USER MANUAL

Preliminary

I-BUS EAGLERAY Rev. 2

PIII FC-PGA/Celeron Processor support up to 850 MHz

Version 0.9

a product "Made in Germany"

by

I-BUS

User Manual I-Bus EAGLERAY Rev. 2
PICMG-Celeron-Slot-CPU-Board
Version 0.9

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PICMG-Celeron-Slot-CPU-Board
Version 0.9

Table of contents

1.0 Global Specification

1.1 Supported CPU

Intel Celeron socket 370 support up to 533MHz

1.2 Chipset

Intel BX system chip set

1.2.1 North-Bridge

82443 BX System Controller:

- Supports all socket 370 Celeron CPU´s up to 533 MHz
- PCI 2.1 Compliant
- Integrated DRAM controller
  - 32MB to 512MB main memory
  - PC66 SDRAM support (layout is PC100 compliant)
  - 2 168 pin DIMM memory sockets with up to 256MB per socket
  - Only 3,3V memory modules are supported
- Full synchronous minimum latency 33 MHz PCI bus interface

1.2.2 South-Bridge

82371EB PCI / ISA bridge

- PCI and ISA master/slave interface
  - 33MHz PCI clock
  - 8,33MHz ISA clock
  - 20 ISA slots are supported with bus driver circuit provided by I-Bus
- Fast IDE interface
  - PIO, Busmaster and Ultra-DMA-33 IDE modes
  - Up to 33MB/sec data transfer rate
  - Two IDE channels, primary and secondary are supported
- PCI 2.1 Compliant
- Two 8237 DMA controller
- 82C54 timer
- Real Time Clock with CMOS-RAM and On-Board battery
- Two 82C59 interrupt controller
- X-Bus peripheral support for system BIOS
- USB Host-Controller
  - Universal Host Controller Interface (UHCI) compatible
  - Two root hubs with two USB Ports
  - All two USB ports are fully supported and available through a 10-pin header for each port
- SMB Interface

1.2.3 Super I/O Controller

Super I/O controller SMC FDC37C672

- ISA Plug-and-Play compatible
- Intelligent Auto Power Management
  - Shadowed write-only registers for ACPI compliance
- 2,88MB Floppy disk controller
  - Software compatible with 82077AA and 16 Byte data FIFO support
  - Standard 1Mbps / 500 Kbps / 300 Kbps / 250 Kbps data rates are supported
  - 3,5" floppy drives with 1,44MB and 2,88MB are supported
- Integrated keyboard controller with AMI-BIOS
  - AT PS/2 keyboard and PS/2 mouse controller external available through a PS/2 style connector which supplies keyboard and mouse signals
- Multimode parallel port (LPT1)
  - ECP / EPP / PS/2 / SPP and 1284 compliant
  - IBM PC/XT, PC/AT and PS/2 compatible bidirectional parallel port
  - Enhanced Parallel Port (EPP) compatible
  - Microsoft and Hewlett Packard Extended Capabilities Port (ECP) compatible
- Serial ports (COM1/COM2)
  - Two 16550 compatible UART with send/receive 16-byte FIFO
  - Max. 115 kBaud data transfer rate
  - RS-232 compatible
- IrDA interface up to max. 4Mbps data transfer rate and ASK IR interface up to 19,2 kBaud data transfer rate

1.2.4 Hardware system monitor

NSC LM79 system monitor device, Intel Lan-Desk-Manager compatible

- CPU, system and power supply fan connector

Optional SNMP driver available (extra cost)

1.2.5 VGA controller

Intel (Chips & Technologies) 69000 high performance multi media flat panel / CRT GUI accelerator

