Quick Installation Guide

ECB-875 Series

Intel Pentium 4 Full-size PICMG CPU Card
with 533 MHz FSB, 4 USB 2.0, Audio, & Dual 10/100 Base-Tx Ethernet

2nd Ed. – 2 October 2003

Part No. 2017875001

FCC STATEMENT

THIS DEVICE COMPLIES WITH PART 15 FCC RULES. OPERATION IS SUBJECT TO THE FOLLOWING TWO CONDITIONS:

(1) THIS DEVICE MAY NOT CAUSE HARMFUL INTERFERENCE.

(2) THIS DEVICE MUST ACCEPT ANY INTERFERENCE

RECEIVED INCLUDING INTERFERENCE THAT MAY CAUSE UNDESIRED OPERATION.

THIS EQUIPMENT HAS BEEN TESTED AND FOUND TO COMPLY WITH THE LIMITS FOR A CLASS "A" DIGITAL DEVICE, PURSUANT TO PART 15 OF THE FCC RULES.

THESE LIMITS ARE DESIGNED TO PROVIDE REASONABLE PROTECTION AGAINTST HARMFUL INTERFERENCE WHEN THE EQUIPMENT IS OPERATED IN A COMMERCIAL ENVIRONMENT. THIS EQUIPMENT GENERATES, USES, AND CAN RADIATE RADIO FREQUENCY ENERGY AND, IF NOT INSTATLLED AND USED IN ACCORDANCE WITH THE INSTRUCTION MANUAL, MAY CAUSE HARMFUL INTERFERENCE TO RADIO COMMUNICATIONS.

OPERATION OF THIS EQUIPMENT IN A RESIDENTIAL AREA IS LIKELY TO CAUSE HARMFUL INTERFERENCE IN WHICH CASE THE USER WILL BE REQUIRED TO CORRECT THE INTERFERENCE AT HIS OWN EXPENSE.

Notice:

This guide is designed for experienced users to setup the system within the shortest time. For detailed information, please always refer to the electronic user's manual.

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To receive the latest version of the user's manual; please visit our Web site at: http://www.evalue-tech.com/

If you still cannot find the answer, gather all the information or questions that apply to your problem, and with the product close at hand, call your dealer. Our dealers are well trained and ready to give you the support you need to get the most from your Evalue's products. In fact, most problems reported are minor and are able to be easily solved over the phone.

In addition, free technical support is available from Evalue's engineers every business day. We are always ready to give advice on application requirements or specific information on the installation and operation of any of our products. Please do not hesitate to call or e-mail us.

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Product Warranty

Evalue warrants to you, the original purchaser, that each of its products will be free from defects in materials and workmanship for two years from the date of purchase.

This warranty does not apply to any products which have been repaired or altered by persons other than repair personnel authorized by Evalue, or which have been subject to misuse, abuse, accident or improper installation. Evalue assumes no liability under the terms of this warranty as a consequence of such events. Because of Evalue's high quality-control standards and rigorous testing, most of our customers never need to use our repair service. If any of Evalue's products is defective, it will be repaired or replaced at no charge during the warranty period. For out-of-warranty repairs, you will be billed according to the cost of replacement materials, service time, and freight. Please consult your dealer for more details. If you think you have a defective product, follow these steps:

1. Collect all the information about the problem encountered. (For example, CPU type and speed, Evalue's products model name, hardware & BIOS revision number, other hardware and software used, etc.) Note anything abnormal and list any on-screen messages you get when the problem occurs.
2. Call your dealer and describe the problem. Please have your manual, product, and any helpful information available.
3. If your product is diagnosed as defective, obtain an RMA (return material authorization) number from your dealer. This allows us to process your good return more quickly.
4. Carefully pack the defective product, a complete Repair and Replacement Order Card and a photocopy proof of purchase date (such as your sales receipt) in a shippable container. A product returned without proof of the purchase date is not eligible for warranty service.
5. Write the RMA number visibly on the outside of the package and ship it prepaid to your dealer.

Packing List

Before you begin installing your single board, please make sure that the following materials have been shipped:

- 1 ECB-875 Pentium 4 Full-size CPU card
- 1 Quick Installation Guide
- 1 CD-ROM contains the followings:
  - User's Manual (this manual in PDF file)
  - Ethernet driver and utilities
  - VGA drivers and utilities
  - Latest BIOS (as of the CD-ROM was made)
- Cable set includes the followings:
  - 1 ATA-100 IDE cable (40-pin, pitch 2.54mm)
  - 1 FDD cable (34-pin, pitch 2.54mm)
  - 1 bracket with one printer and one serial port (10-pin, 2.54mm/26-pin, pitch 2.54mm)
  - 1 PS/2 keyboard and mouse Y cable (6-pin, Mini-DIN)

If any of these items are missing or damaged, please contact your distributor or sales representative immediately.

