COM-1814CLNAR

COM-Express Dual Core Motherboard

Version: A0

Announcement

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Before purchasing, please have a detailed understanding of the product performance to see whether it meets your requirements.

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Safety Instructions

1. Please carefully read the users' manual before handling the product;
2. For the board which is not ready to be installed, please put it in the anti-static packaging;
3. Before taking the board out from anti-static packaging, please put your hand on grounded metal object for a while (about 10 seconds) to discharge static;
4. Please wear static protective gloves when holding the board; and always hold the board by edges;
5. Before inserting, removing or re-configuring the motherboard or the expansion card, please firstly disconnect the AC power or unplug the AC power cable from the power source to prevent damage to the product and ensure your personal safety;
6. Before removing the boards or PC boxes, firstly turn off all power resources and unplug the power cable from power source;
7. For PC Box products, when inserting or removing boards, please disconnect the AC power in advance;
8. Before connecting or disconnecting any device, make sure all power cables are unplugged in advance;
9. To avoid unnecessary damage caused by turning on/off computer frequently, wait at least 30 seconds before re-turning on the computer.

Contents

Chapter 1 Product Introduction

Overview

COM-1814CLNAR is a sort of Type II motherboard aiming at embedded computer (COM-Express) PICMG specification. COM-Express is based on high-speed serial differential techniques, like PCI Express, SATA, USB 2.0, LVDS and serial SDVO. It also remains the support for traditional PCI bus to realize the smooth migration from the in existing modularized design. By reducing the time cost on processor design, the designer focuses on core competence and product differentiation; therefore, COM Express enables the OEM to shorten the time for product in coming into the market. There is no need to redesign the product to change the former function, alter the requirement and update the performance.

COM Express module could reduce the stock in trade required by service and maintenance and simplify product upgrading, which is helpful to the successful application of the product within its entire lifecycle.

COM-1814CLNAR also possesses the performance of Intel® Core™2 Duo and critical feature which is vital to the current embedded application. COM Express motherboard provides users with development platform that could be applied at once. Core™2 Duo processing capability of COM-1814CLNAR and the DDR3 1066/800MHz dual-channel SO-DIMM high-speed storage enables the embedded computer module to possess stronger processing capability. It becomes the ideal choice in the fields of electric power, medical equipment, airport controlling center and military, etc.

Mechanical Dimension, Weight and Environment

- Dimension: 125.00mm (L) x 95.00mm (W) x 18.00mm (H)
- Net Weight: 0.40Kg;
- Operating Environment:

  Temperature: 0°C ~ 60°C;

  Humidity: 5% ~ 95% (non-condensing);
- Storage Environment:

  Temperature: -40°C~ 100°C;

  Humidity: 5 % ~ 95 % (non-condensing);

Typical Consumption

CPU: Intel® Core™ 2 Duo T9400 2.53GHz

Memory: Samsung/2G/1066MHZ/M471B2874DZ1-CF8

- +5VSB@ 0.02A; +5%/-3%;
- +12V@ 0.94A; +5%/-3%;

CPU

Supports Intel® Penryn T9400/P8400 FSB 1066MHz BGA479 CPU

Chipset

Intel® GM45 + Intel® ICH9M-E

System Memory

Provides two 204-pin DDR3 memory slots, supporting un-buffered ECC, maximum memory capacity could be up to 8GB.

Video Function

Adopts Intel® GMA X4500 video chip; supports LVDS dual-channel output mode, LVDS and CRT could display at the same time; it also supports TV output, PCI-Express video card or HDMI display; maximum resolution supported by CRT is QXGA (2048x1536).

Storage Function

The motherboard supports four SATA2.0 interfaces and RAID0/1 function.

Network Function

Provides one 10/100/1000Mbps LAN port and supports Wake-On-LAN.

Power Feature

Adopts ATX power.

Expansion Bus

Provides two COM-Express slots and is compatible with COM-Express specification.

Watchdog Function

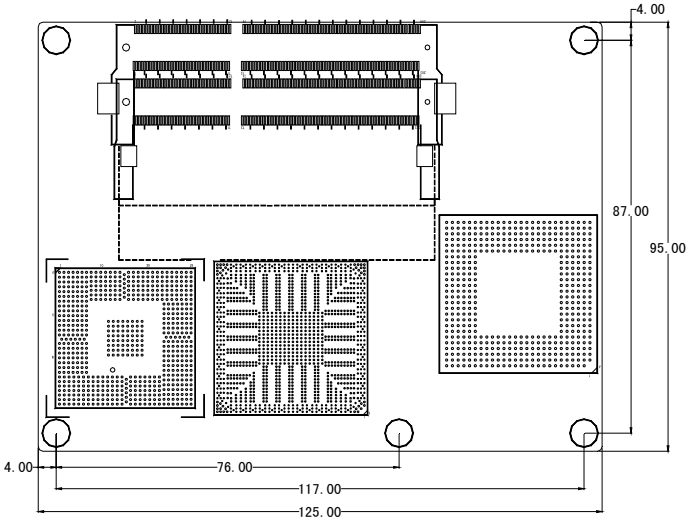
- Supports 256 levels, programmed by minute or second;
- Supports watchdog overtime or reset system.

I/O Interface

- Provides 4 x COMs, COM1 supports RS-232/RS-422/RS-485 mode selection;
- Provides 4 x SATA interfaces;
- Provides 8 x USB2.0 interfaces;
- Provides one PS/2 keyboard/mouse interface;
- Provides one 8-bit digital I/O interface.

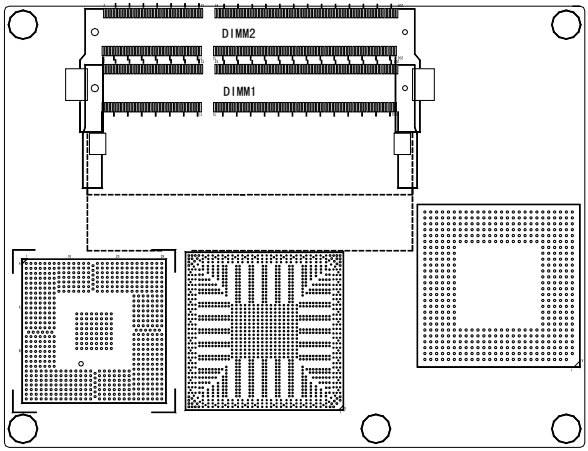
Chapter 2 Installation

Product Outline

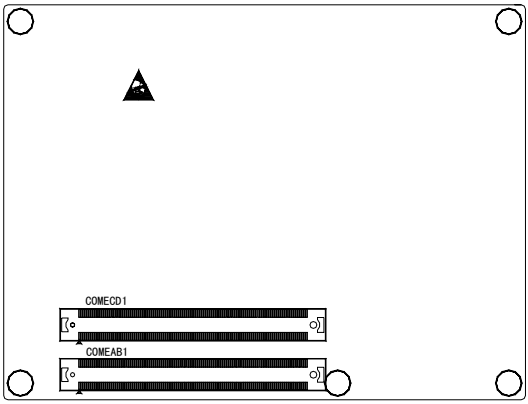


(Unit: mm)

Location of Interfaces

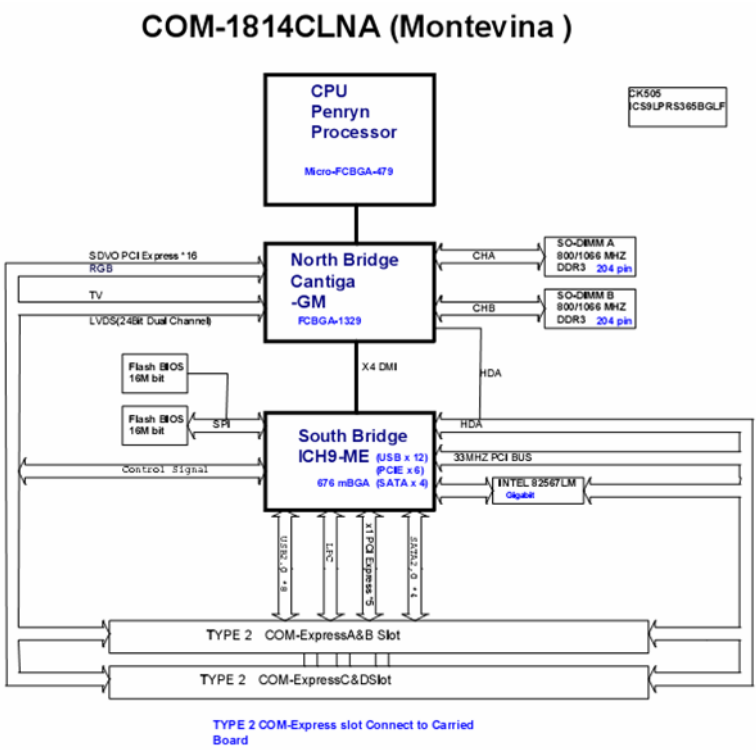


Front View



Rear View

Motherboard Structure



Tip: How to identify the first pin of the jumpers and interfaces

1. Observe the letter beside the socket, it would be marked with "1" or thickened lines or triangular symbols;
2. Observe the solder pad on the back, the square pad is the first pin;
3. The red line on the cable or other marks shows that they should be connected with the first pin of the socket.

Installation of System Memory

The board provides with two 204-pin DDR3 SO-DIMM memory slot (DIMM1 and DIMM2).

Pay attention as follows when installing the memory bank:

- During installation, align the gaps between SO-DIMM memory bank with memory slot and press properly to connect them;
- The DDR3 memory is compliant with 1.5V DDR3 1066/800MH memory specification supported by Intel Chipset can be used; memory capacity for a single slot is up to 4GB.
- It is recommended to use SO-DIMM memory with SPD to ensure stable operation.

COM-Express Slot

Marked as COMEAB1 and COMECD1 in figure (on the back of the board).

Note: NC: means no connect. The grey part represents NC or this function is not supported.

RSVD: represents reserved pin for other functional test, enabled via motherboard, and it is NC if there is no special requirement.

Pin definitions of COMEAB1 are listed as follows:

Pin	Signal Name	Pin	Signal Name
A1	GND（FIXED）	B1	GND (FIXED)
A2	GBE0_MDI3-	B2	GBE0_ACT#
A3	GBE0_MDI3+	B3	LPC_FRAME#
A4	GBE0_LINK100#	B4	LPC_AD0
A5	GBE0_LINK1000#	B5	LPC_AD1
A6	GBE0_MDI2-	B6	LPC_AD2
A7	GBE0_MDI2+	B7	LPC_AD3
A8	GBE0_LINK#	B8	LPC_DRQ0#
A9	GBE0_MDI1-	B9	LPC_DRQ1#
A10	GBE0_MDI1+	B10	LPC_CLK
A11	GND (FIXED)	B11	GND (FIXED)
A12	GBE0_MDI0-	B12	PWRBTN#
A13	GBE0_MDI0+	B13	SMB_CK
A14	GBE0_CTREF	B14	SMB_DAT
A15	SUS_S3#	B15	SMB_ALERT#
A16	SATA0_TX+	B16	SATA1_TX+
A17	SATA0_TX-	B17	SATA1_TX-
A18	SUS_S4#	B18	SUS_STAT#
A19	SATA0_RX+	B19	SATA1_RX+
A20	SATA0_RX-	B20	SATA1_RX-
A21	GND (FIXED)	B21	GND (FIXED)
A22	SATA2_TX+	B22	SATA3_TX+
A23	SATA2_TX-	B23	SATA3_TX-
A24	SUS_S5#	B24	PWR_OK
A25	SATA2_RX+	B25	SATA3_RX+
A26	SATA2_RX-	B26	SATA3_RX-
A27	BATLOW#	B27	WDT

Pin	Signal Name	Pin	Signal Name
A28	ATA_ACT#	B28	AC_SDIN2
A29	AC_SYNC	B29	AC_SDIN1
A30	AC_RST#	B30	AC_SDIN0
A31	GND (FIXED)	B31	GND (FIXED)
A32	AC_BITCLK	B32	SPKR
A33	AC_SDOUT	B33	I2C_CK
A34	BIOS_DISABLE# (Pull up on motherboard)	B34	I2C_DAT
A35	THERMTRIP# (Pull up on motherboard)	B35	THRM#
A36	USB6-	B36	USB7-
A37	USB6+	B37	USB7+
A38	USB_6_7_OC#	B38	USB_4_5_OC#
A39	USB4-	B39	USB5-
A40	USB4+	B40	USB5+
A41	GND (FIXED)	B41	GND (FIXED)
A42	USB2-	B42	USB3-
A43	USB2+	B43	USB3+
A44	USB_2_3_OC#	B44	USB_0_1_OC#
A45	USB0-	B45	USB1-
A46	USB0+	B46	USB1+
A47	VCC_RTC	B47	EXCD1_PERST#
A48	EXCD0_PERST#	B48	EXCD1_CPPE#
A49	EXCD0_CPPE#	B49	SYS_RESET#
A50	LPC_SERIRQ	B50	CB_RESET#
A51	GND(FIXED)	B51	GND(FIXED)
A52	PCIE_TX5+	B52	PCIE_RX5+
A53	PCIE_TX5-	B53	PCIE_RX5-