- 64-Bit memory interface
- 2MB video memory
- The supported display list conforms to the Intel (C&T) initial video bios settings
  - An additional VEE voltage for contrast regulation purposes is not provided
- Display type are selected via dip-switch
- DDC for CRT Plug&Play configuration
- LCD power supply:
  - +5VDC/1A or 3,3V/1A for panel power
  - +12VDC/1A or 5VDC/1A for backlight power
- Simultaneous operation as supported by Intel 69000
- High-Performance Flatpanel Display resolution and color depth at 3.3V
  - 640x480 x 24bpp
  - 800x600 x 24bpp
  - 1024x768 x 16bpp
  - 1280x1024 x 8bpp

1.2.6 100Mbit-Ethernet-Controller

Intel 82559 Fast Ethernet PCI BUS LAN controller

- IEEE 802.3 10Base-T and 100Base-T compatible
- 32-Bit PCI Bus Master Interface
- Full or half duplex with 10Mbps or 100Mbps
- 100Base-T RJ-45 connector

1.2.7 SCSI controller

Adaptec 7880 UW PCI SCSI controller

- BIOS extension integrated into system BIOS
- Flash update possible with system BIOS update
- INT13h extension support
- DIP-switch selectable 8 or 16 Bit termination
- Active termination
- 68 pin ultra wide connector

1.2.8 Power supply

It is assumed that +12V and +5V are supplied to the CPU-board with an adequate power supply. The power supply requirements are according to the IBM/AT or ATX specification whatever is applicable.

- The CPU core voltage and all other required voltages below +5VDC are generated on board with PWM or Linear regulators as required.
- ATX power supply support with additional connector:
- Mostly jumperless design, DIP-switches are used for configuration

1.3 System, Video and SCSI-BIOS

1.3.1 System BIOS

AwardBIOS Features

- Easy Customization
- Support of third-party peripheral ROMs
- Industry-Standards Compliant
    - ACPI, PCI, SMBIOS (DMI), USB, EISA
    - BIOS Boot Specification
    - Plug and Play
    - Legacy PC AT ISRs & DSRs
- Bus Support
    - PCI, ISA
    - PCI-to-PCI & PCI-to-ISA bridging

- Power Management
  - ACPI 1.0, APM 1.2

- Plug and Play Ready
  - Resource allocation for PCI & PnP/Legacy ISA

- HDD/FDD/CD-ROM ATAPI
  - Selectable boot drive options, including CD-ROM, LS-120, SCSI,
  - Iomega Zip, and network cards
  - Auto-IDE detection
  - "Fast" DMA transfer/Ultra DMA
  - PIO modes 0-4
  - High-performance LBA transfers
  - Hard drives over 8.4 GB

- Extensive POST
  - Test and initialize all system components
  - Quick POST option

- Option ROM Support
  - SCSI
  - Video
  - PC Card boot
  - Ethernet

- Flash Support
  - Boot block BIOS for fault recovery

- Memory Management
  - RAM support up to 4 GB
  - Auto-memory chipset sizing
  - Auto-sizing for cache mapping
  - System and video BIOS shadowing
  - Memory parity check
  - ECC support

- Other features
  - PS/2-style mouse support
  - Combo-I/O controller support
  - HDD LBA mode support
  - LM78 support and GUI utility

- Utilities
  - MODBIN for OEM changes to binary files
  - AWDFLASH flash update

- Security Products
  - Boot sector virus protection
  - Multi-level password protection

- Interrupt rotation for PCI devices is PICMG compatible

1.3.2 Video BIOS

Latest Intel/C&T BIOS version for 69000

- Functions as provided by Intel/C&T
- 16 different LC-Displays supported, selectable by DIP-switch
- VESA compatible
- Simultaneous, Panel only and CRT only display modes
- DDC CRT support

1.3.3 SCSI BIOS

Latest Adaptec BIOS version for 7880

- Functions as provided by Adaptec
- Support of up to 16 SCSI devices
- INT 13h BIOS extensions

2.0 First Start Up

>>> Warning! <<<

During assembling and configuration, the power-supply to the board MUST been switched off. Making changes to the configuration , can damage or even destroy the EAGLERAY-Board.
This also includes any changes to the cabling direct on the EAGLERAY-board.

