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User's Manual

Single Board Computer 3307114

Version 1.0, 2004

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CHAPTER 1

1-1 Introduction

3307114 is built based on VIA PLE133 High performance graphic integrated chipset and Cost effective Realtek fast Ethernet controller that support Intel® high performance processor; Intel® Socket 370 type Pentium® III Processor.

This single board computer runs with Intel® Celeron™ / Pentium® III processor, and supports DIMM up to 1GB SDRAM. The enhanced onboard PCI IDE interface can support 4 drives up to PIO mode 4 timing and Ultra DMA/33/66/100 synchronous mode feature. The onboard Super I/O Chipset integrates one floppy controller, two serial ports, one keyboard controller, one hardware monitor, one IrDA port and one parallel port. Besides, two USB (Universal Serial Bus) ports provide high-speed data communication between peripherals and PC.

3307114 was designed to meet all kind of applied computing application. It is built not only to satisfy the requirements for Internet application's high computing performance and advanced LAN system but also for CTI application. Its proprietary PCI extension connector provides an easy way to add additional function like U160 SCSI or 2nd LAN in minutes. The compact form factor with proprietary PCI connection interface makes it the best and flexible daughter board solution for adding more function in limited pace.

The PICMG standard makes the 3307114 works with the legacy ISA, ISA/PCI or multi-slots PCI-bus backplane. The onboard 32-pin DIP socket supports M-systems DiskOnChip 2000 product up to 288MB. The Watch-Dog Timer function can be used to monitor your system status.One 6-pin Mini-DIN connector (with Y-Cable) is provided to connect PS/2 Mouse and Keyboard. The onboard Flash ROM is used to make the BIOS update easier. A standard 5-1/4" drive power connector is reserved to directly get more power energy for big power applications, and the additional 5-pin shrouded connector is reserved for connecting Keyboard interface on the backplane. One 4-pin header is designed to support ATX power function. All of these features make 3307114 excellent in many applications.

1-2 Check List

The 3307114 package should cover the following basic items with the Quick Installation Guide.

- ü   One 3307114 board computer

- ü   One Parallel port cable kit

- ü   One serial port cable to support two interfaces

- ü   One FDC cable

- ü   One IDE cable

- ü   One Y-Cable cable for PS/2 Keyboard and Mouse

- ü   One 5-pin to 5-pin keyboard cable for backplane connection

- ü   One 4-pin ATX power control cable for backplane connection

- ü   One CD-Title 3307114 to support VIA PLE133 High performance graphic

    device driver, Cost effective Realtek LAN device driver and full version manual in pdf format.

If any of these items is damaged or missing, please contact your vendor and keep all packing materials for future replacement and maintenance.

NOTICE
Due to the variety of CPU/memory combination, we will strongly recommend all users to used PC-133 memory with FSB-133 CPU

1-3 Product Specification

* Main processor
  ▌ Intel® Celeron™ and Pentium® III processors
  ▌ CPU bus frequency: 66/100/133 MHz

* BIOS
  ▌ AMI system BIOS with 256KB Flash ROM with easy upgrade function ACPI, DMI, Green function and Plug and Play Compatible

* Main Memory
  ▌ Three 168-pin DIMM sockets support PC 133/100 SDRAM up to 1GB DIMM without ECC Support

* L2 Cache Memory
  ▌ 128KB L2 Cache built in Celeron™ and 256KB in Pentium® III processor

* Chipset
  ▌ VIA PLE133 Chipset

* Bus Interface
  ▌ Follow PICMG 1.0 Revision 2.0 standard (32-bit PCI and 16-bit ISA)
  ▌ Fully complies with PCI Local Bus specification V2.1 (support 4 master PCI slots)

* PCI IDE Interface
  ▌ Support two enhanced IDE ports up to four HDD devices with PIO mode 4 and Ultra DMA/33/66/100 mode transfer and Bus Master feature

* Floppy Drive Interface
  ▌ Support one FDD port up to two floppy drives and 5-1/4"(360K, 1.2MB), 3-1/2" (720K, 1.2MB, 1.44MB, 2.88MB) diskette format and 3-mode FDD

* Serial Ports
  ▌ Support two high-speed 16C550 compatible UARTs with 16-byte T/R FIFOs

* IR Interface
    ▌ Support one 6-pin header for serial Standard Infrared wireless communication

* Parallel Port
    ▌ Support one parallel port with bi-direction, EPP and ECP modes

* USB Interface
    ▌ Support two USB (Universal Serial Bus) ports for high-speed I/O peripheral devices
    ▌ Note: For a standalone application, both USB ports may be available. For installing 3307114 in a standard Chassis, physical limitation will only allow one USB port to be available.

* PS/2 Mouse and Keyboard Interface
    ▌ Support one 6-pin Mini-DIN connector and one 5-pin shrouded connector for PS/2 mouse/keyboard connection through Y-Cable and backplane connection

* ATX Power Control Interface
    ▌ One 4-pin header to support ATX power control with Modem Ring-On and Wake-On-LAN function

* Auxiliary I/O Interfaces
    ▌ System reset switch, external speaker and HDD active LED

* Real Time Clock/Calendar (RTC)
    ▌ Support Y2K Real Time Clock/calendar with battery backup for 7-year data retention

* Watchdog Timer
    ▌ Support 8 intervals from 0.5 sec./min. to 64 sec./max. By hardware jumper setting

* Disk-On-Chip (DOC) Feature
    ▌ Reserved one 32-pin socket for M-systems Flash Disk up to 288MB
    ▌ DOS, Windows, Win95, NT (bootable) drivers and Utility supported

* Onboard VGA
    ▌ VIA PLE133 with graphic controller

* Onboard Ethernet LAN
  - RealTek 8139C PCI Fast Ethernet Controller integrated LAN controller to support RJ-45 connector.

* Onboard 68-pin PCI device connector
  - Support one additional PCI device daughter board

* High Driving Capability
  - Support 64mA high driving capability for multi-slots ISA-bus

* External Power Connector
  - Support one standard 5-1/4" disk drive power connectors to enhance power driving

* CPU Cooling Fan
  - Support two 3-pin headers with wafer

* System Monitoring Feature
  - Monitor CPU, system voltage, CPU fan speed and system temperature

* Bracket
  - Support one Mini-DIN, two-port USB, one Ethernet port and one CRT port

* Physical and Environmental Requirements
  - Outline Dimension : 338.5(L) X 122(W)mm
                        13.33"(L) X 4.8"(W)
  - PCB layout : 6 layer
  - Power Requirements : +5V @8A, +12V @150mA, -12V @20mA
  - Operating Temperature : 0℃ ~ 55℃ (32℉ ~ 131℉)
  - Storage Temperature : -20℃ ~ 75℃ (-4℉ ~ 167℉)
    Relative Humidity : 5%

1-4 System Architecture

The most up-to-date system architecture of 3307114 includes two main VIA chips, VT8601A (Graphics and Memory Controller) to support Celeron/Pentium III processor, SDRAM, 2D/3D graphic display, and VT82C686B (I/O Controller) supports PCI bus interface, APM, ACPI compliant power management, USB port, SMBus communication, and Ultra DMA/33/66/100 IDE Master. PS/2 Keyboard/Mouse, UARTs, FDC, Hardware Monitor, Parallel, Watch Dog Timer and Infrared interface. Besides, RTL8139C Fast Ethernet controller provides a competitive fast Ethernet function.

The CPU socket adopts the Socket-370 type to support high availability, reliability, and easy operation in general industry application.

The PCI-to-ISA bridge supports a standard 16-bit ISA bus interface which is applied for all slower I/O operations. In 3307114, it supports DiskOnChip (DOC) for M-systems Flash disk.

There is one onboard PCI Fast Ethernet via RJ-45 Ports to support full functionality of 3307114 AIO SBC (All-In-One Single Board Computer). The onboard 68-pin PCI connector supports additional daughter board for further extension.

Chapter 2

2. Hardware Configuration

This chapter indicates jumpers', headers'and connectors'location. Users may find useful information related to hardware settings in this chapter. The default settings are indicated with a star sign (ê).

2-1 Jumper Setting

The jumper settings are used to select options for different features. The adjustment made aims to let users customize 3307114's features. In the following sections, short means covering a jumper cap over jumper pins; open or NC (Not Connected) means removing a jumper cap from jumper pins.

