations
┌─────────────────────────────────────────┬───────────────────────┐
│  PNP OS Installed          [No]          │        Item Help      │
│  Reset Configuration Data  [Disabled]    │                       │
│                                          │  Menu Level   ▶       │
│  Resources Controlled By   [Auto(ESCD)]  │                       │
│ x IRQ Resources             Press Enter  │  Select Yes if you are│
│ x Memory Resources          Press Enter  │  using a Plug and Play│
│                                          │  capable operating    │
│                                          │  system Select No if  │
│                                          │  you need the BIOS to │
│                                          │  configure non-boot   │
│                                          │  devices              │
│                                          │                       │
│                                          │                       │
│                                          │                       │
│                                          │                       │
│                                          │                       │
├─────────────────────────────────────────┴───────────────────────┤
│ ↑↓→←:Move  Enter:Select  +/-/PU/PD:Value  F10:Save  ESC:Exit  F1:General Help│
│        F5:Previous Values                 F7: Optimized Defaults  │
└──────────────────────────────────────────────────────────────────┘
```

Note: *This "PnP/PCI Configurations" option is setting up the IRQ and DMA (both PnP and PCI bus assignments.*

- **PNP OS Installed   [No]**

This item allows the user to determine if the PNP function is installed or not.

- **Reset Configuration Data   [Disabled]**

This item allows the user to clear any PnP configuration data stored in the BIOS.

- **Resources Controlled By   [Auto (ESCD)]**

   IRQ Resources

   This item allows you respectively assign an interruptive type for IRQ-3, 4, 5, 7, 9, 10, 11, 12, 14, and 15.

   Memory Resources

   This item allows you respectively assign a memory block from N/A to DC00.

4.2.8   PC Health Status

