integration with integrity

User's Manual

Single Board Computer 3300060

Version 1.0

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CAUTION

Danger of explosion if battery is incorrectly replaced.Replace only with the same or equivalent type
To be recommended by the manufacturer.
Dispose of used batteries according
To the manufacturer’s instructions

Version A2

ESD Precautions

Integrated circuits on computer boards are sensitive to static electricity. To avoid damaging chips from electrostatic discharge, observe the following precautions:

- Do not remove boards or integrated circuits from their anti-static packaging until you are ready to install them.
- Before handling a board or integrated circuit, touch an unpainted portion of the system unit chassis for a few seconds. This helps to discharge any static electricity on your body.
- Wear a wrist-grounding strap, available from most electronic component stores, when handling boards and components.

Trademarks Acknowledgments

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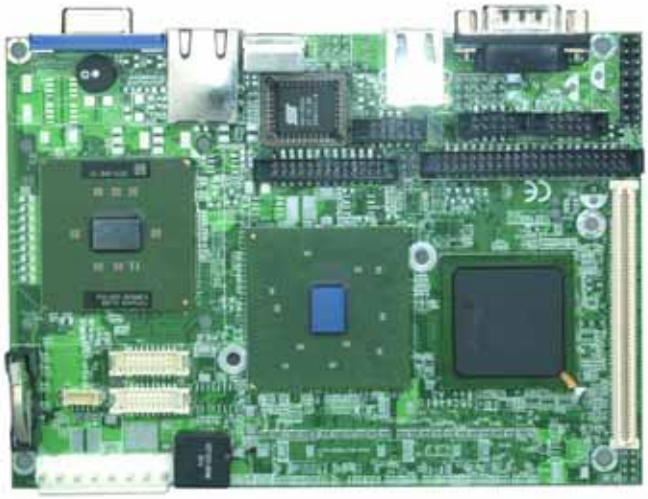
Chapter 1
Introduction



The **3300060** is an Intel® Pentium® M/Celeron™ M CPU equipped Capa board with graphics, Fast Ethernet and audio interface. Designed with the space-limited applications in mind, the **3300060** is practically the finest embedded Pentium® M board that exists. Using a standardized format conforming to the size of a 3.5" Hard Disk drive, **3300060 Series** adapt an Intel® low power consumption Pentium® M microprocessors. To simplify system integration, it packs provisions such as super I/Os, UXGA, LCD, Ethernet, solid state disk, all on a single board. Unique embedded features such as 2 serial ports (1 x RS-232, 1 x RS-232/422/485) (optional 2* RS-232 ports via stacking kit) with +5V/12V power capability and that allow adoption of an extensive array of PC peripherals. The industrial-grade construction of **3300060 series** allows your system to endure the continuous operation in hostile environments where stability and reliability are basic requirements. System dependability of **3300060 series** are enhanced by its built-in watchdog timer, a special industrial feature not commonly seen on other motherboards.

Designed for the professional embedded developers, the Pentium® M embedded board **3300060 Series** is virtually the ultimate one-step solution for embedded system applications.

1.1 Specifications

- **CPU:** Intel® Pentium® M 1.1/1.4GHz and Celeron® M 600M/1GHz
- **System Chipset:** Intel® 852GM + ICH*4
- **Bus Clock:** 400MHz
- **BIOS:**
  - Phoenix-Award BIOS, Y2K compliant
  - 4Mbit Flash, DMI, Plug and Play
  - SmartView for multiple LCD type selection, display mode option and application extension features
  - RPL/PXE Ethernet Boot ROM
  - "Load Optimized Default" to backup customized Setting in the BIOS flash chip to prevent from CMOS battery fail
- **System Memory:**
  - One 200-Pin DDR SODIMM socket
  - Maximum DDR of up to 1GB DDR266
- **L2 Cache:** integrated in CPU
- **Onboard IDE:**
  - 1 parallel ATA-100
  - PATA-100 as PIO Mode 0-4, DMA Mode 0-2 and Ultra DMA/33/66/100
- **Compact Flash Socket:**
  - One Compact Flash Type II Socket
- **Onboard Multi I/O:**
  - One floppy port
  - 1 x RS-232
1 x RS-232/422/485
  - Optional 2*RS-232 ports via 3300060D stacking kit

- **USB Interface:** 4 USB ports with fuse protection and complies with USB Spec. Rev. 2.0
- **Real Time Clock:** Integrate Intel® ICH*4
- **Watchdog Timer:**
  - 1~255 seconds; up to 255 levels
- **Graphics/Streaming:**
  - Integrate **Intel®** 852GM GMCH
  - Unified Memory Architecture shares system memory up to 32MB
  - Single display mode maximum resolutions:
    - CRT: 2048 x 1536@ 75Hz
    - LVDS LCD: 1600 x 1200
  - DualView display mode:
    - CRT: 2048 x 1536@ 75Hz
    - LVDS LCD: 1600 x 1200
  - LCD backlight control supported
  - Optional Dual LVDS LCD via stacking kit 3300060D with Chrontel CH7305 converter
- **Ethernet:**
  - Realtek 8100C PCI Bus 10/100M Base-T
  - Wake On LAN (via ATX power supply)
  - Equipped with RJ-45 interface
  - Optional with Realtek RTL8110S for 10/100/1000Base-T
  - 2nd Ethernet supported by optional stacking kit 3300060E
- **Audio:**
  - Realtek ALC202A AC'97 codec audio
  - Amplify for speaker-out with 2.5W for each channel
  - MIC-in, Line-in, Line-out/Speaker-out (jumper selectable)
- **Power Management:** ACPI (Advanced Configuration and Power Interface)