Users can refer to Figure. 2-1 for the Jumper locations.
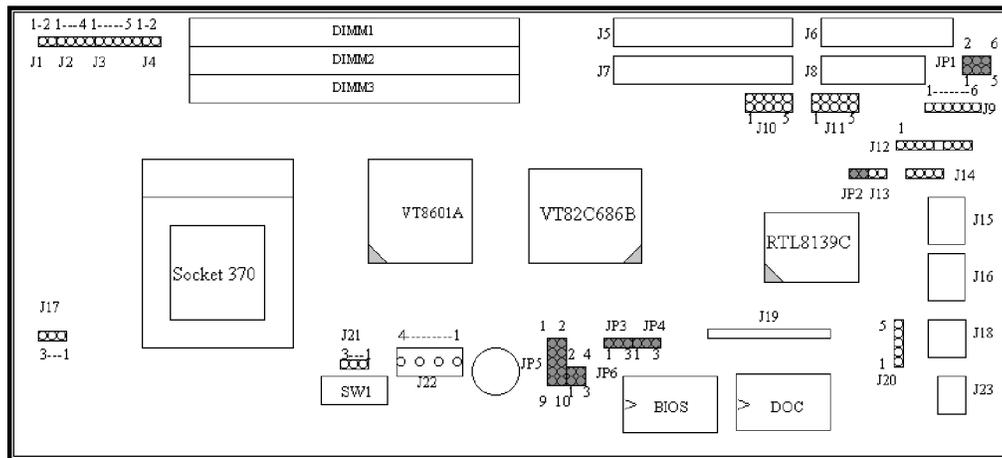
Figure.2-1   3307114 Jumper Location

ATX/AT Power Supply Acceleration (JP1)

JP1	Function
1-3,2-4 Short	AT Power ê
3-5,4-6 Short	ATW Power

Ethernet Function (JP2)

JP2	Function
1-2 Short	Enable ê
1-2 Open	Disable

PS/2 Mouse (JP3)

JP3	Function
1-2 Short	Enable ê
2-3 Short	Disable

CMOS Clear (JP4)

JP4	Function
1-2 Short	Normal ℮
2-3 Short	Clear CMOS

Watch Dog Time Function (JP5)

JP5	Function
1-2 Short	Disable WDT Function℮
1-2 Open	Enable WDT Function
3-4 Short	Allocate I/O port 543/343
3-4 Open	Allocate I/O port 533/033℮

5-6	7-8	9-10	Time-out Interval
Short	Short	Short	0.5 Sec
Short	Short	NC	1 Sec℮
Short	NC	Short	2 Sec
Short	NC	NC	4 Sec
NC	Short	Short	8 Sec
NC	Short	NC	16 Sec
NC	NC	Short	32 Sec
NC	NC	NC	64 Sec

DiskOnChip Jumper Setting (JP6)

1-2	3-4	Function
NC	NC	D8000-D9FFF ℮
NC	Short	DA000-DBFFF
Short	NC	DC000-DDFFF
Short	Short	DE000-DFFFF

2-2 Connector Allocation

I/O peripheral devices and flash disk are connected to the interface connectors and DOC socket on this single board computer (Figure 2-2)
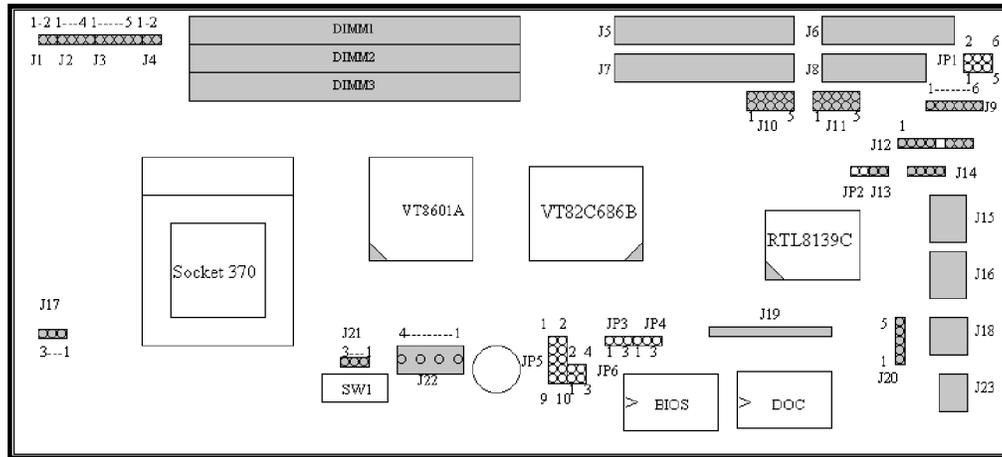
Figure.2-2   3307114 Connector Location

Connector's Function List

CONNECTOR LOCATION	DESCRIPTION
J1	Reset Header
J2	External Speaker Header
J3	Keyboard Lock Header (Not Supported)
J4	IDE Active LED Header
J5	IDE Interface Connector
J6	Floppy disk interface
J7	IDE Interface Connector
J8	Parallel Port Connector
J9	Standard IrDA Header
J10	Serial Port 2x5 shrouded connector
J11	Serial Port 2x5 shrouded connector
J12	CPLD 8-pin connector
J13	ATX Power Button Interface
J14	ATX power control connector
J15	Ethernet RJ-45 Interface connector
J16	Two USB Port
J17	FAN power connector PIN1 : GND PIN2 : +12V PIN3 : Pull-up +3V (Reserved for sense signal)
J18	PS/2 Keyboard& Mouse connector
J19	68 pins PCI connector
J20	External Keyboard connector
J21	FAN power connector PIN1 : GND PIN2 : +12V PIN3 : Pull-up +3V (Reserved for sense signal)
J22	Standard P8 power connector
J23	VGA DSUB-15 connector

Pin Assignments of Connectors

ˆ J1: Reset Header

PIN No	Signal Description
1	Reset
2	Ground

ˆ J2 : External Speaker Header

PIN No.	Signal Description
1	Speaker signal
2	N/C
3	Ground
4	+5V

ˆ J3 : Keyboard Lock Header

PIN No.	Signal Description
1	+5V (220 ohm pull-up for power LED)
2	N/C
3	Ground
4	Keyboard inhibit
5	Ground

ˆ J4: IDE1/IDE2 Active LED Header

PIN No.	Signal Description
1	+5V (470 ohm pull-up for HDD LED)
2	HDD Active # (LED cathode terminal)

ˆ J5/J7: IDE1/IDE2 Interface Connector

PIN No.	Signal Description	PIN No.	Signal Description
1	RESET#	2	Ground
3	Data 7	4	Data 8
5	Data 6	6	Data 9
7	Data 5	8	Data 10
9	Data 4	10	Data 11
11	Data 3	12	Data 12
13	Data 2	14	Data 13
15	Data 1	16	Data 14
17	Data 0	18	Data 15
19	Ground	20	N/C
21	DMA REQ	22	Ground
23	IOW#	24	Ground
25	IOR#	26	Ground
27	IOCHRDY	28	Pull-down
29	DMA ACK#	30	Ground
31	INT REQ	32	N/C
33	SA1	34	CBLID#
35	SA0	36	SA2
37	HDC CS0#	38	HDC CS1#
39	HDD Active#	40	Ground

^ J6 : FDC Interface Connector

PIN No.	Signal Description	PIN No.	Signal Description
1	Ground	2	Density Select 0
3	Ground	4	N/C
5	Ground	6	Density Select 1
7	Ground	8	Index#
9	Ground	10	Motor ENA#
11	Ground	12	Drive Select B#
13	Ground	14	Drive Select A#
15	Ground	16	Motor ENB#
17	Ground	18	Direction#
19	Ground	20	Step#
21	Ground	22	Write Data#
23	Ground	24	Write Gate#
25	Ground	26	Track 0#
27	Ground	28	Write Protect#
29	Ground	30	Read Data#
31	Ground	32	Head Select#
33	Ground	34	Disk Change#

^ J8 : Parallel Port Connector

PIN No.	Signal Description	PIN No.	Signal Description
1	Strobe#	14	Auto Form Feed#
2	Data 0	15	Error#
3	Data 1	16	Initialization#
4	Data 2	17	Printer Select IN#
5	Data 3	18	Ground
6	Data 4	19	Ground
7	Data 5	20	Ground
8	Data 6	21	Ground
9	Data 7	22	Ground
10	Acknowledge#	23	Ground
11	Busy	24	Ground
12	Paper Empty	25	Ground
13	Printer Select	26	N/C