```
                  Phoenix - AwardBIOS CMOS Setup Utility
                            PC Health Status
┌──────────────────────────────────────────────┬───────────────────────┐
│  Shutdown Temperature       [Disabled]         │        Item Help      │
│  Current System Temp                           ├───────────────────────┤
│  Current CPU1 Temperature                      │  Menu Level    ▶       │
│  Vcore                                          │                       │
│  +2.5V                                          │                       │
│  +3.3V                                          │                       │
│                                                 │                       │
│                                                 │                       │
│                                                 │                       │
│                                                 │                       │
│                                                 │                       │
│                                                 │                       │
│                                                 │                       │
│                                                 │                       │
├─────────────────────────────────────────────────────────────────────┤
│  ↑↓→←:Move  Enter:Select  +/-/PU/PD:Value  F10:Save  ESC:Exit  F1:General Help │
│            F5:Previous Values              F7: Optimized Defaults      │
└─────────────────────────────────────────────────────────────────────┘
```
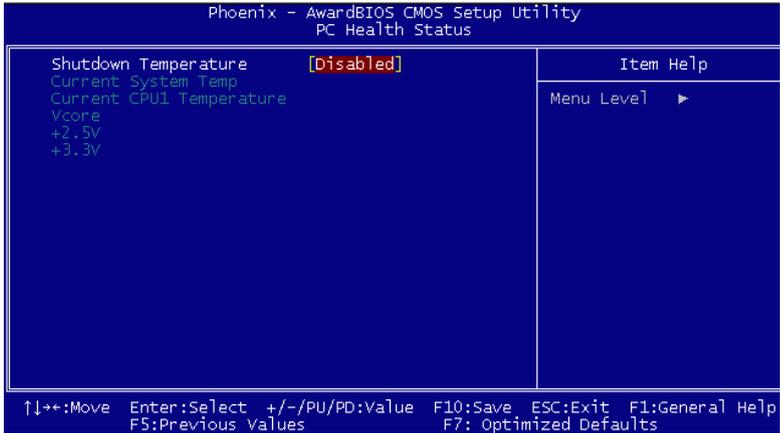
Note: *This "PC Health Status" option controls the Thermal*
            status of the board, this page is dependent on the
            Chipset.

- **Shutdown Temperature   [Disabled]**

This item enables the user to set the limitation of CPU temperature, the
range is from 60 °C through 85 °C.

- **Current System Temp   [Show Only]**

This item displays current system and CPU temperature.

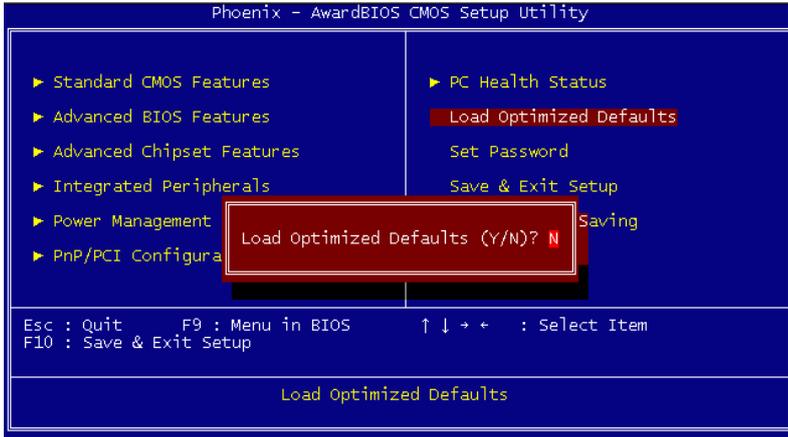- **Current CPU1 Temperature   [Show Only]**

This item displays current CPU temperature.

- **Vcore   [Show Only]**

- **+2.5V   [Show Only]**
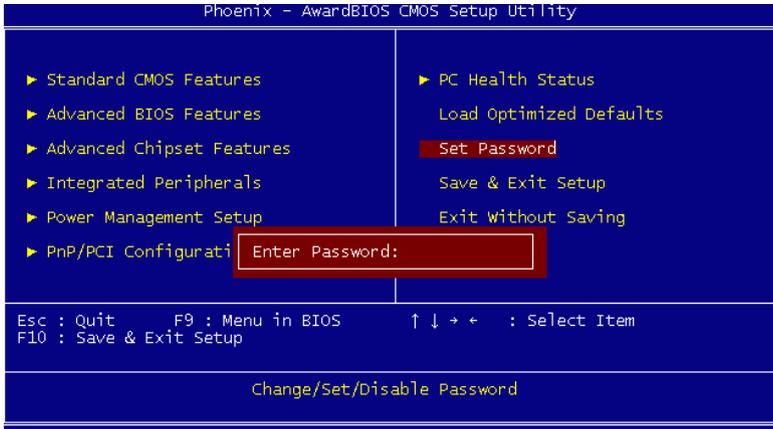
- **+3.3V   [Show Only]**

4.2.9 Load Optimized Defaults

```
             Phoenix - AwardBIOS CMOS Setup Utility

 ▶ Standard CMOS Features           ▶ PC Health Status

 ▶ Advanced BIOS Features             Load Optimized Defaults

 ▶ Advanced Chipset Features          Set Password

 ▶ Integrated Peripherals             Save & Exit Setup

 ▶ Power Management          ┌──────────────────────────────┐ Saving
                             │ Load Optimized Defaults (Y/N)? N │
 ▶ PnP/PCI Configura         └──────────────────────────────┘


 Esc : Quit      F9 : Menu in BIOS      ↑ ↓ → ←   : Select Item
 F10 : Save & Exit Setup

                     Load Optimized Defaults
```

Note: *"Load Optimized Defaults" loads the default system values directly from ROM. If the stored record created by the Setup program should ever become corrupted (and therefore unusable).*

These defaults will load automatically when you turn ARK-1370 on.

4.2.10 Set Password

```
            Phoenix - AwardBIOS CMOS Setup Utility

  ▶ Standard CMOS Features          ▶ PC Health Status
  ▶ Advanced BIOS Features             Load Optimized Defaults
  ▶ Advanced Chipset Features          Set Password
  ▶ Integrated Peripherals             Save & Exit Setup
  ▶ Power Management Setup             Exit Without Saving
  ▶ PnP/PCI Configurati  Enter Password:


  Esc : Quit    F9 : Menu in BIOS      ↑ ↓ → ←  : Select Item
  F10 : Save & Exit Setup