- **Form Factor:** 3.5" hard disk drive form factor

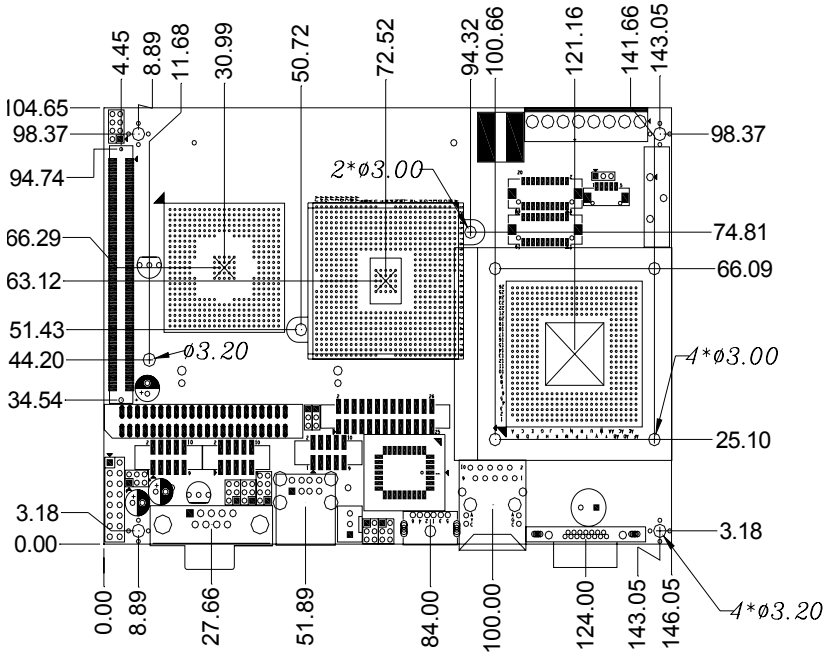
NOTE: *Specifications are subject to change without notice.*

1.2 Utilities Supported

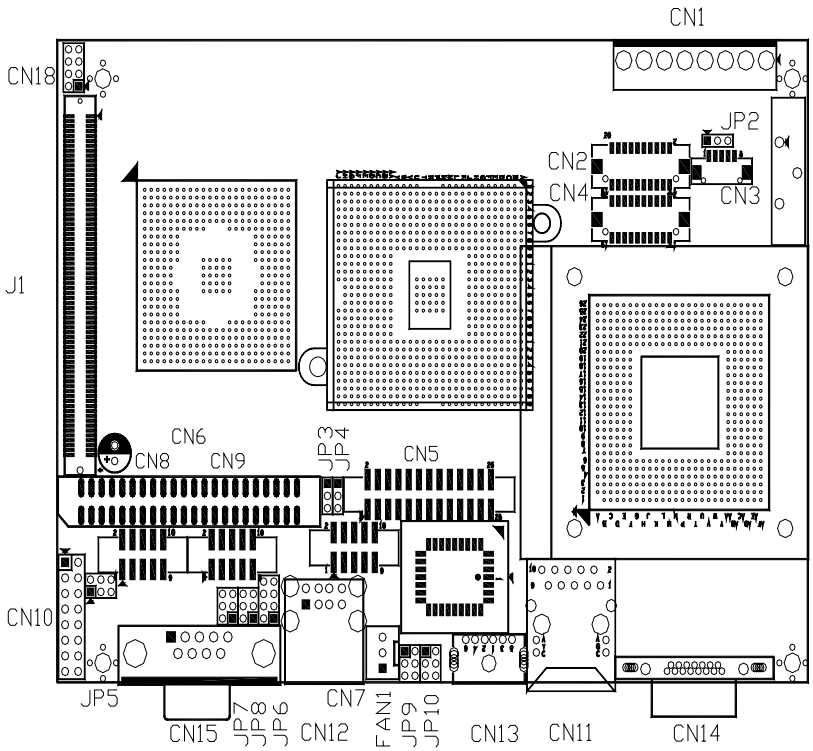
- Chipset Driver
- Ethernet Driver
- VGA Drivers
- Audio Drivers

Chapter 2
Jumpers and Connectors

2.1 Board Layout and Fixing Holes



2.2 Placement



2.3 Jumper Settings

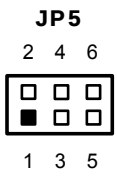
The **3300060 Series** is configured to match the needs of your application with the proper jumper settings. The table below is a summary of all the jumpers and their corresponding functions onboard the **3300060 Series**. The succeeding tables show the correct jumper settings for the onboard devices.

3300060 Jumper setting：

Jumper	Default Setting		Jumper Setting
JP2	LVDS Voltage select: 3.3V		Short 1-2
JP3	Clear CMOS Setting: Normal		Short 1-2
JP4	Compact Flash Power Select: 3.3V		Short 1-2
JP5	Audio Line Out/Speaker Out: Line Out		Short 1-3, 2-4
JP6	COM2 Mode Select: RS-232		Short 1-2
JP7	COM2 Mode Select: RS-232		Short 3-5,4-6
JP8	COM2 Mode Select: RS-232		Short 3-5,4-6
JP9	COM2 Mode Select	CN9 Pin 1: DCD	Short 3-5
		CN9 Pin 8: RI	Short 4-6
JP10	COM1 Mode Select	CN15 Pin 1: DCD	Short 3-5
		CN15 Pin 8: RI	Short 4-6

2.3.1 Audio Output Select Jumper: JP5

Options	Settings
Line Out	Short 1-3, 2-4 (default)
Speaker Out	Short 3-5, 4-6

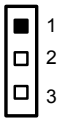


2.3.2 CMOS Clear Jumper: JP3

Options	Settings

JP3

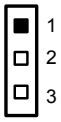
Normal	Short 1-2 (default)
Clear CMOS	Short 2-3



2.3.3 Compact Flash Power: JP4

Options	Settings
3.3V	Short 1-2(default)
5V	Short 2-3

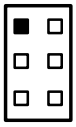
JP4



2.3.4 COM1 Mode Select: JP10

COM1	JP10
*Pin 1=DCD *Pin 1=5V	Short 3-5(default) Short 1-3
*Pin 8=RI *Pin 8=+12V	Short 4-6(default) Short 2-4

JP10



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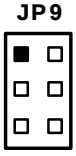
2.3.5 COM2 Mode Select: JP9

COM2	JP9
*Pin 1=DCD *Pin 1=5V	Short 3-5(default) Short 1-3
*Pin 8=RI *Pin 8=+12V	Short 4-6(default) Short 2-4

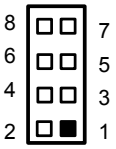
JP9



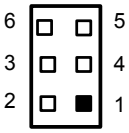
2.3.6 COM2 Mode Select for RS-232/422/485: JP6/JP7/JP8

COM2	JP6	JP7	JP8
RS-232 (default)	1-2	3-5, 4-6	3-5, 4-6
RS-422	3-4, 7-8	1-3, 2-4	1-3, 2-4
RS-485	5-6, 7-8	1-3, 2-4	1-3, 2-4

JP6



JP7 / JP8



2.3.7 LVDS Voltage Setting: JP2

VDDM	Settings
5V	Short 2-3
3.3V	Short 1-2(default)

JP2

2.4 Connectors

The connectors allow the CPU card to connect with other parts of the system. Some problems encountered by your system may be a result from loose or improper connections. Ensure that all connectors are in place and firmly attached. The following table lists the function of each connector on the **3300060 Series**. Their corresponding pin assignments are described in Chapter 3.

