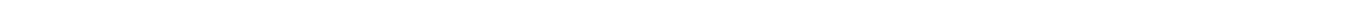




integration with integrity



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Safety Instructions

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. Fasten the ALLIGATOR clip of the strap to the end of the shielded wire lead from a grounded object. Please wear and connect the strap before handling the SBC to protect yourself from the discharge of any static electricity through the strap.
- Please use an anti-static pad when putting down any components or parts or tools outside the computer. You may also use an anti-static bag instead of the pad. Please inquire from your local supplier for additional assistance in finding the necessary anti-static gadgets.

NOTE: *DO NOT TOUCH THE BOARD OR ANY OTHER SENSITIVE COMPONENT WITHOUT ALL NECESSARY ANTI-STATIC PROTECTION.*

Chapter 1

General Description



The 3312620 is an Intel® 915GV GMCH/ICH6 chipset-based and 3312620 is an Intel® 915GV GMCH/ICH6 chipset-based board designed PICMG Bus SBC. 3312620 provides Intel® Pentium® 4/Celeron® D processor 2.4~3.8GHz. The combination of these features makes the 3312620 an ideal all-in-one industrial single board computer. Additional features include an enhanced I/O with CRT, LAN, audio, SATA, 2 COM, IrDA and USB2.0 port interface.

Its onboard ATA/33/66/100 connected to IDE drive interface architecture allows the 3312620 to support data transfers of 33, 66 or 100MB/sec. for each IDE drive connection. The display controller is Intel® 915GV for CRT display.

System memory is also sufficient with the two DDR2 sockets that can support up to 2GB.

Additional onboard connectors include four internal and two external USB2.0 ports providing faster data transmission, and one external RJ-45 connector for use of one 10/100 Base-TX Ethernet interfaces.

1.1 Major Features

The 3312620 comes with the following features:

- Intel® Pentium® 4/Celeron® D processor 2.4~3.8GHz
- Supports 533/800MHz FSB
- Two DIMM sockets with a max. capacity of 2GB
- Intel® 915GV GMCH/ICH6 system chipset
- ITE IT8712F super I/O chipset
- Intel® 915GV graphics controller
- Intel® 82562GZ fast Ethernet controller
- AC97 3D audio controller
- Intel® ICH6 Serial ATA controller
- Fast PCI ATA/33/66/100 IDE controller
- Two COM, IrDA, six USB2.0 ports
- Hardware Monitor function

1.2 Specifications

- **CPU:**
 - Intel® Pentium® 4 processor 551 3.4GHz
 - Intel® Pentium® 4 processor 550 3.4GHz
 - Intel® Pentium® 4 processor with HT Technology 3.0GHz
 - Intel® Celeron® D processor 341 2.93GHz
 - Intel® Celeron® D processor 340 2.93GHz
 - Intel® Celeron® D processor 335 2.8GHz
- **Front Side Bus:** Supports 533/800MHz FSB
- **Memory:** Two DDRII sockets supporting up to 2GB
- **Chipset:** Intel® 915GV GMCH/ICH6 chipset
- **I/O Chipset:** ITE IT8712F
- **VGA:** Intel® 915GV integrated Intel® Graphic Media Accelerator 900 VGA
- **Ethernet:** Intel® 82562GZ 10/100 Based LAN
- **Audio:** AC97 3D audio controller
- **Serial ATA:** Intel® ICH6 controller and with four ports supporting a transfer rate up to 150MB/sec.
- **IDE:** One 2.54-pitch 40-pin IDE connector
- **FDD:** Supports up to two floppy disk drives
- **Parallel:** One enhanced bi-directional parallel port supporting SPP/ECP/EPP

-
- **Serial Port:** 16C550 UART-compatible RS-232 x 2 serial ports with 16-byte FIFO
 - **IrDA:** One IrDA TX/RX header
 - **USB:** Six USB2.0 ports, four internal and two external
 - **Keyboard/Mouse:** PS/2 6-pin Mini DIN or 5-pin header
 - **BIOS:** Award PnP Flash BIOS
 - **Watchdog Timer:** Software programmable time-out intervals from 1~256 sec.
 - **CMOS:** Battery backup
 - **Hardware Monitor:** ITE IT8712F
 - **Board Size:** 33.8(L) x 12.2(W) cm

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Chapter 2

Unpacking

2.1 Opening the Delivery Package

The 3312620 is packed in an anti-static bag. The board has components that are easily damaged by static electricity. Do not remove the anti-static wrapping until proper precautions have been taken. Safety Instructions in front of this manual describe anti-static precautions and procedures.