^ J9 : Standard IrDA Header

PIN No.	Signal Description
1	VCC (+5V)
2	IOVSB
3	IRRX
4	Ground
5	IRTX
6	OVCROFF (Over Current Off)

^ J10/J11 : Serial Port-1/Port-2 Connector (2 x 5 shrouded header)

PIN No.	Signal Description
1	Data Carrier Detect (DCD)
2	Receive Data (RXD)
3	Transmit Data (TXD)
4	Data Terminal Ready (DTR)
5	Ground (GND)
6	Data Set Ready (DSR)
7	Request to Send (RTS)
8	Clear to Send (CTS)

PIN No.	Signal Description
9	Ring Indicator (RI)
10	N/C

ˆ J12 : CPLD 8-pin Connector

PIN No.	Signal Description
1	+5V
2	TDO
3	TDI
4	N/C
5	N/C
6	TMS
7	Ground
8	TCK

ˆ J13 : ATX Power Button Interface

PIN No.	Signal Description
1	Power Button Control Signal
2	Ground

ˆ J14 : ATX Power Control Connector

PIN No.	Signal Description
1	ATX Power Good Signal
2	ATX 5V Stand-by
3	ATX Power On Control
4	Ground

ˆ J15 : Ethernet RJ-45 Interface Connector

PIN No.	Signal Description
1	TX+
2	TX-
3	RX+
4	Termination to Ground
5	Termination to Ground
6	RX-
7	Termination to Ground
8	Termination to Ground

ˆ J16 : Two-port USB Interface Connector

PIN No.	Signal Description	PIN No.	Signal Description
1	+5V	2	USBD0-
3	USBD0+	4	USBGND0
5	+5V	6	USBD1-
7	USBD1+	8	USBGND1

ˆ J17/J21 : Chassis/CPU Fan Power Connector

PIN No.	Signal Description
1	Ground
2	+12V
3	Pull-up 5V (Reserved for sense signal)

ˆ J18 : PS/2 Keyboard/Mouse Connector (6-pin Mini-DIN)

PIN No.	Signal Description
1	Mouse Data
2	Keyboard Data
3	GND
4	+5V
5	Mouse Clock
6	Keyboard Clock

J19 : 68 pin PCI Connector

PIN No.	Signal Description	PIN No.	Signal Description
1	VCC	2	AD0
3	AD1	4	AD2
5	AD3	6	AD4
7	AD5	8	AD6
9	AD7	10	GND
11	VCC	12	AD8
13	AD9	14	AD10
15	AD11	16	AD12
17	AD13	18	AD14
19	AD15	20	GND
21	VCC	22	AD16
23	AD17	24	AD18
25	AD19	26	AD20
27	AD21	28	AD22
29	AD23	30	GND
31	VCC	32	AD24
33	AD25	34	AD26
35	AD27	36	AD28
37	AD29	38	AD30
39	AD31	40	GND
41	VCC	42	BE#0
43	BE#1	44	BE#2
45	BE#3	46	PAR
47	Frame#	48	TRDY#
49	IRDY#	50	GND
51	VCC	52	STOP#
53	Devsel#	54	Reserved for PERR#
55	SERR#	56	REQ#4
57	GNT#4	58	Reserved for REQ#3
59	Reserved for GNT#3	60	GND
61	PCI Clock1	62	PCI Clock2
63	PCIRST#	64	LOCK#
65	IRQ#A	66	IRQ#B
67	IRQ#C	68	IRQ#D

ˆ J20 : External Keyboard Connector

PIN No.	Signal Description
1	Keyboard Clock
2	Keyboard Data
3	N/C
4	Ground
5	+5V

ˆ J22 : Standard P8 power connector

PIN No.	Signal Description
1	+12V
2	GND
3	GND
4	+5V

ˆ J23 : VGA DSUB-15 Connector

PIN No.	Signal Description
1	R
2	G
3	B
4	N/C
5	Ground
6	Ground
7	Ground
8	Ground
9	N/C
10	Ground
11	N/C
12	MONID1
13	HSYNC
14	VSYNC
15	MONID2

1.3 CPU Jumper Setting Table (SW1)

SW1 DIP switch settings for CPU core/bus ratio

SW-1	SW-2	SW-3	SW-4	CORE/BUS RATIO
OFF	OFF	ON	OFF	1.5x
OFF	OFF	OFF	OFF	2.0x
ON	ON	ON	ON	2.0x
ON	OFF	ON	ON	2.5x
ON	ON	OFF	ON	3.0x
ON	OFF	OFF	ON	3.5x
ON	ON	ON	OFF	4.0x
ON	OFF	ON	OFF	4.5x
ON	ON	OFF	OFF	5.0x
ON	OFF	OFF	OFF	5.5x
OFF	ON	ON	ON	6.0x
OFF	OFF	ON	ON	6.5x
OFF	ON	OFF	ON	7.0x
OFF	OFF	OFF	ON	7.5x
OFF	ON	ON	OFF	8.0x
OFF	ON	OFF	OFF	Reserved

CHAPTER 3

System Installation

This chapter provides you with instructions to set up your system. The additional information is enclosed to help you install M-systems Flash disk, set up onboard PCI device and handle WDT operation in software programming.

3-1 Socket 370 Celeron/Pentium-III Processor

Installing S370 CPU

1) Lift the handling lever of CPU socket outwards and upwards to the other end.
2) Align the processor pins with pin holes on the socket. Make sure that the notched corner or dot mark (pin 1) of the CPU corresponds to the socket's bevel end. Then press the CPU gently until it fits into place. If this operation is not easy or smooth, don't do it forcibly. You need to check and rebuild the CPU pin uniformly.
3) Push down the lever to lock processor chip into the socket.
4) Follow the installation guide of cooling fan or heat sink to mount it on CPU surface and lock it on the socket 370.

Removing CPU

1) Unlock the cooling fan first.
2) Lift the lever of CPU socket outwards and upwards to the other end.
3) Carefully lift up the existing CPU to remove it from the socket.
4) Follow the steps of installing a CPU to change to another one or place handling bar to close the opened socket.

Configuring System Bus

3307114 will automatically detect system bus based on the type of CPU used. CPU speed of Intel PIII can be detected automatically, Celeron needs jumper switch setting to operate correctly.

3-2 Main Memory

3307114 provides three DIMMs (168-pin Dual In-line Memory Module) to support 3.3V SDRAM (Synchronized DRAM) as onboard main memory. The maximum memory size can be up to 1GB. Auto detecting memory clock according to BIOS CMOS settings.

For system compatibility and stability, don't use memory module without brand. You can also use the single or double-sided DIMM. Randomly installing DIMM in any one of the DIMM sockets is allowed. You can install different size of DRAM module on DIMM1, DIMM2, DIMM3 or all to make the system boot.

Watch out the contact and lock integrity of memory module with socket, it will impact on the system reliability. Follow normal procedures to install your DRAM module into memory socket. Before locking, make sure that all modules have been fully inserted into the card slots.

NOTE :

(1)   To maintain system stability, don't change any of DRAM parameters in BIOS setup to upgrade your system performance without acquiring technical information.

3-3 M-systems Flash Disk

3307114 reserves one 32-pin DIP sockets for installing M-systems Flash disk from 2MB to 288MB. This operation structure is running with pure ISA-bus without PnP (Plug and Play) function. Before installing, make sure that I/O address jumper setting is set on right position to prevent unworkable system due to I/O resource conflict. Do remember to follow DOC (DiskOnChip) installation procedure. Otherwise, it is possible to burn out the Flash chip due to incorrect installation.

Installing DOC

Align the DOC with pin holes on the socket. Make sure that the notched corner or dot mark (pin 1) of DOC corresponds to notched corner of the socket. Then press the DOC gently until it fits into place. If installation procedure is correct, the Flash disk can be viewed as a normal hard disk to access read/write data.

WARNING

Please ensure that your DOC is properly inserted. Placing the DOC in reverse will cause severe damage. Remember, a new DOC chip is always a formatted disk. You may simply plug the chip on the DOC socket and read/write through it. If you would like to boot from this Flash disk, it is necessary to refer to the application note from M-systems. You can easily get relative information from M-systems shipping package (such as product manual) or Web-site
http:/www.m-sys.com.