Pin	Signal Name	Pin	Signal Name
A54	GPI0	B54	GPO1
A55	PCIE_TX4+	B55	PCIE_RX4+
A56	PCIE_TX4-	B56	PCIE_RX4-
A57	GND	B57	GPO2
A58	PCIE_TX3+	B58	PCIE_RX3+
A59	PCIE_TX3-	B59	PCIE_RX3-
A60	GND(FIXED)	B60	GND(FIXED)
A61	PCIE_TX2+	B61	PCIE_RX2+
A62	PCIE_TX2-	B62	PCIE_RX2-
A63	GPI1	B63	GPO3
A64	PCIE_TX1+	B64	PCIE_RX1+
A65	PCIE_TX1-	B65	PCIE_RX1-
A66	GND	B66	WAKE0#
A67	GPI2	B67	WAKE1#
A68	PCIE_TX0+	B68	PCIE_RX0+
A69	PCIE_TX0-	B69	PCIE_RX0-
A70	GND(FIXED)	B70	GND(FIXED)
A71	LVDS_A0+	B71	LVDS_B0+
A72	LVDS_A0-	B72	LVDS_B0-
A73	LVDS_A1+	B73	LVDS_B1+
A74	LVDS_A1-	B74	LVDS_B1-
A75	LVDS_A2+	B75	LVDS_B2+
A76	LVDS_A2-	B76	LVDS_B2-
A77	LVDS_VDD_EN	B77	LVDS_B3+
A78	LVDS_A3+	B78	LVDS_B3-
A79	LVDS_A3-	B79	LVDS_BKLT_EN
A80	GND(FIXED)	B80	GND(FIXED)
A81	LVDS_A_CK+	B81	LVDS_B_CK+

Pin	Signal Name	Pin	Signal Name
A82	LVDS_A_CK-	B82	LVDS_B_CK-
A83	LVDS_I2C_CK	B83	LVDS_BKLT_CTRL
A84	LVDS_I2C_DAT	B84	+5V_SBY
A85	GPI3	B85	+5V_SBY
A86	KBD_RST#	B86	+5V_SBY
A87	KBD_A20GATE	B87	+5V_SBY
A88	PCIE0_CK_REF+	B88	RSVD
A89	PCIE0_CK_REF-	B89	VGA_RED
A90	GND(FIXED)	B90	GND(FIXED)
A91	RSVD	B91	VGA_GRN
A92	RSVD	B92	VGA_BLU
A93	GPO0	B93	VGA_HSYNC
A94	RSVD	B94	VGA_VSYNC
A95	RSVD	B95	VGA_I2C_CK
A96	GND	B96	VGA_I2C_DAT
A97	+12V	B97	TV_DAC_A
A98	+12V	B98	TV_DAC_B
A99	+12V	B99	TV_DAC_C
A100	GND(FIXED)	B100	GND(FIXED)
A101	+12V	B101	+12V
A102	+12V	B102	+12V
A103	+12V	B103	+12V
A104	+12V	B104	+12V
A105	+12V	B105	+12V
A106	+12V	B106	+12V
A107	+12V	B107	+12V
A108	+12V	B108	+12V
A109	+12V	B109	+12V
A110	GND(FIXED)	B110	GND(FIXED)

Pin definitions of COMECD1 are listed as follows:

Pin	Signal Name	Pin	Signal Name
C1	GND (FIXED)	D1	GND (FIXED)
C2	IDE_D7	D2	IDE_D5
C3	IDE_D6	D3	IDE_D10
C4	IDE_D3	D4	IDE_D11
C5	IDE_D15	D5	IDE_D12
C6	IDE_D8	D6	IDE_D4
C7	IDE_D9	D7	IDE_D0
C8	IDE_D2	D8	IDE_REQ
C9	IDE_D13	D9	IDE_IOW#
C10	IDE_D1	D10	IDE_ACK#
C11	GND (FIXED)	D11	GND (FIXED)
C12	IDE_D14	D12	IDE_IRQ
C13	IDE_IORDY	D13	IDE_A0
C14	IDE_IOR#	D14	IDE_A1
C15	PCI_PME#	D15	IDE_A2
C16	PCI_GNT2#	D16	IDE_CS1#
C17	PCI_REQ2#	D17	IDE_CS3#
C18	PCI_GNT1#	D18	IDE_RESET#
C19	PCI_REQ1#	D19	PCI_GNT3#
C20	PCI_GNT0#	D20	PCI_REQ3#
C21	GND (FIXED)	D21	GND (FIXED)
C22	PCI_REQ0#	D22	PCI_AD1
C23	PCI_RESET#	D23	PCI_AD3
C24	PCI_AD0	D24	PCI_AD5
C25	PCI_AD2	D25	PCI_AD7
C26	PCI_AD4	D26	PCI_C/BE0#
C27	PCI_AD6	D27	PCI_AD9

Pin	Signal Name	Pin	Signal Name
C28	PCI_AD8	D28	PCI_AD11
C29	PCI_AD10	D29	PCI_AD13
C30	PCI_AD12	D30	PCI_AD15
C31	GND (FIXED)	D31	GND (FIXED)
C32	PCI_AD14	D32	PCI_PAR
C33	PCI_C/BE1#	D33	PCI_SERR#
C34	PCI_PERR#	D34	PCI_STOP#
C35	PCI_LOCK#	D35	PCI_TRDY#
C36	PCI_DEVSEL#	D36	PCI_FRAME#
C37	PCI_IRDY#	D37	PCI_AD16
C38	PCI_C/BE2#	D38	PCI_AD18
C39	PCI_AD17	D39	PCI_AD20
C40	PCI_AD19	D40	PCI_AD22
C41	GND (FIXED)	D41	GND (FIXED)
C42	PCI_AD21	D42	PCI_AD24
C43	PCI_AD23	D43	PCI_AD26
C44	PCI_C/BE3#	D44	PCI_AD28
C45	PCI_AD25	D45	PCI_AD30
C46	PCI_AD27	D46	PCI_IRQC#
C47	PCI_AD29	D47	PCI_IRQD#
C48	PCI_AD31	D48	PCI_CLKRUN#
C49	PCI_IRQA#	D49	PCI_M66EN
C50	PCI_IRQB#	D50	PCI_CLK
C51	GND(FIXED)	D51	GND(FIXED)
C52	PEG_RX0+	D52	PEG_TX0+
C53	PEG_RX0-	D53	PEG_TX0-
C54	TYPE0#	D54	PEG_LANE_RV#
C55	PEG_RX1+	D55	PEG_TX1+

Pin	Signal Name	Pin	Signal Name
C56	PEG_RX1-	D56	PEG_TX1-
C57	TYPE1#	D57	TYPE2#
C58	PEG_RX2+	D58	PEG_TX2+
C59	PEG_RX2-	D59	PEG_TX2-
C60	GND(FIXED)	D60	GND(FIXED)
C61	PEG_RX3+	D61	PEG_TX3+
C62	PEG_RX3-	D62	PEG_TX3-
C63	RSVD	D63	RSVD
C64	RSVD	D64	RSVD
C65	PEG_RX4+	D65	PEG_TX4+
C66	PEG_RX4-	D66	PEG_TX4-
C67	RSVD	D67	GND
C68	PEG_RX5+	D68	PEG_TX5+
C69	PEG_RX5-	D69	PEG_TX5-
C70	GND(FIXED)	D70	GND(FIXED)
C71	PEG_RX6+	D71	PEG_TX6+
C72	PEG_RX6-	D72	PEG_TX6-
C73	SDVO_DATA	D73	SDVO_CLK
C74	PEG_RX7+	D74	PEG_TX7+
C75	PEG_RX7-	D75	PEG_TX7-
C76	GND	D76	GND
C77	RSVD	D77	RSVD
C78	PEG_RX8+	D78	PEG_TX8+
C79	PEG_RX8-	D79	PEG_TX8-
C80	GND(FIXED)	D80	GND(FIXED)
C81	PEG_RX9+	D81	PEG_TX9+
C82	PEG_RX9-	D82	PEG_TX9-
C83	RSVD	D83	RSVD

Pin	Signal Name	Pin	Signal Name
C84	GND	D84	GND
C85	PEG_RX10+	D85	PEG_TX10+
C86	PEG_RX10-	D86	PEG_TX10-
C87	GND	D87	GND
C88	PEG_RX11+	D88	PEG_TX11+
C89	PEG_RX11-	D89	PEG_TX11-
C90	GND(FIXED)	D90	GND(FIXED)
C91	PEG_RX12+	D91	PEG_TX12+
C92	PEG_RX12-	D92	PEG_TX12-
C93	GND	D93	GND
C94	PEG_RX13+	D94	PEG_TX13+
C95	PEG_RX13-	D95	PEG_TX13-
C96	GND	D96	GND
C97	RSVD	D97	PEG_ENABLE#
C98	PEG_RX14+	D98	PEG_TX14+
C99	PEG_RX14-	D99	PEG_TX14-
C100	GND(FIXED)	D100	GND(FIXED)
C101	PEG_RX15+	D101	PEG_TX15+
C102	PEG_RX15-	D102	PEG_TX15-
C103	GND	D103	GND
C104	+12V	D104	+12V
C105	+12V	D105	+12V
C106	+12V	D106	+12V
C107	+12V	D107	+12V
C108	+12V	D108	+12V
C109	+12V	D109	+12V
C110	GND(FIXED)	D110	GND(FIXED)

Chapter 3 BIOS Setup

Overview

BIOS (Basic Input and Output System) is solidified in the flash memory on the CPU board. Its main functions include: initializes system hardware, sets the operating status of the system components, adjusts the operating parameters of the system components, diagnoses the functions of the system components and reports failures, provides hardware operating and controlling interface for the upper level software system, guides operating system and so on. BIOS provides users with a human-computer interface in menu style to facilitate the configuration of system parameters for users, control power management mode and adjust the resource distribution of system device etc.

Setting the parameters of the BIOS correctly could enable the system operating stably and reliably; it could also improve the overall performance of the system at the same time. Inadequate even incorrect BIOS parameter setting will decrease the system operating capability and make the system operating unstably even unable to operate normally. BIOS of COM-1814CLNAR supports LPC Super I/O SMSC3114.

BIOS Parameter Setting

Prompt message for BIOS setting may appear once powering on the system. At that time (inefficient at other time), press the key specified in the prompt message (usually <Del>) to enter BIOS setting.

When the BIOS setting in CMOS is destroyed, system may also require entering BIOS setting or selecting certain default value.

All the setup values modified by BIOS are saved in the CMOS storage in system. The CMOS storage is powered by battery; unless clearing CMOS contents, or else its contents will not be lost even if powered off.

Note! BIOS setting will influent the computer performance directly. Setting parameter improperly will cause damage to the computer; it may even unable to power on. Please use the internal default value of BIOS to restore the system.

Our company is constantly researching and updating BIOS, its setup interface may be a bit different. The figure below is for reference only; it may be different from your BIOS setting in use.

Basic Function Setting for BIOS

After starting SETUP program, you may see the main interface of CMOS Setup Utility as follows:

BIOS SETUP UTILITY						
Main	Advanced	Chipset	PCIPnP	Boot	Security	Exit
System Overview						Use [Enter],[TAB] or [SHIFT-TAB] to select a field.
Processor Intel(R) Core(TM)2 Duo CPU T9400 @ 2.53GHz Speed :2533MHz Cores :2						Use [+] or [-] to configure system Time
System Memory Size :989MB						← Select Screen ↑↓ Select Item + - Change Field Tab Select Field F1 General Help F10 Save and Exit ESC Exit
System Time [00:47:55] System Date [Wed 04/20/2009]						
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1 Main

(1) System Time

Choose this option and set current time by < + > / < - >, which is displayed in format of hour/minute/second. Reasonable range for each option is: Hour (00-23), Minute (00-59), Second (00-59).

(2) System Date

Choose this option and set current data by < + > / < - >, which is displayed in format of month/date/year. Reasonable range for each option is: Month (Jan.-Dec.), Date (01-31), Year (Maximum to 2099), Week (Mon. ~ Sun.).

2 Advanced

BIOS SETUP UTILITY	
Main Advanced Chipset PCIPnP Boot Security Exit	
Advanced Settings	Configure CPU.
WARNING:Setting wrong values in below sections may cause system to malfunction ►CPU Configuration ►IDE Configuration ►SuperIO Configuration ►Hardware Health Configuration ►USB Configuration ►Power Management Configuration ►Clock Generator Configuration	← Select Screen ↑↓ Select Item Enter Go to Sub Screen F1 General Help F10 Save and Exit ESC Exit
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(1) CPU Configuration

BIOS SETUP UTILITY		
Advanced		
Configure advanced CPU settings Module Version:3F.15		When enabled, a VMM Can utilize the Additional HW Caps. Provided by Intel(R) Virtualization Tech. Note: A full reset is Required to change The setting
Manufacturer:	Intel	
Intel(R) Core(TM)2 Duo CPU	T9400 @ 2.53GHz	
Frequency;	:2.53GHz	
FSB Speed;	:1066MHz	
Cache L1;	:64 KB	
Cache L2;	:6144KB	
Ratio Actual Value	:9.5	← Select Screen ↑↓ Select Item
Intel(R) Virtualization Tech	[Enabled]	+ - Change Field
Core Multi-Processing	[Enabled]	F1 General Help
Intel(R) SpeedStep(tm) tech	[Enabled]	F10 Save and Exit ESC Exit
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(2) IDE Configuration

BIOS SETUP UTILITY		
Advanced		
IDE Configuration		Options Disabled Compatible Enhanced
SATA#1 Configuration	[Enhanced]	
Configure SATA#1 as	[IDE]	
SATA#2 Configuration	[Enhanced]	
▶Primary IDE Master	:[Not Detected]	← Select Screen ↑↓ Select Item + - Change Option F1 General Help F10 Save and Exit ESC Exit
▶Primary IDE Slave	:[Not Detected]	
▶Secondary IDE Master	:[Not Detected]	
▶Secondary IDE Slave	:[Not Detected]	
▶Third IDE Master	:[Not Detected]	
▶Fourth IDE Master	:[Not Detected]	
AHCI Port0	[Not Detected]	
AHCI Port1	[Not Detected]	
AHCI Port2	[Not Detected]	
AHCI Port3	[Not Detected]	
AHCI Port4	[Not Detected]	
AHCI Port5	[Not Detected]	
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① SATA#1 Configuration

There are two options for this item, Disabled and Enhanced.

② Configure SATA as

There are three options for this item, IDE, RAID and AHCI.

③ SATA#2 Configuration

There are two options for this item, Disabled and Enhanced.

