



3304270
USER MANUAL

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Chapter 1. Introduction

1.1 Product Overview

The GLOBAL AMERICAN INC.'s 3304270 is a 5.25" drive size compact Embedded Littleboard Computer that equips with built-in low-power embedded NS Geode GX1 x86 compliant processor, onboard 64 Mbytes SDRAM, flat panel / CRT interface, AC97 3D audio, 10/100BASE-Tx Fast Ethernet interface, PC/104, 4 COM ports and 8-bit GPIO interfaces in the compact size of 5.25" drive size, 146 x 203 mm or 5.75 x 8.00" (L x W), meets of industrial EBX form factor.

3304270 integrates with onboard DiskOnChip and CompactFlash interfaces to offer the flexible option for embedded SSD (Solid State Disk). With the embedded NS GX1 CPU and 64 MBytes SDRAM, the 3304270 should be the ideal solution for low profile embedded computing application platform.

Based on the features of embedded GX1 CPU, onboard SDRAM, flat panel VGA, LAN, audio, CF, DOC SSD, and 4 COM ports, the 3304270 meets the embedded demand of POS/POI, kiosk, panel PC, ATM, web payphone, car PC, and other embedded platforms. In the other word, 3304270 provides the powerful embedded performance and integration, expansibility solutions including, but not limited to the following.

Compact Low Profile Board Size

The 3304270 is based on the compact size of 5.25" drive size, 146 x 203 mm, meets the industrial EBX form factor. The onboard GX1 x86 compliant CPU and 64 Mbytes SDRAM also make 3304270 be the low profile solution for the embedded applications.

Embedded OS Support

NS GX1 offers the wide range of major embedded operating systems (OS) including DOS, Windows Embedded NT/XP, WinCE, embedded Linux, pSOS+, VxWorks, QNX, BE and more.

CompactFlash / DiskOnChip SSD Interface

3304270 offers the CompactFlash and DiskOnChip embedded flash disk interfaces for different type of the SSD (Solid State Disk).

4 COM Ports and GPIO Interface

3304270 is integrated with 4 COM ports and 8-bit GPIO interfaces for the embedded applications based on multiple I/O interfaces.

1.2 Specification

General Specification

CPU	Embedded NS GX1 300 MHz CPU Low power / fan free x86 compliant platform Optional GX1 200/233/266 MHz CPU for OEM
Chipset	NS Geode CS5530A
DRAM	Onboard 64 MBytes SDRAM One 168-pin DIMM socket supports up to 256 MB SDRAM
BIOS	Phoenix-Award 2Mb PnP flash BIOS
Enhanced IDE	One PCI enhanced IDE interface channel supports dual ATAPI devices up to UltraDMA/33 mode
Green Function	Power saving mode supported in BIOS with DOZE, STANDBY and SUSPEND modes. ACPI version 1.0 and APM version 1.2 compliant
Real Time Clock	NS Geode chipset built-in RTC with lithium battery
Watchdog Timer	Programmable system reset watchdog timer Software selectable timeout value within 32 sec. ~ 245 Min., 1 min. per step

Multi-I/O Port

Chipset	NS PC97317VUL Super-I/O controller Winbond W83977F-A super I/O controller for 2nd I/O
Serial Port	Three RS-232 serial port COM1/COM3/COM4 One jumper selectable RS-232/422/485 COM2 All with 16C550 compatible UART and 16 bytes FIFO
USB Port	Dual 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 FDD
IrDA Port	One IrDA compliant Infrared Tx/Rx interface
K/B & Mouse	PS/2 keyboard and mouse ports
GPIO	4-bit TTL digital input and 4-bit TTL digital output

Solid State Disk Interface

Flash Type	One CompactFlash Type-II socket for CFC (Compact Flash Card) or IBM MicroDrive
Capacity	Flash memory up to 1 GBytes on CFC / IBM MicroDrive
DiskOnChip	Optional M-systems DiskOnChip2000 socket for OEM Trade-off with the CompactFlash socket

Display Interface

Chipset	NS Geode CS5530A chipset built-in flat panel / CRT VGA controller with 2D engine
Video Memory	Up to 4 MBytes of video memory shared with system memory, selectable in BIOS
Display Type	Supports non-interlaced CRT and 18-bit TFT LCD displays. Can display both CRT and flat panel simultaneously
DSTN/LVDS (OEM Only)	Optional DSTN / LVDS flat panel interface for OEM project DSTN with NS CS9211 controller for DSTN LCD LVDS with NS DS90C363A controller for LVDS TFT LCD