1. Safety Precautions

1.1 Warning!

Always completely disconnect the power cord from your chassis whenever you work with the hardware. Do not make connections while the power is on. Sensitive electronic components can be damaged by sudden power surges. Only experienced electronics personnel should open the PC chassis.

1.2 Caution!

Always ground yourself to remove any static charge before touching the CPU card. Modern electronic devices are very sensitive to static electric charges. As a safety precaution, use a grounding wrist strap at all times. Place all electronic components in a static-dissipative surface or static-shielded bag when they are not in the chassis.

2. Jumper & Connector

2.1.1 Jumper & Connector Layout

2.1.2 Jumper & Connector List

Connectors on the board are linked to external devices such as hard disk drives, keyboard, mouse, or floppy drives. In addition, the board has a number of jumpers that allow you to configure your system to suit your application.

The following tables list the function of each of the board's jumpers and connectors.

Jumpers		
Label	**Function**	**Note**
J3	External speaker select	4 x 1 header, pitch 2.54mm
J4, J6	COM2 RS-232/422/485 select	4 x 3 header, pitch 2.0mm (J4) 3 x 2 header, pitch 2.0mm
J5	Reserve for future use	3 x 1 header, pitch 2.54mm
J7	COM1 pin 9 signal select	3 x 2 header, pitch 2.54mm
J8	COM2 pin 9 signal select	3 x 2 header, pitch 2.54mm
J9	Compact Flash mode select	2 x 1 header, pitch 2.54mm
J10	Reserve for internal test only	3 x 1 header, pitch 2.54mm
J11	CPU FSB frequency select	3 x 1 header, pitch 2.54mm
J12	Clear CMOS	3 x 1 header, pitch 2.54mm
J13	M-Systems DiskOnChip memory address select	2 x 2 header, pitch 2.0mm

Connectors		
Label	**Function**	**Note**
CD_IN1	CD-ROM audio input connector	4 x 1 wafer, pitch 2.0mm
CN1	Pentium IV +12V connector	
CN2	External SM bus connector	4 x 1 wafer, pitch 2.0mm
CN3	Power fan connector	3 x 1 wafer, pitch 2.54mm
CN4	CPU fan connector	3 x 1 wafer, pitch 2.54mm
CN5	Front panel connector	6 x 2 header, pitch 2.54mm
CN6	External standby power connector	5 x 1 wafer, pitch 2.0mm
CN7	Primary IDE connector	20 x 2 box header, pitch 2.54mm
CN8	Secondary IDE connector	20 x 2 box header, pitch 2.54mm
CN9	Floppy connector	17 x 2 box header, pitch 2.54mm
CN10	Parallel port connector	13 x 2 box header, pitch 2.54mm
CN11	Serial port 2 connector	5 x 2 box header, pitch 2.54mm
CN12	DVO port B connector	Samtec CLM-120-02-L-D
CN13	DVO port C connector	Samtec CLM-120-02-L-D
CN14	Audio output connector	5 x 2 header, pitch 2.0mm
CN15	Daughter board connector A	
CN16	Serial port 1 connector	D-sub 9-pin male connector
CN17	IrDA connector	5 x 1 header, pitch 2.54mm
CN18	M-Systems DOC 2000 socket	16 x 2 DIP socket
CN19	10/100 Base-Tx Ethernet connector	RJ-45
CN20	USB connector	5 x 2 box header, pitch 2.54mm
CN21	Daughter board connector B	
CN22	VGA connector	D-sub 15-pin female connector
CN23	Power connector	
CN24	Chassis fan connector	3 x 1 wafer, pitch 2.54mm
CN25	North Bridge fan connector	2 x 1 wafer, pitch 2.54mm
CN26	Internal keyboard connector	5 x 1 wafer, pitch 2.54mm
CN27	PS/2 keyboard & mouse connector	6-pin mini DIN
CN28	Compact Flash connector	
DIMM 1, 2	184-pin DDR SDRAM DIMM socket	
J1	Reserved for future used	
J2	Auxiliary power connector	3 x 1 wafer, pitch 2.0mm

3. Hardware Configuration

3.1 Setting Jumpers

3.1.1 External Speaker Select (J3)

J3 is a 4-pin connector for an external speaker. If there is no external speaker, the ECB-875 provides an onboard buzzer as an alternative. To enable the buzzer, set pin 3-4 as closed.

