

EMI TEST REPORT



Report Number : KSQ-FCC020710

Appendix B: User's Manual

Compact PC ARIEL-200



User's Manual

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This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) This device must accept any interference received, including interference that may cause undesired operation.

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communication. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures :

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

NOTE : The manufacturer is not responsible for any radio or TV interference caused by unauthorized modifications to this equipment. Such modifications could void the user's authority to operate the equipment.

CHAPTER

▶ 1

System Description

Sections include :

- Getting Started
- Software Operation and Setup

1. GETTING STATED

This chapter provides the essentials needed to get your ARIEL-200 computer up and running quickly.

Unpacking

The ARIEL-200 box contains the following items



<ARIEL-200 >



<AC/DC Adapter and AC Power Cord>



<Manual CD(User's Guide)>

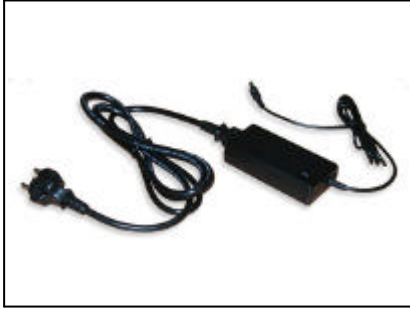


<Prop>

Connecting the AC Adapter

Use the following steps to connect AC power to this product.

- 1) Unwrap the AC/DC Adapter and AC power cord.
- 2) Connect the AC/DC Adapter to the AC power cord.

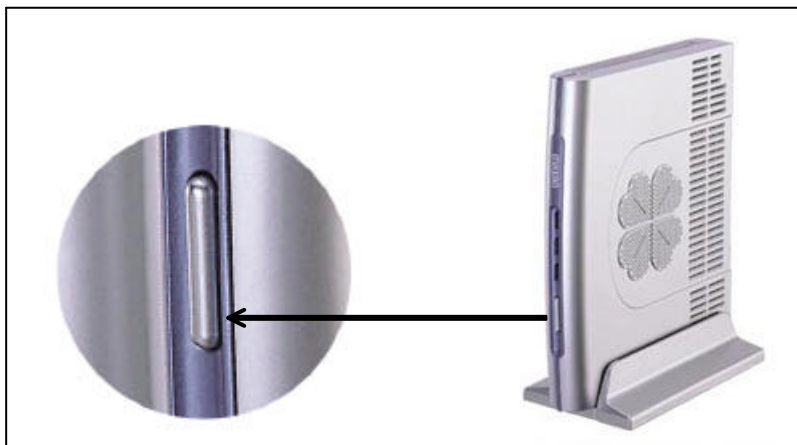


- 3) Connect the DC power plug into the Power connector on the back of the ARIEL-200



- 4) Insert the plug end of the power cord into a grounded AC wall outlet.

Turning on the ARIEL-200



The power switch is located to the right of the front. Push power button to turn the Ariel-200 on. After a few seconds, the screen is displayed.

When you turn the power on, the ARIEL-200 automatically performs a POST (Power On Self Test). When the test completes successfully, the ARIEL-200 loads the operation system from the HDD, Compact Flash, etc.

Turning off the ARIEL-200

Use the following steps to turn off the ARIEL-200.

Warning -

Failure to perform the following steps may result in lost data

1. Save all data and Exit your current application.
2. Click the start button located in the lower left corner of the windows screen, and then click on shut down.
3. If you forget to save changes to documents, windows prompts you to save changes before shutting down.
4. If you are sure you want to shut down the computer, the ARIEL-200 turns off automatically.

You can manually turn off the computer in MS-DOS mode or Windows 3.1 by pressing the power switch. But, you need to shut down Windows 98 SE before you turn off or restart your computer.