Ethernet Interface

Chipset	PCI RTL8139C Fast Ethernet controller
Type	10Base-T / 100Base-TX, auto-switching Fast Ethernet, full duplex, IEEE802.3U compliant

Audio Interface

Chipset	NS Geode CS5530A chipset built-in AC97 3D audio with VIA VT1612A codec
Interface	Line-in, line-out, CD-in, Mic-in interface

Expansive Interface

PCI Slot	One 32-bit/33 MHz PCI slot with 1 x bus master PCI
PC/104	One 8/16-bit ISA-based PC/104 connector

Power and Environment

Power Req.	+5V (4.75V to 5.25V), +12V (11.4V to 12.6V) 4-pin AT power connector
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ATX Function	One 4-pin ATX interface with 5V standby and power on
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Dimension	7.09" (L) x 5.51" (W) (180mm x 140mm)
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Temperature	Operating within 0 ~ 60°C (32 ~ 140°F) Storage within -20 ~ 85°C (-4 ~ 185°F)
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Ordering Code

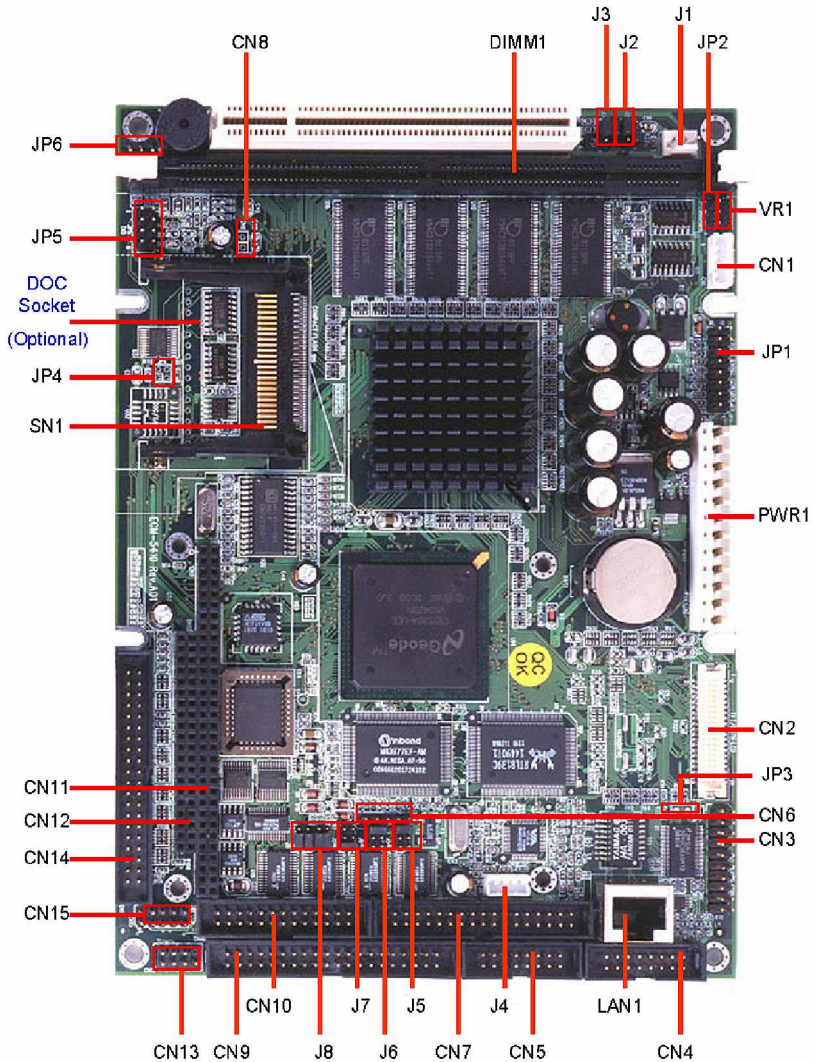
3304270	With GX1 300 MHz CPU, Flat Panel / CRT SVGA. Audio, LAN, PCMCIA, CompactFlash Interfaces
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OEM Version	Other Configuration Based on 3304270 with Optional Onboard NS GX1 200/233/266 MHz CPU, Memory and Integrated Interfaces
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Online product information detail and updates are available on <http://www.globalamericaninc.com>