3-4 Installing the Single Board Computer

To install your 3307114 into standard chassis or proprietary environment, you need to perform the following:

˚ Step 1 : Check all jumpers setting on proper position
˚ Step 2 : Install and configure CPU and memory module on right position
˚ Step 3 : Place 3307114 into the dedicated position in your system
˚ Step 4 : Attach cables to existing peripheral devices and secure it

WARNING

Please ensure that your SBC is properly inserted and fixed by mechanism. Otherwise, the system might be unstable or do not work due to bad contact of golden finger and ISA-bus slot. It is recommended to apply 4-pin 5-1/4" IDE device power connectors from your power supply onto J22 to ensure a sufficient current supply.

NOTE : Please refer to section 3-4-1 to 3-4-3 to install INF/ VGA/LAN drivers.

3-4-1   Chipset Component Driver

The chipset on 3307114 is a new chipset that a few old operating systems might not be able to recognize. To overcome this compatibility issue, for Windows Operating Systems such as Windows-95/98/ 98SE/ 2000, please install VIA 4-in-1 driver before any of other Drivers are installed. You can find very easily this chipset component driver in 3307114 CD-title.

3-4-2 VIA PLE133 Graphics Integrated Chipset

VIA PLE133 High performance graphic integrated chipset is the result of new design approach to optimize the shared memory architecture while maintaining the cost benefits of integration through Direct AGP and Dynamic Video Memory Technology.

With no additional video adaptor, this onboard video will be the system display output. However, system will automatically switch to off-board (add-on) video adaptor if there is any. In this case, onboard graphic adaptor feature will be disabled.

Drivers Support

Please find VIA PLE133 driver in the 3307114 CD-title. Drivers support Windows-3.1, Windows-95/98/98SE, Windows-NT 3.51/4.0, Windows-2000, OS2, and Linux.

(1) Windows-95: Please bring up the Display Control Panel and update graphics driver.

(2) Windows-98/98SE: Please execute exe file to start graphics drivers installation, or bring up the Display Control Panel and update graphics driver.

(3) Windows-NT 4.0: Please install Windows-NT 4.0 Service Pack 4 or above first, then execute exe file, or simply bring up the Display Control Panel and update graphics driver.

(4) Windows-2000: Please bring up the Device Manager and update graphics drivers.

(5) Redhat Linux V6.2: Please refer to the related documentation in for graphic drivers installation.

3-4-3 RTL8139C Fast Ethernet Controller

Jumper JP2 is used to enable or disable the LAN device. When JP2 is shorted, the onboard LAN device is enabled. When JP2 is open, the onboard LAN device is disabled.

Drivers Support

Please find RTL8139C LAN driver in /Ethernet directory of 3307114 CD-title. The drivers support Windows-NT 3.51/4.0, Windows-95/98/98SE, Windows-2000, Windows-2000, SCO OpenServer 5.0.2, SCO Unixware 7.0, OS2 and Linux.

Onboard LED Indicator (for LAN status)

ROBO-679 provides three LED indicators to report 82801BA MAC Fast Ethernet interfaces status. Please refer to the table below as a quick reference guide.

RTL8139 C	Name of LED	Operation of Ethernet Port	
		ON	Off
LED1	LAN Link Integrity LED	Good link in 10 or 100 Mbps	Bad link
LED2	LAN active LED	Active	No active
LED3	LAN speed LED	100 Mbps	10 Mbps

3-4-4 Onboard 68-pin PCI connector

3307114 provides one onboard 68-pin PCI connector that allows you to apply additional PCI devices, such as SCSI or Ethernet. If you have a compatible PCI device, simply plug it onto the connector and secure it with two retention bars.

3-5 Clear CMOS Operation

The following table indicates how to enable/disable CMOS Clear Function hardware circuit by putting jumpers at proper position.

1-2 Short	Normal Operation
2-3 Short	Clear CMOS Contents

To correctly operate CMOS Clear function, users must turn off the system, move JP4 jumper to 2-3 position. To clear CMOS, please turn the power back on and turn it off again for AT system, or press the toggle switch a few times for ATX system. Move the JP4 back to 1-2 position (Normal Operation) and start the system. System will then produce a "CMOS Check Sum Error" message and hold up. Users may then follow the displayed message to load in BIOS default setting.

CHAPTER 4

BIOS Setup Information

3307114 is equipped with the AMI BIOS stored in Flash ROM. This BIOS has a built-in Setup program that allows users to modify the basic system configuration easily. This type of information is stored in CMOS RAM so that it is retained during power-off periods. When system is turned on, 3307114 communicates with peripheral devices and check its hardware resources against the configuration information stored in the CMOS memory. If any error is detected, or the CMOS parameters need to be initially defined, the diagnostic program will prompt the user to enter the SETUP program. Some errors are significant enough to abort the start-up.

4.1 Entering Setup

Turn on or reboot the computer. When the message "Hit <DEL> if you want to run SETUP" appears, press <Del> key immediately to enter BIOS setup program.

If the message disappears before you respond, but you still wish to enter Setup, please restart the system to try "COLD START" again by turning it OFF and then ON, or touch the "RESET" button. You may also restart from "WARM START" by pressing <Ctrl>, <Alt>, and <Delete> keys simultaneously. If you do not press the keys at the right time and the system will not boot, an error message will be displayed and you will again be asked to,

Press <F1> to Run SETUP or Resume

In HIFLEX BIOS setup, you can use the keyboard to choose among options or modify the system parameters to match the options with your system. The table below will show you all of keystroke functions in BIOS setup.

Keys to navigate within setup menu

Key	Functions
Up Arrow	Move to the previous item
Down Arrow	Move to the next item
Left Arrow	Move to the item on the left (menu bar)
Right Arrow	Move to the item on the right (menu bar)
Move Enter	Move to the item you desired
PgUp key	Increase the numeric value or make changes
PgDn key	Decrease the numeric value or make changes
+ key	Increase the numeric value or make changes
- key	Decrease the numeric value or make changes
Esc key	Main Menu -- Quit and not save changes into CMOS Status Page Setup Menu and Option Page Setup Menu -- Exit current page and return to Main Menu
F1 key	General help on Setup navigation keys
F10 key	Save all the CMOS changes and exit

4.2 Main Menu

Once you enter 3307114 AMI BIOS CMOS Setup Utility, you should start with the Main Menu. The Main Menu allows you to select from eleven setup functions and two exit choices. Use arrow keys to switch among items and press <Enter> key to accept or bring up the sub-menu.

AMIBIOS HIFLEX SETUP UTILITY – VERSION 1.30

```
                    Standar d  CMOS  Setup

                Advanced     BIOS     Setup

                Advanced    Chipset    Setup

                Power   Management   Setup

                PCI / Plug and Play Setup

                      Peripheral Setup

                Har dwar e  Monitor  Setup

                 Auto-Detect  Har d  Disks

                   Change User  Password

                Change Super visor Password

           Auto Configuration with Optimal Settings

           Auto Configuration with Fail Safe Settings

                   Save Settings and Exit

                    Exit Without Saving
```

Standard CMOS Setup for changing time, date, hard disk type, etc.

NOTE : It is strongly recommended to reload Optimal Setting if CMOS is lost or BIOS is updated.

4.3 Standard CMOS Setup Menu

This setup page includes all the items in a standard compatible BIOS. Use the arrow keys to highlight the item and then use the <PgUp>/<PgDn> or <+>/<-> keys to select the value or number you want in each item and press <Enter> key to certify it.

