



integration with integrity

User's Manual

PC/104 Plus CPU Module 3001020

Version 1.0



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Chapter 1

Introduction

This User's Manual is intended for experienced users and integrators with hardware knowledge of personal computers. If you are not sure about any description in this User's Manual, please consult your vendor before further handling.

1.3 Warning

Single Board Computers and their components contain very delicate Integrated Circuits (IC). To protect the Single Board Computer and its components against damage from static electricity, you should always follow the following precautions when handling it :

1. Disconnect your Single Board Computer from the power source when you want to work on the inside
2. Hold the board by the edges and try not to touch the IC chips, leads or circuitry
3. Use a grounded wrist strap when handling computer components.
4. Place components on a grounded antistatic pad or on the bag that came with the Single Board Computer, whenever components are separated from the system

1.4 Replacing the lithium battery

Incorrect replacement of the lithium battery may lead to a risk of explosion. The lithium battery must be replaced with an identical battery or a battery type recommended by the manufacturer.

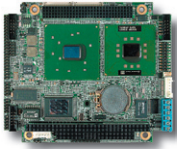
Do not throw lithium batteries into the trashcan. It must be disposed of in accordance with local regulations concerning special waste.

1.5 Technical Support

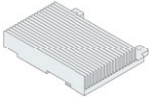
If you have any questions, please call Global American at (800) 833-8999 or click on the link below for Technical Support:

Technical Support at Global American

1.7 Packing List



1 x 3001020



1x CPU Heat Sink



1 x CD-ROM (For Driver used)



1 x Quick Installation Guide

1 x Warranty Card



1 x RJ45 cover

If any of the above items is damaged or missing, contact your vendor immediately.