Chapter 2. Hardware Setup

2.1 Jumper and Connector Location



2.1.1 Jumpers Reference

Label	Function	Type
J2	LCD Driving & Backlight Voltage Selection	3 x 2 header, pitch 2.00 mm
J3	Clear CMOS / LCD Clock Selection	3 x 2 header, pitch 2.00 mm
J5	COM3 Pin-9 Power Selection	3 x 2 header, pitch 2.00 mm
J6	COM4 Pin-9 Power Selection	3 x 2 header, pitch 2.00 mm
J7	COM2 RS-232/422/485 Selection	3 x 2 header, pitch 2.00 mm
J8	COM2 RS-232/422/485 Selection	4 x 3 header, pitch 2.00 mm
JP4	DOC Memory Address Selection (Optional)	2 x 2 header, pitch 2.00 mm
JP6	AT/ATX Power Selection	3 x 2 header, pitch 2.00 mm

2.1.2 Connectors Reference

Label	Function	Type
CN1	LCD Inverter Connector	5 x 1 wafer, pitch 2.00 mm
CN2	TFT/DSTN LCD Panel Connector (TTL)	HIROSE DF13-40DP-1.25V
CN3	LVDS LCD Connector (Optional)	10 x 2 header, pitch 2.54 mm
CN4	16-pin VGA Connector	8 x 2 header, pitch 2.54 mm
CN5	16-pin Audio Connector	8 x 2 header, pitch 2.54 mm
CN6	5-pin IrDA Connector	5 x 1 header, pitch 2.54 mm
CN7	34-pin Floppy Connector	17 x 2 header, pitch 2.54 mm
CN8	Fan Connector	2 x 1 header, pitch 2.54 mm
CN9	COM1/2/3/4 Series Port Connector	20 x 2 header, pitch 2.54 mm
CN10	Parallel Port Connector	13 x 2 header, pitch 2.54 mm
CN11/12	PC/104 Connector	
CN13	PS/2 Keyboard and Mouse Connector	4 x 2 header, pitch 2.54 mm
CN14	IDE Port Connector	20 x 2 header, pitch 2.54 mm
CN15	USB Port Connector	5 x 2 header, pitch 2.54 mm
J1	Auxiliary Power Connector	3 x 1 wafer, pitch 2.54 mm
J4	CD-in Audio Connector	4 x 1 header, pitch 2.00 mm
JP1	Front Panel Switched and Indicators	8 x 2 header, pitch 2.54 mm
JP2	LCD Backlight Brightness Adjustment	3 x 1 header, pitch 2.54 mm
JP5	Digital I/O Port Connector	4 x 2 header, pitch 2.54 mm
LAN1	LAN Port Connector	RJ45
PWR1	AT P8/P9 Power Connector	AT P8/P9
SN1	CompactFlash Connector	CompactFlash
U25	32-pin DOC Socket (Optional)	32-pin DOC Socket
SN1	CompactFlash Connector	CompactFlash
VR1	STN LCD Contrast Adjustment (Optional)	3 x 1 header, pitch 2.54 mm
DIMM1	168-pin DIMM Socket	168-pin DIMM Socket

2.2 Flat Panel Configuration

2.2.1 LCD Clock Signal Selection

You can select the LCD control signal by setting pin 2, 4, 6 of J3. The following charts show the available option.

LCD Clock Signal Selection

Jumper: J3, pin 2, 4, 6

Type: onboard 6-pin header

J3 (Pin-2/4/6) LCD Clock Signal Selection

2-4	SHFCLK
4-6	-SHFCLK

Default Setting

2.2.2 LCD Driving & Backlight Voltage Selection

You can select the LCD connector CN2 driving (pin 5 and pin 6) and backlight (pin 1 and pin 2) voltage by setting J2. The configurations are as follows.