2.2 Inspection

After unpacking the board, place it on a raised surface and carefully inspect the board for any damage that might have occurred during shipment. Ground the board and exercise extreme care to prevent damage to the board from static electricity.

Integrated circuits will sometimes come out of their sockets during shipment. Make sure all integrated circuits, particularly the BIOS, processor, memory modules, ROM-Disk, and keyboard controller chip are firmly seated. The 3312620 delivery package contains the following items:

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Chapter 3

Hardware Installation

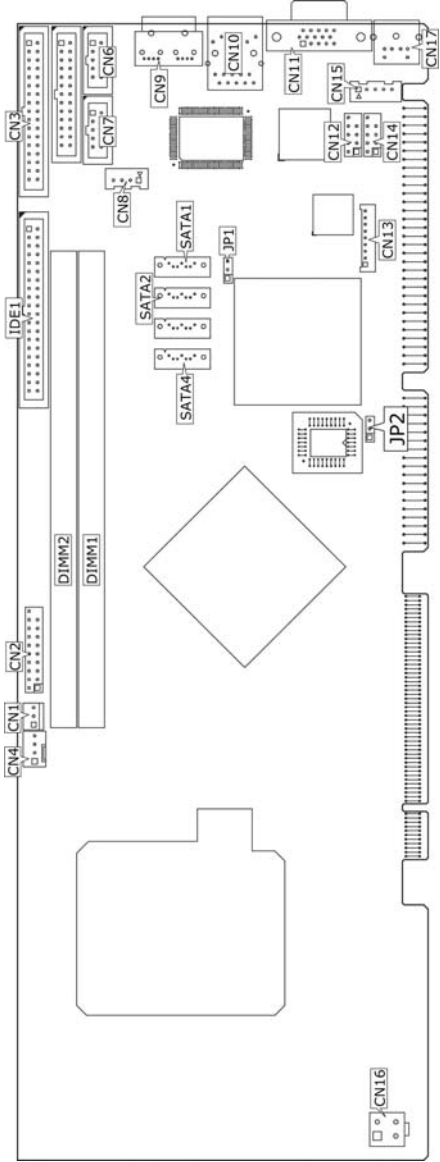
This chapter provides the information on how to install the hardware using the 3312620 . This chapter also contains information related to jumper settings of switch, watchdog timer etc.

3.1 Before Installation

After confirming your package contents, you are now ready to install your hardware. The following are important reminders and steps to take before you begin with your installation process.

1. Make sure that all jumper settings match their default settings and CMOS setup correctly. Refer to the sections on this chapter for the default settings of each jumper. (Set JP1 1-2)
2. Go through the connections of all external devices and make sure that they are installed properly and configured correctly within the CMOS setup. Refer to the sections on this chapter for the detailed information on the connectors.
3. Keep the manual and diskette in good condition for future reference and use.

3.2 Board Layout



3.3 Jumper List

Jumper	Default Setting	Setting	Page
JP1	Clear CMOS: <i>Normal Operation</i>	Short 1-2	15
JP2	BIOS Write Protection Setting: <i>Protection</i>	Short 1-2	20

3.4 Connector List

Connector	Definition	Page
CN1/CN4	Fan Power In Connector	16
CN2	System Front Panel Connector	17
CN3	Floppy Connector	12
CN5	Parallel Port Connector	13
CN6/CN7	COM 1/COM 2 Connectors (5x2 header)	14
CN8	4-pin ATX Power Control Connector	16
CN9	External USB2.0 Ports	15
CN14/CN12	Internal USB2.0 Ports	15
CN10	RJ-45 Connector	14
CN11	15-pin CRT Connector	10
CN13	Audio Connector	19
CN15	5-pin KB Connector	17
CN16	4-pin ATX Power In Connector	16
CN17	PS/2 6-pin Mini DIN KB and MS Connector	17
DIMM1/DIMM2	DDRII Socket	10
IDE1	IDE Connector	11
SATA1~SATA4	Serial ATA Ports	20

3.5 Configuring the CPU

The 3312620 provides Intel® Pentium® 4/Celeron® D processor 2.4~3.8GHz. It offers the convenience in CPU installation with its auto-detect feature.