External Speaker Select (J3)

	External speaker	Onboard buzzer*
J3		

* default

3.1.2 COM2 RS-232/422/485 Select (J4, J6)

The ECB-875 COM2 serial port can be selected as RS-232, RS-422, or RS-485 by setting J4 & J6.

COM2 RS-232/422/485 Select (J4, J6)

	RS-232*	RS-422	RS-485
J4			
J6			

* default

3.1.3 COM1 / 2 Pin 9 Signal Select (J7, J8)

The ECB-875 COM1 / 2 pin 9 signal can be selected as +12V, +5V, or Ring by setting J7 / J8.

COM1 Select (J7)			
	Ring*	+5V	+12V
J7			

* default

COM2 Select (J8)			
	Ring*	+5V	+12V
J8			

* default

3.1.4 Compact Flash Mode Select (J9)

You can use J9 to configure the Compact Flash device to be Master or Slave mode on the secondary IDE channel.

Compact Flash Mode Select (J9)

	Master*	Slave
J9	1 2	1 2

* default

3.1.5 CPU FSB Frequency Select (J11)

The FSB frequency of CPU can be selected as 100 MHz or auto by J11.

CPU FSB Select (J11)

	100MHz	Auto*
J11	1 2 3	1 2 3

* default

3.1.6 Clear CMOS (J12)

You can use J12 to clear the CMOS data if necessary. To reset the CMOS data, set J12 to 2-3 closed for just a few seconds, and then remove the jumper back to 1-2 closed.

Clear CMOS (J12)		
	Protect*	Clear CMOS
J12		

* default

3.1.7 M-Systems DiskOnChip Memory Address Select (J13)

The M-systems DiskOnChip memory address can be selected by J13. The choice is D0000~D1FFF, D4000~D5FFF, D8000~D9FFF, or Disabled.

M-systems DiskOnChip Memory Address Select (J13)				
	D0000*	D4000	D8000	Disabled
J13				

* default

3.2 Connector Definitions

3.2.1 CD-ROM Audio Input Connector (CD_IN1)

Signal	PIN
CD_GND	1
CD_R	2
CD_GND	3
CD_L	4

3.2.2 Pentium IV +12V Connector (CN1)

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

3.2.3 External SM Bus Connector (CN2)

Signal	PIN
VCC	4
GND	3
SMBDATA	2
SMBCLK	1

3.2.4 Power Fan Connector (CN3)

SIGNAL	PIN
GND	1
+12V	2
TAC	3

3.2.5 CPU Fan Connector (CN4)

SIGNAL	PIN
GND	1
+12V	2
TAC	3

3.2.6 Front Panel Connector (CN5)

Signal	PIN		Signal
PW_LED	1	2	GND
VCC	3	4	HD_LED
PWRBTN	5	6	GND
VCC	7	8	BUZZ
RST_SW	9	10	GND
CASEOPEN	11	12	GND

3.2.7 External Standby Power Connector (CN6)

Signal	PIN
POWER_GOOD	1
VCC	2
NC	3
PS_ON	4
GND	5

3.2.8 Serial Port 2 Connector (CN11)

Signal	PIN		Signal
DCD	1	2	RxD
TxD	3	4	DTR
GND	5	6	DSR
RTS	7	8	CTS
RI	9	10	NC

3.2.9 Serial Port 2 with External DB9 Connector (CN11)

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

3.2.10 DVO Port B (CN12)

Signal	PIN		Signal
DVOB_CLK	1	2	DVOB_VSYNC
DVOB_CLK#	3	4	DVOB_HSYNC
GND	5	6	GND
DVOB_D0	7	8	DVOB_D1
DVOB_D2	9	10	DVOB_D3
DVOB_D4	11	12	DVOB_D5
DVOB_D6	13	14	DVOB_D7
DVOB_D8	15	16	DVOB_D9
DVOB_D10	17	18	DVOB_D11
DVOB_BLANK	19	20	DVOB_FLDSTL
GND	21	22	GND
MDVI_DATA	23	24	MI2C_DATA
MDVI_CLK	25	26	MI2C_CLK
MDDC_CLK	27	28	DVOBC_CLKINT#
MDDC_DATA	29	30	DVOBC_INTR#
ADD_DETECT	31	32	PCI_RESET#
+12V	33	34	+12V
VCC3	35	36	VCC3
VCC	37	38	VCC
GND	39	40	GND