Connectors	Label	Connectors	Label
Power Connector	CN1	LAN1 RJ-45 Connector	CN11
LVDS Channel B Connector	CN2	USB Port0 & Port1 Connector	CN12
LVDS Voltage Connector	CN3	6-Pin Mini Dim Keyboard/Mouse Connector	CN13
LVDS Channel A Connector	CN4	VGA Connector	CN14
Printer Port Connector	CN5	Serial Port1 Connector	CN15
Parallel IDE Connector	CN6	FDD Connector	CN16
USB Port2 & Port3 Connector	CN7	Compact Flash Connector	CN17
Audio Connector	CN8	Digital I/O	CN18
Serial Port2 Connector	CN9	Extension Slot	J1
Front Panel Bezel Connector	CN10	DDR SO-DIMM	DIMM1

2.4.1 Enhanced IDE Interface Connector: CN6

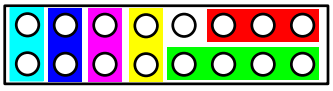
The 3300060 includes a PCI bus enhanced IDE controller that can support master/slave mode and post write transaction mechanisms with 64-byte buffer and master data transaction.

44-pin IDE Interface Connector:

Pin	Description	Pin	Description	Pin	Description
1	Reset #	2	GND	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	GND	20	No connector	21	No connector
22	GND	23	IOW #	24	GND
25	IOR #	26	GND	27	IOCHRDY
28	No connector	29	No connector	30	GND-Default
31	Interrupt	32	No connector	33	SA1
34	No connector	35	SA0	36	SA2
37	HDC CS0 #	38	HDC CSI #	39	HDD Active #
40	GND	41	VCC	42	VCC
43	GND	44	N.C		

2.4.2 Front Panel Bezel Connector: CN10



Power LED

This 3-pin connector, designated at ***Pins 1*** and ***5*** of ***CN10***, connects the system power LED indicator to its respective switch on the case. ***Pin 1*** is +, and ***pin 5*** is assigned as -. The Power LED lights up when the system is powered ON.

External Speaker and Internal Buzzer Connector

Pins 2, 4, 6, and ***8 of CN10*** connect to the case-mounted speaker unit or internal buzzer. ***Short pins 4-6*** when connecting the CPU card to an internal buzzer. When connecting an external speaker, set these jumpers to ***Open*** and install the speaker cable on ***pin 8*** (+) and ***pin 2*** (-).

ATX Power On/Off Button

This 2-pin connector, designated at ***Pins 9*** & ***10*** of ***CN10***, connects the ATX power button of the front panel to the

3300060 CPU card - allowing user to control the power on/off state of the ATX power supply.

System Reset Switch

Pins 11 & ***12*** of ***CN10*** connect to the case-mounted reset switch and allow rebooting of your computer instead of turning OFF the power switch. This is a preferred method of rebooting in order to prolong the life of the system's power supply.

HDD Activity LED

This connector extends to the hard drive activity LED on the control panel. This LED will flash when the HDD is being accessed. ***Pins 15*** & ***16 of CN10*** connect the hard disk drive and the front panel HDD LED. ***Pins 15*** is -, and ***pin 16*** is assigned as +.

Keyboard Lock

Pins 13 and ***14*** of ***CN10*** are Keyboard Lock setting. Short the ***Pins 13*** and ***14*** for Keyboard Lock.

2.4.3 VGA Connector: CN14

The **3300060** has three connectors that support CRT VGA and flat panel displays, individually or simultaneously. **VGA1** is a slim type 15-pin D-Sub connector commonly used for the CRT VGA display, Configuration of the VGA interface is done via the software utility and no jumper setting is required. The following two tables are the pin assignments for the CRT/VGA connector and the flat panel connector.

VGA1: CRT/VGA Connector Pin Assignment

Pin	Description	Pin	Description	Pin	Description
1	Red	2	Green	3	Blue
4	N/A	5	GND	6	AGND
7	AGND	8	AGND	9	N/A
10	GND	11	N/A	12	DDC DAT
13	Horizontal Sync	14	Vertical Sync	15	DDC CLK

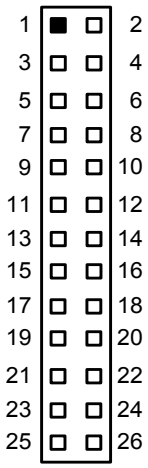
2.4.4 Parallel Port: CN5

The **3300060** has a multi-mode parallel port, **CN5**, to support:

- **Standard mode:**
  IBM PC/XT, PC/AT and PS/2™ compatible with bi-directional parallel port
- **Enhanced mode:**
  Enhance parallel port (EPP) compatible with EPP 1.7 and EPP 1.9 (IEEE 1284 compliant)
- **High speed mode:**
  Microsoft and Hewlett Packard extended capabilities port (ECP) IEEE 1284 compliant

The address select of the onboard parallel port in LPT1 (3BCH) or disabled is done by BIOS CMOS setup.

Pin	Description	Pin	Description
1	Strobe#	2	Auto Form Feed#
3	Data 0	4	Error#
5	Data 1	6	Initialize#
7	Data 2	8	Printer Select In#
9	Data 3	10	GND
11	Data 4	12	GND
13	Data 5	14	GND
15	Data 6	16	GND
17	Data 7	18	GND
19	Acknowledge#	20	GND
21	Busy	22	GND
23	Paper Empty#	24	GND
25	Printer Select	26	NC



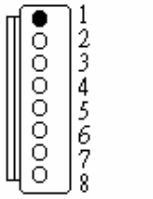
2.4.5 Power Input Connector: CN1

The following table is the pin assignment for the standard power supply with both 5V and 12V inputs.

CN1

Pin	Description

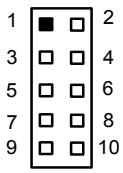
1	+5V
2	GND
3	+12V
4	SB5V
5	PS_ON
6	-12V
7	GND
8	+5V



2.4.6 AC97 Interface Link Connector: CN8

The **3300060** supports audio interface. **CN8** is a 10pin-header connector commonly used for the audio.