Follow command keys in CMOS Setup table to change Date, Time, Drive type, and Boot Sector Virus Protection Status.

n Screen shot

```
┌─────────────────────────────────────────────────────────────────────┐
│               AMIBIOS SETUP – STANDARD CMOS SETUP                     │
│          (C)2000 America Megatrends, Inc. All Rights Reserved         │
├─────────────────────────────────────────────────────────────────────┤
│                                                                       │
│   Date (mm/dd/yyyy):        Mon, Oct 2 1999      Base Memory: 640 KB  │
│   Time (hh/mm/ss):          16:51:13             Extd Memory: 119 KB  │
│                                                                       │
│   Floppy Drive A:        1.44 MB 3 1/2                                │
│   Floppy Drive B:           Not Installed                             │
│                                                                       │
│                                                  LBA  Blk  PIO  32Bit │
│       Type      Size    Cyln Head WPcom Sec  Mode Mode Mode Mode      │
│   Pri Master  Auto                                            On      │
│   Pri Slave    Auto                                          On       │
│   Sec Master   Auto                                          On       │
│   Sec Slave    Auto                                          On       │
│                                                                       │
│   Boot Sector Virus Protection   Disabled                            │
├─────────────────────────────────────────────────────────────────────┤
│   Month:  Jan – Dec                              ESC : Exit           │
└─────────────────────────────────────────────────────────────────────┘
```

Item	Options	Description
Pri Slave	Select a suitable item or keep it in Auto for automatic detection.	Press <PgUp> or <PgDn> to select a suitable item
Sec Master	Select a suitable item or keep it in Auto for automatic detection.	Press <PgUp> or <PgDn> to select a suitable item
Sec Slave	Select a suitable item or keep it in Auto for automatic detection.	Press <PgUp> or <PgDn> to select a suitable item

Advanced CMOS Setup

This setup reference table includes all the Optimal, Failsafe, and Other options setting in each BIOS setup item. It is very easy to cross reference. If you want to go details, you can directly refer to item description in sub-section.

Password Check	Setup	Setup	Always
Boot To OS/2	No	No	Yes
BIOS Setup Items	**Optimal Default**	**Failsafe Default**	**Other Options**
L1 Cache	Enabled	Enabled	Disabled
L2 Cache	Enabled	Disabled	Enabled
System BIOS Cacheable	Enabled	Disabled	
C000, 32K Shadow	Cached	Cached	Enabled, Disabled
C800, 16K Shadow	Cached	Cached	Enabled, Disabled
CC00, 16K Shadow	Cached	Cached	Enabled, Disabled
D000, 16K Shadow	Disabled	Disabled	Cached, Enabled
D400, 16K Shadow	Disabled	Disabled	Cached, Enabled
D800, 16K Shadow	Disabled	Disabled	Cached, Enabled
DC00, 16K Shadow	Disabled	Disabled	Cached, Enabled

BIOS Setup Items	Optimal Default	Failsafe Default	Other Options
Display Activity	Ignore	Ignore	Monitor
IRQ3	Monitor	Ignore	Ignore
IRQ4	Monitor	Ignore	Ignore
IRQ5	Ignore	Ignore	Monitor
IRQ7	Monitor	Ignore	Ignore
IRQ9	Ignore	Ignore	Monitor
IRQ10	Ignore	Ignore	Monitor
IRQ11	Ignore	Ignore	Monitor
IRQ13	Ignore	Ignore	Monitor
IRQ14	Monitor	Ignore	Ignore
IRQ15	Ignore	Ignore	Monitor
System Thermal	Disabled	Disabled	Enabled
Thermal Activite Temperature	75		

BIOS Setup Items	Optimal Default	Failsafe Default	Other Options
Primary Graphics Adapter	PCI	PCI	OnChip AGP
PCI VGA Palette Snoop	Disabled	Disabled	Enabled
Allocate IRQ to PCI VGA	Yes	Yes	No
PCI IDE BusMaster	Disabled	Disabled	Enabled
Off Board PCI IDE Card	Auto	Auto	Slot1, Slot2, Slot3, Slot4, Slot5, Slot6
Off Board PCI IDE Primary IRQ	Disabled	Disabled	
Off Board PCI IDE Scondary IRQ	Disabled	Disabled	
PCI Slot1 IRQ Priority	Auto	Auto	3, 4, 5, 7, 9, 10, 11
PCI Slot2 IRQ Priority	Auto	Auto	3, 4, 5, 7, 9, 10, 11
PCI Slot3 IRQ Priority	Auto	Auto	3, 4, 5, 7, 9, 10, 11
PCI Slot4 IRQ Priority	Auto	Auto	3, 4, 5, 7, 9, 10, 11
DMA Channel 0	PnP	Pnp	ISA/ EISA
DMA Channel 1	PnP	Pnp	ISA/ EISA
DMA Channel 3	PnP	Pnp	ISA/ EISA
DMA Channel 5	PnP	Pnp	ISA/ EISA
DMA Channel 6	PnP	Pnp	ISA/ EISA
DMA Channel 7	PnP	Pnp	ISA/ EISA
IRQ3	PCI/ PnP	PCI/ PnP	ISA/ EISA
IRQ4	PCI/ PnP	PCI/ PnP	ISA/ EISA
IRQ5	PCI/ PnP	PCI/ PnP	ISA/ EISA
IRQ7	PCI/ PnP	PCI/ PnP	ISA/ EISA
IRQ9	PCI/ PnP	PCI/ PnP	ISA/ EISA
IRQ10	PCI/ PnP	PCI/ PnP	ISA/ EISA
IRQ11	PCI/ PnP	PCI/ PnP	ISA/ EISA
IRQ12	PCI/ PnP	PCI/ PnP	ISA/ EISA
IRQ14	PCI/ PnP	PCI/ PnP	ISA/ EISA
IRQ15	PCI/ PnP	PCI/ PnP	ISA/ EISA
OnBoard IDE	Both	N/A	Auto

Boot Up Sequence

This category includes six items to determine which drive computer searches first for the Disk Operating System (DOS).

The default ARMD (ATAPI Removable Media Device) emulation type is set to popular drive type LS-120 and ATAPI ZIP. There are many choices of booting devices to boot up system.   User can select "Disabled", "IDE-0", "IDE-1", "IDE-2", "IDE-3", "Floppy", "ARMD-FDD", "ARMD-HDD", "CDROM", "SCSI", or "NETWORK".

Try Other Boot Device

Select "Yes" to enable trying to boot from different devices in sequence. Selected "No" for booting only from the first boot device.

S.M.A.R.T for Hard Disks

Self-Monitoring, analysis and reporting Technology. For prediction of device degradation and/or faults.

Boot Up Num-Lock

Select "On" to enable numeric function of the numeric keypad, or "Off" to disregard it.

PS/2 Mouse Support

Select "Enabled" to enable PS/2 mouse function, or "Disabled" to release IRQ12 interrupt for other ISA-bus I/O devices.

System Keyboard

This option will be used to neglect "keyboard error" while you choose Absent setting in your BIOS setup and system has no keyboard attached.

Primary Display

Chooses Absent, VGA/EGA, CGA40x25, CGA80x25, or Mono to meet your monitor type. If you select Absent, the "CMOS Display Type Wrong" message will be ignored regardless the mismatched display card.

Password Check

This option enables the password checking when the system boots up or runs CMOS Setup. It only takes effect after setting Change Supervisor Password.

Setup : This option will force system to check password before running Setup if you have already entered the current user password in "Change User Password". By that time, the system will be only able to boot but deny accessing Setup.

Always : Password prompt appears every boot-up. The system will not boot and deny access Setup with invalid password. The best way is to clear CMOS or try to reload BIOS Setup to boot up system.

Boot To OS/2

You should set this option to "Yes" to support OS/2 environment.

L1 Cache

This option controls to turn on or off the CPU's Level 1 built-in cache.

L2 Cache

Enables this option to turn on or off the CPU's Level 2 built-in cache.

System BIOS Cacheable

Enables this option to enhance system performance by shadowing and caching system BIOS. When disabled, this BIOS shadow function will be ignored.

Shadow Memory

Each of segments provides three options "Disabled", "Enabled", and "Cached" for faster adapter's ROM execution. However this shadow function is Chipset oriented and dependent on system hardware feature. In general, C000 64k will be allocated for VGA BIOS and set to Cached to get higher display performance by shadowing and caching feature. If user chooses Enabled setting, only BIOS shadow function is active.

4.6 Advanced Chipset Setup Menu

This setup is very important to keep system stability. If you are not technical person, do not attempt to change any parameters. The best way is to choose optimal default setting.

Delay DRAM read latch

Select delay DRAM read latch for timing.

Configre SDRAM Timing by SPD

This option provides DIMM plug-and-play support by Serial Presence Detect (SPD) mechanism via the System Management Bus (SMBus) interface. You can disable this option to manage the following four SDRAM timing options by yourself. In addition, SDRAM operating timings may follow serial presence from EEPROM content by setting this option to "Enabled", and all of SDRAM timing options will be not available and hidden.