Warning -

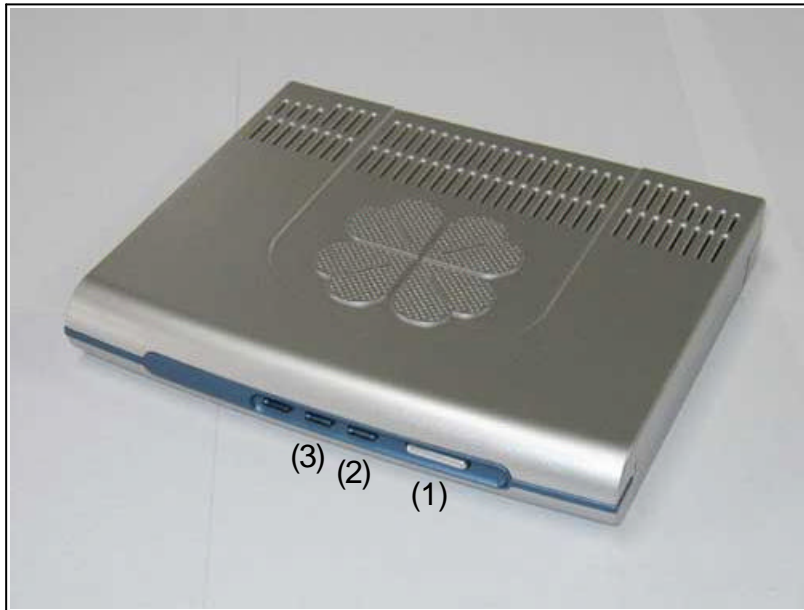
To avoid damaging files in Windows 98 SE, always shut down Windows before you turn off the ARIEL-200. If you want to turn on the power again, wait at least 10 seconds after power off.

Indicators and connectors

The following section contains figures and corresponding tables detailing the connectors and indicators on each side of ARIEL-200.



Item	Description
(1)	USB Port 1
(2)	USB Port 2
(3)	PS/2 External Keyboard or Mouse
(4)	External condenser Microphone Jack
(5)	Headphone Jack
(6)	External CRT display connector
(7)	Ethernet RJ-45 Jack used only when internal LAN chip is built in the system
(8)	DC-In Connector



Item	Description
(1)	Power button when you shut down the system, please wait 4 seconds.
(2)	Light when the ARIEL is on and HDD is being accessed.
(3)	Indicates that system is being accessed to the Ethernet.

2. Software Operation and Setup

The following software and drivers are pre-installed on your ARIEL-200. Below Windows 98 SE is option.

- 1) Microsoft Windows 98 SE
- 2) Video Driver
- 3) PCI Bus Driver
- 4) LAN Driver
- 5) Audio Driver

The following sections will explain how you can optimize this software for Windows 98 SE. Please refer to the enclosed Windows 98 SE manual for more detailed information on use and optimization of Windows 98 SE.

Video Driver

The GX1 processor integrates a host of functions typically implemented with external components. A full function graphics accelerator contains a VGA (video graphics array) controller, bitBLT engine, and a ROP (raster operations) unit for complete GUI acceleration under most operating systems.

A display controller contains additional video buffering to enable >30 fps MPEG1 playback and video overlay when used with a National Semiconductor Geode I/O or graphics companion chip (e.g., CS5530 or CS9211).

To install the Video Driver in Windows 98 SE, perform the following;

- 1) Click the right button of mouse on the **My Computer** icon.
- 2) Select the **Device Manager**.
- 3) Select the Display Adapter and click the **Properties** button.
- 4) Select the Driver and click the **Update Driver**.
- 5) System performs Update Device Driver Wizard. The Standard PCI Graphics Adapter (VGA) is driver which system installed during the process of installation of Windows 98 SE. Click the **Next** button.
- 6) Click the **Next** button.
- 7) Click the Specify a location item and click the **Browse** button.
- 8) Click the **Cancel** button.
- 9) Select the correct location of **Driver** file.
- 10) Click the **OK** button.
- 11) Click the **Next** button.
- 12) Click the **Next** button.