2.1 Assembling the CPU

For assembling the CPU, the board should not be mounted into a case.
The socket 370 is a Zero Force Type. Open the lifter-arm before plugin the CPU into the socket.
The CPU must insert whithout any force. Do not use force to insert it.
If the CPU will not plug in, check out the following points:

- Do you have a CPU for Socket 370 use?
  - Socket 7 CPU´s look very similar.
- Check the pins of the CPU, are they all in place and straight?
  - Missing or broken pins will cause malfunction of the board and can even dammage it.
- Does the orientation of the CPU match to the socket?
  - Socket 370 CPU´s can not be plugged in in a wrong orientation.
- Is the lifter-arm of the Zero-Force-Socket complete open?
  - Forcing a CPU into a closed socket will damage CPU and board.

>>> Warning! <<<

Do NEVER run a processor without cooling equipment! We recommend an active heatsink with fans with tachometer-signal.

2.2 CPU Core Voltage

With all today (Nov, 19th, 1999) known Intel Celeron Processors for Socket 370, no external configuration for the Core Voltage is needed.
Using the external configuration with those processors may damage the processor and the EAGLERAY-Board.

We recommend to use the Default-settings of switch U50.

>>> Warning! <<<

Wrong configuration of the Core-Voltage can destroy the processor and may also damage the EAGLERAY-Board.

2.3 Memory

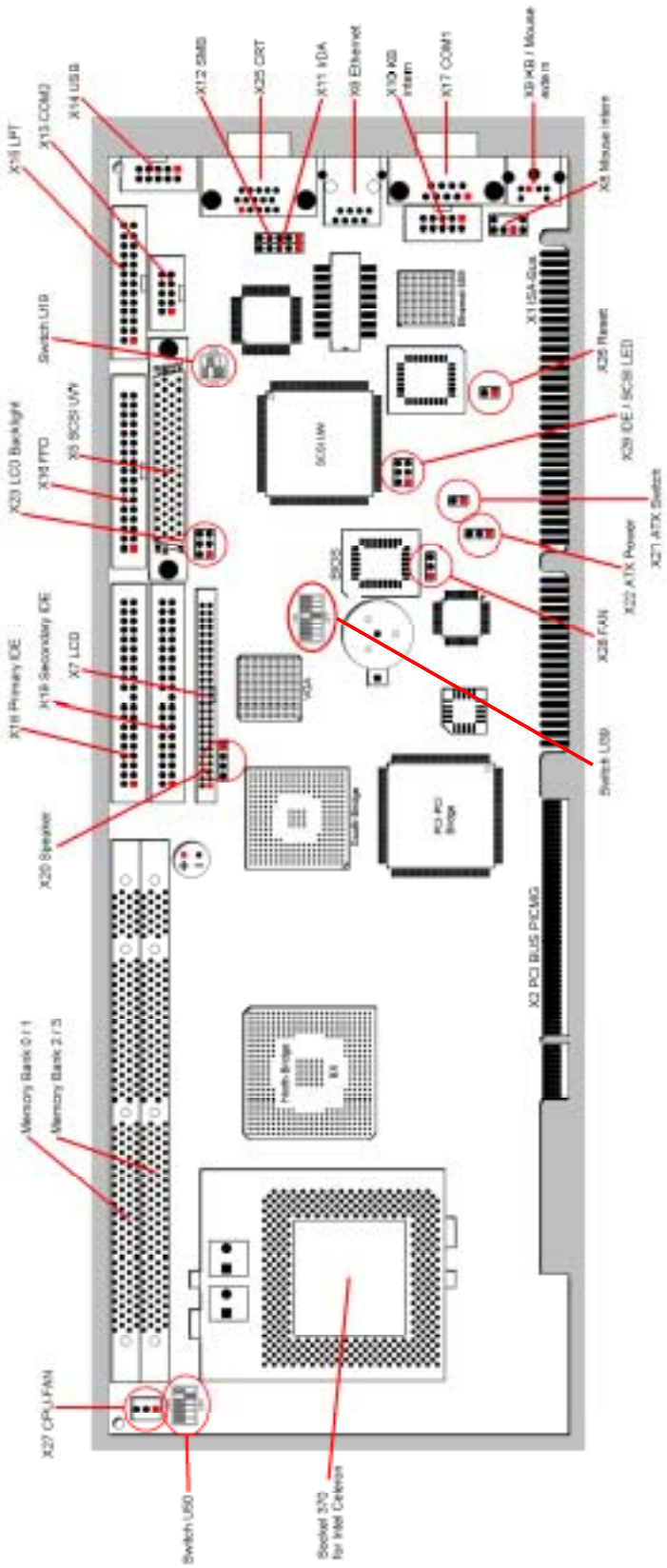
The EAGLERAY-Board provides two socket for memory-modules.