3.6 System Memory

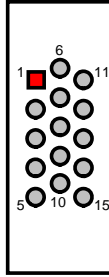
The 3312620 provides two DDRII sockets at location *DIMM1* and *DIMM2*. The maximum capacity of the onboard memory is 2GB.

3.7 VGA Controller

The display controller is Intel® 915GV for CRT display. The 3312620 provides one method of connecting VGA device. *CN11* offers a single standard CRT connector (DB15).

- **CN11: 15-pin CRT Connector**

PIN	Description	PIN	Description
1	RED	2	GREEN
3	BLUE	4	N/C
5	GND	6	GND
7	GND	8	GND
9	VCC	10	GND
11	N/C	12	SDA
13	HSYNC	14	VSYNC
15	SCK		

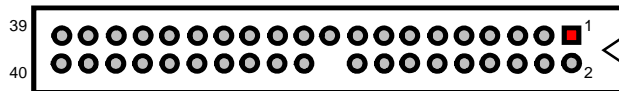


3.8 PCI E-IDE Drive Connector

IDE1 is standard 40-pin daisy-chain driver connector that serves the PCI E-IDE drive provisions onboard the 3312620. A maximum of two ATA/33/66/100 IDE drives can be connected to the 3312620 via *IDE1*.

- **IDE1: IDE Connector**

PIN	Description	PIN	Description
1	RESET IDE	2	GND
3	IDE DATA 7	4	IDE DATA 8
5	IDE DATA 6	6	IDE DATA 9
7	IDE DATA 5	8	IDE DATA 10
9	IDE DATA 4	10	IDE DATA 11
11	IDE DATA 3	12	IDE DATA 12
13	IDE DATA 2	14	IDE DATA 13
15	IDE DATA 1	16	IDE DATA 14
17	IDE DATA 0	18	IDE DATA 15
19	GND	20	N/C
21	DRQ 0	22	GND
23	Host IOW	24	GND
25	Host IOR	26	GND
27	IOCHRDY	28	GND
29	DACK 0	30	GND
31	IRQ 14	32	N/C
33	Address 1	34	GND
35	Address 0	36	Address 2
37	Chip Select 0	38	Chip Select 1
39	Activity	40	GND

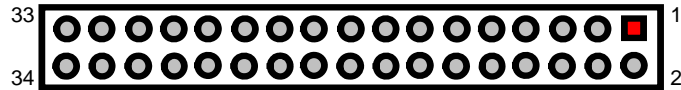


3.9 Floppy Disk Drive Connector

The 3312620 uses a standard 34-pin header connector, CN3, for floppy disk drive connection. A total of two FDD drives may be connected to CN3 at any given time.

- **CN3: Floppy Connector**

PIN	Description	PIN	Description
1	GND	2	Drive Density Selection
3	GND	4	N/C
5	GND	6	N/C
7	GND	8	INDEX
9	GND	10	MTR0
11	GND	12	DS1
13	GND	14	DS0
15	GND	16	MTR1
17	GND	18	DIR
19	GND	20	STEP
21	GND	22	WDATA
23	GND	24	WGATE
25	GND	26	TRAK00
27	GND	28	WRTPRT
29	N/C	30	RDATA
31	GND	32	HDSEL
33	N/C	34	DSKCHG



3.10 Parallel Connector

CN5 is a standard 26-pin flat cable connector designed to accommodate parallel port connection onboard the 3312620.