                   Change/Set/Disable Password
```

Note: *To enable this feature, you should first go to the Advanced BIOS Features menu, choose the Security Option, and select either Setup or System, depending on which aspect you want password protected. Setup requires a password only to enter Setup. System requires a password either to enter Setup or to boot the system. A password may be at most 8 characters long.*

To Establish Password

1.   Choose the Set Password option from the CMOS Setup Utility main menu and press <Enter>.

2.   When you see "Enter Password", enter the desired password and press <Enter>.

3.   At the "Confirm Password" prompt, retype the desired password, then press <Enter>.

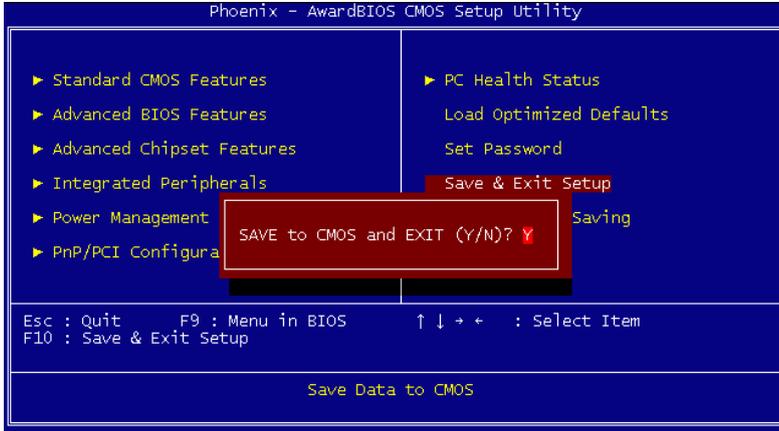4.   Select Save to CMOS and EXIT, type <Y>, then <Enter>.
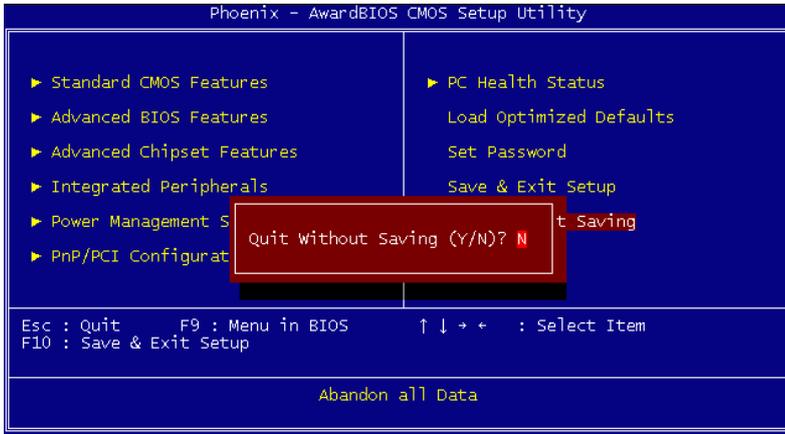
To Change Password

1. Choose the "Set Password" option from the CMOS Setup Utility main menu and press <Enter>.
2. When you see "Enter Password", input the existing password and press <Enter>.
3. You will see "Confirm Password". Type it again, and press <Enter>.
4. Select "Set Password" again, and at the "Enter Password" prompt, input the new password and press <Enter>.
5. At the "Confirm Password" prompt, retype the new password, and press <Enter>.
6. Select Save to CMOS and EXIT, type <Y>, then <Enter>.

To Disable Password

1. Choose the "Set Password" option from the CMOS Setup Utility main menu and press <Enter>.
2. When you see "Enter Password", input the existing password and press <Enter>.
3. You will see "Confirm Password". Type it again, and press <Enter>.
4. Select "Set Password" again, and at the "Enter Password" prompt, please don't enter anything; just press <Enter>.
5. At the "Confirm Password" prompt, again, don't type in anything, just press <Enter>.
6. Select Save to CMOS and EXIT, type <Y>, then <Enter>.

4.2.11 Save & Exit Setup

