3301119

User's Manual
Edition 1.0

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Packing List

Hardware

3301119 CPU Card ..... X 1

Cable Kit

IDE Flat Cable (40-pin) ..... X 1
Floppy Cable ..... X 1
DB9 COM / DB15 Parallel Port Cable with Bracket ..... X 1
Dual USB Cable with Bracket ..... X 1
PS/2 Keyboard and Mouse Cable ..... X 1
Audio Cable with Bracket ..... X 1

Printed Matter and Software

User's Manual ..... X 1
Driver CD ..... X 1

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Chapter 1. Introduction

1.1 Product Overview

3301119 is an industrial embedded single board computer based on NS Geode platform, provides the 300 MHz of computing capacity at the low power, embedded, x86-compliant architecture for the industrial embedded computers.

With NS Geode platform and high integration, **3301119** offers the value embedded computing platform for low power, low profile, fan free, mobile industrial applied computing applications based on industrial standard form factor of half-size ISA CPU card / slot PC. The low power consumption and high integration make **3301119** be the ideal solution for industrial embedded applications with the features as below.

Low Power Embedded Computing Platform : based on NS Geode x86-compliant architecture, the **3301119** offers the 300 MHz of speed at ultra low power for embedded / fan free computing platform.

Onboard 32/64 MB SDRAM : The onboard embedded SDRAM let **3301119** be the low profile solution with space-/slot-saving for system configuration. It also makes **3301119** be the rugged and vibration-proof solution with embedded CPU and memory.

LVDS/TTL Flat Panel Interface : The integrated LVDS/TTL interface offers the digital video output for flat panel with built-in VGA controller and 4 MB video memory.

DiskOnChip Interface : The onboard 32-pin DiskOnChip socket supports M-systems DiskOnChip2000 Solid State Disk (SSD) with 8 Kbytes of memory window and up to 578 MB of flash memory capacity.

All-In-One Integrated Solution : **3301119** is an all-in-one computing platform with integrated video, audio, LAN, PC/104 and RS422/485 interfaces.

Embedded OS Support : The NS Geode platform supports the popular embedded OS including Microsoft WinCE, embedded Linux, QNX, VxWorks and other popular embedded OS for the industrial embedded applications.

Long Term Supply : Not as 486 and 586 based systems, the NS Geode is the SOC (System On Chip) solution. The feature makes **3301119** free from the storage of cache SDRAM, video memory and other material. In the other word, the **3301119** can be supply as long as the NE Geode chipset.

1.2 Specification

General Specification	
Form Factor	Half-size ISA-bus CPU Card / Slot PC
CPU	Onboard embedded NS GX1 300 MHz CPU Ultra low power consumption for fan free application Optional onboard GX1 200/233/266 MHz CPU for OEM
Memory	Onboard 32 / 64 MBytes SDRAM One 144-pin SO-DIMM supports up to 256 MB SDRAM Total system memory capacity up to 320 MB SDRAM
Chipset	NS Geode CS5330A
BIOS	Phoenix-Award 2Mb PnP flash BIOS
Green Function	Power saving mode supported in BIOS with DOZE, STANDBY and SUSPEND modes. ACPI version 1.0 and APM version 1.2 compliant
Watchdog Timer	Generates NMI or system reset watchdog timer
Real Time Clock	Chipset built-in RTC with onboard lithium battery
Enhanced IDE	Two UltraDMA/33 IDE port support up to 4 ATAPI devices One 40-pin IDE1 and one 44-pin IDE2 connector

Multi-I/O Port	
Chipset	Winbond W83977F-A super-I/O controller
Serial Port	One RS-232 and one jumper selectable RS-232/422/485 serial ports. Both with 16C550 compatible UART and 16 bytes FIFO.
USB Port	Two USB ports with USB version 1.1 compliant
Parallel Port	One bi-direction parallel port with SPP/ECP/EPP mode
FDD	One FDD port supports up to two floppy devices
IrDA Port	One IrDA compliant Infrared interface supports SIR
K/B & Mouse	PS/2 keyboard and mouse ports, AT keyboard port
GPIO	8-bit GPIO with 4-bit digital input and 4-bit digital output

Solid State Disk Interface	
Flash Type	M-systems DiskOnChip2000, DiskOnChip Millennium, IDE Pro and DiskOnModule (DOM) solid state flash disk
Package	32-pin DIP JEDEC (DiskOnChip) 40/44-pin IDE port (40/44-pin IDE Pro or DiskOnModule)
Capacity	576 MB of DiskOnChip and 512 MB of DiskOnModule

VGA Display Interface	
Chipset	NS Geode CS5530A built-in VGA controller with 2D engine
Video Memory	Up to 4 MBytes of video memory shared with system
Display Type	18-bit LVDS/TTL TFT LCD and CRT display LVDS interface with 20 to 85 MHz of scalable bandwidth
Connector	External DB15 female connector on bracket for CRT Internal 16-pin header for analog VGA display HIROSE DF13-40DP-1.25V connector for TTL TFT LCD 20-pin header for LVDS TFT LCD

Ethernet Interface	
Chipset	PCI-based RTL8100B controller
Type	10Base-T / 100Base-TX, auto-switching Fast Ethernet Full duplex, IEEE802.3U compliant
Connector	External RJ45 with LED on bracket