3.2.11 DVO Port C (CN13)

Signal	PIN		Signal
DVOC_CLK	1	2	DVOC_VSYNC
DVOC_CLK#	3	4	DVOC_HSYNC
GND	5	6	GND
DVOC_D0	7	8	DVOC_D1
DVOC_D2	9	10	DVOC_D3
DVOC_D4	11	12	DVOC_D5
DVOC_D6	13	14	DVOC_D7
DVOC_D8	15	16	DVOC_D9
DVOC_D10	17	18	DVOC_D11
DVOC_BLANK	19	20	DVOC_FLDSTL
GND	21	22	GND
MDVI_DATA	23	24	MI2C_DATA
MDVI_CLK	25	26	MI2C_CLK
MDDC_CLK	27	28	DVOBC_CLKINT#
MDDC_DATA	29	30	DVOBC_INTR#
ADD_DETECT	31	32	PCI_RESET#
+12V	33	34	+12V
VCC3	35	36	VCC3
VCC	37	38	VCC
GND	39	40	GND

Note:

Optional daughter board is available.

3.2.12 Signal Description – DVO port B & DVO port C (CN12, CN13)

DVOB_CLK; DVOB_CLK#	O AGP	**DVOB Clock Output**: These signals provide a differential pair reference clock that can run up to 165 MHz. Formerly known by: DVOB_CLKOUT0=DVOB_CLK and DVOB_CLKOUT1=DVOB_CLK#. Care should be taken to be sure that DVOB_CLK is connected to the primary clock receiver of the Intel ® DVO device.
DVOB_D[11:0]	O AGP	**DVOB Data**: This data bus is used to drive 12-bit pixel data on each edge of DVOB_CLK (#). This provides 24 bit of data per clock.
DVOB_HSYNC	O AGP	**Horizontal Sync:** This is the HYNC signal for the DVOB interface. The active polarity of the signal is programmable.
DVOB_VSYNC	O AGP	**Vertical Sync:** This is the VSYNC signal for the DVOB interface. The active polarity of the signal is programmable.
DVOB_BLANK#	O AGP	**Flicker Blank or Border Period Indication:** DVOB_BLANK# is a programmable output pin driven by the GMCH. When programmed as a blank period indication, this pin indicates active pixels excluding the border. When programmed as a border period indication, this pin indicates active pixel including the border pixels.
DVOBC_CLKINT#	I AGP	**DVOBC Pixel Clock Input/Interrupt:** This signal may be selected as the reference input to the dot clock PLL (DPLL) for the multiplexed DVO devices. This pin may also be programmed to be an interrupt input for either of the multiplexed DVO devices.
DVOB_FLDSTL#	I AGP	**TV Field and Flat Panel Stall Signal:** This input can be programmed to be either a TV Field input from the TV encoder or Stall input from the flat panel. When used as a Field input, it synchronizes the overlay field with the TV encoder field when overlay is displaying an interleaved source. When used as the Stall input, it indicates that the pixel pipeline should stall one horizontal line. The polarity is programmable for both modes and the input may be disabled completely.
DVOC_CLK; DVOC_CLK#	O AGP	**DVOC Clock Output**: These signals provide a differential pair reference clock that can run up to 165 MHz. Formerly known by: DVOC_CLKOUT0=DVOC_CLK and DVOC_CLKOUT1=DVOC_CLK#. Care should be taken to be sure that DVOC_CLK is connected to the primary clock receiver of the Intel ® DVO device.
DVOC_D[11:0]	O AGP	**DVOC Data**: This data bus is used to drive 12-bit pixel data on each edge of DVOC_CLK (#). This provides 24 bit of data per clock.
DVOC_HSYNC	O AGP	**Horizontal Sync:** This is the HYNC signal for the DVOC interface. The active polarity of the signal is programmable.