- 13) Click the **Finish** button.
- 14) Click the **Yes** button.

Now you are ready to use Video driver. After restarting system, you need to change display properties to use the higher resolution of display.

- 1) Double click the **My Computer** icon and click the **Control Panel** icon.
- 2) Click the **Display** icon.
- 3) Click the **Settings** menu.
- 4) Adjust the resolution of display.
- 5) Click the **Apply** button.
- 6) Click the **OK** button.
- 7) Click the **Yes** button.
- 8) Click the **Color Box** button.
- 9) Select the color which you want to use and click the **Apply** button.
- 10) Click the **OK** button.
- 11) Select the second menu. Apply the New Color Settings Without Restarting? and click the **OK** button.

PCI Device Driver

The PCI Bus Driver in your ARIEL-200 has already installed in your system and this driver is specific to the brand of type of system core chipset.

To install the PCI Bus Driver in Windows 98 SE, perform the following;

- 1) Click the right button of mouse on the **My Computer** icon and click the **Properties** menu.
- 2) Select the **Device Manager** menu.
- 3) Select PCI Bridge.
- 4) Click the **Properties** button.
- 5) Select the **Driver** menu and click **Update Driver**.

- 6) Click the **Next** button.
- 7) Click the **Next** button.
- 8) Click the **Specify a location** and click the **Browse**.
- 9) Select the **Location of correct driver file** and click the **OK** button.
- 10) Click the **Next** button.
- 11) Click the **Next** button.
- 12) Click the **Finish** button.

LAN Driver

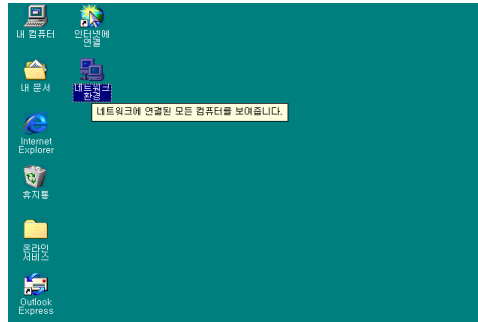
The Realtek RTL8139C(L) is a highly integrated and cost-effective single-chip Fast Ethernet controller that provides 32-bit performance, PCI bus master capability, and full compliance with IEEE 802.3u 100Base-T specifications and IEEE 802.3x Full Duplex Flow Control. It also supports Advanced Configuration Power management Inter-face (ACPI), PCI power management for modern operating systems that is capable of Operating System Directed Power Management (OSPM) to achieve the most efficient power management. The RTL8139CL is suitable for the applications of Card Bus or mobile with built-in network controller. The CIS data can be stored in either 93C56 EEPROM or expansion ROM.

To install the LAN Driver in Windows 98 SE, perform the following;

- 1) Click the right button of mouse on the **My Computer** icon and click the **Properties**.
- 2) Select Device Manager and select PCI Ethernet Controller and click the **Properties**.
- 3) Select **Driver** menu and click **Update Driver**.
- 4) Click the **Next** button.
- 5) Click the **Next** button.
- 6) Click the **Specify a location item** and click the **Browse** button.
- 7) Select the correct driver file and click **OK** button.
- 8) Click the **Next** button.

- 9) Click the **Next** button.
- 10) Click the **Finish** and click the **Yes** button.

If it is finished correctly, system displays an icon on the Desktop.



- 1) Click the right button of mouse on the Network Neighborhood icon and click the **Properties**.
- 2) Select Client for Microsoft Network on the box menu and click the **Properties** button.
- 3) Check Log on to Windows NT domain and write your domain on the box and click the **OK** button.
- 4) Check the TCP/IP menu and click the **Properties**.
- 5) Select IP address and write the correct IP address and Subnet Mask.
- 6) Select the DNS configuration and write correct DNS configuration.
- 7) Select the Gateway and write correct Gateway and click **OK** button.
- 8) Select the Identification and write correct information.
- 9) Select the Configuration and check the Primary Network Log On and click **OK**.