Audio Interface	
Chipset	NS Geode CS5530A built-in AC97 3D audio controller
Interface	Line-in, line-out, CD-in, Mic-out
Connector	10-pin header for line-in, line-out and Mic-out 4-pin header for CD-in

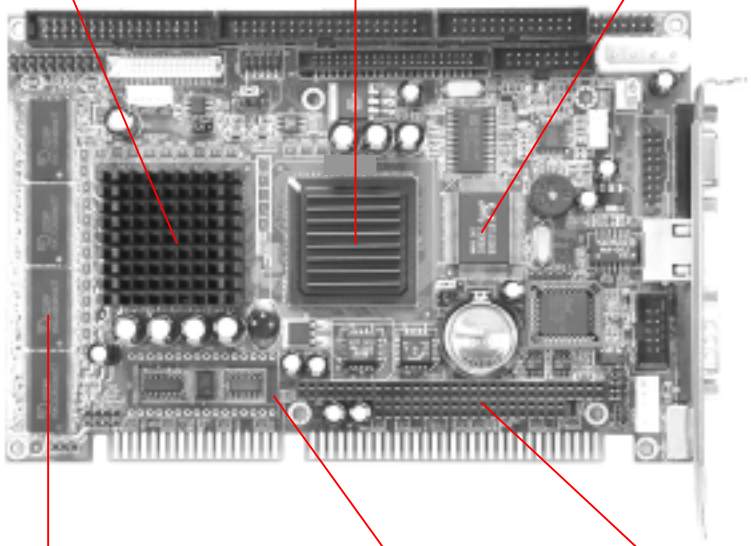
Power and Environment	
Power Req.	+5V, +12V from ISA backplane or AT/4P Connector
ATX Function	3-pin ATX interface with 5V standby and power-on
Dimension	185 (L) x 122 (H) mm
Temperature	Operating within 0 ~ 60°C (32 ~ 140°F) Storage within -20 ~ 85°C (-4 ~ 185°F)
EMI	CE/FCC class A certified

1.3 Component Placement

NS GX1 300 MHz CPU
Embedded Low Power
X86 Compliant RISC

NS CS5530A Chipset
Built-in 2D VGA Core
LCD / CRT Display

PCI-based RTL8100B
10/100BASE-Tx
Fast Ethernet Controller



Embedded System Memory
Onboard 32/64MB SDRAM
1 x 144-pin SO-DIMM

DiskOnChip Socket
Up to 576 MB
Memory Capacity

PC/104 Interface
Embedded 8/16-bit ISA
Modular Peripheral

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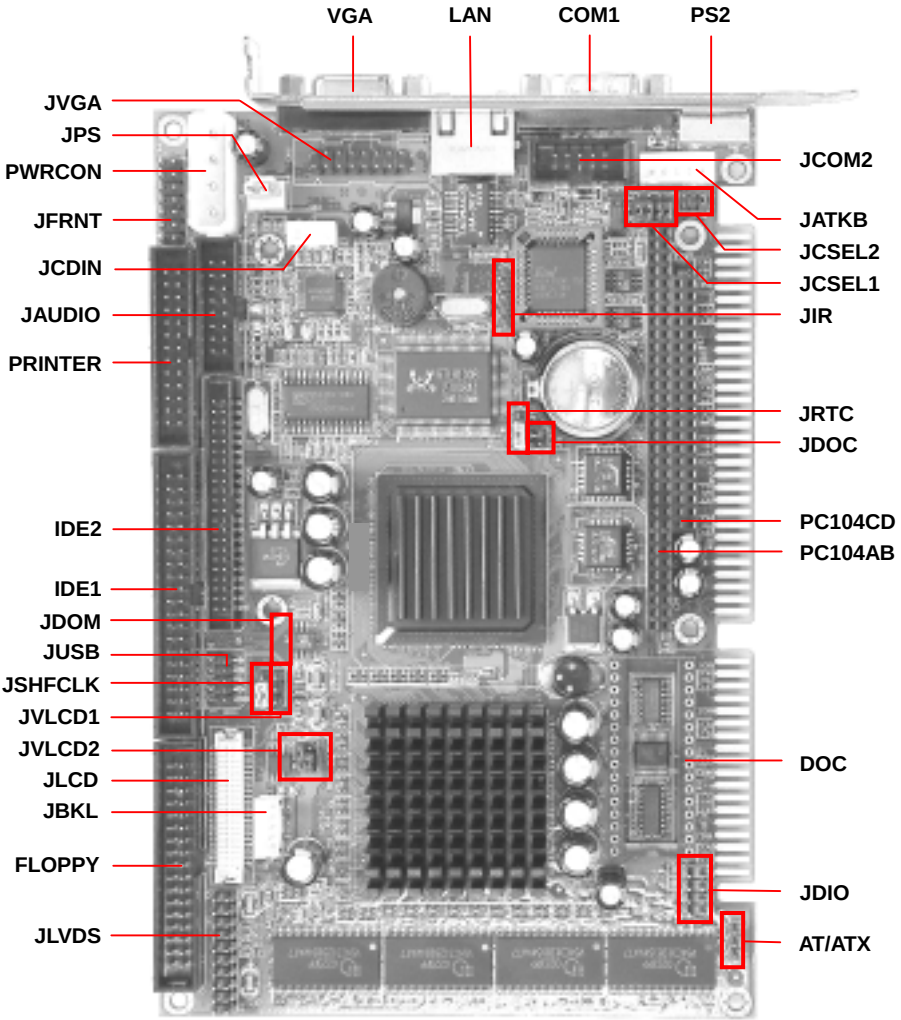
Chapter 2. Hardware Setup

This chapter contains the information for installation of hardware. The install procedure includes jumper settings, CPU and memory installation, fan, I/O and panel connections.