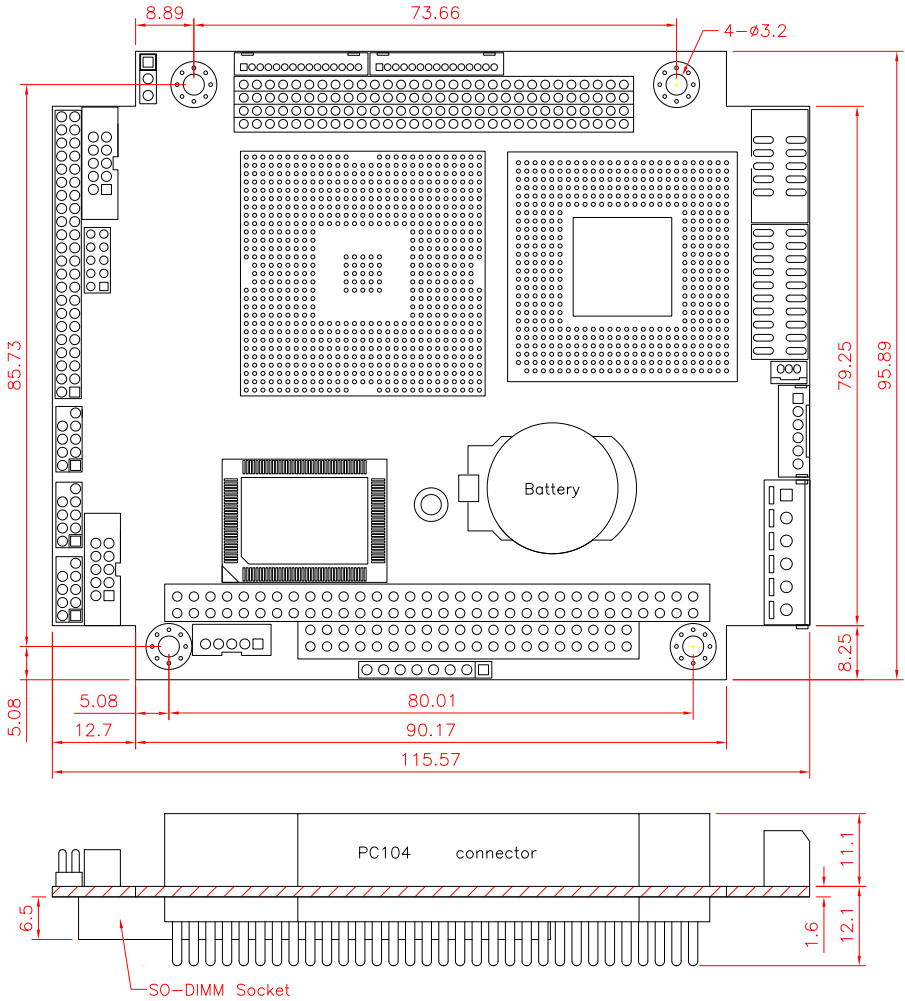
1.8 Ordering Information

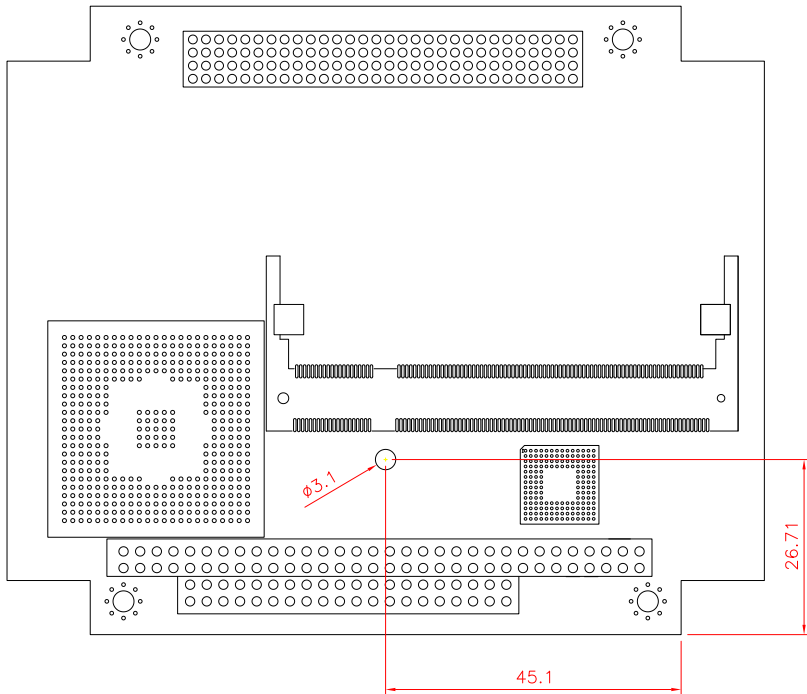
3001020A/ CM600	PC/104 Plus Intel Celeron M 600MHz with CRT/ LCD/ Audio and LAN
3001020B/ PM1400 (Optional)	PC/104 Plus Intel Pentium M 1.4GHz with CRT/ LCD/ Audio and LAN
1204110	Cable Kit for 3001020

1.9 Specification

Form Factor	PC/104 Plus form factor
Processor	Intel Celeron M 600MHz or Intel Pentium M 1.4GHz (Optional)
Chipset	Intel 852GM + Intel 82801DB (ICH4)
System Memory	1 x 200-pin DDR SO-DIMM up to 1GB SDRAM
VGA/ LCD Controller	Intel 852GM Extreme Graphics2 Engine up to 64MB UMA Video RAM
Ethernet	Intel 82562ET 10/100Mbps Controller
I/O Chips	W83627HG
BIOS	Phoenix-Award BIOS
Audio	ALC655 AC'97 codec, supports MIC-In/ Line-In / Line-Out
LCD	Supports 18/36 bit LVDS up to 1600 x 1200
Hardware Monitor	Integrated in W83627HG
RTC	Built-in Intel ICH4 with lithium battery
Power Input Connector	1*6-pin power terminal
Operation Temp.	0 - 60°C (32 - 140°F)
Watchdog Timer	1 - 255 Level (Sec. or Min.)
Dimension (L x W)	116 x 96 mm (4.6" x 3.8")