```
             Phoenix - AwardBIOS CMOS Setup Utility

  ▶ Standard CMOS Features          ▶ PC Health Status
  ▶ Advanced BIOS Features             Load Optimized Defaults
  ▶ Advanced Chipset Features          Set Password
  ▶ Integrated Peripherals             Save & Exit Setup
  ▶ Power Management                                   Saving
  ▶ PnP/PCI Configura      SAVE to CMOS and EXIT (Y/N)? Y


  Esc : Quit      F9 : Menu in BIOS    ↑ ↓ → ←   : Select Item
  F10 : Save & Exit Setup

                    Save Data to CMOS
```

Note: *Type "Y" will quit the BIOS Setup Utility and save user*
              setup value to CMOS.

              Type "N" will return to BIOS Setup Utility.

4.2.12 Quit Without Saving

```
             Phoenix - AwardBIOS CMOS Setup Utility

  ▶ Standard CMOS Features          ▶ PC Health Status
  ▶ Advanced BIOS Features             Load Optimized Defaults
  ▶ Advanced Chipset Features          Set Password
  ▶ Integrated Peripherals             Save & Exit Setup
  ▶ Power Management S                               t Saving
  ▶ PnP/PCI Configurat   Quit Without Saving (Y/N)? N


  Esc : Quit      F9 : Menu in BIOS    ↑ ↓ → ←   : Select Item
  F10 : Save & Exit Setup