The EAGLERAY-Board supports either SDRAM or EDO-memory. Do not mix both types.
Per socket, 2 banks are provided with a maxium of 128MByte per bank.
The absolut maximum of supported memory is 512 MByte (tested maximum).

- Requirements for memory-modules are:
  - SDRAM-modules must meet Intel SDRAM Unbuffered DIMM Specification
  - SDRAM-modules must meet 66MHz requirements
  - SDRAM-modules for 100MHz will work also
  - Only 3 Volt SDRAM-memory-modules are supported
  - EDO-memory-modules must be 3 Volt types
  - Memory sockets are 3 Volt keyed. Do not use force to insert modules which do not plug in

3.0 Configuration

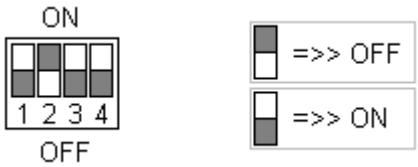
3.1 Placement Overview



3.1.1 U19 – configuration of SCSI-Interface

U19 provides the user the possibility to configure the SCSI-Interface.

Location: between Adaptec SCSI-Controller and SCSI-connector
Function: Configuration of SCSI-Interface



Switch 1: 16Bit Wide SCSI enable Default ON

Switch 2: Ultra-SCSI disable Default OFF

Switch 3-4: Termination configuration Default Termination 16Bit ON („cfg3“)

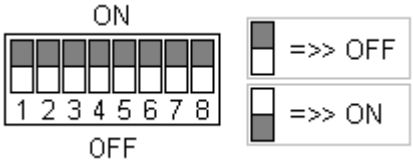
Mode	Switch 3	Switch 4	
cfg1	OFF	x	no termination
cfg2	ON	OFF	termination of upper 8 Data-Bits
cfg3	ON	ON	termination of all 16 Data-Bits + Control-Lines (Default)

Additional in mode „cfg2“ and „cfg3“, termination-power can be configured by SCSI-BIOS.

3.1.2 U39 – configuration of LCD – Interface

U39 provides the user the possibility to configure the LCD – Interface

Location: right to the ct69000 grafics-controller
Function: configuration of LCD-interface



Switch 1-4: Selection of LCD 0 – 15

Switch 5: Voltage-Selection for LCD-backlight
ON = 5V
OFF = 12V

Switch 6: Voltage-Selection for LCD-VDD
ON = 5V
OFF = 3V3

Switch 7: Onboard Power-Mosfets for LCD-Backlight enable
ON = controlled by VGA-controller
OFF = Backlight always on

Switch 8: not used

3.1.3 U50 - configuration of CPU Core-Voltage

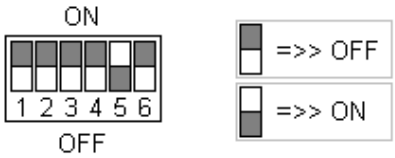
U50 provides the user the possibility to configure the Core-Voltage manually.