After restarting your system, Windows 98 SE request user name, password. If you write correct information, system log on the Network. But you dont access the internet.

You need additionally to assign some information for internet.

- 1) Click the right button on the mouse and click the **Properties**.
- 2) Click the **Connections** menu.

- 3) Click the **Setup** menu.
- 4) Check the third menu, LAN, and click the **Next** button.
- 5) Check the second menu, LAN, and click the **Next** button.
- 6) Uncheck all items and click the **Next** button.
- 7) If you wish to assign e-mail, check **Yes** and click the **Next** button.
- 8) Click the **Finish** button.

Audio Driver

Audio is supported through PCI bus master engines which connect to an AC97 compatible codec such as the National Semiconductor LM4548. If industry standard audio is required, a combination of hardware and software called Virtual System Architecture® (VSA) technology is provided. The Audio Drivers support Windows 98 SE. It provides Digital Audio Record and Play function.

To install the Audio Driver in Windows 98 SE, perform the following;

- 1) Click the right button on the mouse and click the **Properties**.
- 2) Select Device Manager and check PCI multimedia Audio Device and click the **Properties**.
- 3) Select the Driver and click **Update Driver**.
- 4) Click the **Next** button.
- 5) Click the **Next** button.
- 6) Check the Specify the location and click the **Browse** button.
- 7) Select the correct location of driver file and click **OK** button.
- 8) Click the **Next** button.
- 9) Click the **Next** button.

The Audio Driver is installed. Also you need to install additional driver.

- 1) Double click the **My Computer** icon and click **Control panel** icon.
- 2) Click the Add new Hardware.

- 3) Click the **Next** button.
- 4) Click the **Next** button.
- 5) Select the second menu, NO, and click the **Next** button.
- 6) Select Sound, Video and game controllers on the box and click the **Next** button.
- 7) Click the **Have Disk** button.
- 8) Click the **Browse** button.
- 9) Select the correct location of driver file and click **OK** button.
- 10) Click the **OK** button.
- 11) Select Device (Legacy Audio - 16bit sound) and click **OK** button.
- 12) Click the **Next** button.
- 13) Click the **Finish** button.
- 14) Click the **Yes** button.

Now you got the sound. After restarting the system, system shows speaker the right corner like below picture.



Notice

- 1) Turn off system power before removing the AC adapter.
- 2) Use only the quality & safety-approved AC/DC adapter.
- 3) Disconnect the power plug from the AC outlet when the product is not in use for a long period of time.
- 4) Dont expose this product to extremely hot, cold of humid environments during operation.
- 5) Dont expose this product to area susceptible to dust, moisture or water.
- 6) Dont expose this product to direct sunlight.

CHAPTER

▶ 2

BOARD INFORMATION

This chapter provides background information for ARIEL-200 Main / Option Board

Sections include :

- Board Specifications

SPECIFICATIONS

▶ **Standard SBC Functions**

CPU : NS Geode Gx1 300MHz Processor

IO Chipset : SMSC FDC37B782

Chipset : National CS5530A

Memory : Onboard One SODIMM socket up to 128MB

Enhanced IDE : Supports up to two IDE devices

Supports Ultra DMA/33 mode with data transfer rate 33MB/sec.

KB/Mouse : Supports PS2 Keyboard/Mouse

USB : Two USB connector

DiskOnChip : TSSOP II Type

Battery : Lithium Battery for data retention of up to 10 years

▶ **Expansion Slots**

PCI Slot : One 32-bit PCI slot onboard

▶ **CRT Interface**

Chipset : National CS5530A

Display Memory : UMA supports up to 4MB Linear Frame buffer

Display Type : CRT display

Resolution : Up to 1280 x 1024, 256 colors/16bit high color

▶ **Ethernet Interface**

Chipset : Realtek RTL8139C 10/100-T controller

Interface : Onboard 10/100 Base-T RJ-45 connector

▶ **Option Unit**

One PCMCIA Card Bus, Type II Slot

Two RS-232 Serial Ports. One Parallel port, bi-directional centronics compatible

▶ **Audio Interface**

AD1819B AC97 codec chip.