1.10 Board Dimensions

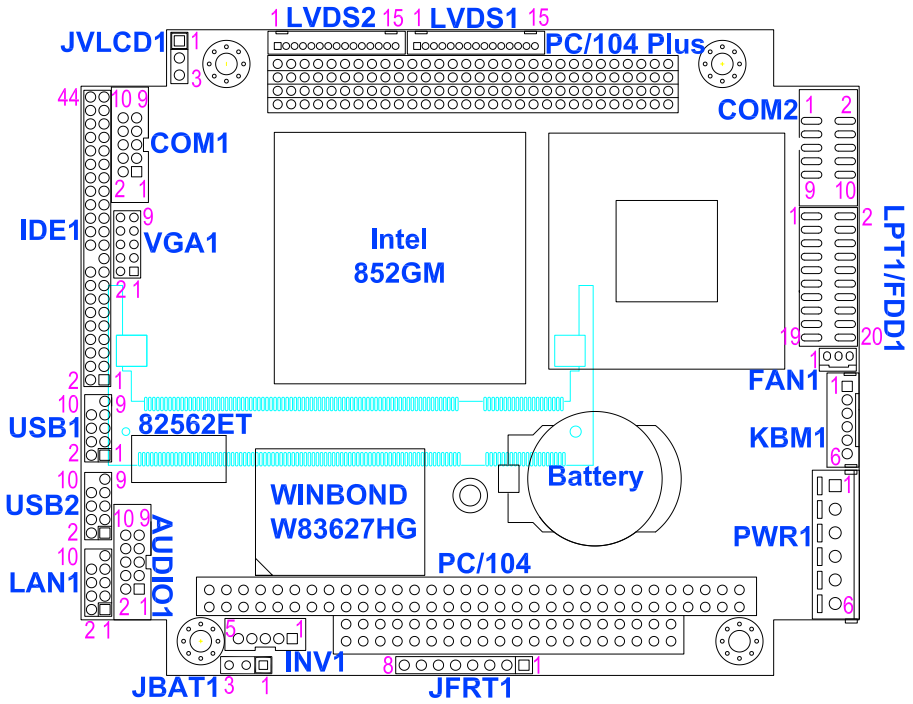




Chapter 2

Installation

2.1 Jumpers and Connectors

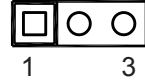


Jumpers

2.2 JVLCD1: LCD Panel Voltage Select

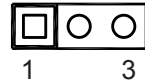
The voltage of LCD panel could be selected by JVLCD1 in 5V or 3.3V.

Pin	Voltage
1-2	5V
2-3	3.3V (Default)



2.3 JBAT1: CMOS Setup

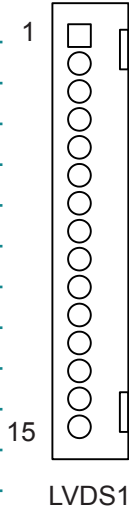
Pin	Mode
1-2	Keep CMOS (Default)
2-3	Clear CMOS



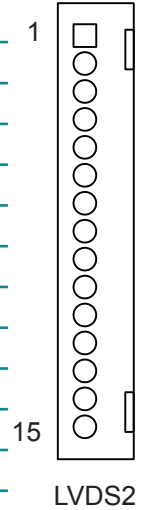
Connectors

2.4 LVDS1/ LVDS2: LVDS LCD Connector

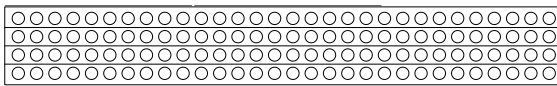
Pin	Description
1	VCC
2	TX1CLK+
3	TX1CLK-
4	GND
5	TX1D0+
6	TX1D0-
7	GND
8	TX1D1+
9	TX1D1-
10	GND
11	TX1D2+
12	TX1D2-
13	GND
14	TX1D3+
15	TX1D3-



Pin	Description
1	VCC
2	TX2CLK+
3	TX2CLK-
4	GND
5	TX2D0+
6	TX2D0-
7	GND
8	TX2D1+
9	TX2D1-
10	GND
11	TX2D2+
12	TX2D2-
13	GND
14	TX2D3+
15	TX2D3-



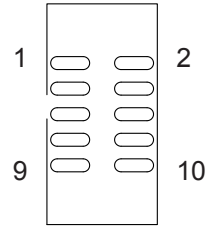
2.5 PC/104 Plus: PC/104+ PCI Interface



PC/104+

2.6 COM1/ COM2

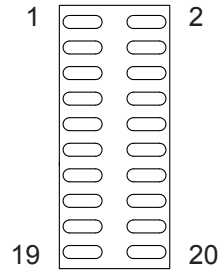
Pin	Description	Pin	Description
1	DCD	2	RXD
3	TXD	4	DTR
5	GND	6	DSR
7	RTS	8	CTS
9	RI	10	N/C



2.7 LPT1/ FDD1: Parallel Port or FDD Connector

It can be selected by LPT or FDD mode via BIOS

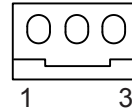
Pin	Description	Pin	Description
1	STROBE	2	AFD
3	PTD0	4	ERROR
5	PTD1	6	INIT
7	PTD2	8	SLIN
9	PTD3	10	GND
11	PTD4	12	GND
13	PTD5	14	GND
15	PTD6	16	BUSY
17	PTD7	18	PE
19	ACK	20	SELECT



2.8 FAN1: CPU Fan Power Connector

CPUF1 is a 3-pin header for the CPU fan. The fan must be a 12V fan.