DVOC_VSYNC	O AGP	**Vertical Sync:** This is the VSYNC signal for the DVOC interface. The active polarity of the signal is programmable.
DVOC_BLANK#	O AGP	**Flicker Blank or Border Period Indication:** DVOC_BLANK# is a programmable output pin driven by the GMCH. When programmed as a blank period indication, this pin indicates active pixels excluding the border. When programmed as a border period indication, this pin indicates active pixel including the border pixels.
DVOBC_INTR#	I AGP	**DVOBC Interrupt:** This signal may be used as an interrupt input for either of the multiplexed DVO devices.
DVOC_FLDSTL#	I AGP	**TV Field and Flat Panel Stall Signal:** This input can be programmed to be either a TV Field input from the TV encoder or Stall input from the flat panel. When used as a Field input, it synchronizes the overlay field with the TV encoder field when overlay is displaying an interleaved source. When used as the Stall input, it indicates that the pixel pipeline should stall one horizontal line. The polarity is programmable for both modes and the input may be disabled completely.
MI2C_CLK	I/O AGP	**MI2C_CLK**: The specific function of the signal is I2C_CLK for a multiplexed digital display. This signal is tri-stated during a hard reset.
MI2C_DATA	I/O AGP	**MI2C_DATA**: The specific function of the signal is I2C_DATA for a multiplexed digital display. This signal is tri-stated during a hard reset.
MDVI_CLK	I/O AGP	**MDVI_CLK**: The specific function is DVI_CLK (DDC) for a multiplexed digital display connector. The signal is tri-stated during a hard reset.
MDVI_DATA	I/O AGP	**MDVI_DATA**: The specific function is DVI_DATA (DDC) for a multiplexed digital display connector. The signal is tri-stated during a hard reset.
MDDC_CLK	I/O AGP	**MDDC_CLK**: This signal may be used as the DDC_CLK for a secondary multiplexed digital display connector. This signal is tri-stated during a hard reset.
MDDC_DATA	I/O AGP	**MDDC_DATA**: This signal may be used as the DDC_Data for a secondary multiplexed digital display connector. This signal is tri-stated during a hard reset.

ADDID[7:0]	I/O AGP	**ADD Card ID**: These signals will be strapped on the ADD card for software identification purposes. These signals may need pull-up or pull-down resistors in a DVO device down scenario.
PCI_RESET	Pin 32	**Reset:** Active low reset signal during power-up or from the control register.

3.2.13 Audio Output Connector (CN14)

Signal	PIN		Signal
Line-Out R	1	2	Line-Out L
AGND	3	4	AGND
Line-In R	5	6	Line-In L
Mic	7	8	AREF
SPK R	9	10	SPK L

3.2.14 Daughter Board Connector A (CN15)

Signal	PIN		Signal
USBP3P B	1	2	USBP2P B
USBP3N B	3	4	USBP2N B
USBV4	5	6	USBV3
USBG1	7	8	USBG0
USBP1P B	9	10	USBP0P B
USBP1N B	11	12	USBP0N B
USBV2	13	14	USBV1
USBG1	15	16	USBG0
VCCSB	17	18	SLED2
LLED2	19	20	ALED2

3.2.15 Daughter Board Connector B (CN21)

Signal	PIN		Signal
LAN_CLK	1	2	LAN_RXD0
LAN_RSTSYNC	3	4	LAN_RXD1
VCC	5	6	LAN_RXD2
NC	7	8	LAN_TXD0
NC	9	10	LAN_TXD1
NC	11	12	LAN_TXD2
TDPB	13	14	GND
RDPB	15	16	TDNB
MDAT	17	18	RDNB
MCLK	19	20	VCC

Note:

Optional daughter board is available.

3.2.16 IrDA Connector (CN17)

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

3.2.17 USB Connector (CN20)

Signal	PIN		Signal
	CH1	CH2	
VCC	1	2	VCC
D0-	3	4	D1-
D0+	5	6	D1+
GND	7	8	GND
NC	9	10	NC

3.2.18 Power Connector (CN23)

SIGNAL	PIN
+12V	1
GND	2
GND	3
+5V	4

3.2.19 Chassis Fan Connector (CN24)

SIGNAL	PIN
TAC	3
+12V	2
GND	1

3.2.20 North Bridge Fan Connector (CN25)

SIGNAL	PIN
GND	1
VCC	2

3.2.21 Internal Keyboard Connector (CN26)

Signal	PIN
KCLK	1
KDAT	2
NC	3
GND	4
VCC	5

3.2.22 Auxiliary Power Connector (J2)

Signal	PIN
PSON#	1
VCC	2
VCCSB	3

Note:

Set J2 to 2-3 closed. If AT power supply is to be used.

3.2.23 Chassis Buzzer Connector (J3)

Signal	PIN
VCC	1
NC	2
AZ	3
GND	4