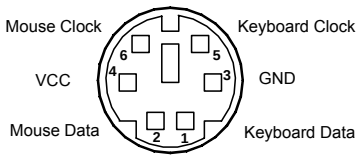
CN8



2.4.7 Keyboard and PS/2 Mouse Connectors: CN13

The **3300060** provides a keyboard and Mouse interface. **CN13** is a DIN connector for PS/2 keyboard Connection VIA "Y" Cable

CN13



2.4.8 FDD Connector: CN16

The 3300060 provides a 26-pin FCC Z.I.F. type connector, and the general output supports a single floppy drives. The floppy drive could be any one of the following types: 3.5" 720KB or 1.44MB/2.88MB.

CN16: FDD Connector Pin Assignment

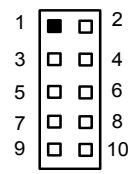
Pin	Description	Pin	Description
1	+5V	14	STEP
2	INDEX	15	GND
3	+5V	16	WDATA
4	DRIVE0	17	GND
5	+5V	18	WGATE
6	DSKCHG	19	GND
7	No connector	20	TRK0
8	No connector	21	GND
9	No connector	22	WPT
10	MOTOR ON	23	GND
11	No connector	24	RDATA
12	DIR	25	GND
13	No connector	26	HDSEL

2.4.9 USB1~4 Connectors: CN7, CN12

The 3300060 **Series** features four Universal Serial Bus (USB) connectors as USB 2.0 compliant (480Mbps) that can adapt any USB peripherals, such as monitor, keyboard and mouse etc. The 3300060 **Series** has a box-header connectors (**CN7)** and two USB connectors **(CN12)**.

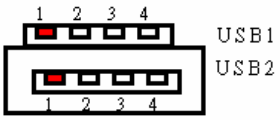
CN7: USB Connector Pin Assignment

Pin	Description	Pin	Description
1	VCC	2	VCC
3	D0-	4	D1-
5	D0+	6	D1+
7	Ground (GND)	8	Ground (GND)
9	Ground (GND)	10	Ground (GND)



CN12: USB Connector Pin Assignment

Pin	Signal Name
1	USB Vcc
2	USB -
3	USB +
4	USB GND



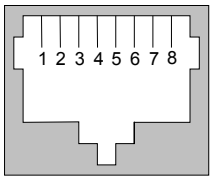
2.4.10 Ethernet PJ-45 Connector: CN11

The RJ-45 connector is used for Ethernet. To connect the **3300060** to a 100/10 Base-T hub, just plug one end of the cable into the **CN11** connect the other end of the cable to a 1000/100/10-Base-T hub.

2.4.10.1 Pin Assignment

CN11: RJ-45 Connector Pin Assignment

Pin	Signal
1	Tx+(Data transmission positive)
2	Tx-(Data transmission negative)
3	Rx+(Data reception positive)
4	RJ45 termination
5	RJ45 termination
6	Rx- (Data reception negative)
7	RJ45 termination
8	RJ45 termination



RJ-45

2.4.11 Serial Port Interface: CN15, CN9

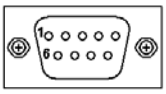
The **3300060 Series** has two onboard serial ports, **COM1**, **COM2** are RS-232 and **COM2** is RS-232/422/485, jumper selectable with auto flow control features. All two ports feature +5V/12V power capability on DCD and RI, depending on the jumper setting(See Section 2.3.4 and 2.3.5).

2.4.11.1 COM1 Port Connector: CN15

The connector, COM 1, is a DB-9 connector, and the following table shows the pin assignments of this connector.

Pin	Signal Name
1	DCD, Data carrier detect
2	RXD, Receive data
3	TXD, Transmit data
4	DTR, Data terminal ready
5	GND, ground
6	DSR, Data set ready
7	RTS, Request to send
8	CTS, Clear to send
9	RI, Ring indicator

COM1

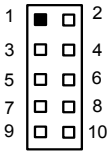


2.4.11.2 COM2 Port Connectors: CN9

The RS-232 pin assignments are listed on the following table.

Pin	Description	Pin	Description
1	Data Carrier Detect (DCD)	2	Data Set Ready (DSR)
3	Receive Data (RXD)	4	Request to Send (RTS)
5	Transmit Data (TXD)	6	Clear to Send (CTS)
7	Data Terminal Ready (DTR)	8	Ring Indicator (RI)
9	Ground (GND)	10	NC

CN9



The RS-422/485 pin assignments for COM2 are listed below.

Pin #	Signal Name	
	R2-422	RS-485
1	TX-	DATA-
2	No connector	No connector
3	TX+	DATA+
4	No connector	No connector
5	RX+	No connector
6	No connector	No connector
7	RX-	No connector
8	No connector	No connector
9	GND	GND
10	No connector	No connector

2.4.12 Compact Flash Connector: CN17

The 3300060 Series is equipped with a CompactFlash disk socket on the solder side and it supports the IDE2 interface CompactFlash disk card. The socket itself is specially designed to prevent any incorrect installation of the CompactFlash disk card.

When installing or removing the CompactFlash disk card, make sure the system power is off.

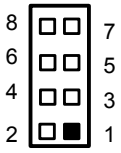
The CompactFlash disk card is defaulted as the E: or F: disk drive in the PC system.

2.4.13 Digital I/O Port (DIO): CN18

The board is equipped a digital I/O connector **CN18** that meets a system customary automation control needs. The digital I/O can be configured to control the cash drawer, or to sense the warning signal of an Uninterrupted Power System (UPS), or to perform the store security control. The digital I/O is controlled via software programming.

Digital I/O Connector: CN18

Pin	Signal	Pin	Signal
1	DIO In 0	2	DIO Out 0
3	DIO In 1	4	DIO Out 1
5	GND	6	DIO Out 2
7	GND	8	DIO Out 3



Digital I/O Software Programming

The Digital I/O on the board is not an isolated type.