DRAM Frequency

PC-100 means the memory bus is running at 100MHz. PC-133 means its bus is running at 133MHz.

SDRAM CAS# Latency

This option controls the number of SCLKs between the time a read command is sampled by the SDRAMs and the time the North Bridge, 8601A, samples correspondent data from the SDRAMs.

Spread Spectrum

This option is for EMI test only.

Memory Hole

This option allows the end users tospecify the location of a memory hole for memory space requirement from ISA-bus cards.

USB Controller

This option will enable on-chip USB function to support USB peripheral devices.

USB KB/Mouse Legacy Support

This feature will be automatically disabled and hidden if user chooses the "Disabled" setting from the foregoing USB Function option. Otherwise, enabling this option provides support for USB-keyboard without auxiliary driver under DOS environment.

4.7 Power Management Setup Menu

This APM (Advanced Power Management) determines how much power energy can be saved by setting below items to handle system power resource. The following descriptions will specify the definition of each item in details.

ACPI Aware O/S

This is used to enable ACPI standby function S1 (POS).

Power Management/APM

Using this feature to control system power resources. Set this option to "Enabled" to enable power management function and effective based on following parameter settings.

Video Power Down Mode

This option specifies the power conserving state that the VESA VGA video subsystem enters after the specified period of display inactivity has expired.

Hard Disk Power Down Mode

This option specifies the power management state that the HDD enters after the specified period of hard drive inactivity has expired. It is the same as video power control. If user chooses "Stand By" or "Suspend", it will depend on period of parameter "Stand By Time out"or "Suspend Time out".

Stand by Time out (Minute)

This option specifies the length of the period of system inactivity while the computer is in Full-On power state before the computer is placed in Standby mode. When this length of time expires, the computer enters Standby Timeout state. In Standby mode, some power use is curtailed.

Suspend Time out (Minute)

This option is the same as Stand by Time out function. These two features will be enabled to monitor power of sub-items "Display Activity", "Serial port", "Parallel Port", "Floppy", "Pri-HDD", and "Sec-HDD" independently. It is also used to control CPU throttle running function. All of sub-items will be ineffective in selection of disabling "Stand by Time out" or "Suspend Time out" even if it can be choosed by user in BIOS setup menu.

Throttle Slow Clock Ratio

This option specifies the speed at which the system clock runs in power saving modes. The settings are expressed as duty cycle of the STPCLK# signal. This duty cycle indicates the percentage of time the STPCLK# signal is asserted while in the throttle mode.

Display Activity

This option specifies if BIOS is to monitor activity on the display monitor for power conservation purposes. If set to Monitor and the computer is in a power saving state, BIOS watches for video display activity. The computer enters the full on power state if any activity occurs. BIOS reloads the Standby and Suspend timeout timers if activity occurs on the specified IRQ lines. If set to Ignore, video display monitor activity is not monitored.

IRQ Active

When set to Monitor, these options enable event monitoring on the specified IRQ. If set to Monitor and the computer is in a power saving state,BIOS watches for activity on the device with specified IRQ line. The computer enters the full on power state if any activity occurs. BIOS reloads the Standby and Suspend timeout timers if activity occurs on the specified IRQ. No monitoring activity occurs if the option is set to Ignore. The settings for each of t hese options are Monitor or Ignore.

System Thermal

Set this option to Monitor for CPU thermal monitoring and speed down control. The system will automatically supervise the CPU environmental temperature. If the CPU surface temperature reachs the trip point set in Hardware Monitor Setup, the thermal detection will be effective and CPU will run in throttle control manner. The overall system performance will be reduced to half. This option is a trad-off of system performance and stability and configurable by user. The default setting is Ignore. You can choose Monitor setting to enable this thermal function.

Thermal Active Temperature

Set this option to monitor CPU thermal trip point defined by user. If the System Thermal option in CMOS setup is set to "Monitor" state and CPU surface temperature is over this critical temperature, the system will automatically enter speed down mode.

Thermal Slow Clock Ratio

This option specifies the speed at which the system clock runs in thermal trip point. The settings are expressed as duty cycle of the STPCLK# signal. This duty cycle indicates the percentage of time the STPCLK# signal is asserted while in the over heat mode.

Power Button Function

This item is used to handle soft power on/off regardless of time counting (generally speaking, it is 4 sec) if you set it to On/Off. You can easily power on/off system by pressing power button (toggle switch) directly. This feature is only available on system with ATX power control interface. If you use standard AT power supply, this option will be ignored. However choose the "Suspend" setting , system will be forced into suspend mode when user turn it off unless you can consecutively press the power button for more than 4 second to get in Soft off function.

Restore on AC/Power Loss

This item allows user to configure the power status of using ATX power supply after a serious power loss occurs.

On	System automatically restores power back
Off	System stays at power –off
Former-Sts	System restores back to previous status (On or Off)

Resume On Ring

This item will be used to wake up system from remote ringing control under Soft Off condition. If you choose "Disabled" setting, the system will be not resumed by modem ring.

Resume On RTC Alarm

This option controls an unattended or automatic system power up

▌ RTC Alarm Date
▌ RTC Alarm Hour
▌ RTC Alarm Minute
▌ RTC Alarm Second

4.8 PCI/Plug and Play Setup

This section describes configuring the PCI bus system. PCI (Peripheral Component Interconnect) is a system which allows I/O devices to operate at speeds nearing CPU's when they communicate with own special components.

All of options described in this section are important and technical and it is strongly recommended that only experienced users could make any changes to the default settings.

Plug and Play Aware O/S

Set this option to "Yes" if the operating system installed in the computer is Plug and Play-aware. BIOS only detects and enables PnP ISA adapter cards that are required for system boot. The Windows 95 operating system detects and enables all other PnP-aware adapter cards. Windows 95 is PnP-aware. Set this option to "No" if the operating system (such as DOS, OS/2, Windows 3.x) does not use PnP. You must set this option correctly or PnP-aware adapter cards installed in your computer will not be configured properly.

Clear NVRAM

This option is used to clear NVRAM and check or update ESCD (Extended System Configuration Data) data after system power on. Set this option to No that will not clear NVRAM and the operation of update ESCD is effective in different ESCD data comparision. If you select the "Yes" setting, then the BIOS will update ESCD each time of power on.

PCI Latency Timer (PCI Clocks)

This option is used to control PCI latency timer period (follow PCI clocks). Based on PCI specification 2.1 or later and PCI bus frequency in system, user can select different timer to meet their PCI bus environment.

Primary Graphics Adapter

This option allows user to specify a primary VGA display from two options : Onboard VGA or PCI VGA card.

PCI VGA Palette Snoop

Some display cards that are non-standard VGA such as graphics accelerations or MPEG video cards may not show colors properly. User can choose "Enabled" setting to correct this display mismatch problem and support any ISA adapter card installed in the computer requires VGA palette snooping.

Allocate IRQ to PCI VGA

This option will be used to allocate IRQ for PCI VGA card. In general, some of PCI VGA cards need IRQ support.

PCI IDE BusMaster

Set this option to Enabled to specify that the IDE controller on the PCI local bus has bus mastering capability.

Off Board PCI IDE Primary/Secondary IRQ

This option specifies the PCI interrupt used by the primary/ secondary IDE channel on the offboard PCI IDE controller. The settings are Disabled, INTA, INTB, INTC, INTD, or Hardwired for installing off-board non-compliant PCI IDE card.

PCI Slot 1/2/3/4 IRQ Priority

These options specify the priority IRQ to be used for any PCI devices installed in PCI expansion slots 1 through 4. The settings are Auto (AMIBIOS automatically Determines the priority IRQ), (IRQ) 3, 4, 5, 7, 9, 10, or 11.

DMA Channel 0/1/3/5/6/7

These options specify if the named DMA channel is available for using on the ISA/EISA bus or PnP (Plug & Play).

IRQ 3/4/5/7/9/10/11/12/14/15

These options specify the bus that the named interrupt request lines (IRQs) are used on. These options allow you to specify IRQs for use by legacy ISA adapter cards. These options determine if AMIBIOS should remove an IRQ from the pool of available IRQs passed to devices that are configurable by the system BIOS. The available IRQ pool is determined by reading the ESCD NVRAM. If more IRQs must be removed from the pool, the end user can use these PCI/PnP Setup to

remove the IRQ by assigning the option to the ISA/EISA setting. All IRQs used by onboard I/O are configured as PCI/PnP.