LCD Driving Voltage Selection

Jumper: J2 (pin 1, 3, 5)

Type: onboard 6-pin header

J2 LCD Driving Voltage Selection

1-3	+5V
3-5	+3.3V

Default Setting

LCD Backlight Voltage Selection

Jumper: J2 (pin 2, 4, 6)

Type: onboard 6-pin header

J2 LCD Backlight Voltage Selection

2-4	+5V
4-6	+12V

Default Setting

2.3 COM3/4 Power Configuration

The pin 9 of COM3 and COM4 can be setting as +5V or +12V power output for the additional serial devices by jumper J5 (COM3) and J6 (COM4).

COM3 / COM4 Pin-9 Power Selection

Jumper: J5 / J6

Type: onboard 6-pin header

J5 / J6	COM3 / COM4 Pin-9
5-6	Ring (Normal RS-232)
3-4	+5V Power Output
1-2	+12V Power Output
Default Setting	

2.4 COM2 RS-232/422/485 Mode Configuration

The mode of COM2 can be setting as RS-232, 422 or 485 mode by jumper J7 and J8 as below.

COM2 Mode Selection

Jumper: J7 / J8

Type: onboard 6- / 12-pin header

Mode	J7	J8
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		

2.5 DiskOnChip Configuration (Optional)

The M-systems DiskOnChip memory address can be selected by JP4. The choice is D0000~D1FFF, D4000~D5FFF, D8000~D9FFF, or Disabled.

M-Systems DiskOnChip Memory Address Selection

Jumper: JP3

Type: onboard 4-pin header

J3	DiskOnChip Address
3-4	D000
1-2	D400
OFF	D800
1-2/3-4	Disable

Default Setting

2.6 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.

CMOS Setting (Clear CMOS)

Jumper: J3 (Pin 1, 3, 5)

Type: onboard 6-pin header

J3	CMOS Mode
1-3	Normal Operating
3-5	Clear CMOS

Default Setting

2.7 Power Mode Setting

The board can support both of AT and ATX power supply by the jumper J6. To use the AT power supply, the connector J1 will also be setting as 2-3 closed

Power Mode Setting

Jumper: J6

Type: onboard 3-pin header

J6	Power Mode
1-2	AT Power Supply
2-3	ATX Power Supply

Default Setting

ATX Auxiliary Power Connector

Connector: J1

Type: onboard 3-pin wafer

J1	Description
1	Power On
2	Vcc
3	5V Standby

The J1 should be setting as 2-3 closed while the AT power supply is used.

2.8 Switches and Indicators

The board can support both of AT and ATX power supply by the jumper J6. To use the AT power supply, the connector J1 will also be setting as 2-3 closed

Power Mode Setting

Jumper: JP1

Type: onboard 16-pin header

Signal	PIN		Signal
NC	16	15	NC
VCC	14	13	HDD LED
VCC	12	11	Suspend LED
GND	10	9	Reset in
GND	8	7	Suspend SW
GND	6	5	Power Button
VCC3SB	4	3	LED Link
VCC3SB	2	1	LED Tx

2.9 Connector Pin Assignment

LCD Inverter Connector (CN1)

Signal	PIN
+12V	1
GND	2
ENBKL	3
VR	4
VCC	5

Note: For inverters with adjustable Backlight function, it is possible to control the LCD brightness through the VR signal (pin 4) controlled by **JP2**. Please see the JP2 section for detailed circuitry information.

TFT Panel Connector (CN2)

Signal	PIN		Signal
VDDSAFE5	2	1	VDDSAFE5
GND	4	3	GND
VDDSAFE3	6	5	VDDSAFE3
GND	8	7	NC
NC	10	9	NC
P3	12	11	P2
P5	14	13	P4
P7	16	15	P6
NC	18	17	NC
P11	20	19	P10
P13	22	21	P12
P15	24	23	P14
NC	26	25	NC
P19	28	27	P18
P21	30	29	P20
P23	32	31	P22
GND	34	33	GND
FLM	36	35	SHFCLK
LP	38	37	M
ENVEE	40	39	ENBKL

Signal Description – TFT Panel Connector (CN2)