Please regard, that all known Celeron-processors provide the VID0-VID4 Pins, and configure the Core-Voltage by themself. To use the configuration-switches, RN12 should NOT be stuffed (Default for the EAGLERAY Rev.1 board is , that RN12 is stuffed).

>>> Warning! <<<

Wrong configuration of the Core-Voltage can destroy the processor and may also damage the EAGLERAY-Board.

Location: left upper corner between CPU-socket and DIMM-sockets
Function: optional configuration of CPU-Core-Voltage, only to use when RN12 is not stuffed!



Switch 1-4:	VID 0-3	Default all OFF
Switch 5:	VID 4	Default ON
Switch 6:	reserved	Default OFF

Default setting is fitting to Intel Celeron-370 CPU´s with 366MHz, 400MHz, 433MHz, 500MHz and 533MHz.

3.1.3.1 Possible configurations for CPU Core-Voltage are:

VID4	VID3	VID2	VID1	VID0	VCC-Core
0	1	1	1	1	1.30
0	1	1	1	0	1.35
0	1	1	0	1	1.40
0	1	1	0	0	1.45
0	1	0	1	1	1.50
0	1	0	1	0	1.55
0	1	0	0	1	1.60
0	1	0	0	0	1.65
0	0	1	1	1	1.70
0	0	1	1	0	1.75
0	0	1	0	1	1.80
0	0	1	0	0	1.85
0	0	0	1	1	1.90
0	0	0	1	0	1.95
0	0	0	0	1	2.00
0	0	0	0	0	2.05
1	1	1	1	1	CPU-Shutdown
1	1	1	1	0	2.10
1	1	1	0	1	2.20
1	1	1	0	0	2.30
1	1	0	1	1	2.40
1	1	0	1	0	2.50
1	1	0	0	1	2.60
1	1	0	0	0	2.70
1	0	1	1	1	2.80
1	0	1	1	0	2.90
1	0	1	0	1	3.00
1	0	1	0	0	3.10
1	0	0	1	1	3.20
1	0	0	1	0	3.30
1	0	0	0	1	3.40
1	0	0	0	0	3.50

3.1.4 X20 – Speaker intern / extern

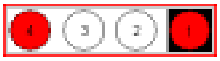
Connector allows the user to connect an external speaker to the system, or enable the onboard speaker.

Pin 1: external speaker out
Pin 2: onboard speaker in
Pin 3: VCC
Pin 4: VCC

3.1.4.1 Onboard speaker (Default configuration):

To use the onboard speaker, place a jumper over Pin 1 and Pin 2, to connect external speaker out to internal speaker in.

3.1.4.2 External Speaker:



Connect 4pin speaker connector with Pin 1 and 4 stuffed on X20

4.0 Connector definitions

4.1 PICMG Bus Interface

4.1.1 X1 - ISA-Bus edge connector

Pin No.	Description	Pin No.	Description
B01	GND	A01	N.C. (IOCHCHK#)
B02	RESETDRV	A02	SD7
B03	+5V	A03	SD6
B04	IRQ9	A04	SD5
B05	-5V	A05	SD4
B06	DRQ2	A06	SD3
B07	-12V	A07	SD2
B08	ENDXFR# (active low)	A08	SD1
B09	+12V	A09	SD0
B10	GND	A10	IOCHRDY
B11	SMEMW# (active low)	A11	AEN
B12	SMEMR# (active low)	A12	SA19
B13	IOW# (active low)	A13	SA18
B14	IOR# (active low)	A14	SA17
B15	DACK3# (active low)	A15	SA16
B16	DRQ3	A16	SA15
B17	DACK1# (active low)	A17	SA14
B18	DRQ1	A18	SA13
B19	REFRSH# (active low)	A19	SA12
B20	SYSCLK	A20	SA11
B21	IRQ7	A21	SA10
B22	IRQ6	A22	SA9
B23	IRQ5	A23	SA8
B24	IRQ4	A24	SA7
B25	IRQ3	A25	SA6
B26	DACK2# (active low)	A26	SA5
B27	TC	A27	SA4
B28	BALE	A28	SA3
B29	+5V	A29	SA2
B30	OSC	A30	SA1
B31	GND	A31	SA0
Connector	Key	Connector	Key
Connector	Key	Connector	Key
Connector	Key	Connector	Key
D01	MEMCS16# (active low)	C01	SBHE# (active low)
D02	IOCS16# (active low)	C02	LA23
D03	IRQ10	C03	LA22
D04	IRQ11	C04	LA21
D05	IRQ12	C05	LA20