④ Primary~Fourth IDE Master/Slave

a) Type

Not Installed: IDE device cannot be detected by system;

AUTO: automatic detection of IDE parameters when power on;

CD/DVD: used for ATAPI CDROM;

ARMD: used for various analog IDE devices.

b) LBA/Large Mode

Used to set supporting LBA mode or not.

c) Block (ulti-sector Transfer)

Used to set whether to support multi-sector simultaneous transfer or not.

d) PIO Mode

Used for PIO mode setting.

e) DMA Mode

Used for DMA mode setting.

f) S.M.A.R.T

Enable or disable Smart Monitoring, Analysis, and Reporting Technology. Fixed values are: [Auto] [Disabled] [Enabled].

g) 32Bit Data Transfer

This option is used to enable 32-bit hard disk accessing mode, which could optimize hard disk read and write speed.

(3) Super IO Configuration

BIOS SETUP UTILITY		
Advanced		
Configure Super IO Chipset		Select the type of Floppy drive Connected to the System.
Floppy A	[Disabled]	
Onboard Floppy Controller	[Enabled]	
Serial Port1 Address	[3F8]	
Serial Port1 IRQ	[IRQ4]	
Serial Port2 Address	[2F8]	
Serial Port2 IRQ	[IRQ3]	
Serial Port3 Address	[3E8]	
Serial Port3 IRQ	[IRQ10]	
Serial Port4 Address	[2E8]	
Serial Port4 IRQ	[IRQ11]	
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Instructions are as follows:

① Floppy drive A

Control the on/off of drive A.

② Onboard Floppy Controller

Control the on/off of floppy drive.

③Serial Port 1~4 Address

(Default value is 3F8H), set the address of COM1~4 on the motherboard; and its options are: Disabled, 3F8H, 2F8, 3E8, 2E8.

④ Serial Port 1~4 Address

Set the address of COM1~4 on motherboard and its options are: IRQ4, IRQ3, IRQ10, IRQ11.

(4) Hardware Health Configuration

BIOS SETUP UTILITY		
Advanced		
Hardware Health Configuration		
CPU Temperature	: 46℃/114℉	
System Temperature	: 25℃/77℉	
CPUFAN1	: 3868 RPM	
V3.3	: 3.334 V	
V5.0	: 4.922 V	← Select Screen
V12.0	: 11.937V	↑↓ Select Item
VBAT	: 3.048 V	+ - Change Field
		F1 General Help
		F10 Save and Exit
		ESC Exit
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① CPU Temperature

Current CPU temperature; monitored by temperature sensors on motherboard.

② System Temperature

Current system temperature; generally monitored by thermal resistor on motherboard.

③ CPUFAN1 Speed

Indicate the current rotating speed of CPU fan.

④ V3.3/V5.0/ V12.0

Output voltage for switch power

⑤ VBAT

Monitor of battery voltage.

(5) USB Configuration

BIOS SETUP UTILITY		
Advanced		
USB Configuration		Disabled 2 USB Ports 4 USB Ports 6 USB Ports 8 USB Ports
Module Version - 2.24.3-13.4		
USB Devices Enabled :		
None		
USB Function	[8 USB Ports]	
USB 2.0 Controller	[Enabled]	
Legacy USB Support	[Enabled]	
		← Select Screen ↑↓ Select Item + - Change Field F1 General Help F10 Save and Exit ESC Exit
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① USB Function

This option sets the amount of USB controller; that is to confirm how many USB controllers it supports. One controller usually supports two USB interfaces.

② USB 2.0 Controller

This option is used to select whether to support USB 2.0 controller.

③ Legacy USB Support

Support traditional USB keyboard and mouse; when this option is set to Enabled, the USB device could be used even if under OS that doesn't support USB, such as DOS.

(6) Power Management

BIOS SETUP UTILITY		
Advanced		
Power Management Configuration		Power Off Power On Last State
Restore on AC Power Loss Resume On RTC Alarm	[Last State] [Disabled]	←→ Select Screen ↑↓ Select Item + - Change Field F1 General Help F10 Save and Exit ESC Exit
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① Restore on AC Power Loss

This option could set the system status when the computer is rebooted after powered off under AC. “Power Off” is to make the system at power off status; “Power On” is to make the system power on automatically; “Last State” is to retain the status before powering off.

② Resume on RTC Alarm

This option is used to turn on or off the system clock. When the specified time is expired, it will wake the system from power saving mode, even from power off mode. This function shall be supported by ATX power.

(7) ICS OPTION

BIOS SETUP UTILITY		
Advanced		
Clock Generator Configuration		Allows BIOS to set Clock spread Spectrum for EMI Control.
Spread Spectrum	[Enabled]	
Auto PCI Clock	[Enabled]	
		← Select Screen ↑↓ Select Item + - Change Field F1 General Help F10 Save and Exit ESC Exit
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① Spread Spectrum

This option is used to select whether to enable the Spread Spectrum function of clock.

② Auto PCI Clock

This option is used to select whether to enable the automatic detection function for device in PCI slot, and realize the function of disabling the clock of that slot if there is no device.

3 Chipset

BIOS SETUP UTILITY						
Main	Advanced	Chipset	PCIPnP	Boot	Security	Exit

Advanced Chipset Settings		Options
WARNING: Setting wrong values in below sections may cause system to malfunction.		Auto 800 MHz 1066 MHz
North Bridge Chipset Configuration		
DRAM Frequency	[Auto]	
Configure DRAM Timing by SPD	[Enabled]	
Boots Graphic Adapter Priority	[PEG/PCI]	
Internal Graphics Mode Select	[Enabled,32MB]	← Select Screen
PEG Port Configuration		↑↓ Select Item
PEG Port	[Auto]	+ - Change Option
Boot Display Device	[CRT]	F1 General Help
Flat Panel Type	[800*600]	F10 Save and Exit
Panel Specification	[18 BIT]	ESC Exit
South Bridge Chipset Configuration		
Onboard Audio Controller	[Enabled]	
PCIE Ports Configuration		
PCIE Port 0	[Auto]	
PCIE Port 1	[Auto]	
PCIE Port 2	[Auto]	
PCIE Port 3	[Auto]	

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(1) RAM Frequency

Configure the frequency of DRAM.

(2) Configure DRAM Timing by SPD

BIOS configures the time sequence of SDRAM memory according to the contents on SPD chip, so as to optimize the system.

(3) Boots Graphic Adapter Priority

Setting of the priority for the display device. The default value is PEG/PCI; i.e. PCI-E video card display in priority and then PCI video card; if neither of the device exist, display via the video card on-board.

(4) Internal Graphics Mode Select

The graphics device applies an exclusive address space from the system address space and used for the graphic memory address space.

(5) Boot Display Device

Select the display mode.

(6) Flat Panel Type

Select the display resolution for LVDS.

(7) Onboard Audio Controller

Used to select whether to enable audio controller.

(8) Panel Specification

Used to select the bit number for LVDS screen, including 18-bit and 24-bit.

4 PCIPnP

BIOS SETUP UTILITY						
Main	Advanced	Chipset	PCIPnP	Boot	Security	Exit
Advanced PCI/PnP Settings						Available: Specified IRQ is available to be used by PCI/PnP devices. Reserved: Specified IRQ is reserved for use by Legacy ISA devices.
WARNING:Setting wrong values in below sections may cause system to malfunction.						
IRQ3			[Available]			← Select Screen
IRQ4			[Available]			↑↓ Select Item
IRQ5			[Available]			+ - Change Field
IRQ7			[Available]			F1 General Help
IRQ9			[Available]			F10 Save and Exit
IRQ10			[Available]			ESC Exit
IRQ11			[Available]			
IRQ14			[Available]			
IRQ15			[Available]			
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(1) IRQ 3~15

This option is used to specify the IRQ interrupt mode, PNP mode or reserved for ISA.

5 Boot

BIOS SETUP UTILITY		
Main Advanced Chipset PCIPnP Boot Security Exit		
Boot Settings		Allows BIOS to skip certain tests while booting, This will decrease the time needed to boot the system. ← Select Screen ↑↓ Select Item + - Change Field F1 General Help F10 Save and Exit ESC Exit
Quick Boot	[Enabled]	
Quiet Boot	[Disabled]	
Waite For 'F1' If Error	[Enabled]	
Boot Device Priority		
1st Boot Device	[USB:storage]	
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(1) Quick Boot

During BIOS guiding, configure whether to permit skipping certain test, to reduce BIOS guiding time.

(2) Quiet Boot

Configures whether to display the content of OEM LOGO.

(3) Wait for 'F1' If Error

Configures whether to prompt pressing "F1" during system error.

(4) 1st~4th Boot Device

Configures the preference of the startup sequence for devices when the system starts.

6 Security

BIOS SETUP UTILITY		
Main Advanced Chipset PCIPnP Boot Security Exit		
Security Settings		Install or Change the password
Supervisor Password	:Not Installed	
User Password	:Not Installed	
Change Supervisor Password		← Select Screen ↑↓ Select Item Enter Change F1 General Help F10 Save and Exit ESC Exit
Change User Password		
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(1) Change User/ Supervisor Password

After pressing Change User/ Supervisor Password and input new password in the dialog box, this column will indicate that user's password has been installed.

7 Exit

South Bridge Configuration	
Main Advanced Chipset PCIPnP Boot Security Exit	
Exit Options	Exit system setup after saving the changes.
Save Changes and Exit	
Discard Changes and Exit	
Discard Changes	F10 key can be used for this operation.
Load Optimal Defaults	←→ Select Screen ↑↓ Select Item Enter Go to Sub Screen F1 General Help F10 Save and Exit ESC Exit
Load Failsafe Defaults	
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(1) Save Changes and Exit

When you have finished all the changes and want to cover the original parameters, you may implement this operation and save the new parameters into CMOS storage. To implement this operation, you may choose this option and press < Enter >; press < Enter > again to exit.

(2) Discard Changes and Exit

If you do not want to save the change into CMOS storage, please choose this option and press < Enter >; press < Enter > again to exit.

(3) Discard Changes

If error occurs in your change and need to be neglected, please choose this option and press < Enter > in order to enter corresponding options again and reset it.

(4) Load Optimal Defaults

This menu is used to input default value in system configuration. These default values are optimized and could give play to the high capability of all hardware.

(5) Load Failsafe Defaults

The function of this option is to initialize the setup of each option to realize the most fundamental and secure system functional value. To implement this function, choose this option and press < Enter >; messages to be confirmed will display on the screen, press < Enter > to implement this function.

System Resource Managed by BIOS under X86 Platform

We define three kinds of system resources here: I/O port address, IRQ interrupt number and DMA number.

1 DAM

Level	Function
DMA1	Unassigned
DMA2	Floppy Disk
DMA3	Unassigned (sometimes used for hard disk)
DMA4	Used for DMAC cascade
DMA5	Unassigned
DMA6	Unassigned
DMA7	Unassigned

2 APIC

Advanced programmable interrupt controller. Most motherboards above P4 level support APIC and provide more than 16 interrupt sources, like IRQ16 - IRQ23; while some others can have up to 28 interrupt sources, such has motherboard supporting PCI-X. However, relevant OS are required to enable that function, and currently, only the OS above Windows 2000 could support that function.

3 IO Port Address

There are 16 I/O address lines for X86, from 0 ~ 0FFFFh; and there is altogether 64K I/O address space. In traditional ISA interface, only the first 1024 ports are in use (0000~03FFh) and the port number above 0400h are used by PCI interface and EISA

interface. Each peripheral device shall occupy a part of the I/O address. The table below lists the I/O interfaces used roughly in X86 platform.

Address	Device Description
000h - 00Fh	DMA Controller #1
020h - 021h	Programmable Interrupt Controller #1
040h - 043h	System Timer
060h - 064h	Standard 101/102 Keyboard Controller
070h - 071h	Real Timer Clock, NMI
080h - 09Fh	DMA Page Register
0A0h - 0A1h	Programmable Interrupt Controller #2
0C0h - 0DFh	DMA Controller #2
0F0h – 0FFh	Numeric Data Processor
274h - 279h	PnP Configuration Register Interface
2E8h –2EFh	Serial Port #4 (COM4)
2F8h - 2FFh	Serial Port #2 (COM2)
3B0h - 3DFh	Display Card Interface
3E8h – 3EFh	Serial Port #3 (COM3)
3F0h – 377h	Floppy Disk Controller
3F8h - 3FFh	Serial Port #1(COM1)
400h – 41Fh	SMBUS Controller

4 IRQ Assignment Table

There are 15 interrupt sources of the system. Some are occupied by the system devices. Only the ones that are not occupied can be distributed. The ISA devices claim to engross the interrupt .Only the plug and play ISA devices can be distributed by the BIOS or the OS .And several PCI devices share one interrupt through the distribution of BIOS or OS. The diagram below shows parts of the interrupt distribution under X86 platform, but it does not show the interrupt source occupied by the PCI devices.

Level	Function
IRQ0	System Timer
IRQ1	Standard 101/102 Keyboard or Microsoft Keyboard
IRQ3	COM #2
IRQ4	COM #1
IRQ6	Floppy Disk Controller
IRQ8	System CMOS/ Real Time Clock
IRQ9	ACPI System
IRQ10	COM #3
IRQ11	COM #4
IRQ12	Reserved
IRQ13	Numeric Coprocessor
IRQ14	Reserved
IRQ15	SMBUS Controller

Chapter 4 Driver Installation

The driver program of this product could refer to the equipped CD and is omitted here.

Appendix

Watchdog Programming Guide

COM-1814CLNAR provides a programmable watchdog timer (WDT) up to 255 levels and time by minute or second. Watchdog timer overtime event can be programmed to reset system or generate maskable interrupts.

The available interrupt numbers used by the motherboard are 3, 4, 5, 7, 9, 10 and 11. Please change the value of the corresponding IRQ number in PCIPnP of BIOS Setup interface into Reserved before using.