4.9 Peripheral Setup

This section describes I/O resources assignment for all of onboard peripheral devices.

On Board FDC

If user wants to install different add-on super I/O card to connect floppy drives, set this field to Disabled. Otherwise, set it to Auto to call BIOS to automatically determine if the floppy controller should be enabled.

On Board Serial Port 1/Port 2

These fields control the resource assignments of two onboard serial interfaces SIO1 and SIO2. The following lists show current options in On Board Serial Port 1/ Port 2 :

Auto à cannot set serial I/O resources by manual operation
Disabled à indicates onboard COM port function is ineffective
3F8h/COM1 à assign I/O address 3F8h to COM1
2F8h/COM2 à assign I/O address 2F8h to COM2
3E8h/COM3 à assign I/O address 3E8h to COM3
2E8h/COM4 à assign I/O address 2E8h to COM4

Serial Port2 Mode

This option control the resource assignments of onboard Serial PortB. The Serial PortB Mode Select has Four settings Normal, IrDA, and ASK IR.

Duplex Mode

Duplex Mode has two settings Half Duplex and Full Duplex

On Board Parallel Port

There are four optional items Parallel Port Mode, EPP Version, Parallel Port IRQ, and Parallel Port DMA Channel used to control onboard parallel port interface while user select I/O base address manually. The following lists are available options of onboard parallel port :

Auto à user can not control all of LPT port I/O resources
Disabled à onboard parallel port function is ineffective and N/A
378h à locate IRQ7 for this default I/O address
278h à assign this I/O address to LPT1
3BCh à assign this I/O address to LPT1

<u>Mouse/Keyboard Power On Function</u>

This option controls to power up the computer when the mouse/keyboard receives a click while the computer is in Soft-off mode.

4.10 Hardware Monitor Setup

This setup describes current system status detected from hardware monitor controller. The status showed on screen will include :

- ▋ There are two onboard temperature sensors, TSENS1, and TSENS2.
- ▋ Current System Temperature (Generally indicates the inside temperature of chassis or surface temperature of SBC)
- ▋ Current CPU Fan Speed
- ▋ Current Chassis Fan Speed
- ▋ System operating voltage includes "CPU Vcore", "+2.500V", "+3.300", "+5.000V", "+12.000V".

4.11 BIOS POST Check Point List

AMIBIOS provides all IBM standard Power On Self Test (POST) routines as well as enhanced AMIBIOS POST routines. The POST routines support CPU internal diagnostics. The POST checkpoint codes are accessible via the Manufacturing Test Port (I/O port 80h).

Whenever a recoverable error occurs during the POST, the system BIOS will display an error message describing the message and explaining the problem in detail so that the problem can be corrected.

During the POST, the BIOS signals a checkpoint by issuing one code to I/O address 80H. This code can be used to establish how far the BIOS has executed through the power-on sequence and what test is currently being performed. This is done to help troubleshoot faulty system board.

If the BIOS detects a terminal error condition, it will halt the POST process and attempt to display the checkpoint code written to port 80H. If the system hangs before the BIOS detects the terminal error, the value at port 80H will be the last test performed. In this case, the terminal error cannot be displayed on the screen. The following POST checkpoint codes are valid for all AMIBIOS products with a core BIOS date of 07/15/95 version 6.27 (Enhanced).

Uncompressed Initialization Codes – The uncompressed initialization checkpoint hex codes are listed in order of execution :

Code	Description
D0	NMI is disabled. CPU ID saved. INIT code checksum verification will be started.
D1	Initializing the DMA controller, performing the keyboard controller BAT test, starting memory refresh, and going to 4GB flat mode.
D3	To start memory sizing.
D4	Returning to real mode. Executing any OEM patches and setting the stack next.
D5	Passing control to the uncompressed code in shadow RAM at E000:0000h. The INIT code is copied to segment 0 and control will betransferred to segment 0.
D6	Control is in segment 0. Next, checking if <Ctrl><Home> was pressed and verifying the system BIOS checksum. If either <Ctrl><Home> was pressed or the system BIOS checksum is bad, next will go to checkpoint code E0h. Otherwise, going to checkpoint code D7h.
D7	To pass control to interface module.
D8	Main BIOS runtime code is to be decompressed.
D9	Passing control to the main system BIOS in shadow RAM next.

Bootblock Recovery Codes – The bootblock recovery checkpoint hex codes are listed in order of execution :

Code	Description
E0	The onboard floppy controller if available is initialized. Next, beginning the base 512KB memory test.
E1	Initializing the interrupt vector table next.

Code	Description
E2	Initializing the DMA and Interrupt controllers next.
E6	Enabling the floppy drive controller and Timer IRQs. Enabling internal cache memory.
ED	Initializing the floppy drive.
EE	Start looking for a diskette in drive A: and read first sector of the diskette.
EF	A read error occurred while reading the floppy drive in drive A: .
F0	Next, searching for the AMIBOOT.ROM file in the root directory.
F1	The AMIBOOT.ROM file is not in the root directory.
F2	Next, reading and analyzing the floppy diskette FAT to find the clusters occupied by the AMIBOOT.ROM file.
F3	Start reading AMIBOOT.ROM file, cluster by cluster.
F4	The AMIBOOT.ROM file is not the correct size.
F5	Next, disabling internal cache memory.
FB	Next, detecting the type of Flash ROM.
FC	Erasing the Flash ROM.
FD	Programming the Flash ROM
FF	Flash ROM programming was successful. Next, restarting the system BIOS.

Uncompressed Initialization Codes – The following runtime checkpoint hex codes are listed in order of execution. These codes are uncompressed in F0000h shadow RAM.

Code	Description
03	The NMI is disabled. Next, checking for a soft reset or a power on condition.
05	The BIOS stack has been built. Next, disabling cache memory.
06	Uncompressing the POST code next.
07	Next, initializing the CPU and the CPU data area.
08	The CMOS checksum calculation is done next.
0B	Next, performing any required initialization before the keyboard BAT command is issued.
0C	The keyboard controller input buffer is free. Next, issuing the BAT command to the keyboard controller.
0E	The keyboard controller BAT command result has been verified. Next, performing any necessary INIT after the K/B controller BATcommand test.
0F	The keyboard command byte is written next.
10	Next, issuing the pin 23 and 24 blocking and unblocking commands.
11	Next, checking if the <End> or <Ins> keys were pressed during power on.
12	To initialize CMOS if the initialize CMOS RAM in every boot is set or the <End> key is pressed. Going to disable DMA and Interrupt controllers.
13	The video display has been disabled. Port B has been initialized. Next, initializing the chipset.

Code	Description
14	The 8254 timer test will begin next.
19	The 8254 timer test is over. Starting the memory refresh test next.
1A	The memory refresh line is toggling. Checking the 15us on/off time next.
23	Reading the 8042 input port and disabling the MEGAKEY Green PC feature next. Making the BIOS code segment writable and performing any necessary configuration before initializing the interrupt vectors.
24	The configuration or setup required before interrupt vector initialization has completed. Interrupt vector init. is about to begin
25	Interrupt vector initialization is done. Clearing the password if the POST DIAG switch is on.
27	Any initialization before setting video mode to be done.
28	Going for monochrome mode and color mode setting.
2A	Bus initialization system, static, output devices will be done next, if present.
2B	Passing control to the video ROM to perform any required configuration before the video ROM test.
2C	To look for optional video ROM and give control.
2D	The video ROM has returned control to BIOS POST. Performing any required processing after the video ROM had control.
2E	Completed post-video ROM test processing. If the EGA/VGA controller is not found, performing the display memory read/write test next.
2F	EGA/VGA not found. Display memory R/W test about to begin.
30	Display memory R/W test passed. Look for retrace checking next.
31	Display memory R/W test or retrace checking failed. To do alternate display retrace checking.
32	Alternate display memory R/W test passed. To look for the alternate display retrace checking.
34	Video display checking is over. Setting the display mode next.
37	The display mode is set. Displaying the power on message next.
38	Initializing the bus input, IPL, and general devices next, if present.
39	Displaying bus initialization error message.
3A	The new cursor position has been read and saved. Displaying the Hit <DEL> message next.
40	Preparing the descriptor tables next.
42	Entering protected mode for the memory test next.
43	Entered protected mode. Enabling interrupts for diagnostics mode next.
44	Interrupts enabled if the diagnostics switch is on. Initializing data to check memory wraparound at 0:0 next.
45	Data initialized. Checking for memory wraparound at 0:0 and finding the total system memory size next.
46	The memory wraparound test has completed. The memory size calculation has been done. Writing patterns to test memory next.
47	The memory pattern has been written to extended memory. Writing patterns to the base 640 KB memory test.