- **CN5: Parallel Connector**

PIN	Description	PIN	Description
1	Line Printer Strobe	2	Auto Feed
3	PD 0	4	ERROR
5	PD 1	6	Initialize
7	PD 2	8	Select
9	PD 3	10	GND
11	PD 4	12	GND
13	PD 5	14	GND
15	PD 6	16	GND
17	PD 7	18	GND
19	ACK	20	GND
21	BUSY	22	GND
23	Paper Empty	24	GND
25	Select	26	N/C

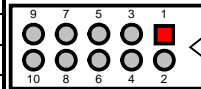


3.11 Serial Port Connectors

The 3312620 offers NS16C550 compatible UARTs with Read/Receive 16-byte FIFO serial ports.

- **CN6/CN7: COM 1/COM 2 Connectors (5x2 header)**

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

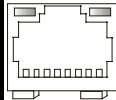


3.12 Ethernet Connector

The 3312620 provides one 10/100 Base-TX LAN interface connector. Please refer to the following for its pin information.

- **CN10: RJ-45 Connector**

PIN	Description
1	MDIO+
2	MDIO-
3	MDI1+
4	MDI1-
5	GND
6	GND
7	N/C
8	N/C

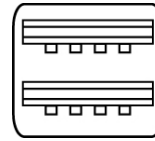


3.13 USB Connector

The 3312620 provides four internal ports at location *CN14* and *CN12*, and two external ports, at locations *CN9*, for six USB2.0 ports to the 3312620.

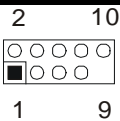
- **CN9: External USB2.0 Ports**

PIN	Description	PIN	Description
1a	VCC	1b	VCC
2a	USB0-	2b	USB1-
3a	USB0+	3b	USB1+
4a	GND	4b	GND



- **CN14/CN12: Internal USB2.0 Ports**

PIN	Description	PIN	Description
1	VCC	2	VCC
3	USB2-/USB4-	4	USB3-/USB5-
5	USB2+/USB 4+	6	USB3+/USB5+
7	GND	8	GND
9	----	10	N/C



3.14 CMOS Data Clear

The 3312620 has a Clear CMOS jumper on *JP1*.

- **JP1: Clear CMOS**

Options	Settings
Normal Operation (default)	Short 1-2
Clear CMOS	Short 2-3



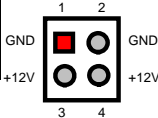
IMPORTANT: Before you turn on the power of your system, please set *JP1* to short 1-2 for normal operation.

3.15 Power and Fan Connectors

33126204 provides one 4-pin ATX power in connector at *CN16*, 4-pin ATX power control connector at *CN8*.


- **CN16: 4-pin ATX Power Connector**

PIN	Description	PIN	Description
1	GND	2	GND
3	+12V	4	+12V



- **CN8: 4-pin ATX Power Control Connector**

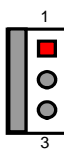
PIN	Description	PIN	Description
1	N/C	2	5VSB
3	PWRON	4	GND



CN4 is onboard 4-pin CPU FAN power in connector. *CN1* is 3-pin system FAN power in connector.


- **CN1: Fan Power In Connector**

PIN	Description
1	GND
2	+12V
3	FAN Status Signal



- **CN4: Fan Power In Connector**

PIN	Description
1	GND
2	+12V
3	FAN Status Signal
4	FANPWM

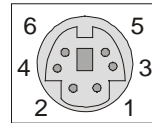


3.16 Keyboard/Mouse Connector

The 3312620 offers two methods for keyboard/mouse connections. The connections are done via *CN17* for an external PS/2 type keyboard/mouse connection. *CN15* is for external 5-pin keyboard connection.

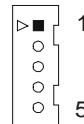
- CN17: PS/2 6-pin Mini DIN Keyboard/Mouse Connector**

PIN	Description	PIN	Description
1	KB Data	2	MS Data
3	GND	4	+5V
5	KB Clock	6	MS Clock



- CN15: 5-pin Keyboard Connector**

PIN	Description	PIN	Description
1	KB Clock	2	KB Data
3	N/C	4	GND
5	VCC		

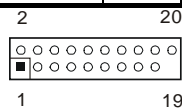


3.17 System Front Panel Connectors

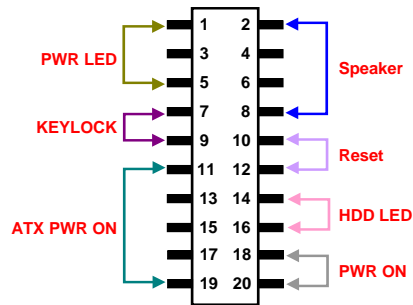
The 3312620 has one system front panel at location *CN2* that indicates the system front panel status.