Output	Address	Bit	Output	Address	Bit
Out-1	40B8h	5	In-0	40B8h	0
Out-2	40B8h	6	In-1	40B8h	1
Out-3	40B8h	7	Out-0	40B8h	4

2.4.14 Connector for LVDS Flat Panel: CN2, CN4

CN4 Channel A

Pin	Deception	Pin	Deception
1	VCCM	2	VCCM
3	VCCM	4	VCCM
5	DA0-	6	DA3-
7	DA0+	8	DA3+
9	GND	10	GND
11	DA1-	12	CLKA-
13	DA1+	14	CLKA+
15	GND	16	GND
17	DA2-	18	GND
19	DA2+	20	GND

CN2 Channel B

Pin	Deception	Pin	Deception
1	VCCM	2	VCCM
3	VCCM	4	VCCM
5	DB0-	6	DB3-
7	DB0+	8	DB3+

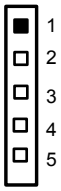
9	GND	10	GND
11	DB1-	12	CLKB-
13	DB1+	14	CLKB+
15	GND	16	GND
17	DB2-	18	GND
19	DB2+	20	GND

2.4.15 LVDS Power Connector: CN3

CN3 is a Hirose DF13-5P- 1.25V(50) connector, the match side connector is DF13-5S-1.25C

Pin	Signal
1	+12VM1
2	VCC (+5V)
3	+12VM1
4	ENABLE
5	GND

CN3



Chapter 3
Hardware Description

3.1 Microprocessors

The **3300060 Series** supports Intel® Celeron™ M and Pentium® M CPUs. Systems based on these CPUs can be operated under Windows 2000/XP and Linux environments. The system performance depends on the microprocessor installed onboard. Make sure all settings are correct for the installed microprocessor to prevent any damage to the CPU.

3.2 BIOS

System BIOS used on the **3300060 Series** is Phoenix-Award Plug and Play BIOS. The **3300060 Series** contains a single 4Mbit Flash.

3.3 System Memory

The **3300060 Series** industrial CPU card supports one 200-pin DDR SODIMM socket for a maximum memory of 1GB DDR SDRAMs. The memory module can come in sizes of 64MB, 128MB, 256MB, 512MB and 1GB.

3.4 I/O Port Address Map

The Intel® Pentium® M/Celeron™ M CPU communicates via I/O ports. It has a total of 1KB port addresses available for assignment to other devices via I/O expansion cards.

Address	Devices
000-01F	DMA controller #1
020-03F	Interrupt controller #1
040-05F	Timer
060-06F	Keyboard controller
070-07F	Real time clock, NMI
080-09F	DMA page register
0A0-0BF	Interrupt controller #2
0C0-0DF	DMA controller #2
0F0	Clear math coprocessor busy signal
0F1	Reset math coprocessor
0F8-0FF	Math processor
1F0-1F8	Fixed disk controller
250-25F	HR I/O
300-31F	Prototype card
380-38F	SDLC #2
3A0-3AF	SDLC #1
3B0-3BF	MDA video card (including LPT1)
3C0-3CF	EGA card
3D0-3DF	CGA card
3F0-3F7	Floppy disk controller
3F8-3FF	Serial port #1 (COM1)
3E8-3EF	Serial port #3 (COM3)
2F8-2FF	Serial port #2 (COM2)
2E8-2EF	Serial port #4 (COM4)
3F0-3FF	Super I/O

3.5 Interrupt Controller

The **3300060 Series** is a 100% PC compatible control board. It consists of 16 interrupt request lines. Four out of the sixteen can either be programmable. The mapping list of the 16 interrupt request lines is shown on the following table.

NMI	Parity check error
IRQ0	System timer output
IRQ1	Keyboard
IRQ2	Interrupt rerouting from IRQ8 through IRQ15
IRQ3	Serial port #2
IRQ4	Serial port #1
IRQ5	Reserved
IRQ6	Floppy disk controller
IRQ7	Parallel port #1
IRQ8	Real time clock
IRQ9	Reserved
IRQ10	Serial port #3
IRQ11	Serial port #4
IRQ12	PS/2 Mouse
IRQ13	Math coprocessor
IRQ14	Primary IDE channel
IRQ15	Secondary IDE Channel

3.6 Display Interface

3.6.1 Graphic Controller

The 852GM provides a highly integrated graphics accelerator delivering high performance 2D, 3D, and video capabilities. With its interfaces to UMA using a DVMT configuration, an analog display (CRT port), a LVDS port for digital LCD connection and optional second LVDS LCD interface (via Chrontel CH7305 converter on 3300060D), the 852GM can provide a complete graphics solution. The 852GM also provides 2D hardware acceleration for block transfers of data (BLTs). Performing these common tasks in hardware reduces CPU load, and thus improves performance. High bandwidth access to data is provided through the system memory interface. The 852GM uses Tiling architecture to increase system memory efficiency and thus maximize effective rendering bandwidth. The Intel 852GM GMCH improves 3D performance and quality with 3D Zone rendering technology. The Intel 852GM GMCH also supports Video Mixer rendering and Bi-Cubic filtering.

3.6.2 Features

- The 3300060 adapts Intel 852GM GMCH provides three display ports, one analog and two digital. With these interfaces, the GMCH can support for a progressive scan analog monitor, a dedicated single/dual channel LVDS LCD panel and a converted LVDS LCD interface through DVO channel. Each port can transmit data according to one or more protocols. The data that is sent out the display port is selected from one of the two possible sources, Pipe A or Pipe B.
- Intel 852GM GMCH has an integrated 350-MHz, 24-bit RAMDAC that can directly drive a progressive scan analog monitor pixel resolution up to 2048 x 1536 at 75-Hz refresh. The Analog display port can be driven by Pipe A or Pipe B.

- The Intel 852GM GMCH has an integrated dual channel LFP Transmitter interface to support LVDS LCD panel resolutions up to UXGA. The display pipe provides panel up-scaling to fit a smaller source image onto a specific native panel size, as well as provides panning and centering support. The LVDS port is only supported on Pipe B. The LVDS port can only be driven by Pipe B, either independently or simultaneously with the Analog Display port. Spread Spectrum Clocking is supported: center and down spread support of 0.5%, 1%, and 2.5% utilizing an external SSC clock.

3.6.3 VGA Connectors

The **3300060 Series** has one connector that supports CRT/ VGA. **CN14** is slim type D-sub connector used for the CRT VGA display, and **CN2 & CN4** are Hirose DF-13 20pin connector for LVDS Interface LCD. **CN4** for Channel 1, **CN2** for channel 2.**CN3** is inverter connector for LCD to support the system LCD backlight control with OS and driver independent.