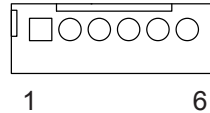
Pin	Description
1	FAN_CTL
2	+12V
3	GND



2.9 KBM1: Keyboard & Mouse

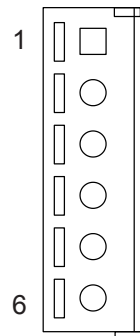
6-pin Keyboard & Mouse wafer connector

Pin	Description
1	KB_DATA
2	GND
3	MS_DATA
4	KB_CLK
5	KB_VCC
6	MS_CLK



2.10 PWR1: Power Supply Connector

Pin	Description
1	12V
2	GND
3	GND
4	GND
5	5V
6	5V



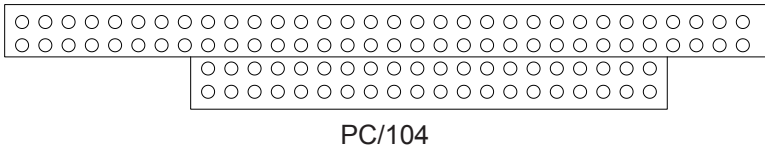
2.11 JFRT1: Switches and Indicators

It provides connectors for system indicators that provides light indication of the computer activities and switches to change the computer status.

Pin	Description
1	RESET+
2	GND
3	PWR LED+
4	GND
5	HDD LED+
6	HDD LED-
7	SPK OUT+
8	SPK OUT-



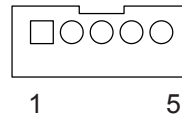
2.12 PC/104: PC/104 ISA Interface



2.13 INV1: LCD Inverter Connector

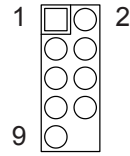
Onboard 5-pin mini boxheader

Pin	Description
1	+12V
2	GND
3	Backlight on/off
4	Brightness control
5	GND



2.14 LAN1: Fast Ethernet Connector

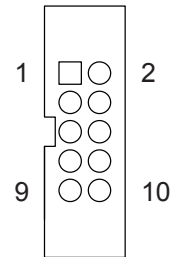
Pin	Description	Pin	Description
1	TX+	2	TX-
3	RX+	4	D2+
5	D2+	6	RX-
7	D3+	8	D3+
9	GND		



2.15 AUDIO1: Audio Interface Connector

AUDIO1, ALC655 AC'97 Codec, is composed of Line in, Line out and Microphone jacks.

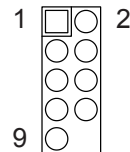
Pin	Description	Pin	Description
1	Line_in Left	2	Line_in Right
3	GND	4	GND
5	Mic_in	6	N/C
7	GND	8	GND
9	Line_out Left	10	Line_out Right



2.16 USB1/ USB2: USB Connector

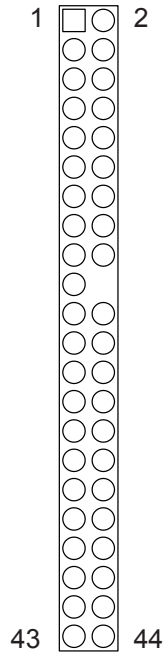
USB1/ USB2 supports two USB 2.0 w/ 480MB/s by pin header

Pin	Description	Pin	Description
1	+5V	2	+5V
3	USBD-	4	USBD-
5	USBD+	6	USBD+
7	GND	8	GND
9	GND	10	N/C