2.1 Jumpers and Connectors Location



2.1.1 Jumper Reference

Jumper	Function	Section
JRTC (JP5)	RTC/CMOS Setting	2.3
JDOC (JP4)	DOC Memory Address Selection	2.4
JDOM	DOM Power Setting (IDE1)	2.4
AT/ATX (JP6)	AT/ATX Power Selection	2.5
JVLCD1 (JP3)	LCD Driving & Backlight Voltage Setting	2.6
JVLCD2 (J1)	LCD Backlight Brightness Adjustment	2.6
JSHFCLK (JP2)	LCD Clock Signal Selection	2.6
JCSEL1 / 2 (J4 / J5)	COM2 RS-232/422/485 Mode Selection	2.9

2.1.2 Connector Reference

Internal Connector

Connector	Function	Remark
JPS	Auxiliary Power Connector	J2
PWRCON	AT 4P Power Connector	PWR1
JVGA	Internal VGA Connector (16-pin)	CN11
JLVDS	LVDS Flat Panel Connector	CN5
JLCD	TTL Flat Panel Connector	CN6
JBKL	LCD Inverter Connector	CN9
JAUDIO	Audio Connector	CN8
JCDIN	CD-in Audio Connector	J3
IDE1	Primary IDE Port (40-pin IDE1)	CN2
IDE2	Secondary IDE Port (44-pin IDE2)	CN7
JUSB	USB Connector	CN10
JCOM2	Internal COM2 Connector (10-pin)	CN15
PRINTER	Parallel Port	CN3
FLOPPY	Floppy Port	CN1
JIR	IrDA Port	CN14
JATKB	Internal AT Keyboard Connector (5-pin)	CN20
JDIO	GPIO (DIO) Connector	JP7
PC104AB	PC/104 Connector (64-pin)	CN17
PC104CD	PC/104 Connector (40-pin)	CN19
DOC	M-system 32-pin DIP DiskOnChip Socket	CN18
DIMM1	144-pin SODIMM Socket	DIMM1
JFRNT	Front Panel Connector	CN4

External Connector

Connector	Function
VGA (CN12)	External VGA Connector (DB15)
LAN (CN13)	External LAN Connector (RJ45)
COM1 (CN16)	External COM1 Connector (DB9)
PS2 (CN21)	External PS/2 K/M & MS Connector

2.2 CPU and DRAM Setting

The board is based on NS Geode x86 complaint RISC architecture and offers the low power CPU for the embedded application with its onboard NS GX1 300 MHz CPU. It's also compatible with NS GX1 200/233/266 MHz CPU for different application as the OEM service.

The system memory offers onboard 32 / 64 MBytes SDRAM and one 144-pin SO-DIMM socket supports up to 256 MB of Ram module. The total memory capacity will be up to 320 MB.

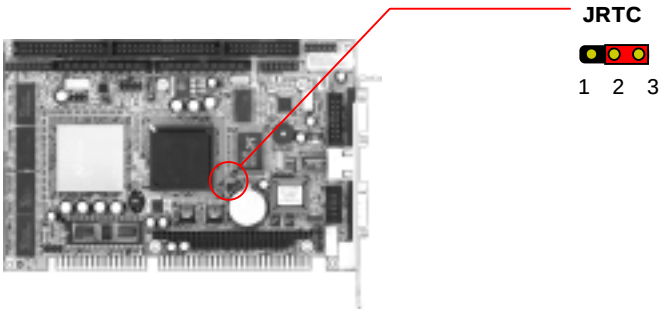
2.3 CMOS Setting

The board's data of CMOS can be setting in BIOS. If the board refuses to boot due to inappropriate CMOS settings, here is how to proceed to clear (reset) the CMOS to its default values.

Jumper: JRTC (JP5)
Type: onboard 3-pin header

JRTC	Mode
1-2	Clear CMOS
2-3	Normal Operating

Default setting



2.4 Embedded Solid State Disk

The board supports both of DiskOnChip (DOC) and DiskOnModule (DOM) as the embedded SSD (Solid State Disk). Both of them are bootable and driver free flash disk.

2.4.1 DiskOnChip (DOC)

The M-systems DiskOnChip memory address can be selected by JDOC. The choice is D0000~D1FFF, D4000~D5FFF, D8000~D9FFF, or Disabled.