CN14: CRT/VGA Connector Pin Assignment

Pin	Description	Pin	Description	Pin	Description
1	Red	2	Green	3	Blue
4	N/A	5	GND	6	AGND
7	AGND	8	AGND	9	N/A
10	GND	11	N/A	12	DDC DAT
13	Horizontal Sync	14	Vertical Sync	15	DDC CLK

CN2/CN4: Hirose Connector for LVDS Flat Panel

CN4 Channel A

Pin	Deception	Pin	Deception
1	VCCM	2	VCCM
3	VCCM	4	VCCM
5	DA0-	6	DA3-
7	DA0+	8	DA3+
9	GND	10	GND
11	DA1-	12	CLKA-
13	DA1+	14	CLKA+
15	GND	16	GND
17	DA2-	18	GND
19	DA2+	20	GND

CN2 Channel B

Pin	Deception	Pin	Deception
1	VCCM	2	VCCM
3	VCCM	4	VCCM
5	DB0-	6	DB3-
7	DB0+	8	DB3+
9	GND	10	GND
11	DB1-	12	CLKB-
13	DB1+	14	CLKB+
15	GND	16	GND
17	DB2-	18	GND
19	DB2+	20	GND

CN3: Hirose Connector for Inverter

Pin	Signal
1	+12VM1
2	VCC (+5V)
3	+12VM1
4	ENABLE
5	GND

3.7 Floppy Disk Controller

The **3300060 Series** provides a 26-pin FCC Z.I.F. type connector, **CN16** for support of a single floppy drives. The floppy drive could be any one of the following types: 3.5" 720KB or 1.44MB/2.88MB.

CN16: FDD Connector Pin Assignment

Pin	Description	Pin	Description
1	+5V	14	STEP
2	INDEX	15	GND
3	+5V	16	WDATA
4	DRIVE0	17	GND
5	+5V	18	WGATE
6	DSKCHG	19	GND
7	No connector	20	TRK0
8	READY	21	GND
9	HDOUT	22	WPT
10	MOTOR ON	23	GND
11	No connector	24	RDATA
12	DIR	25	GND
13	HDSEL	26	SIDE0

3.8 Parallel Port Interface

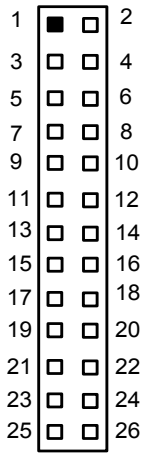
The **3300060 Series** has one onboard parallel port, LPT1. LPT1 has one 26-pin header connector. The onboard **PRN** of **3300060 Series** is a multi-mode parallel port supporting:

- **Standard mode:**
  IBM PC/XT, PC/AT and PS/2™ compatible with bi-directional parallel port
- **Enhanced mode:**
  Enhance parallel port (EPP) compatible with EPP 1.7 and EPP 1.9 (IEEE 1284 compliant)
- **High speed mode:**
  Microsoft and Hewlett Packard extended capabilities port (ECP) IEEE 1284 compliant

The address selection of the onboard parallel port, in LPT1 (378H) or disabled, is configured within the BIOS CMOS setup utility.

CN5: Parallel Port Connector Pin Assignment

Pin	Description	Pin	Description
1	Strobe#	14	Auto Form Feed#
2	Data 0	15	Error#
3	Data 1	16	Initialize#
4	Data 2	17	Printer Select In#
5	Data 3	18	GND
6	Data 4	19	GND
7	Data 5	20	GND
8	Data 6	21	GND
9	Data 7	22	GND
10	Acknowledge#	23	GND
11	Busy	24	GND
12	Paper Empty#	25	GND
13	Printer Select	26	No connector



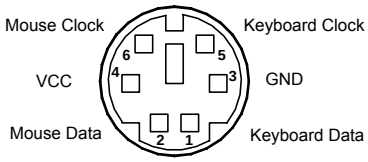
3.9 Real Time Clock and CMOS RAM

The **3300060 Series** contains 63000EB Integrated Real Time Clock (RTC) and 128 bytes of CMOS RAM. The CMOS RAM stores the system configuration information entered via the SETUP program. A battery keeps the stored information on the RTC and CMOS RAM active when system power is turned off.

3.10 Keyboard and PS/2 Mouse Connector

The **3300060** provides a keyboard and Mouse interface. **CN13** is a DIN connector for PS/2 keyboard Connection VIA "Y" Cable

CN13

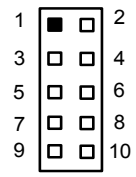


3.11 USB Connector

The **3300060 Series** features four Universal Serial Bus (USB) connectors as USB 2.0 compliant (480Mbps) that can adapt any USB peripherals, such as monitor, keyboard and mouse etc. The **3300060 Series** has a box-header connectors (**CN7)** and two USB connectors **(CN12)**.

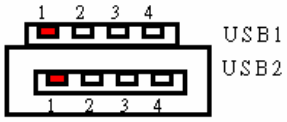
CN7: USB Connector Pin Assignment

Pin	Description	Pin	Description
1	VCC	2	VCC
3	D0-	4	D1-
5	D0+	6	D1+
7	Ground (GND)	8	Ground (GND)
9	Ground (GND)	10	Ground (GND)



CN12: USB Connector Pin Assignment

Pin	Signal Name
1	USB Vcc
2	USB -
3	USB +
4	USB GND

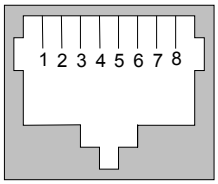


3.12 Ethernet RJ-45 Connector

The RJ-45 connector is used for Ethernet. To connect the **3300060** to a 100/10 Base-T hub, just plug one end of the cable into the **CN11** and connect the other end of the cable to a 1000/100/10-Base-T hub.

LAN1: RJ-45 Connector Pin Assignment

Pin	Signal
1	Tx+ (Data transmission positive
2	Tx- (Data transmission negative)
3	Rx+(Data reception positive)
4	RJ45 termination
5	RJ45 termination
6	Rx- (Data reception negative)
7	RJ45 termination
8	RJ45 termination

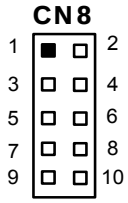


RJ-45

3.13 Audio Connector

The **3300060** supports audio interface. **CN8** is a 10pin-header connector commonly used for the audio.