D06	IRQ15	C06	LA19
D07	IRQ14	C07	LA18
D08	DACK0# (active low)	C08	LA17
D09	DRQ0	C09	MEMR# (active low)
D10	DACK5# (active low)	C10	MEMW# (active low)
D11	DRQ5	C11	SD8
D12	DACK6# (active low)	C12	SD9
D13	DRQ6	C13	SD10
D14	DACK7# (active low)	C14	SD11
D15	DRQ7	C15	SD12
D16	+5V	C16	SD13
D17	MASTER# (active low)	C17	SD14
D18	GND	C18	SD15

4.1.2 X2 - PCI-Bus connector

Pin No.	Description	Pin No.	Description
F01	-12V	E01	TRST# (active low)
F02	TCK	E02	+12V
F03	GND	E03	TMS
F04	TDO	E04	TDI
F05	+5V	E05	+5V
F06	+5V	E06	INTA# (active low)
F07	INTB# (active low)	E07	INTC# (active low)
F08	INTD# (active low)	E08	+5V
F09	REQ3# (active low)	E09	CLKC
F10	REQ1# (active low)	E10	+5V (I/O)
F11	GNT3# (active low)	E11	CLKD
F12	GND	E12	GND
F13	GND	E13	GND
F14	CLKA	E14	GNT1# (active low)
F15	GND	E15	RST# (active low)
F16	CLKB	E16	+5V (I/O)
F17	GND	E17	GNT0#
F18	REQ0# (active low)	E18	GND
F19	+5V (I/O)	E19	REQ2# (active low)
F20	AD31	E20	AD30
F21	AD29	E21	+3.3V
F22	GND	E22	AD28
F23	AD27	E23	AD26
F24	AD25	E24	GND
F25	+3.3V	E25	AD24
F26	C/BE3# (active low)	E26	GNT2# (active low)
F27	AD23	E27	+3.3V
F28	GND	E28	AD22
F29	AD21	E29	AD20
F30	AD19	E30	GND
F31	+3.3V	E31	AD18
F32	AD17	E32	AD16
F33	C/BE2# (active low)	E33	+3.3V

F34	GND	E34	FRAME# (active low)
F35	IRDY# (active low)	E35	GND
F36	+3.3V	E36	TRDY# (active low)
F37	DEVSEL# (active low)	E37	GND
F38	GND	E38	STOP# (active low)
F39	LOCK# (active low)	E39	+3.3V
F40	PERR# (active low)	E40	SDONE
F41	+3.3V	E41	SB0# (active low)
F42	SERR# (active low)	E42	GND
F43	+3.3V	E43	PAR
F44	C/BE1# (active low)	E44	AD15
F45	AD14	E45	+3.3V
F46	GND	E46	AD13
F47	AD12	E47	AD11
F48	AD10	E48	GND
F49	GND	E49	AD09
Connector	Key	Connector	Key
Connector	Key	Connector	Key
F52	AD08	F52	C/BE0# (active low)
F53	AD07	F53	+3.3V
F54	+3.3V	F54	AD06
F55	AD05	F55	AD04
F56	AD03	F56	GND
F57	GND	F57	AD02
F58	AD01	F58	AD00
F59	+5V (I/O)	F59	+5V (I/O)
F60	ACK64# (active low)	F60	REQ64# (active low)
F61	+5V	F61	+5V
F62	+5V	F62	+5V