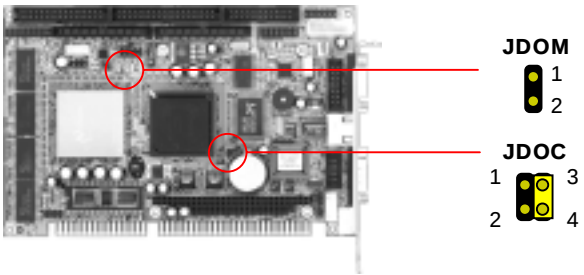
M-Systems DiskOnChip Memory Address Selection

Jumper: JDOC (JP4)

Type: onboard 4-pin header

JDOC	DiskOnChip Address
3-4	D000
1-2	D400
OFF	D800
1-2/3-4	Disable

Default Setting



2.4.2 DiskOnModule (DOM)

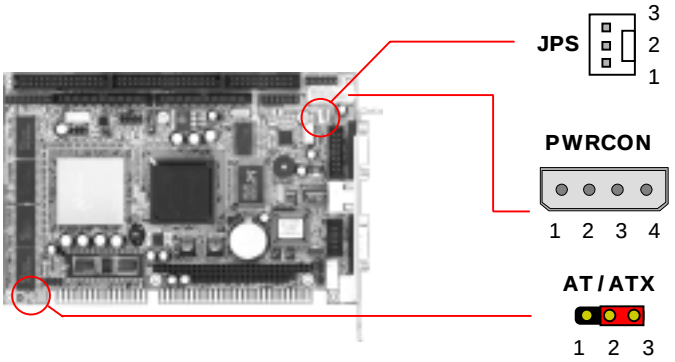
Jumper: JDOM

Type: onboard 2-pin header

JDOM	+5V on Pin-20 of IDE1
OFF	Disable
ON	Enable

Default setting

2.5 Power Configuration



Connector: PWRCON (PWR1)
Type: 4-pin AT/4P Power Connector

Pin	Description	Cable Color Reference
1	+12V	Yellow
2	Ground	Black
3	Ground	Black
4	+5V	Red

Power Supply Mode Selection
Jumper: AT/ATX (JP6)
Type: onboard 3-pin header

AT/ATX	Power Supply Mode
1-2	ATX
2-3	AT

Default Setting

Connector: JPS (J2)
Type: 3-pin wafer Connector

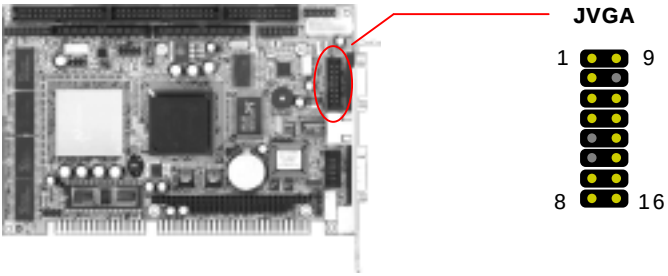
Pin	Description	Pin	Description	Pin	Description
1	Power On	2	Vcc	3	5V Standby

Note: Set JPS as 2-3 closed if an AT Power Supply is to be used.

2.6 VGA Interface

2.6.1 Standard Analog VGA Interface

The board is integrated with NS Geode CS5530A chipset's built-in VGA controller with 2D engine and the video memory up to 4 MB shared with system memory. The CRT / analog VGA interface includes one external DB15 female connector on bracket and one internal 16-pin header on board.



Connector: JVGA (CN11)
Type: 16-pin box header

Pin	Description	Pin	Description
1	Red	9	Vcc
2	Green	10	Ground
3	Blue	11	N/C
4	N/C	12	Data
5	Ground	13	HSYNC
6	Ground	14	VSYNC
7	Ground	15	Clock
8	Ground	16	N/C

2.6.2 Digital VGA Interface

The board's digital video interface provides both of TTL and LVDS for different types of TFT LCD flat panel. The built-in 18-bit LVDS interface offers the economical solution for LVDS-based LCD display. All of the digital video interfaces used BIOS selectable video memory up to 4 Mbytes shared with system memory.

LCD Driving Voltage Selection

Jumper: JVLCD2 (J1), Pin-1, 3, 5

Type: onboard 6-pin header

JVLCD2	LCD Driving Voltage
3-5	+3.3V
1-3	+5V

Default Setting

LCD Backlight Voltage Selection

Jumper: JVLCD2 (J1), Pin-2, 4, 6

Type: onboard 6-pin header

JVLCD2	LCD Driving Voltage
2-4	+5V
4-6	+12V

Default Setting

LCD Clock Signal Selection

Jumper: JSHFCLK (JP2)

Type: onboard 3-pin header

JSCFCLK	LCD Clock Signal
1-2	SHFCLK
2-3	-SHFCLK

Default Setting

LCD Inverter Connector

Connector: JBKL (CN9)

Type: 5-pin wafer connector

Pin	Description
1	+12V
2	Ground
3	ENBLK
4	VR (Ground / Vcc), Default as Ground
5	Vcc

Note:

For inverters with adjustable Backlight function, it is possible to control the LCD brightness through the VR signal (pin 4) controlled by JVLCD1. Please see the JVLCD1 section for detailed circuitry information.