P [23:18] P [15:10] P [7:2]	Flat panel data output for 9, 12, or 18 bit TFT flat panels. Refer to table below for configurations for various panel types. The flat panel data and control outputs are all on-board controlled for secure power-on/off sequencing
SHFCLK	Shift Clock. Pixel clock for flat panel data
LP	Latch Pulse. Flat panel equivalent of HSYNC (horizontal synchronization)
FLM	First Line Marker. Flat panel equivalent of VSYNC (vertical synchronization)
M	Multipurpose signal, function depends on panel type. May be used as AC drive control signal or as BLANK# or Display Enable signal
ENBKL	Enable backlight signal. This signal is controlled as a part of the panel power sequencing
ENVEE	Enable VEE. Signal to control the panel power-on/off sequencing. A high level may turn on the VEE (LCD bias voltage) supply to the panel
VDDSAFE5	LCD Backlight Voltage +5V* or +12V selected by J2 / Pin 2, 4, 6
VDDSAFE3	LCD Driving Voltage +5V or 3.3V* selected by J2 / Pin 1, 3, 5

Signal Configuration – TFT Panel Displays

Pin name	18 Bit TFT	12 Bit TFT	9 Bit TFT/ 640 x 480	9 Bit TFT/ 1024 x 768
P23	R5	R5	R5	R5 (Even)
P22	R4	R4	R4	R4 (Even)
P21	R3	R3	R3	R3 (Even)
P20	R2	R2	-	R5 (Odd)
P19	R1	-	-	R4 (Odd)
P18	R0	-	-	R3 (Odd)
P15	G5	G5	G5	G5 (Even)
P14	G4	G4	G4	G4 (Even)
P13	G3	G3	G3	G3 (Even)
P12	G2	G2	-	G5 (Odd)
P11	G1	-	-	G4 (Odd)
P10	G0	-	-	G3 (Odd)
P7	B5	B5	B5	B5 (Even)
P6	B4	B4	B4	B4 (Even)
P5	B3	B3	B3	B3 (Even)
P4	B2	B2	-	B5 (Odd)
P3	B1	-	-	B4 (Odd)
P2	B0	-	-	B3 (Odd)

Note: The principle of attachment of TFT panels is that the bits for red, green, and blue use the most significant bits and skip the least significant bits if the display interface width of the TFT panel is insufficient.

DSTN Panel Connector (CN2, Optional)

Signal	PIN		Signal
VDDSAFE5	2	1	VDDSAFE5
GND	4	3	GND
VDDSAFE3	6	5	VDDSAFE3
GND	8	7	VCON
UD1	10	9	UD0
UD3	12	11	UD2
UD5	14	13	UD4
UD7	16	15	UD6
UD9	18	17	UD8
UD11	20	19	UD10
LD1	22	21	LD0
LD3	24	23	LD2
LD5	26	25	LD4
LD7	28	27	LD6
LD9	30	29	LD8
LD11	32	31	LD10
GND	34	33	GND
FLM	36	35	SHFCLK
LP	38	37	LDE
ENVEE	40	39	DISPOFF

Signal Description – DSTN Panel Connector (CN2, Optional)

LD[11:0], UD[11:0]	Upper and Lower Scan Data These outputs are the panel pixel data bus to the LCD panel. The data format is dependent on the panel type selected.
SHFCLK	Panel Clock (Shift Clock) This is the shift clock or pixel clock for the flat panel data. This signal is used to clock pixel data into the LCD panel. Depending on the type of panel being interfaced, this signal can also be referred to as CL2 or SHIFT.
FLM	First Line Marker (SSTN/DSTN Panels) This is the frame pulse for the flat panel data indicating a display frame is about to start. Depending on the type of panel being interfaced, this signal can also be referred to as FP or FRAME.
LDE	Flat Panel Display Enable (TFT Panels) LDE is the display enable for active-matrix TFT panels and is used to indicate the active pixel data on UD[11:0] and LD[11:0].
LP	Latch Pulse (SSTN/DSTN Panels) Latch Pulse is the line pulse or latch pulse for the flat panel data, indicating that a display line is about to start. Depending on the type of panel being interfaced, this signal can also be referred to as CL1 or LINE.
DISPOFF	Disables Backlight When this output is asserted low, it turns the backlight off.
VCON	Controls LCD Bias Voltage Enable When this output is asserted high, the contrast voltage is applied to the panel. This signal should be connected directly to the panel.
VDDSAFE5	LCD Backlight Voltage +5V* or +12V selected by J2 / Pin 2, 4, 6
VDDSAFE3	LCD Driving Voltage +5V or 3.3V* selected by J2 / Pin 1, 3, 5