Pin	Signal	Pin	Signal
1	MIC-IN	2	GND
3	Line In L	4	GND
5	Line In R	6	GND
7	Audio Out L	8	GND
9	Audio Out R	10	GND



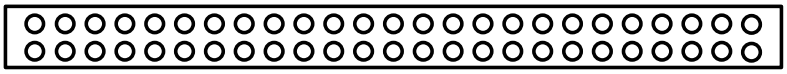
3.14 Compact Flash™ Socket (CN17)

The 3300060 Series is equipped with a Compact Flash disk type-II socket on the solder side and it supports the IDE interface Compact Flash disk card with DMA mode supported. The socket itself is especially designed to prevent any incorrect installation of the Compact Flash disk card.

When installing or removing the Compact Flash disk card, please make sure that the system power is off.

The Compact Flash disk card is defaulted as the C: or D: disk drive in your PC system.

CN17: Compact Flash Socket



CN17: Compact Flash Socket Pin Assignment

Pin	Description	Pin	Description
1	GND	26	CD1-
2	Data 3	27	Data 11
3	Data 4	28	Data 12
4	Data 5	29	Data 13
5	Data 6	30	Data 14
6	Data 7	31	Data 15
7	CS0#	32	CS1#
8	Address 10	33	VS1#
9	ATASEL	34	IORD#
10	Address 9	35	IOWR#
11	Address 8	36	WE#
12	Address 7	37	INTR
13	VCC	38	VCC
14	Address 6	39	CSEL#
15	Address 5	40	VS2#
16	Address 4	41	RESET#
17	Address 3	42	IORDY#
18	Address 2	43	DMAREQ
19	Address 1	44	DMAACK-
20	Address 0	45	DASP#
21	Data 0	46	PDIAG#
22	Data 1	47	Data 8
23	Data 2	48	Data 9
24	IOCS16#	49	Data 10
25	CD2#	50	GND

Appendix A
Watch Dog Timer

Watchdog Timer Setting

The watchdog timer makes the system auto-reset while it stops to work for a period. The integrated watchdog timer can be setup as system reset mode by program.

- Timeout Value Range
  - 1 to 255
  - Second
- Program Sample

Watchdog timer setup as system reset with 5 second of timeout

2E, 87	
2E, 87	
2E, 07	
2F, 00	Logical Device 0
2E, 29	Set WDT Funtion Enable
2F, A0	
2E, 07	
2F, 08	Logical Device 8
2E, 30	Activate
2F, 01	
2E, F3	Set Second
2F, N	N = 0 or 4
2E, F4	Set Value
2F, M	M = 00 ~ FF

Using the Watchdog Function

```
Start
↓
Un-Lock WDT                 :O 2E 87 ; Un-lock super I/O
                             O 2E 87 ; Un-lock super I/O
↓
Select Logic device          :
                            O 2E 07
                            O 2F 00
Set WDT Funtion             :
                            O 2E 29
                            O 2F A0
Select Logic device          :
                             O 2E 07
                             O 2F 08
Set Second or Minute         :
                             O 2E F3
                             O 2F N        N=00 or 04(See below table)
↓
Set base timer              :O 2E F4
                            O 2F M=00,01,02,...FF(Hex) ,Value=0 to 255
↓
Activate WDT                 :O 2E 30
                             O 2F 01
↓
WDT counting
↓
re-set timer                 :O 2E F4
                             O 2F M ; M=00,01,02,...FF(See below table)
↓
IF No re-set timer           :WDT time-out, generate RESET

IF to disable WDT            :O 2E 30
                             O 2F 00 ; Can be disable at any time
```

M	N=0	M	N=0	M	N=0	M	N=4
02	1sec	33	50sec	B5	180sec	11	992sec
03	2sec	38	55sec	BF	190sec	22	2012sec
04	3sec	3D	60sec	C9	200sec	33	3032sec
05	4sec	42	65sec	D3	210sec	43	3992sec
06	5sec	47	70sec	DD	220sec	54	5012sec
07	6sec	4C	75sec	E7	230sec	65	6032sec
08	7sec	51	80sec	F1	240sec	75	6992sec
09	8sec	56	85sec	FB	250sec	86	8012sec
M	**N=0**	**M**	**N=0**	**M**	**N=4**	**M**	**N=4**
0B	10sec	65	100sec	05	272sec	97	9032sec
10	15sec	6F	110sec	06	332sec	A7	9992sec
15	20sec	79	120sec	07	392sec	B8	11012sec
1A	25sec	83	130sec	08	452sec	C9	12032sec
1F	30sec	8D	140sec	09	512sec	D9	12992sec
24	35sec	97	150sec	0A	572sec	EA	14012sec
29	40sec	A1	160sec	0B	632sec	FB	15032sec
2E	45sec	AB	170sec	0C	692sec		

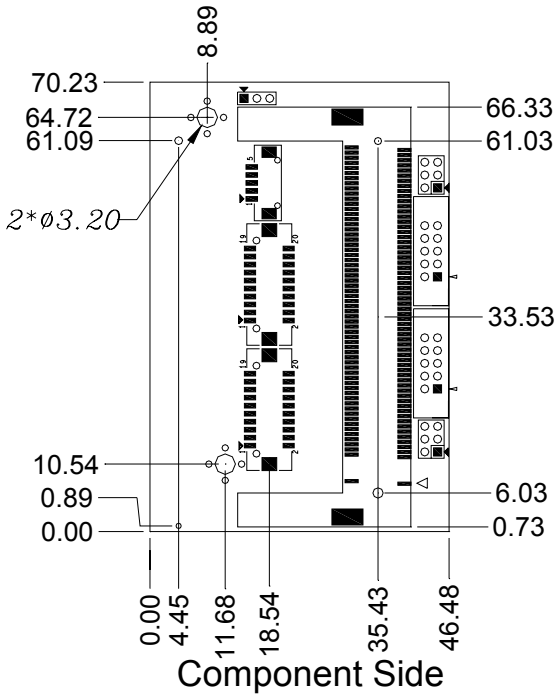
A p p e n d i x B

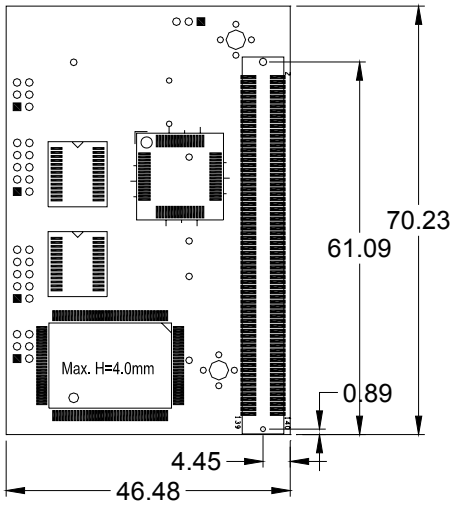
AX93200

Extentsion Kit for 2*RS-232, 2nd LVDS LCD and Mini PCI type-III socket.