LCD Backlight Brightness Adjustment Connector

Connector: JVLCD1 (JP3)

Type: 3-pin header connector

JVLCD1	**VR: Pin 4 of JBKL**
1-2	Ground
2-3	Vcc

Default Setting

TTL TFT LCD Connector

Connector: JLCD (CN6)

Type: 40-pin HIROSE DF13-40DP-1.25V

Pin	Signal	Pin	Signal
1	VDDSAFE5	2	VDDSAFE5
3	GND	4	GND
5	VDDSAFE3-	6	VDDSAFE3
7	N/C	8	GND
9	N/C	10	N/C
11	P0	12	P1
13	P2	14	P3
15	P4	16	P5
17	N/C	18	N/C
19	P6	20	P7
21	P8	22	P9
23	P10	24	P11
25	N/C	26	N/C
27	P12	28	P13
29	P14	30	P15
31	P16	32	P17
33	GND	34	GND
35	SHFCLK	36	FLM
37	M	38	LP
39	ENBLK	40	ENVEE

VDDSAFE5: LCD Backlight Voltage +5 (defult) or +12, selected by J1

VDDSAFE3: LCD Driving Voltage 3.3V (defult) or +5V, selected by J1

LVDS TFT LCD Connector

Connector: JLVDS (CN5)

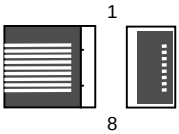
Type: 20-pin header (10 x 2 pitch 2.0 mm)

Pin	Signal	Pin	Signal
1	LCD_Vcc	2	+12V
3	GND	4	GND
5	TX0-	6	TX0+
7	GND	8	TX1-
9	TX1+	10	GND
11	TX2-	12	TX2+
13	GND	14	TXCLK-
15	TXCLK+	16	GND
17	N/C	18	N/C
19	ENABKL	20	GND

2.7 Ethernet Interface

The board integrated with Fast Ethernet interfaces at the type of 10Base-T/100Base-TX auto-switching Fast Ethernet with full duplex and IEEE 802.3U compliant. Both of them connect via RJ45 connectors on bracket.

Connector: LAN (CN13)
Type: External RJ45 connector on bracket



Pin	Description
1	TXD+
2	TXD-
3	RXD+
4	N/C
5	N/C
6	RXD-
7	N/C
8	N/C

2.8 Audio Interface

The board integrates with AC97 3D audio interface by NS Geode CS5530A and AC97 3D audio codec, provides line-in, line-out, Mic-in and CD-in interfaces for industrial applications with audio function.

Connector: JAUDIO
Type: 16-pin (2 x 8) header pitch 2.54mm header

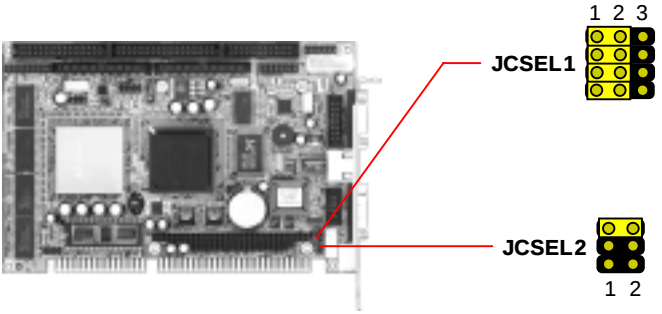
Pin	Description	Pin	Description
1	Mic-in	2	AREF
3	Ground (Audio)	4	Ground (Audio)
5	Line Out – Left	6	Line Out – Right
7	N/C	8	N/C
9	Line In – Left	10	Line In – Right
11	Ground (Audio)	12	N/C
13	Ground (Remove)	14	N/C (Remove)
15	Ground (Remove)	16	N/C (Remove)

Connector: JCDIN (J3)
Type: 4-pin wafer

Pin	Description
1	Ground (CD)
2	CD – Left
3	Ground
4	CD – Right

2.9 Serial Port Mode Setting

The onboard COM2 RS-422/485 mode setting is done by the jumper JCSEL1 and JCSEL2, and actives at COM2 (JCOM2).



Jumper: JCSEL1, JCSEL2 (J4, J5)
Type: onboard 12-, 6-pin header

COM2 Mode	JCSEL2	JCSEL1
RS-232	1-2	1-2/4-5/7-8/10-11
RS-422	3-4	2-3/5-6/8-9/11-12
RS-485	5-6	2-3/5-6/8-9/11-12

Default setting

Connector: JCOM2 (CN15)
Type: 10-pin header

Pin	RS232	RS422	RS485	Pin	RS232	RS422	RS485
1	DCD	TX-	Data-	2	RXD	RX+	N/C
3	TXD	TX+	Data+	4	DTR	RX-	N/C
5	Ground	N/C	N/C	6	DSR	N/C	N/C
7	RTS	N/C	N/C	8	CTS	N/C	N/C
9	RI	N/C	N/C	10	N/C	N/C	N/C

2.10 GPIO Interface

The board offers 8-bit digital I/O to customize its configuration to your control needs. For example, you may configure the digital I/O to control the opening and closing of the cash drawer or to sense the warning signal from a tripped UPS. The following is a detailed description of how the digital I/O is controlled via software programming.