Signal Configuration – DSTN Panel Displays (CN2, Optional)

Pin name	DSTN 24-bit	DSTN 16-bit	STN 8-bit	DSTN 8-bit (Mono)	TFT 9-Bit	TFT 18-Bit	TFT 9+9-Bit	TFT 12+12-Bit
LD0	UD9	-	-	UD0 (pix 1)				BB0
LD1	UD10	-	-	UD1 (pix 2)			BB0	BB1
LD2	UD11	-	-	UD2 (pix 3)		B0	BB1	BB2
LD3	UD6	-	-	UD3 (pix 4)		B1	BB2	BB3
LD4	UD7	UD0	D0			B2		GB0
LD5	UD8	UD1	D1		B0	B3	GB0	GB1
LD6	UD3	UD2	D2		B1	B4	GB1	GB2
LD7	UD4	UD3	D3		B2	B5	GB2	GB3
LD8	UD5	-	-	LD0 (pix 1)				RB0
LD9	UD0	-	-	LD1 (pix 2)			RB0	RB1
LD10	UD1	UD4	D4	LD2 (pix 3)		G0	RB1	RB2
LD11	UD2	UD5	D5	LD3 (pix 4)		G1	RB2	RB3
UD0	LD9	UD6	D6			G2		BA0
UD1	LD10	UD7	D7		G0	G3	BA0	BA1
UD2	LD11	LD0	-		G1	G4	BA1	BA2
UD3	LD6	LD1	-		G2	G5	BA2	BA3
UD4	LD7	-	-					GA0
UD5	LD8	-	-				GA0	GA1
UD6	LD3	LD2	-			R0	GA1	GA2
UD7	LD4	LD3	-			R1	GA2	GA3
UD8	LD5	LD4	-			R2		RA0
UD9	LD0	LD5	-		R0	R3	RA0	RA1
UD10	LD1	LD6	-		R1	R4	RA1	RA2
UD11	LD2	LD7	-		R2	R5	RA2	RA3

LVDS Interface Connector (CN3)

Signal	PIN		Signal
VDDSAFE3	1	2	VDDSAFE3
GND	3	4	GND
Tx0-	5	6	Tx0+
GND	7	8	Tx1-
Tx1+	9	10	GND
Tx2-	11	12	Tx2+
GND	13	14	TxCLK-
TxCLK+	15	16	GND
NC	17	18	NC
GND	19	20	VDDSAFE3

CRT Connector (CN4)

Signal	PIN		Signal
NC	16	8	GND
DDCLK	15	7	GND
VSYNC	14	6	GND
HSYNC	13	5	GND
DDCDAT	12	4	NC
NC	11	3	BLUE
GND	10	2	GREEN
VCC	9	1	RED

Audio Output Connector (CN5)

Signal	PIN		Signal
NC	16	15	GND
NC	14	13	GND
NC	12	11	AGND
Line-In R	10	9	Line-In L
NC	8	7	NC
Line-Out R	6	5	Line-Out L
AGND	4	3	AGND
Mic Bias	2	1	Mic

IrDA Port (CN6)

Signal	PIN
VCC	1
CIRRX	2
IRRX	3
GND	4
IRTX	5

Fan Connector (CN8)

Signal	PIN
GND	2
VCC	1

Pin Header Serial Port 1 / 2 / 3 / 4 Connector in RS-232 Mode (CN9)

Signal	PIN		Signal
NC	40	39	GND
RI4/5V/12V	38	37	DTR4
CTS4	36	35	TxD4
RTS4	34	33	RxD4
DSR4	32	31	DCD4
NC	30	29	GND
RI3/5V/12V	28	27	DTR3
CTS3	26	25	TxD3
RTS3	24	23	RxD3
DSR3	22	21	DCD3
NC	20	19	GND
RI2	18	17	DTR2
CTS2	16	15	TxD2
RTS2	14	13	RxD2
DSR2	12	11	DCD2
NC	10	9	GND
RI1	8	7	DTR1
CTS1	6	5	TxD1
RTS1	4	3	RxD1
DSR1	2	1	DCD1