The following describes WDT program in C language. The steps to program WDT are as follows:

- Enter WDT programming mode
- Setup WDT operating mode/enable WDT/disable WDT

(1) **Enter WDT Programming Mode**

```
#define     INDEX_PORT   0x4E
#define     DATA_PORT          0x4F
unsigned    int tmp_reg;
unsigned int pm_base;

outportb(INDEX_PORT, 0x55);
outportb(INDEX_PORT, 0x07);
outportb(DATA_PORT, 0x0A);
outportb(INDEX_PORT, 0x30);
outportb(DATA_PORT, 0x01);
outportb(INDEX_PORT, 0x60);
tmp_reg = inportb(DATA_PORT);
pm_base = tmp_reg;
```

outportb(INDEX_PORT, 0x61);

tmp_reg = inportb(DATA_PORT);

pm_base = pmbase<<8+tmp_reg; /*Get the variable pm_base for subsequent program using*/

(2) **Setup WDT operating mode, reset mode or interrupt mode:**

a. **Reset Operating Mode**

outportb(pm_base+0x47, 0x0C);

b. **Interrupt Operating Mode**

unsigned int irq;

irq = IRQ_NO; /*Please replace the constant IRQ_NO with the interrupt number need to be used and evaluate the variable irq. The former parts of the document has listed the available range of the interrupt number*/

irq = irq<<4;

outportb(pm_base+0x47, 0x80);

outportb(pm_base+0x67, irq);

(3) WDT **Timer selection: minute or second:**

a. **Select to time by minute:**

outportb(pm_base+0x65, 0x00);

b. **Select to time by second:**

outportb(pm_base+0x65, 0x80);

(4) **Enable/Disable** WDT

a. **Enable WDT:**

outportb(pm_base+0x66, TIME_OUT_VALUE); /*Please replace the constant TIME_OUT_VALUE with the number of overtime unit (0x01~0xFF).*/

b. **Exit WDT:**

outportb(pm_base+0x66, 0x00);

GPIO Programming Guide

The motherboard provides 8-channel programmable digital I/O pin, four of which are input while the other four are output. The following describes digital I/O program in C language. The steps to program digital I/O are as follows:

- Initialize digital I/O
- I/O programming

(1) **Initialize Digital I/O:**

```
#define      BAR 0x400

unsigned char tmp_val;
outportb(BAR,0xbf);
outportb(BAR+0x04,0x40);
outportb(BAR+0x03,0x03);
outportb(BAR+0x05,0x0F);
tmp_val =(inportb(BAR+0x02)|0x08)&0xeb;
tmp_val |= 0x40;
outportb(BAR+0x02, tmp_val);
delay(30);
tmp_val =inportb(BAR);
while((tmp_val &0x02)!=0x02)
      {
            tmp_val =inportb(BAR);
            if((tmp_val &0x04)!=0)
            {
                  printf("ERROR\n");
                  return 0;
            }
      }
```

(2) **I/O Programming**

a. **Output Programming**

Function input: int pin – Value 1~4 is corresponding with output pin 1~4

int lev_val – 1 is to output high level, 0 is to output low level

Function output: none

```
void Out_Lev(int pin ,int lev_val)
   {
      unsigned int reg_val ;
      outportb(BAR,0xbf);
      outportb(BAR+0x04,0x40);
      outportb(BAR+0x03,0x01);
      reg_val = inportb(BAR+0x05);
      reg_val = lev_val ?
reg_val|(0x01<<pin+3) :reg_val&(~(0x01<<pin+3)) ;
      outportb(BAR+0x05, reg_val);
      reg_val =(inportb(BAR+0x02)|0x08)&0xeb;
      reg_val |= 0x40;
      outportb(BAR+0x02, reg_val);
      delay(30);
      reg_val =inportb(BAR);
      while((reg_val &0x02)!=0x02)
            {
                  reg_val =inportb(BAR);
                  if((reg_val &0x04)!=0)
                  {
                        printf("ERROR\n");
                        return 0;
                  }
            }
}
```

b. **Input Programming**

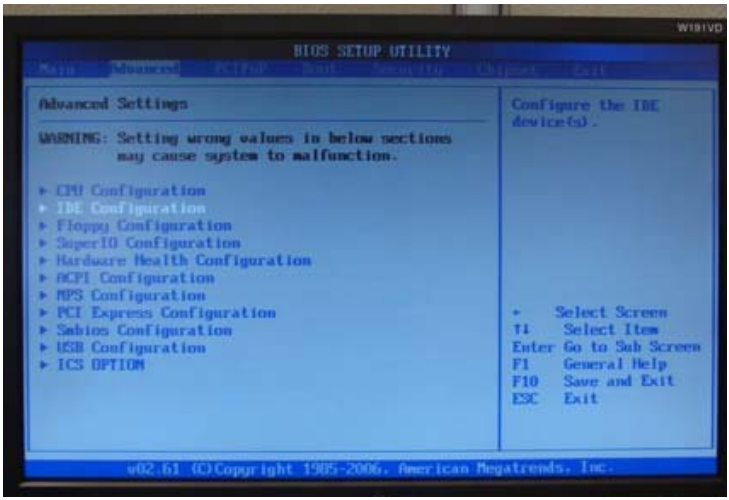
Function input: int pin – Value 1~4 is corresponding with output pin 1~4

Function output: int lev_val – 1: input pin is at high level, 0: input pin is at low level

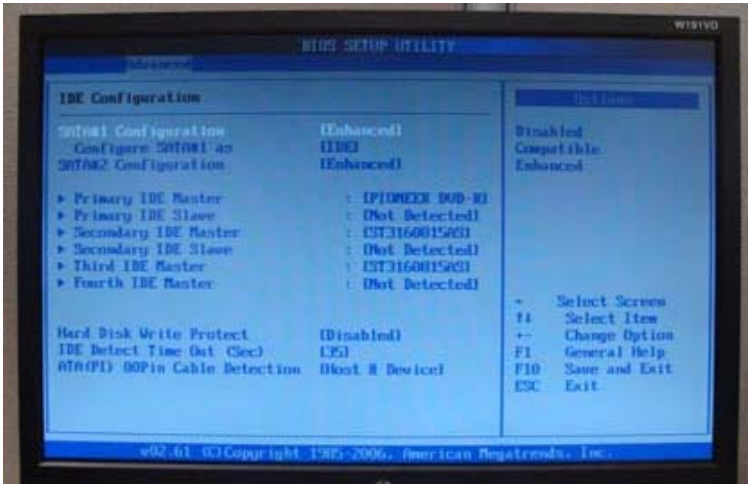
```
int In_Lev(int pin)
{
    unsigned int reg_val ;
    int lev_val ;
    outportb(BAR,0xbf);
    outportb(BAR+0x04,0x41);
    outportb(BAR+0x03,0x00);
    reg_val =(inportb(BAR+0x02)|0x08)&0xeb;
    reg_val |= 0x40;
    outportb(BAR+0x02, reg_val);
    delay(30);
    reg_val =inportb(BAR);
    while((reg_val &0x02)!=0x02)
        {
            reg_val =inportb(BAR);
            if((reg_val &0x04)!=0)
            {
                printf("ERROR\n");
                return 0;
            }
        }
    lev_val = inportb(BAR+0x05)&( 0x01<<pin-1);
    lev_val = lev_val ? 1:0; /*Get the value of the variable lev_val, 1
    represents input pin is at high level, while 0 represents the input pin
    is at low level*/
    return lev_val ;
}
```

Steps of RAID Installation

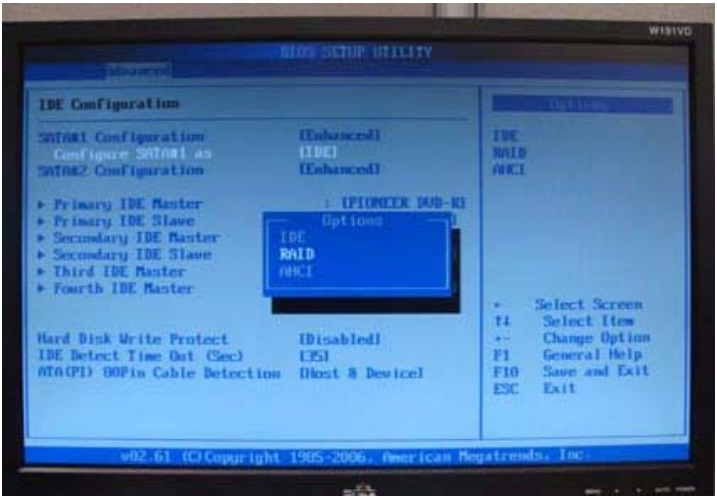
1. Firstly, insert the well-prepared hard disk into SATA1 and SATA2 in succession. Press “Del” when powering on and enter the Advanced interface of BIOS SETUP UTILITY and choose IDE Configuration. (Use the direction key to enter the menu)



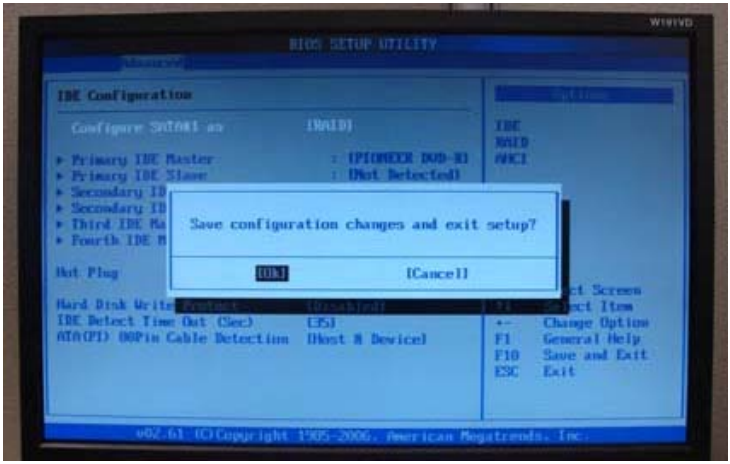
2. Enter IDE option:



3. Set “Configure SATA#1” to RAID and press “Enter”.



4. Press F10 to save and reboot the system.



5. The following interface will appear after rebooting:

6. Press "<CTRL-I>" to enter RAID Configuration Utility according to the prompt in the above screen.

7. Create RAID scroll: choose the “Create RAID Volume” in the above figure and press enter; the following interface will appear:

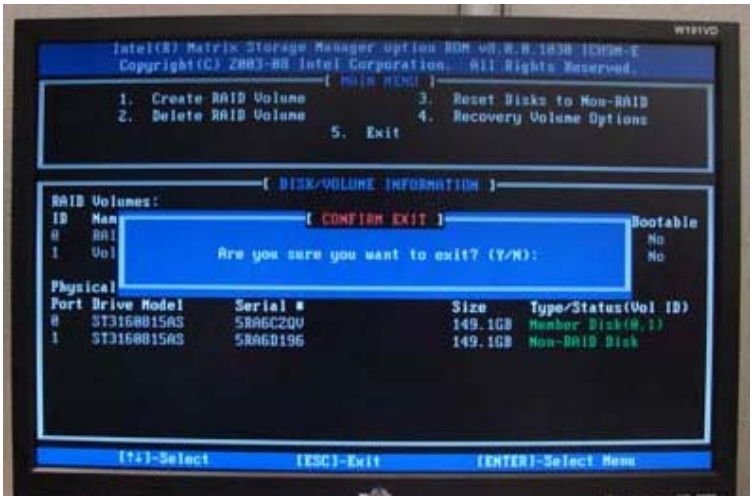
8. Choose the RAID level you want to install: use Table to switch to RAID Level option and select the RAID Level in need. Common suggestion for Strip Size: RAID0-128KB RAID10-64KB (take RAID0 as an example).

9. Click Create Volume:

10. The following information will appear and press “Y” to continue the following operation:

11. After completing the set-up, choose 5 or press <ESC> to exit Raid configuration interface.

12. The following information will appear and press “Y” to continue the following operation:



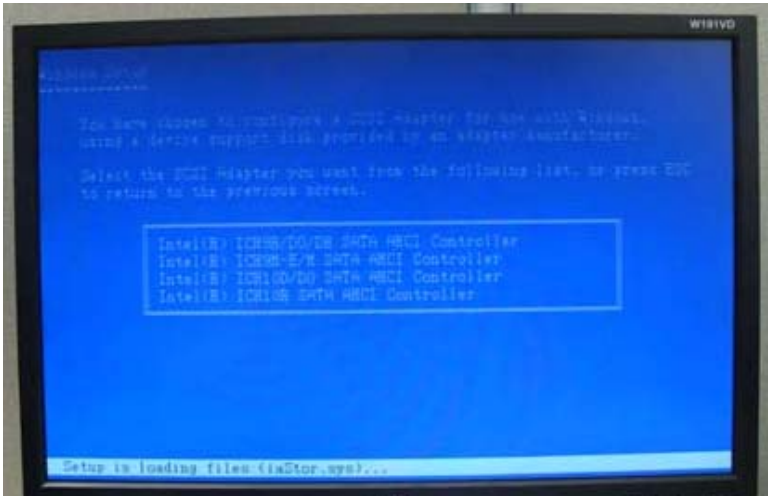
13. System Installation: before installing the system, please copy the RAID drive to USB floppy driver.

During installation, please pay attention that when "Press F6 if you need to install a third party SCSI or RAID driver…" appears, press F6.

14. Choose the RAID driver of the chipset required to install. When the following information appears, press "S".

15. Choose the driver that supports the chip.

16. System loads RAID driver from floppy disk.



17. When the following information appears, press “ENTER” to install the system normally.

Please visit our website: http://www.evoc.com for more information.