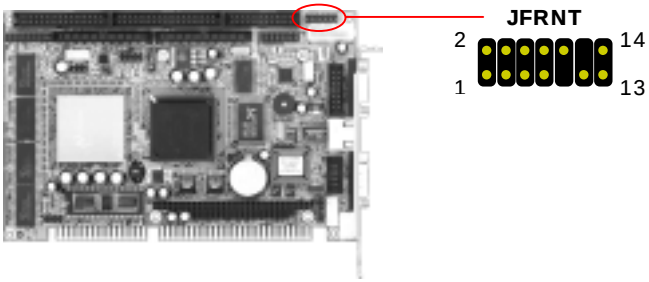
Connector: JDIO (CN7)
Type: 8-pin header

Pin	Description	Pin	Description
1	DO-0	2	DI-0
3	DO-1	4	DI-1
5	DO-2	6	DI-2
15	DO-3	16	DI-3

Digital Input / Output Programming

Function	Address	Bit
Digital Input #1	281	0
Digital Input #2	281	1
Digital Input #3	281	2
Digital Input #4	281	3
Digital Output #1	280	0
Digital Output #2	280	1
Digital Output #3	280	2
Digital Output #4	280	3

2.11 Switch and Indicator



Connector: JFRNT (CN4)
Type: onboard 14-pin header

Function	Signal	PIN		Signal	Function
Reset	GND	1	8	(+) Vcc	Power LED
	Reset	2	9	N/C	
IDE LED	Vcc (+)	3	10	GND	
	Active	4	11	Vcc	Speaker
	N/C	5	12	N/C	
Power Button	PWRBT	6	13	N/C	
	GND	7	14	SPKIN	

Chapter 3. BIOS Setup

The single board computer uses the Award BIOS for the system configuration. The Award BIOS in the single board computer is a customized version of the industrial standard BIOS for IBM PC AT-compatible computers. It supports Intel x86 and compatible CPU architecture based processors and computers. The BIOS provides critical low-level support for the system central processing, memory and I/O sub-systems.

The BIOS setup program of the single board computer let the customers modify the basic configuration setting. The settings are stored in a dedicated battery-backed memory, NVRAM, retains the information when the power is turned off. If the battery runs out of the power, then the settings of BIOS will come back to the default setting. The BIOS section of the manual is subject to change without notice and is provided here for reference purpose only. The settings and configurations of the BIOS are current at the time of print, and therefore they may not be exactly the same as that displayed on your screen.

To activate CMOS Setup program, press ＜DEL＞ key immediately after you turn on the system. The following message “Press DEL to enter SETUP” should appear in the lower left hand corner of your screen. When you enter the CMOS Setup Utility, the Main Menu will be displayed as **Figure 3-1**. You can use arrow keys to select your function, press ＜Enter＞ key to accept the selection and enter the sub-menu.

Figure 3-1. CMOS Setup Utility Main Screen

Phoenix – Award BIOS CMOS Setup Utility

>Standard CMOS Features	>Frequency/Voltage Control
>Advanced BIOS Features	Load Fail-Safe Defaults
>Advanced Chipset Features	Load Optimized Defaults
>Integrated Peripherals	Set Supervisor Password
>Power Management Setup	Set User Password
>PnP / PCI Configurations	Save & Exit Setup
>PC Health Status	Exit Without Saving
Esc : Quit	↑↓→← : Select Item
F10 : Save & Exit Setup	

Notes (This page left blank intentionally)

Chapter 4. Driver Installation

The driver CD offers auto-run menu. It will detect and select the type of single board computer and helps you install the drivers automatically.

Install Board's Software

The selection helps you install the drivers of chipset. It will detect your version of OS automatically.

Install Ultra ATA IDE Driver

The selection helps you to install the driver of IDE interface.

Install VGA Driver

The selection helps you to install the driver of onboard VGA interface.

Install LAN Driver

The selection helps you to install the driver of onboard LAN interface.

Install Audio Driver

The selection helps you to install the driver of onboard audio interface.

Link to < *Website* > Homepage

The selection help you to link to the website to find the updated technical documents and download directly.

Browse this CD

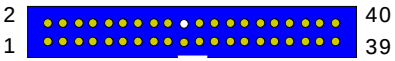
The selection helps you to find the drivers in this CD directly.

Notes (This page left blank intentionally)

Appendix. A I/O Port Pin Assignment

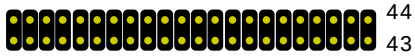
A.1 IDE Port

Connector: IDE1 (CN2)
Type: 40-pin (2 x 20) box header



Pin	Description	Pin	Description
1	Reset	2	Ground
3	D7	4	D8
5	D6	6	D9
7	D5	8	D10
9	D4	10	D11
11	D3	12	D12
13	D2	14	D13
15	D1	16	D14
17	D0	18	D15
19	Ground	20	N/C (Vcc)
21	REQ	22	Ground
23	IOW-/STOP	24	Ground
25	IOR-/HDMARDY	26	Ground
27	IORDY/DDMARDY	28	IDESEL
29	DACK-	30	Ground
31	IRQ	32	N/C
33	A1	34	CBLID
35	A0	36	A2
37	CS0 (MASTER CS)	38	CS1 (SLAVE CS)
39	LED ACT-	40	Ground