Serial Port 1 / 2 / 3 / 4 with External DB9 Cable

Signal	PIN		Signal
GND	5		
		9	RI
DTR	4	8	CTS
TxD	3	7	RTS
RxD	2	6	DSR
DCD	1		

Pin Header Serial Port 2 Connector in RS-422 Mode (CN9 / Pin 11~20)

Signal	PIN		Signal
NC	20	19	GND
NC	18	17	Rx-
NC	16	15	Tx+
NC	14	13	Rx+
NC	12	11	Tx-

Pin Header Serial Port 2 Connector in RS-485 Mode (CN9 / Pin 11~20)

Signal	PIN		Signal
NC	20	19	GND
NC	18	17	NC
NC	16	15	DATA+
NC	14	13	NC
NC	12	11	DATA-

Parallel Port Connector (CN10)

Signal	PIN		Signal
GND	26	25	SLCT
GND	24	23	PE
GND	22	21	BUSY
GND	20	19	ACK#
GND	18	17	PD7
GND	16	15	PD6
GND	14	13	PD5
GND	12	11	PD4
GND	10	9	PD3
SLIN#	8	7	PD2
INIT#	6	5	PD1
ERR#	4	3	PD0
AFD#	2	1	STB#

Keyboard and PS/2 Mouse Connector (CN13)

Signal	PIN		Signal
		4	NC
MCLK	7	3	MDAT
VCC	6	2	GND
KCLK	5	1	KDAT

IDE Device Connector (CN14)

Signal	PIN		Signal
GND	40	39	PDDACT#
PDCS3#	38	37	PDCS1#
PDA2	36	35	PDA0
NC	34	33	PDA1
NC	32	31	IRQ14
GND	30	29	PDDACK#
GND	28	27	PDRDY
GND	26	25	PDIOR#
GND	24	23	PDIOW#
GND	22	21	PDDRQ
NC	20	19	GND
PDD15	18	17	PDD0
PDD14	16	15	PDD1
PDD13	14	13	PDD2
PDD12	12	11	PDD3
PDD11	10	9	PDD4
PDD10	8	7	PDD5
PDD9	6	5	PDD6
PDD8	4	3	PDD7
GND	2	1	RESET#

USB Connector (CN15)

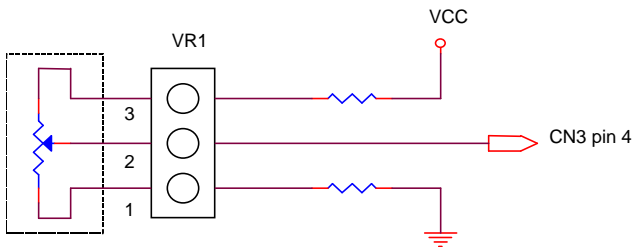
Signal	PIN		Signal
	CH2	CH1	
VCC2	1	5	VCC1
D2-	2	6	D1-
D2+	3	7	D1+
GND	4	8	GND

CD-ROM Audio Input Connector (J4)

Signal	PIN
CD_R	4
CD_GND	3
CD_L	2
CD_GND	1

LCD Backlight Brightness Adjustment Connector (VR1)

Signal	PIN
GND	1
VR	2
VCC	3



Variation Resistor (Recommended: 4.7K Ω , >1/16W)

Digital Input / Output Connector (JP5)

Signal	PIN		Signal
DI0	2	1	DO0
DI1	4	3	DO1
DI2	6	5	DO2
DI3	8	7	DO3

Digital Input / Output Programming (JP5)

The board is integrated with the digital I/O to customize its configuration for the demand of application. 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:

Digital Inputs	Address	Bit
D11	281	1
D12	281	2
D13	281	3
D14	281	4
Digital Outputs	Address	Bit
DO1	280	1
DO2	280	2
DO3	280	3
DO4	280	4

10/100 BASE-Tx Ethernet Connector (LAN1)

Signal	PIN
NC	8
NC	7
RXD-	6
NC	5
NC	4
RXD+	3
TXD-	2
TXD+	1

Power Connector 1 (PWR1)

Signal	PIN
NC	1
VCC	2
+12V	3
-12V	4
GND	5
GND	6
GND	7
GND	8
-5V	9
VCC	10
VCC	11
VCC	12

STN LCD Contrast Adjustment Connector (VR1)

Signal	PIN
GND	1
Vcon	2
VCC3	3

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	

Contact Information

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