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安全使用小常识

1. 产品使用前，务必仔细阅读产品说明书；
2. 对未准备安装的板卡，应将其保存在防静电保护袋中；
3. 在从防静电保护袋中拿出板卡前，应将手先置于接地金属物体上一会儿（比如 10 秒钟），以释放身体及手中的静电；
4. 在拿板卡时，需佩戴静电保护手套，并且应该养成只触及其边缘部分的习惯；
5. 为避免人体被电击或产品被损坏，在每次对主板、板卡进行拔插或重新配置时，须先关闭交流电源或将交流电源线从电源插座中拔掉；
6. 在需对板卡或整机进行搬动前，务必先将交流电源线从电源插座中拔掉；
7. 对整机产品，需增加 / 减少板卡时，务必先拔掉交流电源；
8. 当您需连接或拔除任何设备前，须确定所有的电源线事先已被拔掉；
9. 为避免频繁开关机对产品造成不必要的损伤，关机后，应至少等待 30 秒后再开机。

目录

第一章　产品介绍

简介

COM-1814CLNAR 是一款针对嵌入式计算机（COM-Express）PICMG 标准的 Type II 主板。COM-Express 基于 PCI Express、SATA、USB 2.0、 LVDS 和串行 SDVO 等高速串行差分技术，同时保留了对传统 PCI 总线的支持 ，以实现从现有模块化设计的平缓迁移。 通过减少在处理器设计上的时间花费，设计者能将关注点放在核心竞争力和产品差异化上，COM Express 使 OEM 缩短了产品面世的时间。无需重新设计产品，即可实现原定功能的更改、 需求变更和性能升级。

COM Express 模块可以降低服务维修所需存货，并简化产品升级，有助于产品在其整个生命周期的成功应用。

COM-1814CLNAR 兼备了 Intel® Core™2 Duo 的性能及对当今嵌入式应用至关重要的关键特征。COM Express 主板为客户提供了可立即使用的开发平台。

COM-1814CLNAR的Core™2 Duo处理能力加上DDR3 1066/800MHz 双通道SO-DIMM高速存储器，使嵌入式计算机模块具备了更强的处理能力，成为电力、医疗设备、机场控制中心及军工等领域应用的理想选择。

机械尺寸、重量与环境

- 外形尺寸： 125.00mm（长）× 95.00mm（宽）× 18.00mm（高）
- 净重：0.40Kg；
- 工作环境：

  温度： 0 ℃～ 60 ℃；

  湿度：5%～ 95%（非凝结状态）；

- 贮存环境：

  温度： -40 ℃～ 100 ℃ ；

  湿度： 5 %～ 95 %（非凝结状态）；

典型功耗

CPU：Intel® Core™2 Duo T9400 2.53GHz

内存：Samsung/2G/1066MHZ/M471B2874DZ1-CF8

- +5VSB@ 0.02A；+5%/-3%；
- +12V@ 0.94A；+5%/-3%；

微处理器

支持 Intel® Penryn T9400/P8400 FSB 1066MHz BGA479 CPU。

芯片组

Intel® GM45 + Intel® ICH9M-E

系统内存

提供 2 条 204 Pin DDR3 内存插槽，支持 Un-buffered ECC，可支持最大内存容量 8GB。

显示功能

采用 Intel® GMA X4500 显示芯片，支持 LVDS双通道输出模式，且LVDS与CRT可同时显示，并支持TV输出,支持PCI-Express显卡或HDMI显示，CRT支持最高分辨率到QXGA(2048x1536)。

存储功能

主板支持 4 个 SATA2.0 接口，支持 RAID0/1 功能。

网络功能

提供1个10/100/1000Mbps网络接口，支持网络唤醒功能。

电源特性

采用 ATX 电源。

扩展总线

提供2个 COM-Express 插槽，兼容 COM-Express 标准。

Watchdog 功能

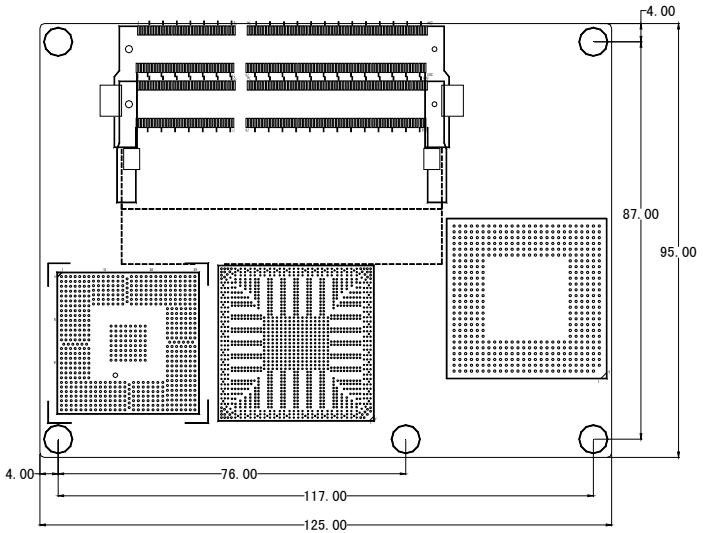
- 支持 256 级，可编程按分或秒；
- 支持看门狗超时或复位系统。

I/O 接口

- 提供 4 个串口，其中 COM1 支持 RS-232/RS-422/RS-485 模式选择；
- 提供 4 个 SATA 接口；
- 提供 8 个 USB2.0 接口；
- 提供 1 个 PS/2 键盘/鼠标接口；
- 提供 1 个 8 位数字 I/O 接口。

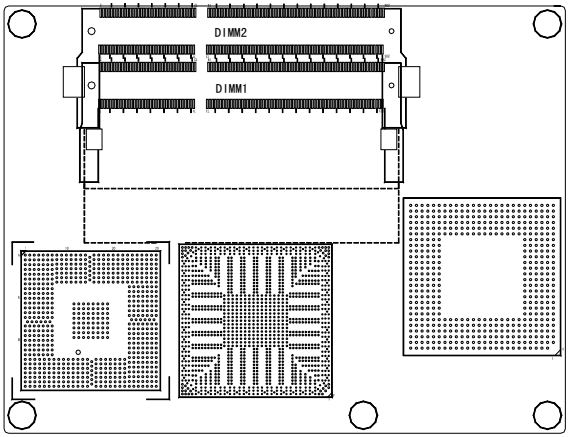
第二章　安装说明

产品外形尺寸图

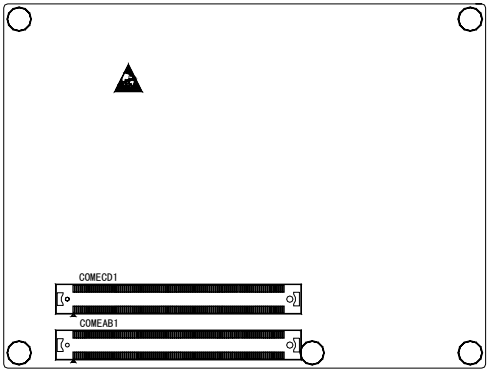


（单位：mm）

接口位置示意图

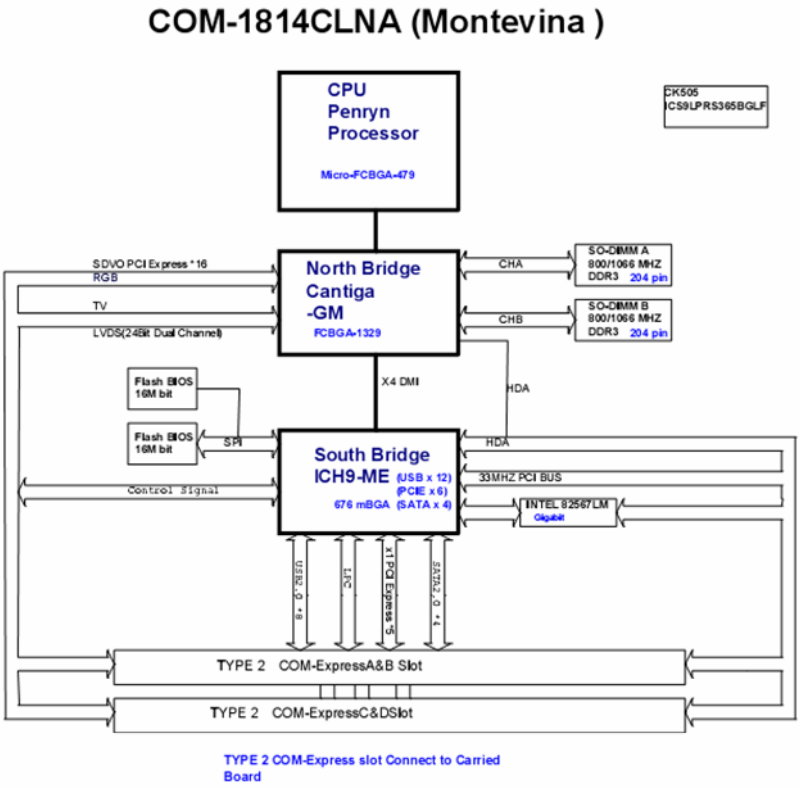


正面示意图


COMECD1
COMEAB1

背面示意图

主板架构图


COM-1814CLNA (Montevina)
CPU
Penryn
Processor
Micro-FCBGA-479
CK505
ICS9LPRS365BGLF
North Bridge
Cantiga
-GM
FCBGA-1329
SDVO PCI Express *16
RGB
TV
LVDS(24Bit Dual Channel)
CHA
CHB
SO-DIMM A
800/1066 MHZ
DDR3 204 pin
SO-DIMM B
800/1066 MHZ
DDR3 204 pin
X4 DMI
HDA
Flash BIOS
16M bit
Flash BIOS
16M bit
SPI
South Bridge
ICH9-ME (USB x 12)
(PCIE x 6)
676 mBGA (SATA x 4)
33MHZ PCI BUS
INTEL 82567LM
Gigabit
Control Signal
USB 2.0
LPC
PCI Express x1
SATA 2.0
TYPE 2 COM-ExpressA&B Slot
TYPE 2 COM-ExpressC&DSlot
TYPE 2 COM-Express slot Connect to Carried Board

提示：如何识别跳线、接口的第一脚

1、观察插头、插座旁边的文字标记，通常用“1”或加粗的线条或三角符号表示。

2、看看背面的焊盘，通常方型焊盘为第一脚。

3、电缆上的红线或其它第一脚标记要与插座的第一脚相接。

系统内存安装

本主板提供 2 个 204Pin DDR3 SO-DIMM 内存插槽(图示标识为 DIMM1,DIMM2)。安装内存条时，要注意以下几点：

- 安装时，先对准内存 SO-DIMM 条的缺口和 SO-DIMM 插槽的缺口后再用力插到位。
- 可使用符合 Intel Chipset 所支持的 1.5V DDR3 1066/800MHz 规格的 SO-DIMM，单根最大内存容量可达 4GB。
- 最好选择带 SPD（内存自动识别功能）的 SO-DIMM 内存条，以保证内存条工作稳定。

COM-Express 插槽

图示标识为COMEAB1、COMECD1（在板的背面）。

注：NC：表示空脚，no connect。灰色部分表示NC或不支持此功能。

RSVD：表示其它功能测试保留脚，在主板上面也已开路，无特殊需要也为NC。

COMEAB1管脚定义如下：

管脚	信号名称	管脚	信号名称
A1	GND (FIXED)	B1	GND (FIXED)
A2	GBE0_MDI3-	B2	GBE0_ACT#
A3	GBE0_MDI3+	B3	LPC_FRAME#
A4	GBE0_LINK100#	B4	LPC_AD0
A5	GBE0_LINK1000#	B5	LPC_AD1

管脚	信号名称	管脚	信号名称
A6	GBE0_MDI2-	B6	LPC_AD2
A7	GBE0_MDI2+	B7	LPC_AD3
A8	GBE0_LINK#	B8	LPC_DRQ0#
A9	GBE0_MDI1-	B9	LPC_DRQ1#
A10	GBE0_MDI1+	B10	LPC_CLK
A11	GND (FIXED)	B11	GND (FIXED)
A12	GBE0_MDI0-	B12	PWRBTN#
A13	GBE0_MDI0+	B13	SMB_CK
A14	GBE0_CTREF	B14	SMB_DAT
A15	SUS_S3#	B15	SMB_ALERT#
A16	SATA0_TX+	B16	SATA1_TX+
A17	SATA0_TX-	B17	SATA1_TX-
A18	SUS_S4#	B18	SUS_STAT#
A19	SATA0_RX+	B19	SATA1_RX+
A20	SATA0_RX-	B20	SATA1_RX-
A21	GND (FIXED)	B21	GND (FIXED)
A22	SATA2_TX+	B22	SATA3_TX+
A23	SATA2_TX-	B23	SATA3_TX-
A24	SUS_S5#	B24	PWR_OK
A25	SATA2_RX+	B25	SATA3_RX+
A26	SATA2_RX-	B26	SATA3_RX-
A27	BATLOW#	B27	WDT
A28	ATA_ACT#	B28	AC_SDIN2
A29	AC_SYNC	B29	AC_SDIN1
A30	AC_RST#	B30	AC_SDIN0
A31	GND (FIXED)	B31	GND (FIXED)
A32	AC_BITCLK	B32	SPKR
A33	AC_SDOUT	B33	I2C_CK

管脚	信号名称	管脚	信号名称
A34	BIOS_DISABLE# （在主板上有上拉）	B34	I2C_DAT
A35	THERMTRIP# （在主板上有上拉）	B35	THRM#
A36	USB6-	B36	USB7-
A37	USB6+	B37	USB7+
A38	USB_6_7_OC#	B38	USB_4_5_OC#
A39	USB4-	B39	USB5-
A40	USB4+	B40	USB5+
A41	GND (FIXED)	B41	GND (FIXED)
A42	USB2-	B42	USB3-
A43	USB2+	B43	USB3+
A44	USB_2_3_OC#	B44	USB_0_1_OC#
A45	USB0-	B45	USB1-
A46	USB0+	B46	USB1+
A47	VCC_RTC	B47	EXCD1_PERST#
A48	EXCD0_PERST#	B48	EXCD1_CPPE#
A49	EXCD0_CPPE#	B49	SYS_RESET#
A50	LPC_SERIRQ	B50	CB_RESET#
A51	GND(FIXED)	B51	GND(FIXED)
A52	PCIE_TX5+	B52	PCIE_RX5+
A53	PCIE_TX5-	B53	PCIE_RX5-
A54	GPI0	B54	GPO1
A55	PCIE_TX4+	B55	PCIE_RX4+
A56	PCIE_TX4-	B56	PCIE_RX4-
A57	GND	B57	GPO2
A58	PCIE_TX3+	B58	PCIE_RX3+
A59	PCIE_TX3-	B59	PCIE_RX3-