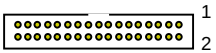
Connector: IDE2 (CN7)
Type: 44-pin (2 x 22) box header



Pin	Description	Pin	Description
1	Reset	2	Ground
3	D7	4	D8
5	D6	6	D9
7	D5	8	D10
9	D4	10	D11
11	D3	12	D12
13	D2	14	D13
15	D1	16	D14
17	D0	18	D15
19	Ground	20	N/C
21	REQ	22	Ground
23	IOW-/STOP	24	Ground
25	IOR-/HDMARDY	26	Ground
27	IORDY/DDMARDY	28	Ground
29	DACK-	30	Ground
31	IRQ	32	N/C
33	A1	34	SD
35	A0	36	A2
37	CS1	38	CS3
39	ASP1	40	Ground
41	Vcc	42	Vcc
43	Ground	44	Ground

A.2 Floppy Port

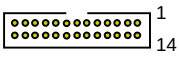
Connector: FLOPPY (CN1)
Type: 34-pin (2 x 17) header



Pin	Description	Pin	Description
1	Ground	2	DRIVE DENSITY SELECT 0
3	Ground	4	DRIVE DENSITY SELECT 1
5	Ground	6	N/C
7	Ground	8	INDEX-
9	Ground	10	MOTOR ENABLE A-
11	Ground	12	DRIVER SELECT B-
13	Ground	14	DRIVER SELECT A-
15	Ground	16	MOTOR ENABLE B-
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-

A.3 Parallel Port

Connector: PRINTER (CN3)
Type: 26-pin box header



Pin	Description	Pin	Description
1	STROBE-	14	AUTO FEED-
2	D0	15	ERROR-
3	D1	16	INITIALIZE-
4	D2	17	SELECT INPUT-
5	D3	18	Ground
6	D4	19	Ground
7	D5	20	Ground
8	D6	21	Ground
9	D7	22	Ground
10	ACKNOWLEDGE-	23	Ground
11	BUSY	24	Ground
12	PAPER EMPTY	25	Ground
13	SELECT+	26	N/C

A.4 Serial Port

A.4.1 Onboard RS-232C Serial Port

Connector: JCOM2 (CN15)
Type: 10-pin header

Pin	Description	Pin	Description
1	DCD	2	RXD
3	TXD	4	DTR
5	Ground	6	DSR
7	RTS	8	CTS
9	RI	10	N/C

A.4.2 On Bracket RS-232C Serial Port

Connector: COM1 (CN16)
Type: 9-pin D-sub male connector on bracket

Pin	Description	Pin	Description
1	DCD	2	RXD
3	TXD	4	DTR
5	Ground	6	DSR
7	RTS	8	CTS
9	RI		

A.5 USB Port

Connector: JUSB (CN10)
Type: 10-pin (2 x 5) header for dual USB Ports

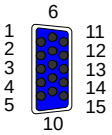
Pin	Description	Pin	Description
1	Vcc	2	Ground
3	Data1-	4	Ground
5	Data1+	6	Data2+
7	Ground	8	Data2-
9	Ground	10	Vcc

A.6 IrDA Port

Connector: JIR (CN14)
Type: 5-pin (1 x 5) header for SIR Port

Pin	Description
1	Vcc
2	N/C
3	IRRX
4	Ground
5	IRTX

A.7 VGA Port

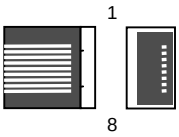


Connector: VGA (CN12)

Type: External 15-pin D-sub female connector on bracket

Pin	Description	Pin	Description	Pin	Description
1	RED	6	Ground	11	N/C
2	GREEN	7	Ground	12	VDDAT
3	BLUE	8	Ground	13	HSYNC
4	N/C	9	Vcc	14	VSYNC
5	Ground	10	Ground	15	VDCLK

A.8 LAN Port



Connector: LAN (CN13)

Type: External RJ45 connector on bracket

Pin	1	2	3	4	5	6	7	8
Description	TX+	TX-	RX+	N/C	N/C	RX-	N/C	N/C

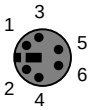
A.9 AT Keyboard Port

Connector: JATKB (CN20)
Type: 5-pin box header

Pin	1	2	3	4	5
Description	CLK	DATA	N/C	Ground	Vcc

A.10 PS/2 Keyboard and Mouse Port

Connector: PS2 (CN21)
Type: 6-pin MiniDIN connector on bracket



Pin	1	2	3	4	5	6
Description	KBD	MSD	Ground	N/C	KBC	MSC

Note: The PS/2 connector supports standard PS/2 keyboard directly or both PS/2 keyboard and mouse through the PS/2 Y-type cable. The cable is the standard on packing list.

Appendix B. Flash the BIOS

B.1 BIOS Auto Flash Tool

The board is based on Award BIOS and can be updated easily by the BIOS auto flash tool. You can download the tool online at the address below:

http://www.award.com

File name of the tool is “awdflash.exe”, it’s the utility that can write the data into the BIOS flash ship and update the BIOS.

B.2 Flash Method

Get the “.bin” file including the image of new BIOS you want to update.
Power on the system and flash the BIOS.
Re-star the system.