1 Mono MIC Input, 1 Stereo LINE level output.

▶ **SSD Interface**

One CF Card connector

▶ **Mechanical Environments**

Power Supply Voltage : 12V @ 3A

Operating Temperature : 0 °C~ 60 °C

Adapter Operating Temperature : 0 °C~ 45 °C

Dimension : 193mm(W) X 163mm(D) X29mm(H)

Weight : Standard. (1.66kg), Standard + Option (2.00Kg)

CHAPTER

▶ 3

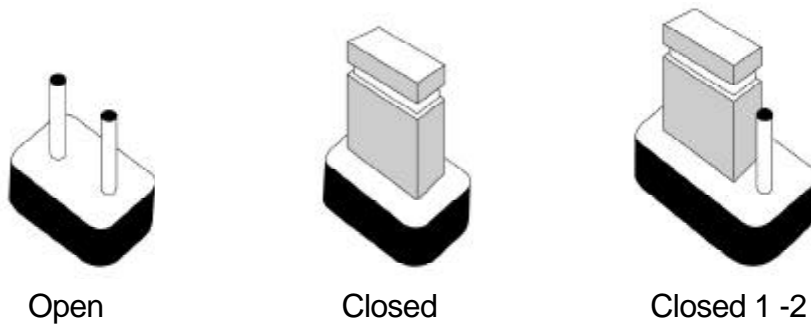
BOARD INSTALLATION

This chapter explains set up procedures for Ariel-200 Board hardware, including instructions on setting jumpers and connecting peripherals, switches and indicators. Be sure to read all safety precautions before you begin the installation procedure.

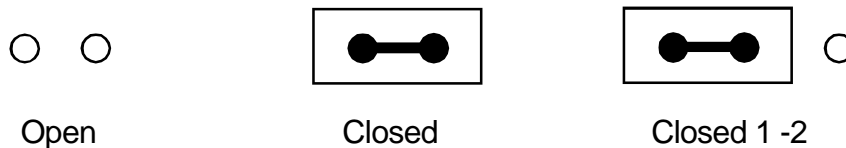
➡ SETTING JUMPER

You configure your board to match the needs of your application by setting jumpers. A jumper is the simplest kind of electric 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 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 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.

⏪ SAFETY PRECAUTIONS

Warning



Always completely disconnect the power cord from your chassis whenever you are working on it. Do not make connections while the power is on because sensitive electronic components can be damaged by the sudden rush of power. Only experienced electronics personnel should open the PC chassis.

Caution



Always ground yourself to remove any static charge before touching the CPU board. Modern electronic devices are very sensitive to static electric charges. Use a grounding wrist strap at all times. Place all electronic components on a static - dissipative surface or in a static - shielded bag when they are not in the chassis.

Ariel-200 Main Board

CONNECTORS

CONNECTORS	
LOCATION	FUNCTION
P2	CF Card
P3	Serial1,2 & Parallel Connector
P4	IDE Connector
P6	CRT Connector
P12	JACK DC
P13	USB-1
P14	USB-2
P15	KB/Mouse
J1	MIC
J3	Line Out

➡ P4 : IDE Connector

PIN	SIGNAL	PIN	SIGNAL
1	IDESRSTR#	2	GND
3	IDE7	4	IDE8
5	IDE6	6	IDE9
7	IDE5	8	IDE10
9	IDE4	10	IDE11
11	IDE3	12	IDE12
13	IDE2	14	IDE13
15	IDE1	16	IDE14
17	IDE0	18	IDE15
19	GND	20	NC
21	IDEPDREQ	22	GND
23	IDEPIOWR#	24	GND
25	IDEPIORR#	26	GND
27	IDEPIORDY	28	NC
29	IDEPDACKR#	30	GND
31	IRQ14	32	NC
33	IDEAR1	34	NC
35	IDEAR0	36	IDEAR2
37	IDECSR0#	38	IDECSR1#
39	HDDLED	40	GND
41	VCC	42	VCC
43	GND	44	GND