管脚	信号名称	管脚	信号名称
A60	GND(FIXED)	B60	GND(FIXED)
A61	PCIE_TX2+	B61	PCIE_RX2+
A62	PCIE_TX2-	B62	PCIE_RX2-
A63	GPI1	B63	GPO3
A64	PCIE_TX1+	B64	PCIE_RX1+
A65	PCIE_TX1-	B65	PCIE_RX1-
A66	GND	B66	WAKE0#
A67	GPI2	B67	WAKE1#
A68	PCIE_TX0+	B68	PCIE_RX0+
A69	PCIE_TX0-	B69	PCIE_RX0-
A70	GND(FIXED)	B70	GND(FIXED)
A71	LVDS_A0+	B71	LVDS_B0+
A72	LVDS_A0-	B72	LVDS_B0-
A73	LVDS_A1+	B73	LVDS_B1+
A74	LVDS_A1-	B74	LVDS_B1-
A75	LVDS_A2+	B75	LVDS_B2+
A76	LVDS_A2-	B76	LVDS_B2-
A77	LVDS_VDD_EN	B77	LVDS_B3+
A78	LVDS_A3+	B78	LVDS_B3-
A79	LVDS_A3-	B79	LVDS_BKLT_EN
A80	GND(FIXED)	B80	GND(FIXED)
A81	LVDS_A_CK+	B81	LVDS_B_CK+
A82	LVDS_A_CK-	B82	LVDS_B_CK-
A83	LVDS_I2C_CK	B83	LVDS_BKLT_CTRL
A84	LVDS_I2C_DAT	B84	+5V_SBY
A85	GPI3	B85	+5V_SBY
A86	KBD_RST#	B86	+5V_SBY
A87	KBD_A20GATE	B87	+5V_SBY

管脚	信号名称	管脚	信号名称
A88	PCIE0_CK_REF+	B88	RSVD
A89	PCIE0_CK_REF-	B89	VGA_RED
A90	GND(FIXED)	B90	GND(FIXED)
A91	RSVD	B91	VGA_GRN
A92	RSVD	B92	VGA_BLU
A93	GPO0	B93	VGA_HSYNC
A94	RSVD	B94	VGA_VSYNC
A95	RSVD	B95	VGA_I2C_CK
A96	GND	B96	VGA_I2C_DAT
A97	+12V	B97	TV_DAC_A
A98	+12V	B98	TV_DAC_B
A99	+12V	B99	TV_DAC_C
A100	GND(FIXED)	B100	GND(FIXED)
A101	+12V	B101	+12V
A102	+12V	B102	+12V
A103	+12V	B103	+12V
A104	+12V	B104	+12V
A105	+12V	B105	+12V
A106	+12V	B106	+12V
A107	+12V	B107	+12V
A108	+12V	B108	+12V
A109	+12V	B109	+12V
A110	GND(FIXED)	B110	GND(FIXED)

COMECD1管脚定义如下：

管脚	信号名称	管脚	信号名称
C1	GND (FIXED)	D1	GND (FIXED)
C2	IDE_D7	D2	IDE_D5

管脚	信号名称	管脚	信号名称
C3	IDE_D6	D3	IDE_D10
C4	IDE_D3	D4	IDE_D11
C5	IDE_D15	D5	IDE_D12
C6	IDE_D8	D6	IDE_D4
C7	IDE_D9	D7	IDE_D0
C8	IDE_D2	D8	IDE_REQ
C9	IDE_D13	D9	IDE_IOW#
C10	IDE_D1	D10	IDE_ACK#
C11	GND (FIXED)	D11	GND (FIXED)
C12	IDE_D14	D12	IDE_IRQ
C13	IDE_IORDY	D13	IDE_A0
C14	IDE_IOR#	D14	IDE_A1
C15	PCI_PME#	D15	IDE_A2
C16	PCI_GNT2#	D16	IDE_CS1#
C17	PCI_REQ2#	D17	IDE_CS3#
C18	PCI_GNT1#	D18	IDE_RESET#
C19	PCI_REQ1#	D19	PCI_GNT3#
C20	PCI_GNT0#	D20	PCI_REQ3#
C21	GND (FIXED)	D21	GND (FIXED)
C22	PCI_REQ0#	D22	PCI_AD1
C23	PCI_RESET#	D23	PCI_AD3
C24	PCI_AD0	D24	PCI_AD5
C25	PCI_AD2	D25	PCI_AD7
C26	PCI_AD4	D26	PCI_C/BE0#
C27	PCI_AD6	D27	PCI_AD9
C28	PCI_AD8	D28	PCI_AD11
C29	PCI_AD10	D29	PCI_AD13
C30	PCI_AD12	D30	PCI_AD15

管脚	信号名称	管脚	信号名称
C31	GND (FIXED)	D31	GND (FIXED)
C32	PCI_AD14	D32	PCI_PAR
C33	PCI_C/BE1#	D33	PCI_SERR#
C34	PCI_PERR#	D34	PCI_STOP#
C35	PCI_LOCK#	D35	PCI_TRDY#
C36	PCI_DEVSEL#	D36	PCI_FRAME#
C37	PCI_IRDY#	D37	PCI_AD16
C38	PCI_C/BE2#	D38	PCI_AD18
C39	PCI_AD17	D39	PCI_AD20
C40	PCI_AD19	D40	PCI_AD22
C41	GND (FIXED)	D41	GND (FIXED)
C42	PCI_AD21	D42	PCI_AD24
C43	PCI_AD23	D43	PCI_AD26
C44	PCI_C/BE3#	D44	PCI_AD28
C45	PCI_AD25	D45	PCI_AD30
C46	PCI_AD27	D46	PCI_IRQC#
C47	PCI_AD29	D47	PCI_IRQD#
C48	PCI_AD31	D48	PCI_CLKRUN#
C49	PCI_IRQA#	D49	PCI_M66EN
C50	PCI_IRQB#	D50	PCI_CLK
C51	GND(FIXED)	D51	GND(FIXED)
C52	PEG_RX0+	D52	PEG_TX0+
C53	PEG_RX0-	D53	PEG_TX0-
C54	TYPE0#	D54	PEG_LANE_RV#
C55	PEG_RX1+	D55	PEG_TX1+
C56	PEG_RX1-	D56	PEG_TX1-
C57	TYPE1#	D57	TYPE2#
C58	PEG_RX2+	D58	PEG_TX2+

管脚	信号名称	管脚	信号名称
C59	PEG_RX2-	D59	PEG_TX2-
C60	GND(FIXED)	D60	GND(FIXED)
C61	PEG_RX3+	D61	PEG_TX3+
C62	PEG_RX3-	D62	PEG_TX3-
C63	RSVD	D63	RSVD
C64	RSVD	D64	RSVD
C65	PEG_RX4+	D65	PEG_TX4+
C66	PEG_RX4-	D66	PEG_TX4-
C67	RSVD	D67	GND
C68	PEG_RX5+	D68	PEG_TX5+
C69	PEG_RX5-	D69	PEG_TX5-
C70	GND(FIXED)	D70	GND(FIXED)
C71	PEG_RX6+	D71	PEG_TX6+
C72	PEG_RX6-	D72	PEG_TX6-
C73	SDVO_DATA	D73	SDVO_CLK
C74	PEG_RX7+	D74	PEG_TX7+
C75	PEG_RX7-	D75	PEG_TX7-
C76	GND	D76	GND
C77	RSVD	D77	RSVD
C78	PEG_RX8+	D78	PEG_TX8+
C79	PEG_RX8-	D79	PEG_TX8-
C80	GND(FIXED)	D80	GND(FIXED)
C81	PEG_RX9+	D81	PEG_TX9+
C82	PEG_RX9-	D82	PEG_TX9-
C83	RSVD	D83	RSVD
C84	GND	D84	GND
C85	PEG_RX10+	D85	PEG_TX10+

管脚	信号名称	管脚	信号名称
C86	PEG_RX10-	D86	PEG_TX10-
C87	GND	D87	GND
C88	PEG_RX11+	D88	PEG_TX11+
C89	PEG_RX11-	D89	PEG_TX11-
C90	GND(FIXED)	D90	GND(FIXED)
C91	PEG_RX12+	D91	PEG_TX12+
C92	PEG_RX12-	D92	PEG_TX12-
C93	GND	D93	GND
C94	PEG_RX13+	D94	PEG_TX13+
C95	PEG_RX13-	D95	PEG_TX13-
C96	GND	D96	GND
C97	RSVD	D97	PEG_ENABLE#
C98	PEG_RX14+	D98	PEG_TX14+
C99	PEG_RX14-	D99	PEG_TX14-
C100	GND(FIXED)	D100	GND(FIXED)
C101	PEG_RX15+	D101	PEG_TX15+
C102	PEG_RX15-	D102	PEG_TX15-
C103	GND	D103	GND
C104	+12V	D104	+12V
C105	+12V	D105	+12V
C106	+12V	D106	+12V
C107	+12V	D107	+12V
C108	+12V	D108	+12V
C109	+12V	D109	+12V
C110	GND(FIXED)	D110	GND(FIXED)

第三章 BIOS 功能简介

简介

BIOS（Basic Input and Output System：基本输入输出系统）固化在 CPU 板上的闪存存储器中，主要功能包括：初始化系统硬件，设置各系统部件的工作状态，调整各系统部件的工作参数，诊断系统各部件的功能并报告故障，给上层软件系统提供硬件操作控制接口，引导操作系统等。BIOS 提供用户一个菜单式的人机接口，方便用户配置各系统参数设置，控制电源管理模式，调整系统设备的资源分配等等。

正确设置 BIOS 各项参数，可使系统稳定可靠地工作，同时也能提升系统的整体性能。不适当的甚至错误的 BIOS 参数设置，则会使系统工作性能大为降低，使系统工作不稳定，甚至无法正常工作。COM-1814CLNAR BIOS 支持 LPC Super I/O SMSC3114。

BIOS 参数设置

每当系统接通电源，正常开机后，便可看见进入 BIOS 设置程序提示的信息。此时(其它时间无效)，按下提示信息所指定的按键（通常为<Del>键）即可进入 BIOS 设置程序。

CMOS 中 BIOS 设置内容被破坏时，系统也会要求进入 BIOS 设置或选择某种默认设置值。

通过BIOS修改的所有设置值都保存在系统的CMOS存储器中，该CMOS存储器由电池供电，即使切断外部电源，其内容也不会丢失，除非执行清除CMOS内容的操作。

注意！BIOS的设置直接影响到电脑的性能，设置错误的参数将造成电脑的损坏，甚至不能开机，请使用BIOS内置缺省值来恢复系统正常运行。

由于本公司不断研发更新BIOS，其设置界面也会略有不同，以下的画面供您参考，有可能跟您目前所使用的BIOS设置程序不完全相同。

BIOS 基本功能设置

当SETUP程序启动之后，您可以看到CMOS Setup Utility主画面如下：

BIOS SETUP UTILITY		
Main Advanced Chipset PCIPnP Boot Security Exit		
System Overview		Use [Enter],[TAB] or [SHIFT-TAB] to select a field. Use [+] or [-] to configure system Time ← Select Screen ↑ ↓ Select Item + - Change Field Tab Select Field F1 General Help F10 Save and Exit ESC Exit
Processor Intel(R) Core(TM)2 Duo CPU T9400 @ 2.53GHz Speed :2533MHz Cores :2		
System Memory Size :989MB		
System Time	[00:47:55]	
System Date	[Wed 04/20/2009]	
v02.61 (C)Copyright 1985-2006,American Megatrends, Inc.		

1 Main

(1) System Time

选择此选项，用< + > / < - >来设置目前的时间。以时/分/秒的格式来表示。各项目合理的范围是：Hour/时(00-23), Minute/分(00-59),Second/秒(00-59)。

(2) System Date

选择此选项，用< + > / < - >来设置目前的日期。以月/日/年的格式来表示。各项目合理的范围是：Month/月(Jan.-Dec.), Date/日(01-31),Year/年(最大至 2099), Week/星期(Mon.～ Sun.)。

2 Advanced

BIOS SETUP UTILITY	
Main Advanced Chipset PCIPnP Boot Security Exit	
Advanced Settings WARNING:Setting wrong values in below sections may cause system to malfunction ►CPU Configuration ►IDE Configuration ►SuperIO Configuration ►Hardware Health Configuration ►USB Configuration ►Power Management Configuration ►Clock Generator Configuration	Configure CPU. ← Select Screen ↑ ↓ Select Item Enter Go to Sub Screen F1 General Help F10 Save and Exit ESC Exit
v02.61 (C)Copyright 1985-2006,American Megatrends, Inc.	

(1) CPU Configuration

BIOS SETUP UTILITY	
Advanced	
Configure advanced CPU settings Module Version:3F.15	When enabled, a VMM Can utilize the Additional HW Caps. Provided by Intel(R) Virtualization Tech. Note: A full reset is Required to change The setting
Manufacturer: Intel Intel(R) Core(TM)2 Duo CPU T9400 @ 2.53GHz Frequency; :2.53GHz FSB Speed; :1066MHz Cache L1; :64 KB Cache L2; :6144KB Ratio Actual Value :9.5 Intel(R) Virtualization Tech [Enabled] Core Multi-Processing [Enabled] Intel(R) SpeedStep(tm) tech [Enabled]	← Select Screen ↑ ↓ Select Item + - Change Field F1 General Help F10 Save and Exit ESC Exit
v02.61 (C)Copyright 1985-2006,American Megatrends, Inc.	