Appendix C. System Resources

C.1 I/O Port Address Map

Address Range	Device
00000000-0000000F	Direct Memory Access Controller
00000020-00000021	Programmable Interrupt Controller
00000022-0000003F	PCI Bus
00000040-00000043	System Timer
00000044-00000047	PCI Bus
0000004C-0000006F	PCI Bus
00000060-00000060	PC/AT Enhanced PS/2 Keyboard (101/102-Key)
00000061-00000061	System Speaker
00000064-00000064	PC/AT Enhanced PS/2 Keyboard (101/102-Key)
00000070-00000071	System CMOS / Real Time Clock
00000072-0000007F	PCI Bus
00000081-00000083	Direct Memory Access Controller
00000087-00000087	Direct Memory Access Controller
00000089-0000008B	Direct Memory Access Controller
00000090-00000091	PCI Bus
00000093-0000009F	PCI Bus
000000A0-000000A1	Programmable Interrupt Controller
000000A2-000000BF	PCI Bus
000000C0-000000DF	Direct Memory Access Controller
000000E0-000000EF	PCI Bus
000000F0-000000FF	Numeric Data Processor
00000100-00000CF7	PCI Bus
00000170-00000177	Secondary IDE Channel
000001F0-000001F7	Primary IDE Channel
00000220-0000022F	Cyrix XpressAUDIO(TM) Driver (WDM)
00000274-00000277	ISAPNP Read Data Port
00000279-00000279	ISAPNP Read Data Port
000002F8-000002FF	Communications Port (COM2)
00000330-00000331	Cyrix XpressAUDIO(TM) Driver (WDM)
00000376-00000376	Secondary IDE Channel
00000378-0000037F	Printer Port (LPT1)
00000388-00000388	Cyrix XpressAUDIO(TM) Driver (WDM)
000003B0-000003BB	National Semiconductor Corporation Win2K Graphics Driver
000003C0-000003DF	National Semiconductor Corporation Win2K Graphics Driver
000003F2-000003F5	Standard Floppy Disk Controller
000003F6-000003F6	Primary IDE Channel

000003F7-000003F7	Standard Floppy Disk Controller
000003F8-000003FF	Communications Port (COM1)
00000A79-00000A79	ISAPNP Read Data Port
00000D00-0000FFFF	PCI Bus
0000E000-0000E0FF	Realtek RTL PCI Fast Ethernet Adapter
0000F000-0000F00F	Standard Dual Channel PCI ISA Controller

C.2 Memory Address Map

Range	Device
0x41000000-0x41017FFF	System board
0x40800000-0x40FFFFFF	National Semiconductor Corp. Win2K Graphics Driver
0x40018000-0x407FFFFF	System board
0x40012000-0x400120FF	NSC CS5530A ACPI Bridge
0x40011000-0x4001107F	Cyrix XpressAUDIO(TM) PCI Component (WDM)
0x40010000-0x40010FFF	System board
0x40008000-0x4000FFFF	System board
0xBC00000-0xFFFEFFFF	PCI Bus
0x100000-0xBBFFFFF	System board
0xF8000-0xFFFFF	Motherboard Resources
0xF4000-0xF7FFF	Motherboard Resources
0xF0000-0xF3FFF	Motherboard Resources
0xCC000-0xDFFFF	PCI Bus
0xC8000-0xCBFFF	Motherboard Resources
0xA0000-0xBFFFF	National Semiconductor Corp. Win2K Graphics Driver
0x9F000-0xBFFFF	PCI Bus
0xD1000000-0xD10000FF	Realtek RTL8139 Family PCI Fast Ethernet NIC
0xD1004000-0xD1004FFF	Compaq PCI to USB Open Host Controller
0x0000-0x9FFFF	System Board
0xFFFC0000-0xFFFFFFFF	System Board
0xFEE00000-0xFEE0FFFF	System Board

C.3 System IRQ and DMA Resource

C.3.1 IRQ

IRQ Number	Device
0	System Timer
1	PC/AT Enhanced PS/2 Keyboard (101/102-Key)
2	Programmable Interrupt Controller
3	Communications Port (COM2)
4	Communications Port (COM1)
5	National XpressAUDIO(TM) 16-bit Sound
6	Standard Floppy Disk Controller
7	Parallel Port (LPT1)
8	System CMOS / Real Time Clock
9	Reserved
10	Realtek RTL PCI Fast Ethernet NIC
10	IRQ Holder for PCI Steering
11	Compaq PCI to USB Open Host Controller
11	IRQ Holder for PCI Steering
12	PS/2 Compatible Mouse Port
13	Numeric Data Processor
14	Standard Dual PCI IDE Controller
14	Primary IDE Controller (Single FIFO)
15	Standard Dual PCI IDE Controller
15	Secondary IDE Controller (Single FIFO)

C.3.2 DMA

Channel	Device
0	Cyrix XpressAUDIO(TM) Driver (WDM)
1	(free)
2	Standard Floppy Disk Controller
3	(free)
4	Direct Memory Access Controller
5	Cyrix XpressAUDIO(TM) Driver (WDM)
6	(free)
7	(free)

Contact Information

Any adviser or comment about our products and service, or anything we can help you please don't hesitate to contact with us. We will do our best service for you.

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