                    Abandon all Data
```

Note: *Type "Y" will quit the BIOS Setup Utility and without-*
              saving to CMOS.

              Type "N" will return to BIOS Setup Utility.

CHAPTER **5**

PCI XGA/LCD Setup

This chapter details the software configuration information. It shows you how to configure the card to match your application requirements. The AWARD System BIOS is covered in Chapter 4.

Sections include:

- CMOS setting for panel type
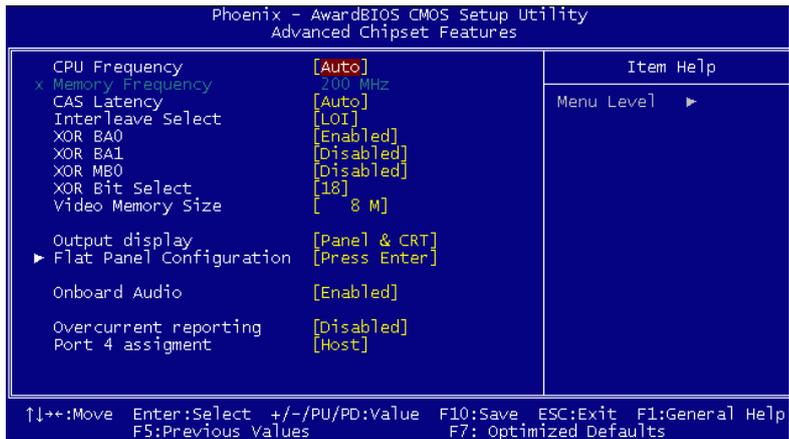- Dual independent display setting

Chapter 5   PCI XGA/LCD Setup

5.1   Introduction

ARK-1370 has an onboard AMD LX800 chipset for its AGP/XGA con-
troller. It supports LVDS LCD displays and conventional analog CRT
monitors with 64 MB frame buffer shared with system memory. The
VGA controller can drive CRT displays with resolutions up to 1024 x 768
@ 85-Hz and 1600 x 1200 @ 75-Hz and supports 2 channel LVDS dis-
play mode up to XGA panel resolution with frequency range from 25-
MHz to 165-MHz

5.1.1   CMOS setting for panel type

ARK-1370 BIOS and custom drivers are located in a 512 KB Flash ROM
device, designated U1 on system motherboard of ARK-1370. A single
Flash chip holds the system BIOS, VGA BIOS and network Boot ROM
image. The display can be configured via CMOS settings. This method
shows the "Output display" selection items of Advanced Chipset Features
of the Award BIOS Setup.

Figure 5.1: Advanced Chipset features screen

5.1.2 Display type

ARK-1370 can be set in one of three configurations: on a Flat Panel (LVDS), on a CRT, or on Panel & CRT (both dual independent displays). The system is initially set to "Panel & CRT".

5.1.3 Dual Independent Display

ARK-1370 uses an AMD LX800 controller that is capable of providing multiple views and simultaneous displays with mixed video and graphics on a flat panel and CRT. To set up dual display under Windows XPE follow these steps:

1.   Select "Start", "Control panel", "Display", "Setting", "Advanced", "GeodeLX Settings", "Output Select".
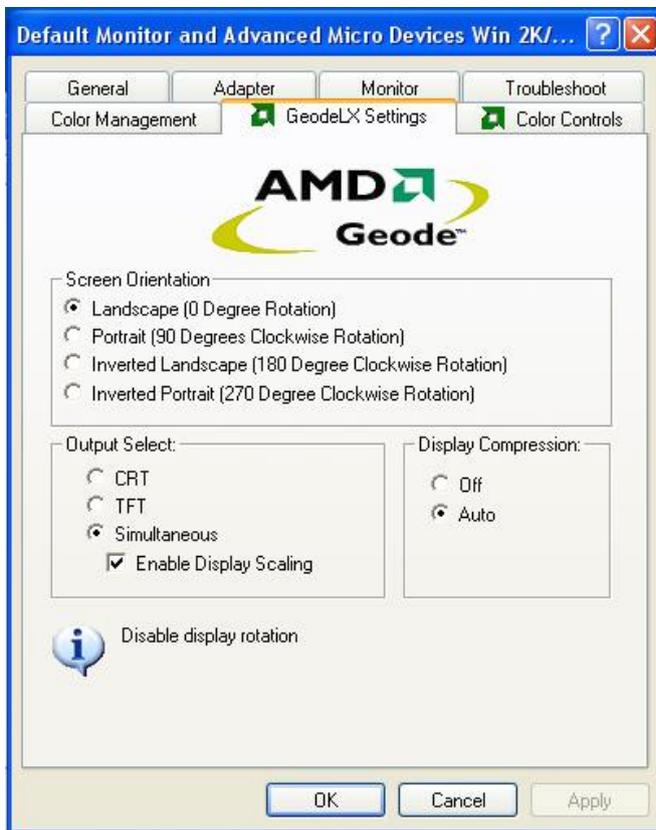
Figure 5.2: AMD LX800 Graphics Controller Properties - Devices

2.   Click "OK".

CHAPTER **6**

Full Disassembly Procedure

This chapter details the system disassembly procedure for installation and maintenance.

Chapter 6 Full Disassembly Procedure

6.1 Introduction

If you want to completely disassemble ARK-1370, follow the step-by-step procedures below. Users should be aware that Advantech Co., Ltd. takes no responsibility whatsoever for any problems or damage caused by the user disassembly of ARK-1370. Make sure the power cord of ARK-1370 is unplugged before you start disassembly.

1. Unscrew the 6 screws on the bottom side.
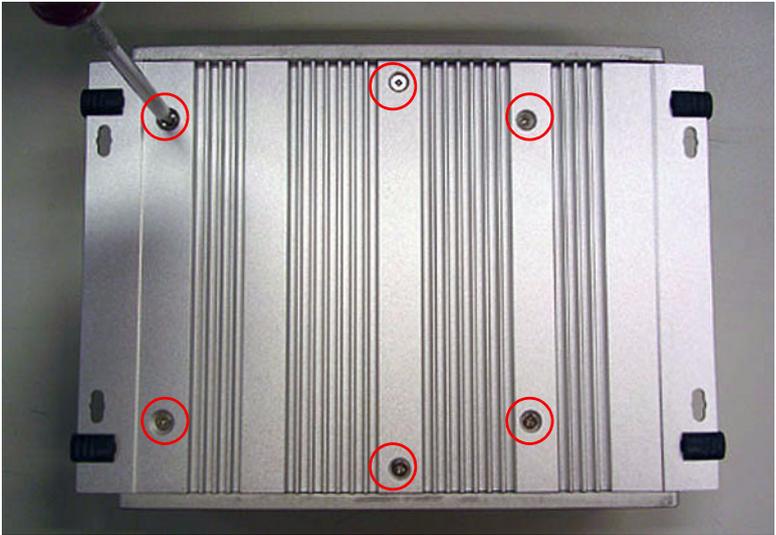
Figure 6.1: Unscrew the 6 screws on the bottom side

2. Unscrew the 4 screws on the front side frame.

Figure 6.2: Unscrew the 4 screws on the front side frame

3. Unscrew the 2 screws on the front face plate.

Figure 6.3: Unscrew the 2 screws on the front face plate

4. Unscrew the 4 Hex-bolt on the front face plate.

Figure 6.4: Unscrew the 4 Hex-bolt on the front face plate

5. Unscrew the 4 screws on the rear side frame.

Figure 6.5: Unscrew the 4 screws on the rear side frame

6.   Unscrew the 2 screws on the rear face plate.

Figure 6.6: Unscrew the 2 screws on the rear face plate
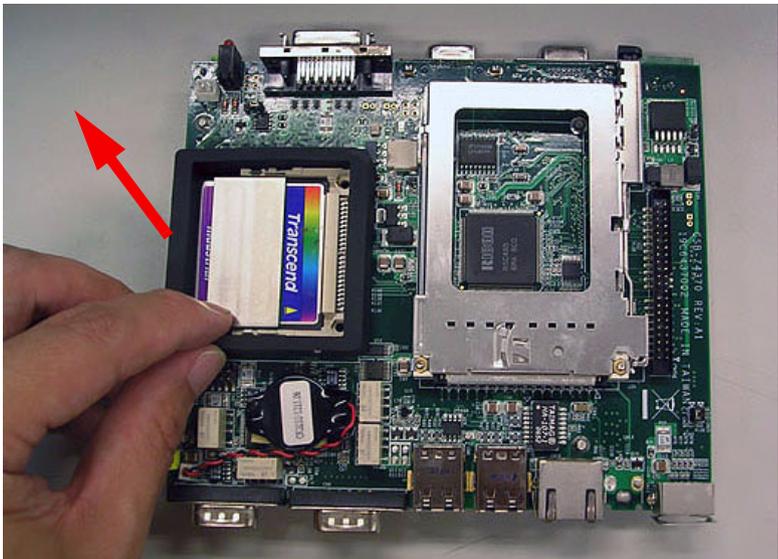
7.   Unscrew the 6 Hex-bolt on the rear face plate.

Figure 6.7: Unscrew the 6 Hex-bolt on the rear face plate

8.   Pull out the carrier board from the Aluminum case.

Figure 6.8: Pull out the carrier board from the aluminum case

9.   Remove the CF card anti-shock holder.
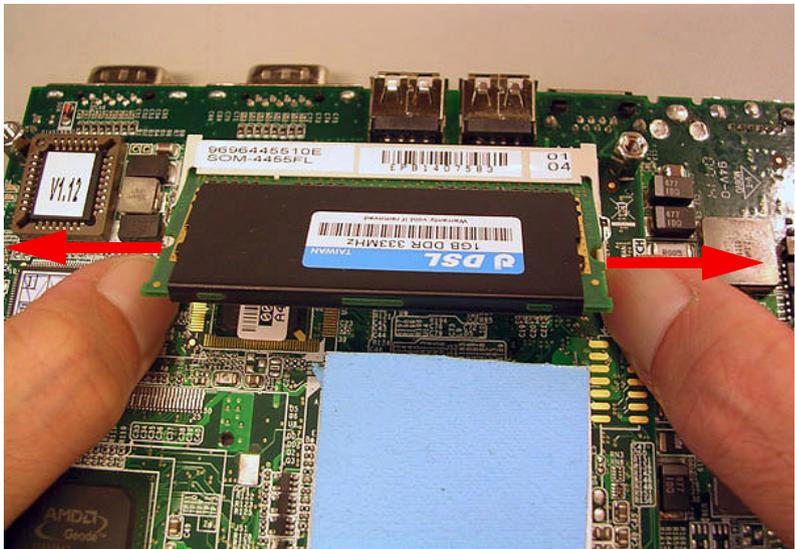

Figure 6.9: Remove the CF card anti-shock holder

10.   Remove the CF card.

Figure 6.10: Remove the CF card

11.   Turn over the carrier board, remove the DRAM module.

Figure 6.11: Turn over the carrier board and remove the DRAM module