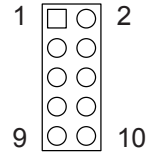
2.17 IDE1: 44-pin IDE Connector

Pin	Description	Pin	Description
1	IDE RESET	2	GND
3	DATA7	4	DATA8
5	DATA6	6	DATA9
7	DATA5	8	DATA10
9	DATA4	10	DATA11
11	DATA3	12	DATA12
13	DATA2	14	DATA13
15	DATA1	16	DATA14
17	DATA0	18	DATA15
19	GND	20	N/C
21	REQ	22	GND
23	IO WRITE	24	GND
25	IO READ	26	GND
27	IO READY	28	N/C
29	DACK	30	GND
31	IRQ14	32	N/C
33	ADDR1	34	ATA66 DETECT
35	ADDR0	36	ADDR2
37	CS#2	38	CS#3
39	IDEACTP	40	GND
41	VCC (+5V)	42	VCC (+5V)
43	GND	44	N/C



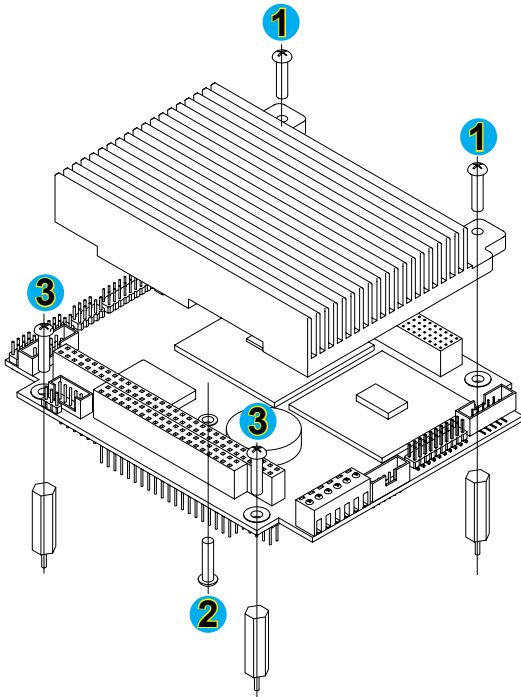
2.18 VGA1: CRT Connector

Pin	Description	Pin	Description
1	RED	2	GND
3	GREEN	4	GND
5	BLUE	6	CRTDEC
7	HSYNC	8	GND
9	VSYNC	10	GND



2.19 Heatsink Installation

1. Put the heatsink on 3001020, and screw it on in the direction shown in the figure below. Insert two screws (No. 1) downward into the holes and turn them tightly.
2. Insert screw (No. 2) upward into the hole and turn it tightly.
3. Insert two screws (No. 3) downward into the holes and turn them tightly.



Chapter 3

Appendix

3.1 I/O Port Address Map

Each peripheral device in the system is assigned a set of I/O port addresses which also becomes the identity of the device.

The following table lists the I/O port addresses used.

Address	Device Description
00000000-0009FFFF	System board extension for PnP BIOS
00000000-FFFFFFFF	PCI standard PCI-to-PCI bridge
00000000-FFFFFFFF	PCI standard PCI-to-PCI bridge
00000000-FFFFFFFF	PCI standard PCI-to-PCI bridge
000A0000-000AFFFF	Standard PCI Graphics Adapter (VGA)
000B0000-000BFFFF	Standard PCI Graphics Adapter (VGA)
000C0000-000CC7FF	Standard PCI Graphics Adapter (VGA)
000D8000-000D97FF	Intel(R) PRO/100 VE Network Connection
000D9800-000DBFFF	Motherboard resources
000F0000-000F3FFF	Motherboard resources
000F0000-000F3FFF	Motherboard resources
000F4000-000F7FFF	Motherboard resources
000F8000-000FFFFF	Motherboard resources
00100000-00FFFFFF	System board extension for PnP BIOS
D0000000-D7FFFFFF	Standard PCI Graphics Adapter (VGA)
D8000000-DFFFFFFF	Standard PCI Graphics Adapter
E0000000-E3FFFFFF	PCI standard host CPU bridge
E4000000-E4000FFF	Intel(R) PRO/100 VE Network Connection
E4000000-E40FFFFF	PCI standard PCI-to-PCI bridge
E4100000-E417FFFF	Standard PCI Graphics Adapter
E4180000-E41FFFFF	Standard PCI Graphics Adapter (VGA)
E4200000-E42003FF	PCI Universal Serial Bus
E4201000-E42011FF	PCI Multimedia Audio Device
E4202000-E42020FF	PCI Multimedia Audio Device
FEC00000-FEC0FFFF	System board extension for PnP BIOS