➡ P6 : CRT Connector

PIN	SIGNAL	PIN	SIGNAL
1	RED	2	GREEN
3	BLUE	4	NC
5	GND	6	GND
7	GND	8	GND
9	VCC	10	GND
11	NC	12	DDC-SDA
13	H-SYNCB	14	V-SYNCB
15	DDC-SCL		

➡ P10 : LAN Connector

PIN	SIGNAL	PIN	SIGNAL
1	TX+	2	TX-
3	RX+	4	NC
5	NC	6	RX-
7	NC	8	NC

➡ P12 : DC JACK

PIN	SIGNAL	PIN	SIGNAL
1	DC 12V	2	GND
3	GND		

➡ P13 : USB - 1

PIN	SIGNAL	PIN	SIGNAL
1	GND	2	USBDATA1+
3	USBDATA1-	4	VCC

➡ P14 : USB - 2

PIN	SIGNAL	PIN	SIGNAL
1	GND	2	USBDATA2+
3	USBDATA2-	4	VCC

➡ P15 : Keyboard / Mouse Connector

PIN	SIGNAL	PIN	SIGNAL
1	KB_DATA	2	MS_DATA
3	GND	4	VCC
5	KB_CLK	6	MS_CLK

➡ J1 : MIC

PHONE JACK STEREO			
1	AUDGND	2	MIC_IN
3	NC	4	NC
5	NC		

➡ J3 : LINE_OUT

J3 : PHONE STEREO			
1	AUDGND	2	LINE_OUTL
3	NC	4	LINE_OUTR
5	NC		

➡ J5 : POWER SW

J5 : POWER SW			
1	GND	2	BUTTON_IN