- CN2: System Front Panel Connector**

PIN	Description	PIN	Description
1	+5V	2	SPKR
3	N/C	4	BUZZ
5	PWLED(GND)	6	N/C
7	KBLOCK	8	+5V
9	GND	10	RESET
11	GND	12	GND
13	N/C	14	HDDLED
15	PS_ON	16	+5V
17	5VSB	18	PWRBT
19	----	20	GND



Connector CN2 Orientation



3.18 Watchdog Timer

Once the Enable cycle is active, a Refresh cycle is requested before the time-out period. This restarts counting of the WDT period. When the time counting goes over the period preset of WDT, it will assume that the program operation is abnormal. A System Reset signal will re-start when such error happens.

The following sample programs show how to Enable, Disable and Refresh the Watchdog Timer:

```
-----  
; Enter the WDT function mode, interruptible double-write  
-----  
MOV     DX, 2EH  
MOV     AL, 87H  
OUT     DX, AL  
OUT     DX, AL  
MOV     DX, 2EH  
MOV     AL, 07H  
OUT     DX, AL  
MOV     DX, 2FH  
MOV     AL, 08H  
OUT     DX, AL  
MOV     DX, 2EH  
MOV     AL, F5H  
OUT     DX, AL           ; select CRF0  
MOV     DX, 2FH  
MOV     AL, 80H  
OUT     DX, AL  
MOV     DX, 2EH  
MOV     AL, F7H  
OUT     DX, AL  
MOV     DX, 2FH  
  
MOV     AL, 00H  
OUT     DX, AL  
MOV     DX, 2EH  
MOV     AL, F6H
```

```

OUT    DX, AL
MOV    DX, 2FH
MOV    AL, 00H      ; * 00H=Disabled
OUT    DX, AL

```

; Exit extended function mode

```

MOV    DX, 2EH
MOV    AL, AAH
OUT    DX, AL

```

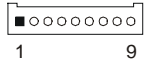
User can also use AL, 00H's defined time for reset purposes, e.g.00H for Disable, 01H = 1sec, 02H = 2sec to FFH = 255sec.

3.19 Audio Connectors

The 3312620 has an onboard AC97 3D audio interface. The following tables list the pin assignments of the audio connector.

- **CN13: Primary MIC In/Audio Out Connector**

PIN	Description
1	+12V
2	3.3V
3	AC_SYNC
4	AC_SDOOUT
5	GND
6	AC_BCLK
7	GND
8	AC_RST#
9	AC_SDINO



Thank you for select 1107762 Audio Card, here is the description about how to connect the connector and phone jack to use audio functions.

- **CN1: CD_In Connector**

PIN	Description
1	Left
2	GND
3	GND
4	Right

- **CN3/CN4/CN5: Line Out, Line In, MIC In Connector**

PIN	Description
CN3 - Green	Line Out
CN4 - Blue	Line In
CN5 Red	MIC In


- **CN2: Audio Signal Connector**

PIN	Description
1	+12V
2	3.3V
3	AC_SYNC
4	AC_SDOUT
5	GND
6	AC_BCLK
7	GND
8	AC_RST#
9	AC_SDIN0

3.20 BIOS Write Protection

- **JP1: Clear CMOS**

Options	Settings
Write Protection (default)	Short 1-2
Disabled	Short 2-3

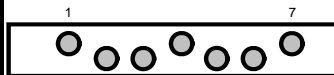


3.21 Serial ATA Function

You can connect the Serial ATA device to ports that provides you high speed transfer rates (150MB/sec.). If you wish to use RAID function, please note that these four Serial ATA connectors just support RAID0 and only compatible with WIN XP.

- **SATA1~SATA4: Serial ATA Connectors**

PIN	Description
1	GND
2	SATA_TX+
3	SATA_TX-
4	GND
5	SATA_RX-
6	SATA_RX+
7	GND



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