FEE00000-FEE0FFFF	System board extension for PnP BIOS
FFB00000-FFB7FFFF	System board extension for PnP BIOS
FFB80000-FFBFFFFFF	Unknown Device
FFF00000-FFFFFFFF	System board extension for PnP BIOS
Port 0000-FFFF	PCI standard PCI-to-PCI bridge
Port 0020-0021	Programmable interrupt controller
Port 0040-0043	System timer
Port 0060-0060	Standard 101/102-Key or Microsoft Natural Keyboard
Port 0061-0061	System speaker
Port 0070-0071	System CMOS/real time clock
Port 0081-0083	Direct memory access controller
Port 0087-0087	Direct memory access controller
Port 0089-008B	Direct memory access controller
Port 008F-0091	Direct memory access controller
Port 00A0-00A1	Programmable interrupt controller
Port 00C0-00DF	Direct memory access controller
Port 00F0-00FF	Numeric data processor
Port 0170-0177	Secondary IDE controller (single fifo)
Port 0170-0177	Standard Dual PCI IDE Controller
Port 01F0-01F7	Primary IDE controller (single fifo)
Port 02F8-02FF	Communications Port (COM2)
Port 0376-0376	Secondary IDE controller (single fifo)
Port 0376-0376	Standard Dual PCI IDE Controller
Port 0378-037F	Printer Port (LPT1)
Port 03B0-03BB	Standard PCI Graphics Adapter (VGA)
Port 03C0-03DF	Standard PCI Graphics Adapter (VGA)
Port 03F6-03F6	Primary IDE controller (single fifo)
Port 03F6-03F6	Standard Dual PCI IDE Controller
Port 03F8-03FF	Communications Port (COM1)
Port 0400-04BF	PCI bus

Port 04D0-04D1	PCI bus
Port 0500-051F	PCI System Management Bus
Port 0778-077B	Printer Port (LPT1)
Port 0CF8-0CFF	PCI bus
Port 9000-903F	Intel(R) PRO/100 VE Network Connection
Port 9000-9FFF	PCI standard PCI-to-PCI bridge
Port A000-A01F	Standard Universal PCI to USB Host Controller
Port A400-A41F	Standard Universal PCI to USB Host Controller
Port A800-A81F	Standard Universal PCI to USB Host Controller
Port AC00-AC07	Standard PCI Graphics Adapter (VGA)
Port B400-B4FF	PCI Multimedia Audio Device
Port B800-B83F	PCI Multimedia Audio Device
Port F000-F007	Primary IDE controller (single fifo)
Port F000-F00F	Standard Dual PCI IDE Controller
Port F008-F00F	Secondary IDE controller (single fifo)

3.2 Interrupt Request Lines (IRQ)

Peripheral devices use interrupt request lines to notify CPU for the service required. The following table shows the IRQ used by the devices on board.

Level	Function
IRQ 00	System Timer
IRQ 01	Standard 101/102-Key or Microsoft Natural Keyboard
IRQ 02	Programmable interrupt controller
IRQ 03	Communications Port (COM2)
IRQ 04	Communications Port (COM1)
IRQ 05	PCI Multimedia Audio Device
IRQ 05	PCI System Management Bus
IRQ 05	IRQ Holder for PCI Steering
IRQ 07	Printer Port (LPT1)
IRQ 08	System CMOS/real time clock
IRQ 09	PCI Universal Serial Bus
IRQ 09	IRQ Holder for PCI Steering
IRQ 0A	Standard Universal PCI to USB Host Controller
IRQ 0A	Standard Universal PCI to USB Host Controller
IRQ 0A	IRQ Holder for PCI Steering
IRQ 0A	Standard PCI Graphics Adapter (VGA)
IRQ 0B	Intel(R) PRO/100 VE Network Connection
IRQ 0B	Standard Universal PCI to USB Host Controller
IRQ 0B	IRQ Holder for PCI Steering
IRQ 0C	PS/2 Compatible Mouse Port
IRQ 0D	Numeric data processor
IRQ 0E	Primary IDE controller (single fifo)
IRQ 0E	Standard Dual PCI IDE Controller
IRQ 0F	Secondary IDE controller (single fifo)
IRQ 0F	Standard Dual PCI IDE Controller

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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