➡ JP4 : CMOS CLEAR

JP4 CMOS CLEAR	
1 - 2	NORMAL
2 - 3	CMOS CLEAR

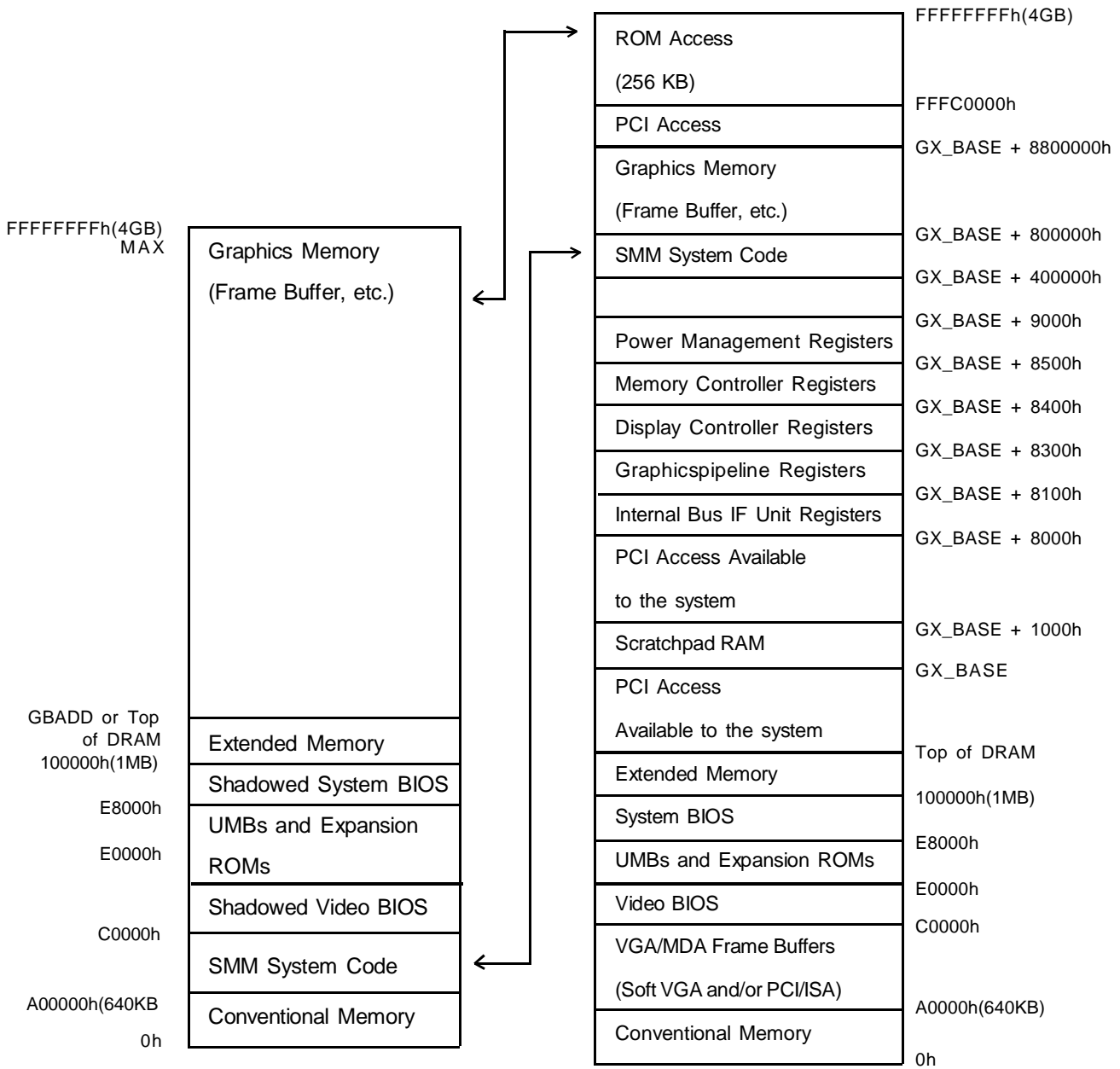
CHAPTER



▶ 4

Technical Information

Memory Map



* GX_BASE = x40000000h

< GX1 Processor Memory Space >

x000A0000 - x000AFFFF	National Semiconductor XpressGRAPHICS(TM)
x000B0000 - x000BFFFF	National Semiconductor XpressGRAPHICS(TM)
x000C0000 - x000C7FFF	National Semiconductor XpressGRAPHICS(TM)
x40010000 - x40010FFF	National Semiconductor XpressGRAPHICS(TM)
x40011000 - x4001107F	National XpressAUDIO(TM) PCI Bridge
x40012000 - x400120FF	PCI Bridge
x40800000 - x40FFFFFF	National Semiconductor XpressGRAPHICS(TM)
xC0000000 - xC00000FF	Realtek RTL8139(A/B/C/8130) PCI Fast Ethernet NIC
xC0004000 - xC0004FFF	Compaq PCI to USB Open Host Controller