Code	Description
48	Patterns written in base memory. Determining the amount of memory below 1MB next.
49	The amount of memory below 1MB has been found and verified. Determining the amount of memory above 1MB memory next.
4B	The amount of memory above 1MB has been found and verified. Checking for a soft reset and clearing the memory below 1MB for the soft reset next. If this is a power on situation, going to checkpoint 4Eh next.
4C	The memory below 1MB has been cleared via a soft reset. Clearing the memory above 1MB next.
4D	The memory above 1MB has been cleared via soft reset. Saving the memory size next. Going to checkpoint 52h next.
4E	The memory test started, but not as the result of a soft reset. Displaying the first 64KB memory size next.
4F	Memory size display started. This will be updated during memory test. Performing the sequential and random memory test next.
50	Memory testing/initialization below 1MB completed. Going to adjust displayed memory size for relocation and shadowing.
51	The memory size display was adjusted for relocation and shadowing. Testing the memory above 1MB next.
52	The memory above 1MB has been tested and initialized. Saving the memory size information next.
53	The memory size information and the CPU registers are saved. Entering real mode next.
54	Shutdown was successful. The CPU is in real mode. Disabling the Gate A20 line, parity, and the NMI next.
57	The A20 address line, parity, and the NMI are disabled. Adjusting the memory size depending on relocation and shadowing next.
58	The memory size was adjusted for relocation and shadowing. Clearing the Hit <DEL> message next.
59	The Hit <DEL> message is cleared. The <WAIT…> message is displayed. Staring the DMA and interrupt controller test next.
60	The DMA page register test passed. To do DMA#1 base register test.
62	DMA#1 base register test passed. To do DMA#2 base register test.
65	DMA#2 base register test passed. To program DMA unit 1 and 2.
66	DMA unit 1 and 2 programming over. To initialize 8259 interrupt controller.
7F	Extended NMI sources enabling is in progress.
80	The keyboard test has started. Clearing the output buffer and checking for stuck keys. Issuing the keyboard reset command next.
81	A keyboard reset error or stuck key was found. Issuing the keyboard Controller interface test command next.
82	The keyboard controller interface test completed. Writing the command byte and initializing the circular buffer next.
83	Command byte written, Global data init done. To check for lock-key.

Code	Description
84	Locked key checking is over. Checking for a memory size mismatch with CMOS RAM data next.
85	The memory size check is done. Displaying a soft error and checking for a password or bypassing Setup next.
86	Password checked. About to do programming before setup.
87	The programming before Setup has completed. Uncompressing the Setup code and executing the AMIBIOS Setup utility next.
88	Returned from CMOS setup program and screen is cleared. About to do programming after setup.
89	The programming after Setup has completed. Displaying the power on Screen message next.
8B	The first screen message has been displayed. The <WAIT… > message is displayed. Performaing the PS/2 mouse check and extended BIOS data area allocation check next.
8C	Programming the Setup options next.
8D	Going for hard disk controller reset.
8F	Hard disk controller reset done. Floppy setup to be done next.
91	The floppy drive controller has been configured. Configuring the hard disk drive controller next.
95	Initializing the bus option ROMs from C800 next.
96	Initializing before passing control to the adaptor ROM at C800.
97	Initialization before the C800 adaptor ROM gains control has completed. The adaptor ROM check is next.
98	The adaptor ROM had control and has now returned control to BIOS POST. Performing any required processing after the option ROM returned control.
99	Any initialization required after the option ROM test has completed. Configuring the timer data area and printer base address next.
9A	Return after setting timer and printer base address. Going to set the RS-232 base address.
9B	Returned after setting the RS-232 base address. Performing any required initialization before the Coprocessor test next.
9C	Required initialization before the Coprocessor test is over. Initializing the Coprocessor next.
9D	Coprocessor initialized. Going to do any initialization after Coprocessor test.
9E	Initialization after the Coprocessor test is complete. Checking the extended keyboard, keyboard ID, and Num Lock key next. Issuing the keyboard ID command next.
A2	Displaying any soft errors next.
A3	Soft error display complete. Going to set keyboard typematic rate.
A4	Keyboard typematic rate set. To program memory wait states.
A5	Memory wait state programming is over. Clearing the screen and enabling parity and the NMI next.
A7	NMI and parity enabled. Performing any initialization required before passing control to the adaptor ROM at E000 next.

Code	Description
A8	Initialization before passing control to the adaptor ROM at E000h completed. Passing control to the adaptor ROM at E000h next.
A9	Returned from adaptor ROM at E000h control. Performing any initialization required after the E000 option ROM had control next.
AA	Initialization after E000 option ROM control has completed. Displaying the system configuration next.
AB	Building the multiprocessor table, if necessary.
AC	Uncompressing the DMI data and initializing DMI POST next.
B0	The system configuration is displayed.
B1	Copying any code to specific areas.
00	Code copying to specific areas is done. Passing control to INT 19 h boot loader next.

4.12 Flash BIOS Utility

Utilize AMI Flash BIOS programming utility to update onboard BIOS for the future new BIOS version. Please contact your technical window to get this utility if necessary.

NOTE : Remark or delete any installed Memory Management Utility (such as HIMEM.SYS, EMM386.EXE, QEMM.EXE, … , etc.) in the CONFIG.SYS files before running Flash programming utility.

Chapter 5

ATX Power Setting

This part of the Quick Installation Guide provides you a few useful tips to quickly get your 3307114 running without failure. As jumper configuration has been addressed in the earlier paragraphs, this section will basically focus on the ATX power setting.

Backplane

3307114 is a full-sized SBC, and therefore is able to run on any PICMG backplane, active or passive.

ATX power

3307114 is designed to support both AT and ATX powering. The following instruction demonstrates how the ATX function can be applied.

3307114 adapts its ATX power through its ATX power control connector (J14). This ATX power interface can be connected to a supported backplane. Such a backpane is required to have a 4 pin connector for feeding the ATX power to 3307114. An example is illustrated below:
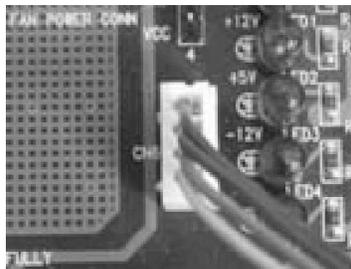

Figure. 3   ATX power control connection on backplane

Figure 4 shows how the jumpers and connectors are set for using ATX function on 3307114. Please short both 3-5 and 4-6 pin of JP1 to enable its ATX function. Besides connecting the 4 pin ATX power control cable to J14. A TOGGLE SWITCH should be used to switch the ATX Power on/off for SBC. Usually the TOGGLE SWITCH is located on the chassis front panel. By pressing the switch button once, the power will be on, and press again to turn it off. It should be connected to J13.
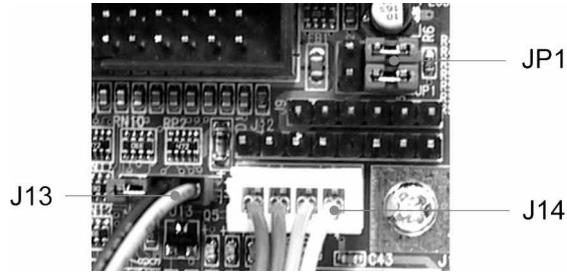
Figure. 4   ATX setting on 3307114

The last thing to do before your 3307114 system can be ATX powered is to connect 20-pin power cable of the ATX POWER to the backplane. By switching your ATX power on, the system goes into power standby. Clicking your 3307114 ATX power button should successfully turn the system on.

NOTE

When AT power supply is the system power source. Keeping ACPI function at NO and Restore on AC/Power loss at Last Stage in the Power Management setting of the BIOS is recommended.

Any advice or comments about our products and service, or anything we can help you with please don't hesitate to contact with us. We will do our best to support your products, projects and business.

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