(2) IDE Configuration

BIOS SETUP UTILITY		
Advanced		
IDE Configuration		Options
SATA#1 Configuration	[Enhanced]	Disabled Compatible Enhanced
Configure SATA#1 as	[IDE]	
SATA#2 Configuration	[Enhanced]	
▶Primary IDE Master	:[Not Detected]	← Select Screen
▶Primary IDE Slave	:[Not Detected]	↑ ↓ Select Item
▶Secondary IDE Master	:[Not Detected]	+ - Change Option
▶Secondary IDE Slave	:[Not Detected]	F1 General Help
▶Third IDE Master	:[Not Detected]	F10 Save and Exit
▶Fourth IDE Master	:[Not Detected]	ESC Exit
AHCI Port0	[Not Detected]	
AHCI Port1	[Not Detected]	
AHCI Port2	[Not Detected]	
AHCI Port3	[Not Detected]	
AHCI Port4	[Not Detected]	
AHCI Port5	[Not Detected]	
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① SATA#1 Configuration

此项有Disabled, Enhanced两个选择项，Enhanced为增强模式。

② Configure SATA as

此选项有IDE，RAID，AHCI三个选择项。

③ SATA#2 Configuration

此项有Disabled, Enhanced两个选择项，Enhanced为增强模式。

④ Primary～Fourth IDE Master/Slave

a) Type

Not Installed：系统没有检测到IDE设备；

AUTO：系统开机自动检测IDE参数；

CD/DVD：用于ATAPI CDROM；

ARMD：用于各种模拟IDE设备。

b) LBA/Large Mode

用于设置是否支持LBA模式。

c) Block(Multi-sector Transfer)

用于设置是否支持多扇区同时传输的功能。

d) PIO Mode

用于PIO模式设置。

e) DMA Mode

用于DMA模式设置。

f) S.M.A.R.T

开启或关闭自动侦测、分析、报告技术（Smart Monitoring, Analysis, and Reporting Technology）。设定值有：[Auto] [Disabled] [Enabled]。

g) 32Bit Data Transfer

此选项用于使能32位的硬盘访问模式，可以使硬盘读写速度达到最佳。

(3) Super IO Configuration

BIOS SETUP UTILITY		
Advanced		
Configure Super IO Chipset		Select the type of Floppy drive Connected to the System.
Floppy A	[Disabled]	
Onboard Floppy Controller	[Enabled]	
Serial Port1 Address	[3F8]	
Serial Port1 IRQ	[IRQ4]	
Serial Port2 Address	[2F8]	
Serial Port2 IRQ	[IRQ3]	
Serial Port3 Address	[3E8]	
Serial Port3 IRQ	[IRQ10]	
Serial Port4 Address	[2E8]	
Serial Port4 IRQ	[IRQ11]	
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说明如下：

① Floppy A

控制驱动器A的开关。

② Onboard Floppy Controller

控制floppy的开关。

③ Serial Port 1～4 Address

设定主机板上串口1～4的地址，选項有：Disabled、3F8H、2F8、3E8、2E8。

④ Serial Port 1～4 Address

设定主机板上串口1～4的地址，选项有：

IRQ4、IRQ3、IRQ10、IRQ11。

(4) Hardware Health Configuration

BIOS SETUP UTILITY		
Advanced		
Hardware Health Configuration		
CPU Temperature	: 46℃/114℉	
System Temperature	: 25℃/77℉	
CPUFAN1	: 3868 RPM	
V3.3	: 3.334 V	
V5.0	: 4.922 V	← Select Screen
V12.0	: 11.937V	↑ ↓ Select Item
VBAT	: 3.048 V	+ - Change Field
		F1 General Help
		F10 Save and Exit
		ESC Exit
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① **CPU Temperature**

当前CPU温度。CPU的温度由板上的温度传感器监测。

② **System Temperature**

当前系统温度，一般主板上有热敏电阻监测。

③ **CPUFAN1 Speed**

显示的是CPU风扇当前的转速。

④ **V3.3/V5.0/ V12.0**

开关电源输出电压。

⑤ **VBAT**

电池电压监测。

(5) USB Configuration

BIOS SETUP UTILITY		
Advanced		
USB Configuration		Disabled 2 USB Ports 4 USB Ports 6 USB Ports 8 USB Ports
Module Version - 2.24.3-13.4		
USB Devices Enabled : None		
USB Function	[8 USB Ports]	
USB 2.0 Controller	[Enabled]	
Legacy USB Support	[Enabled]	← Select Screen ↑ ↓ Select Item + - Change Field F1 General Help F10 Save and Exit ESC Exit
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① USB Function

此选项设置USB控制器的数量，即确定支持几个USB控制器，通常一个控制器有两个USB接口。

② USB 2.0 Controller

此选项用来选择是否支持USB 2.0 控制器。

③ Legacy USB Support

支持传统的USB键盘和鼠标，当该项设为Enabled(有效)时，即使不支持USB的操作系统如DOS下也能使用USB设备。

(6) Power Management

BIOS SETUP UTILITY	
Advanced	
Power Management Configuration	Power Off Power On Last State
Restore on AC Power Loss [Last State] Resume On RTC Alarm [Disabled]	←→ Select Screen ↑ ↓ Select Item + - Change Field F1 General Help F10 Save and Exit ESC Exit
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① Restore on AC Power Loss

使用该选项可以设置计算机在交流电停电而后再来电时系统所处状态。“Power Off”，让系统处于关机状态，“Power On”，系统自动开启，“Last State”，则保持到断电前的状态。

② Resume on RTC Alarm

此项用来打开或关闭系统闹钟，当到达指定时间时，会将系统从节电模式甚至关机状态唤醒，该功能必须有ATX电源的支持。

(7) ICS OPTION

BIOS SETUP UTILITY		
Advanced		
Clock Generator Configuration		Allows BIOS to set Clock spread Spectrum for EMI Control.
Spread Spectrum	[Enabled]	
Auto PCI Clock	[Enabled]	
		← Select Screen ↑ ↓ Select Item + - Change Field F1 General Help F10 Save and Exit ESC Exit
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① Spread Spectrum

此选项用来选择是否打开时钟展频功能。

② Auto PCI Clock

此选项用来选择是否打开PCI插槽设备自动侦测功能，实现在无设备的情况下关闭该插槽的时钟的功能。

3 Chipset

```
                        BIOS SETUP UTILITY
Main   Advanced   Chipset   PCIPnP   Boot   Security   Exit
Advanced Chipset Settings                          Options
WARNING: Setting wrong values in below sections    Auto
         may cause system to malfunction.          800 MHz
North Bridge Chipset Configuration                 1066 MHz
DRAM Frequency                  [Auto]
Configure DRAM Timing by SPD    [Enabled]

Boots Graphic Adapter Priority  [PEG/PCI]
Internal Graphics Mode Select   [Enabled,32MB]     ←   Select Screen
PEG Port Configuration                             ↑ ↓ Select Item
  PEG Port                      [Auto]             +-  Change Option
                                                   F1  General Help
Boot Display Device             [CRT]              F10 Save and Exit
Flat Panel Type                 [800*600]          ESC Exit
Panel Specification             [18 BIT]

South Bridge Chipset Configuration
Onboard Audio Controller        [Enabled]

PCIE Ports Configuration
  PCIE Port 0                   [Auto]
  PCIE Port 1                   [Auto]
  PCIE Port 2                   [Auto]
  PCIE Port 3                   [Auto]
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```

(1) RAM Frequency

配置DRAM的频率。

(2) Configure DRAM Timing by SPD

BIOS按照SPD芯片上的内容配置SDRAM内存的时序。使系统达到最优化。

(3) Boots Graphic Adapter Priority

显示设备优先级的设置，默认值是 PEG/PCI,即，优先PCI-E显卡显示，其次PCI显卡，如果两种设备都没有则在板载显卡上显示。

(4) Internal Graphics Mode Select

图形设备从系统地址空间申请一块专用地址空间，用于图形内存地址空间。

(5) Boot Display Device

选择显示模式。

(6) Flat Panel Type

选择LVDS显示分辨率。

(7) Onboard Audio Controller

选择是否打开声卡控制器。

(8) Panel Specification

用于选择LVDS屏的位数，包括18位和24位。

4 PCIPnP

BIOS SETUP UTILITY		
Main Advanced Chipset PCIPnP Boot Security Exit		
Advanced PCI/PnP Settings		Available: Specified IRQ is available to be used by PCI/PnP devices. Reserved: Specified IRQ is reserved for use by Legacy ISA devices.
WARNING:Setting wrong values in below sections may cause system to malfunction.		
IRQ3	[Available]	
IRQ4	[Available]	
IRQ5	[Available]	
IRQ7	[Available]	
IRQ9	[Available]	← Select Screen ↑ ↓ Select Item + - Change Field F1 General Help F10 Save and Exit ESC Exit
IRQ10	[Available]	
IRQ11	[Available]	
IRQ14	[Available]	
IRQ15	[Available]	
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(1) IRQ 3～15

本项目用以指定IRQ中断是PNP方式还是保留给ISA使用。

5 Boot

BIOS SETUP UTILITY		
Main Advanced Chipset PCIPnP Boot Security Exit		
Boot Settings		Allows BIOS to skip certain tests while booting, This will decrease the time needed to boot the system.
Quick Boot	[Enabled]	
Quiet Boot	[Disabled]	
Waite For ‘F1’ If Error	[Enabled]	
Boot Device Priority		
1st Boot Device	[USB:storage]	← Select Screen ↑ ↓ Select Item + - Change Field F1 General Help F10 Save and Exit ESC Exit
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(1) Quick Boot

配置在BIOS引导期间是否允许跳过某些项的测试, 减少BIOS引导时间。

(2) Quiet Boot

配置是否显示OEM LOGO内容。

(3) Wait For ‘F1’ If Error

配置在系统出错时是否提示按”F1”键。

(4) 1st～4th Boot Device

配置系统启动时优先权高低的启动设备。

6 Security

BIOS SETUP UTILITY	
Main Advanced Chipset PCIPnP Boot Security Exit	
Security Settings	Install or Change the password
Supervisor Password :Not Installed	
User Password :Not Installed	
	← Select Screen
Change Supervisor Password	↑ ↓ Select Item
Change User Password	Enter Change
	F1 General Help
	F10 Save and Exit
	ESC Exit
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(1) Change User/ Supervisor Password

当按Change User/ Supervisor Password后，在对话框中输入新的密码后，此栏会显示用户密码已安装。

7 Exit

South Bridge Configuration	
Main Advanced Chipset PCIPnP Boot Security Exit	
Exit Options	Exit system setup after saving the changes.
Save Changes and Exit	
Discard Changes and Exit	
Discard Changes	F10 key can be used for this operation.
	←→ Select Screen
	↑ ↓ Select Item
Load Optimal Defaults	Enter Go to Sub Screen
Load Failsafe Defaults	F1 General Help
	F10 Save and Exit
	ESC Exit
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(1) Save Changes and Exit

当您完成了所有的修改操作，想将原来的设置参数覆盖掉时，可执行此项功能，新的设置参数将保存在CMOS的存储器中。要执行此操作，先选定此选项并按下< Enter >键，再按< Enter >键即可可退出。

(2) Discard Changes and Exit

当您所做的任何更改设置的动作不想存入CMOS的存储器中，可先选定此选项并按下< Enter >键，再按<Enter >键即可退出。

(3) Discard Changes

当您所做的任何更改设置的动作有误而需要忽略时，可先选定此选项并按下< Enter >键,然后可以再次进入相应选项进行重新设置。

(4) Load Optimal Defaults

此菜单用于在你的系统配置中装入缺省值。这些缺省设置是最优的，可以发挥所有硬件的高性能。

(5) Load Failsafe Defaults

该选项的功能是将各项设置初始化为实现最基本的和最安全的系统功能的值。要执行此项功能，先选中此选项按下< Enter >即可，接着系统会在屏幕上显示出要您确认的信息，按下< Enter >键确定执行该项功能。

x86 平台下 BIOS 所要管理的系统资源

这里的系统资源我们定义三种：I/O端口地址，IRQ中断号和DMA号。

1 DAM

级别	功能
DMA1	未分配
DMA2	软盘
DMA3	未分配（有时用于硬盘）
DMA4	用于 DMAC 的级联
DMA5	未分配
DMA6	未分配
DMA7	未分配

2 APIC

高级可编程中断控制器。在现代P4以上级别的主板中，大都支持APIC，可以提供多于16个中断源，如IRQ16—IRQ23，部分主板如支持PCI-X的主板可以有多达28个中断源。但要启用该功能必须相应的操作系统支持，目前只有windows 2000以上的操作系统支持。

3 IO端口地址

X86的I/O地址线只设计16条，从0～0FFFFh，I/O地址空间总共有64K，在传统的ISA接口，只使用到前面的1024个（0000～03FFh），0400h以上的端口为PCI接口与EISA接口所使用。每一外围设备都会占用一段I/O地址空间。下表给出了X86平台大致上所要用到的I/O接口列表。

地 址	设备描述
000h - 00Fh	DMA 控制器#1
020h - 021h	可编程中断控制器#1
040h - 043h	系统计时器
060h - 064h	标准 101/102 键盘控制器
070h - 071h	实时时钟,NMI
080h - 09Fh	DMA 页寄存器
0A0h - 0A1h	可编程中断控制器#2
0C0h - 0DFh	DMA 控制器#2
0F0h - 0FFh	数据数值处理器
274h - 279h	PnP 组态寄存器端口
2E8h - 2EFh	串行端口 #4(COM4)
2F8h - 2FFh	串行端口 #2(COM2)
3B0h - 3DFh	显示卡接口
3E8h - 3EFh	串行端口 #3(COM3)
3F0h - 377h	软驱控制器
3F8h - 3FFh	串行端口#1(COM1)
400h - 41Fh	SMBUS 控制器

4 IRQ中断分配表

系统共有15个中断源，有些已被系统设备独占。只有未被独占的中断才可分配给其它设备使用。ISA设备要求独占使用中断；只有即插即用ISA设备才可由BIOS或操作系统分配中断。而多个PCI设备可共享同一中断，并由BIOS或操作系统分配。下表给出了X86平台部分设备的中断分配情况，但没有给出PCI设备所占用的中断资源。

级别	功能
IRQ0	系统计时器
IRQ1	标准 101/102 键或 Microsoft 键盘
IRQ3	串口#2
IRQ4	串口#1
IRQ6	软驱控制器
IRQ8	系统 CMOS/实时时钟
IRQ9	ACPI 系统
IRQ10	串口#3
IRQ11	串口#4
IRQ12	保留
IRQ13	数字协处理器
IRQ14	保留
IRQ15	SMBUS 控制器

第四章　驱动程序安装说明

本产品的驱动程序可依据配套光盘内容安装，在此不做介绍。

附录

Watchdog 编程指引

本主板提供一个可按分或按秒计时的，最长达255级的可编程看门狗定时器(以下简称WDT)。通过编程，WDT超时事件可用来将系统复位或者产生一个可屏蔽中断。

本主板可使用的中断号为：3，4，5，7，9，10，11。使用前请把BIOS Setup界面PCIPnP组中对应的IRQ号选项值改成Reserved。

以下用C语言形式提供了WDT的编程范例，对WDT的编程需遵循以下步骤：

- 进入WDT编程模式
- 设置WDT工作方式/启动WDT/关闭WDT

(1) **进入WDT编程模式。**