I/O MAP

I/O Port(Hex)	Aliased Address(Hex)	Description
0000h ~ 000Fh	0010h ~ 001Fh	DMA Controller 1
0020h, 0021h	0024h, 0025h, 0028h ~ 0031h, 002Ch, 002Dh, 0034h, 0035h, 0038h, 0039h, 003Ch, 003Dh	Interrupt Controller 1
02Eh, 02Fh	~	Super I/O Configuration
0040h ~ 0043h	0050h ~ 0053h	System Timer
0048h ~ 004Bh	~	System Timer
0050 ~ 005Fh	~	On board RAS Registers
0060h	~	Keyboard Controller Data Byte
0061h	0063h, 0065h, 0067h	System Speaker Control, NMI
0064h	~	Keyboard Controller
0070h	0072h, 0074h, 0076h	NMI & RTC
0071h	0073h, 0075h, 0077h	RTC Data
0072h, 0073h	~	RTC Extended index
0078h	~	Watchdog Port
0079h, 007Ah	~	System Port
0080h ~ 008Fh	0090h ~ 009Fh	DMA Page Registers
00A0h, 00A1h	00A4h, 00A5h, 00A8h, 00A9h, 00Ach, 00Adh, 00B0h, 00B1h, 00B4h, 00B5h, 00B8h, 00B9h, 00BCh, 00BDh	Interrupt 2
00Bh, 00B3h	~	Advanced Power Management
00C0h ~ 00DFh	~	DMA Controller 2
00F0h	~	FPU Error Register
170h ~ 177h	~	Secondary IDE Channel
1F0h ~ 1F7h	~	Primary IDE Channel
0220h ~ 022Fh	~	Serial Port(Reserved)/ Sound
0228h ~ 022Fh	~	Serial Port (Reserved)
0238h ~ 023Fh	~	Serial Port (Reserved)
0240h ~ 024Fh	~	Sound(Reserved)
0278h ~ 027Fh	~	Parallel Port (Reserved)
02E0h ~ 02E7h	~	Serial Port (Reserved)
02E8h ~ 02EFh	~	Serial Port (COM4 – Reserved)
02F8h ~ 02FFh	~	Serial Port (COM2)
0300h ~ 030Fh	~	Sound(Reserved)

0320h ~ 032Fh	Sound(Reserved)
0330h ~ 034Fh	Sound(Reserved)
0376h, 0377h	Secondary IDE Chan Port
0378h ~ 037Fh	Parallel Port
0388h	Sound(Reserved)
03B0h~03BBh,03BFh	Monochrome Adapter
03BCh ~ 03BFh	Parallel Port(LPT A)
03C0h ~ 03CFh	EGA(Primary)
03D0h ~ 03DFh	CGA
03E8h ~ 03EFh	Serial Port(COM3-reserved)
03F0h ~ 03F7h	FDD Controller
03F6h	Primary IDE Port
03F7h	Primary IDE Port & FDD
03F6h	Primary IDE Port
03F7h	Primary IDE Port & FDD
03F8h ~ 03FFh	Serial Port (COM1)
1000h ~ 100Fh	SM Bus
LPT + 400h	ECP Port
04D0h, 04D1h	INT-1, INT-2 Edge/Level Control
0CF9h	Reset Control Register
0CF8h ~ 0CFBh	PCI Config Address Registers
0CFCh ~ 0CFFh	PCI Config Data Registers
FC00h ~ FFFFh	PCI Device Registers

PCI Device

(Unit : Hex)

BUS Number	Device Number	Function Number	Description
			CS5530A Chip Selector
0	0	0	Host Bridge
0	12	0	ISA Bridge
0	12	1	PCI Bridge
0	12	2	IDE Controller
0	12	3	Audio
0	12	4	VGA Display
0	13		USB controller

IRQ

No.	Description
0	System timer
1	PC/AT 101Key compatible Keyboard/MS Natural Keyboard
2	Programmable Interrupt Controller
3	Serial Port (COM2)
4	Serial Port (COM1)
5	Sound
6	(Available)
7	Parallel Port
8	System CMOS/Real time Clock
9	PCI Steering IRQ Holder
10	(Available)
11	PCI Steering IRQ Holder
12	Standard PS/2 Port Mouse
13	Coprocessor
14	Basic IDE Controller (Single FIFO), Standard dual PCI IDE Controller
15	(Available)

- Basically, PCI Device' IRQ is changed if system BIOS is changed.
- Available PCI Device' s IRQ are 9,10, 15.

DMA

No.	Description
0	System only use this
1	Sound
2	Generally FDC is using, but this is removed. So it is available.
3	LPT is using.
4	Direct Memory Access Controller.
5	Sound
6	(Available)
7	(Available)