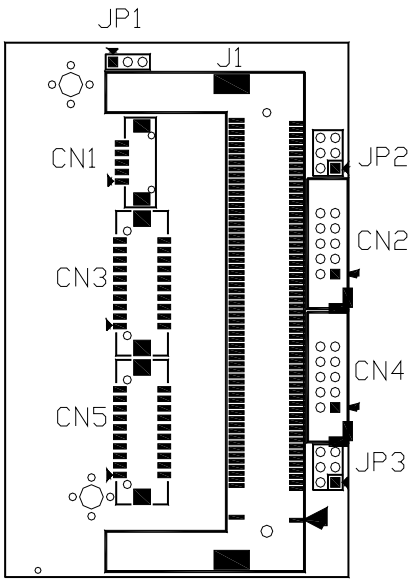
Jumpers and Connectors

1. Board Layout and Fixing Holes




70.23
61.09
Max. H=4.0mm
0.89
4.45
46.48
Solder Side

2. Placement


JP1
J1
CN1
JP2
CN2
CN3
CN4
CN5
JP3

3. Connector

Connectors	Label	Connectors	Label
LVDS Channel B Connector	CN3	Serial Port3 Connector	CN2
LVDS Voltage Connector	CN1	Serial Port4 Connector	CN4
LVDS Channel A Connector	CN5	Mini PCI Slot	J1

4. Jumper Setting

The below is the 3300060's daughter board 3300060D jumper setting. It's the extension kit for 2*RS-232,2nd LVDS LCD and Mini PCI type-III socket.

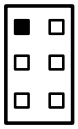
Before turning on the power to the 3300060D please make sure that all jumpers are on their default settings as listed on the table below.

Jumper	Default Setting		Jumper Setting
JP1	LVDS Voltage select : 3.3V		Short 1-2
JP2	COM3 Mode Select	CN2 Pin 1: DCD	Short 3-5
		CN2 Pin 8: RI	Short 4-6
JP3	COM4 Mode Select	CN4 Pin 1: DCD	Short 3-5
		CN4 Pin 8: RI	Short 4-6

COM3 Mode Select: JP2

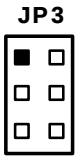
COM3	JP2
*Pin 1=DCD *Pin 1=5V	Short 3-5(default) Short 1-3
*Pin 8=RI *Pin 8=+12V	Short 4-6(default) Short 2-4

JP2



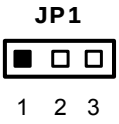
COM4 Mode Select: JP3

COM4	JP3
*Pin 1=DCD *Pin 1=5V	Short 3-5(default) Short 1-3
*Pin 8=RI *Pin 8=+12V	Short 4-6(default) Short 2-4



LVDS Voltage Setting : JP1

VDDM	Settings
5V	Short 2-3
3.3V	Short 1-2(default)

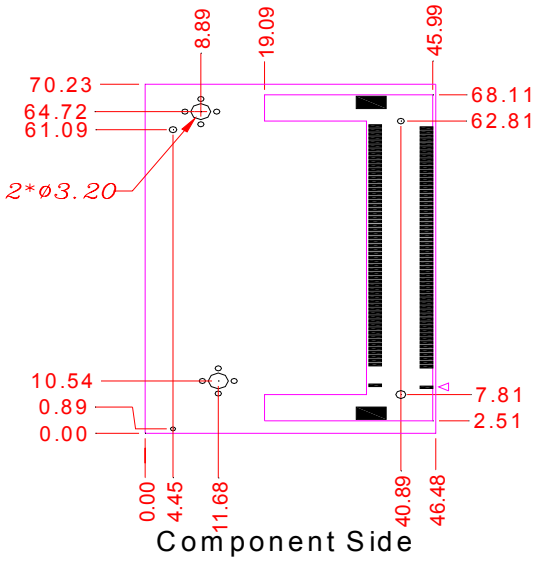


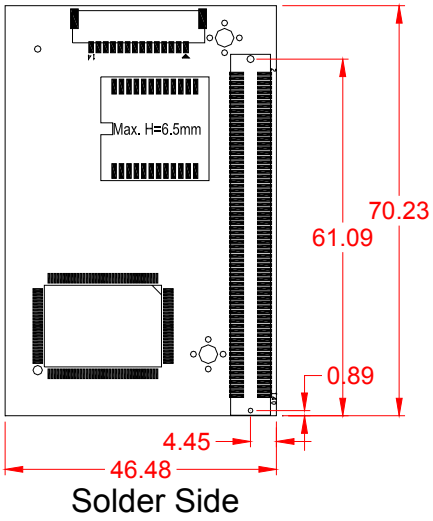
Appendix C

3300060E

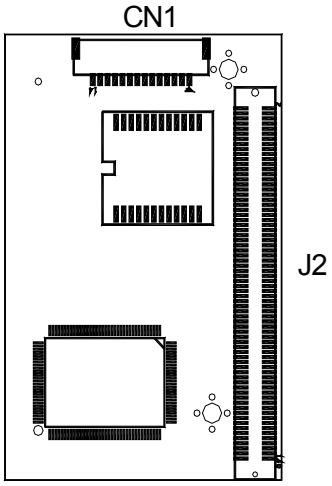
Extentsion Kit for 2nd LAN and Mini PCI type-III socket.

1. Board Layout and Fixing Holes

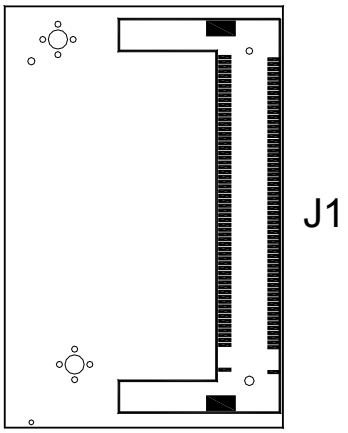




2.Placement



Solider Side



Conpoments Side

3. Connector

Connectors	Label	Connectors	Label
LAN Ouput Connector	CN1	Mini PCI Slot	J1

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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