```
#define   INDEX_PORT    0x4E
#define   DATA_PORT     0x4F
unsigned  int tmp_reg;
unsigned int pm_base;

outportb(INDEX_PORT, 0x55);
outportb(INDEX_PORT, 0x07);
outportb(DATA_PORT, 0x0A);
outportb(INDEX_PORT, 0x30);
outportb(DATA_PORT, 0x01);
outportb(INDEX_PORT, 0x60);
tmp_reg = inportb(DATA_PORT);
pm_base = tmp_reg;
outportb(INDEX_PORT, 0x61);
tmp_reg = inportb(DATA_PORT);
pm_base = pmbase<<8+tmp_reg; /*此处得到变量pm_base供后续程序使用*/
```

(2) **配置**WDT**工作方式，复位或中断方式，选择一种：**

a. **配置**WDT**成复位工作方式**

```
outportb(pm_base+0x47, 0x0C);
```

b. **配置**WDT**成中断工作方式**

```
unsigned int irq;
irq = IRQ_NO; /*此处请用需要使用的中断号替换掉常量IRQ_NO，赋值给变量irq，文档前端已经列出可使用中断号的范围*/
irq = irq<<4;
outportb(pm_base+0x47, 0x80);
outportb(pm_base+0x67, irq);
```

(3) **配置**WDT**按分或秒计时：**

a. **按分计时：**

```
outportb(pm_base+0x65, 0x00);
```

b. **按秒计时：**

```
outportb(pm_base+0x65, 0x80);
```

(4) **启动/停止**WDT

a. **启动WDT：**

```
outportb(pm_base+0x66, TIME_OUT_VALUE); /*请以超时时间单位数量(0x01～0xFF)替换掉常量TIME_OUT_VALUE*/
```

b. **停止WDT：**

```
outportb(pm_base+0x66, 0x00);
```

GPIO 编程指引

本主板提供8路可编程数字I/O引脚，其中4路为输入，4路为输出。以下用C语言形式提供了数字I/O的编程范例，对数字I/O的编程需遵循以下步骤：

- 初始化数字I/O
- 输入输出编程

(1) **初始化数字I/O:**

```
#define   BAR  0x400

unsigned char tmp_val;
outportb(BAR,0xbf);
outportb(BAR+0x04,0x40);
outportb(BAR+0x03,0x03);
outportb(BAR+0x05,0x0F);
tmp_val =(inportb(BAR+0x02)|0x08)&0xeb;
tmp_val |= 0x40;
outportb(BAR+0x02, tmp_val);
delay(30);
tmp_val =inportb(BAR);
while((tmp_val &0x02)!=0x02)
     {
               tmp_val =inportb(BAR);
               if((tmp_val &0x04)!=0)
               {
                    printf("ERROR\n");
                    return 0;
               }
     }
```

(2) **输入输出编程：**

a. **输出编程**

函数输入： int pin - 取值1～4分别对应输出引脚1～4

int lev_val - 1为输出高电平，0为输出低电平

函数输出：无

```
void Out_Lev(int pin ,int lev_val)
  {
    unsigned int reg_val ;
    outportb(BAR,0xbf);
    outportb(BAR+0x04,0x40);
    outportb(BAR+0x03,0x01);
    reg_val = inportb(BAR+0x05);
    reg_val = lev_val ? reg_val|(0x01<<pin+3) :reg_val&(～
(0x01<<pin+3)) ;
    outportb(BAR+0x05, reg_val);
    reg_val =(inportb(BAR+0x02)|0x08)&0xeb;
    reg_val |= 0x40;
    outportb(BAR+0x02, reg_val);
    delay(30);
    reg_val =inportb(BAR);
    while((reg_val &0x02)!=0x02)
        {
            reg_val =inportb(BAR);
            if((reg_val &0x04)!=0)
            {
                printf("ERROR\n");
                return 0;
            }
        }
}
```

b. **输入编程**

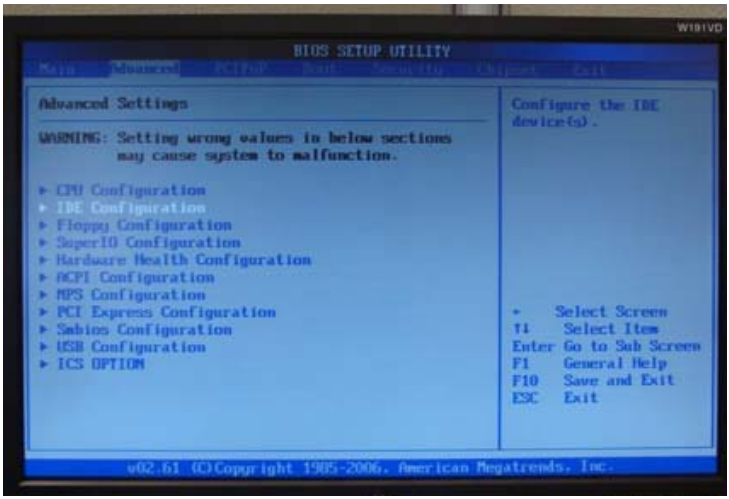
函数输入：int pin - 取值1～4分别对应输入引脚1～4

函数输出：int lev_val - 1: 输入引脚为高电平，0: 输入引脚为低电平

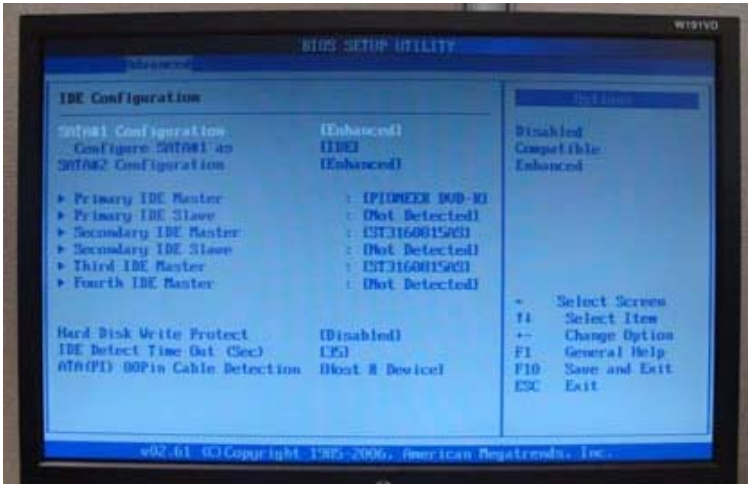
```
int In_Lev(int pin)
{
    unsigned int reg_val ;
    int lev_val ;
    outportb(BAR,0xbf);
    outportb(BAR+0x04,0x41);
    outportb(BAR+0x03,0x00);
    reg_val =(inportb(BAR+0x02)|0x08)&0xeb;
    reg_val |= 0x40;
    outportb(BAR+0x02, reg_val);
    delay(30);
    reg_val =inportb(BAR);
    while((reg_val &0x02)!=0x02)
        {
            reg_val =inportb(BAR);
            if((reg_val &0x04)!=0)
            {
                printf("ERROR\n");
                return 0;
            }
        }
    lev_val = inportb(BAR+0x05)&( 0x01<<pin-1);
    lev_val = lev_val ? 1:0; /*此处得到变量lev_val的值，为1
    表示输入引脚为高电平，为0表示输入引脚为低电平*/
    return lev_val ;
}
```

RAID 安装方法及步骤

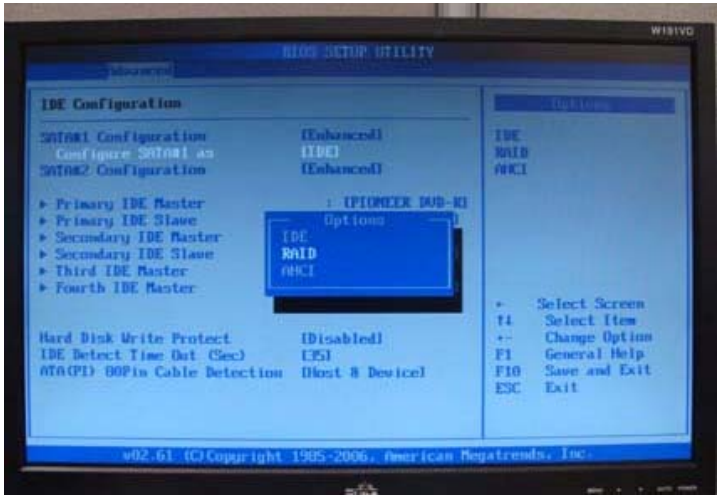
1. 先将准备好的硬盘依次插到SATA1，SATA2。在开机时按“Del”键，进入BIOS SETUP UTILITY的Advanced界面，选中IDE Configuration.（用方向键来移动您所需要进入的菜单）



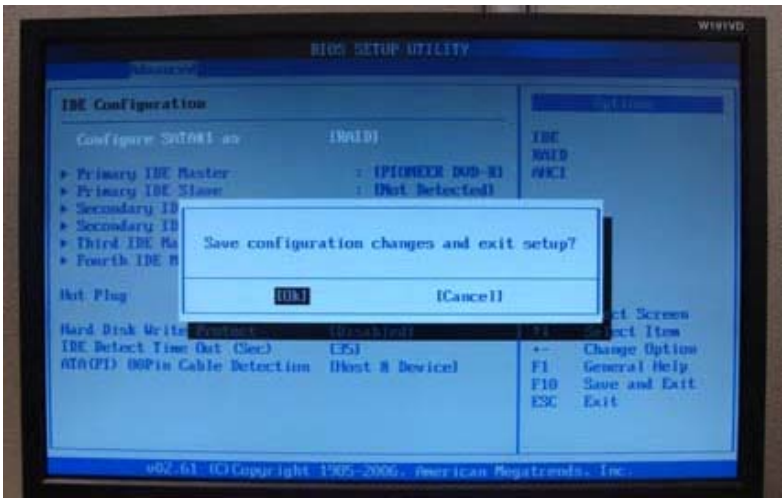
2.进入 IDE 选项：



3.设定 Configure SATA#1 as 为：RAID 后回车。



4.按 F10 保存，会重开机。



5.重启后出现以下画面：

6.按照上图屏幕的提示按“<CTRL-I>” 以进入RAID Configuration Utility。

7.创建RAID卷：选中上图中“Create RAID Volume”后按回车出现以下画面：

8.选择需要安装的RAID 类型：用Table键切换到RAID Level选项，选择所需要的RAID Level。 Strip Size一般建议：RAID0-128KB RAID10-64KB(下面以RAID0为例)。

9.点击 Create Volume：

10.出现下面信息，按”Y”，继续下面的操作

11.组建完成后，选择 5 或者按< ESC>键退出 Raid 配置界面。

12.出现下面信息，按”Y”，继续下面的操作：

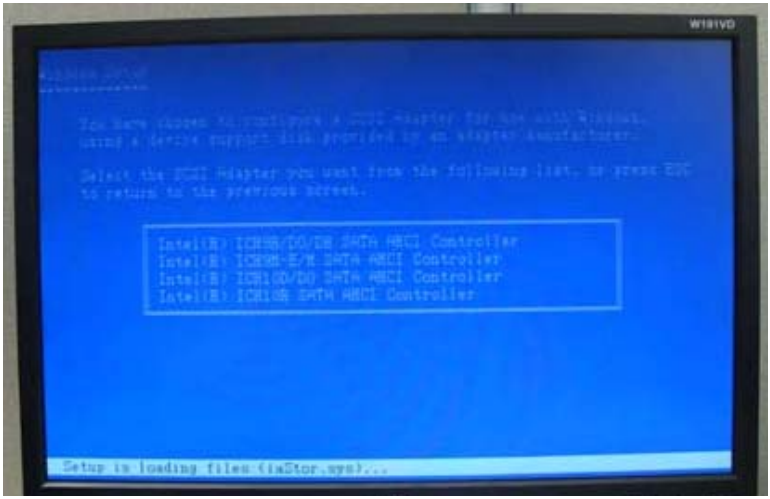
13.安装系统：在安装系统之前，必须将事先准备好的 RAID 的驱动 COPY 到 USB 软驱中。

在安装系统注意在屏幕下方出现”Press F6 if you need to install a third party SCSI or RAID driver…”时按 F6.

14.选择所需安装的芯片组的 RAID 的驱动。在出现下面信息时，按”S”.

15.选择支持该芯片的驱动。

16.系统从软驱装载 RAID 驱动



17.在出现下面的信息后，按“ENTER”，正常的安装系统。

欲获更多信息请访问研祥网站：http://www.evoc.com。