4.2 Mass Storage Interface

4.2.1 X5 - SCSI connector 16 Bit UW

Pin No.	Description	Pin No.	Description
1	GND	35	SCSI Data 12
2	GND	36	SCSI Data 13
3	GND	37	SCSI Data 14
4	GND	38	SCSI Data 15
5	GND	39	SCSI High Byte Parity # (active low)
6	GND	40	SCSI Data 0
7	GND	41	SCSI Data 1
8	GND	42	SCSI Data 2
9	GND	43	SCSI Data 3
10	GND	44	SCSI Data 4
11	GND	45	SCSI Data 5
12	GND	46	SCSI Data 6
13	GND	47	SCSI Data 7
14	GND	48	SCSI Low Byte Patity # (active low)
15	GND	49	GND
16	GND	50	GND
17	Termination Power	51	Termination Power
18	Termination Power	52	Termination Power
19	N.C.	53	N.C.
20	GND	54	GND
21	GND	55	ATTENTION# (active low)
22	GND	56	GND
23	GND	57	BUSY# (active low)
24	GND	58	ACKNOWLEDGE# (active low)
25	GND	59	RESET# (active low)
26	GND	60	MESSAGE# (active low)
27	GND	61	SELECT# (active low)
28	GND	62	COMMAND/DATA# (active low)
29	GND	63	REQUEST# (active low)
30	GND	64	IN/OUT# (active low)
31	GND	65	SCSI Data 8
32	GND	66	SCSI Data 9
33	GND	67	SCSI Data 10
34	GND	68	SCSI Data 11

4.2.2 X16 - FDD connector

Pin No.	Description	Pin No.	Description
1	GND	2	Density select
3	GND	4	N.C.
5	GND	6	N.C.
7	GND	8	Index# (active low)
9	GND	10	Motor enable 0# (active low)
11	GND	12	Drive select 1# (active low)
13	GND	14	Drive select 0# (active low)
15	GND	16	Motor enable 1# (active low)
17	GND	18	Direction# (active low)
19	GND	20	Step# (active low)
21	GND	22	Write data
23	GND	24	Write gate# (active low)
25	GND	26	Track 0# (active low)
27	GND	28	Write protect# (active low)
29	N.C.	30	Read data
31	GND	32	Head side select# (active low)
33	N.C.	34	Disk change# (active low)

4.2.3 X18 / X19 - Primary and secondary IDE connector

Pin No.	Description	Pin No.	Description
1	RESET# (active low)	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	KEY
21	DMA REQ	22	GND
23	IOW# (active low)	24	GND
25	IOR# (active low)	26	GND
27	IOCHRDY	28	N.C.
29	DMA ACK	30	GND
31	IRQ	32	IOCS16# (active low)
33	SA1	34	N.C.
35	SA0	36	SA2
37	HD CS0# (active low)	38	HD CS1# (active low)
39	HDD LED# (active low)	40	GND

4.2.4 X29 - IDE/SCSI LED connector (2x3 pin header)

Pin No.	Description	Pin No.	Description
1	+5V	2	Primary HDD active # (active low)
3	+5V	4	Secondary HDD active # (active low)
5	+5V	6	SCSI active # (active low)

4.3 Human Interface

4.3.1 X8 - Internal Mouse connector (population option)

Pin No.	Description	Pin No.	Description
1	Mouse DATA	2	N.C.
3	GND	4	+5V
5	Mouse CLK	6	N.C.

4.3.2 X9 - External Keyboard / Mouse connector (Mini DIN)

Pin No.	Description
1	Keyboard DATA
2	Mouse DATA
3	GND
4	+5V
5	Keyboard CLK
6	Mouse CLK

4.3.3 X10 - Internal Keyboard connector

Pin No.	Description		Description
1	Keyboard CLK	2	GND
3	Keyboard DATA	4	N.C.
5	N.C.	6	N.C.
7	+5V	8	Key, Pin clipped off
9	N.C.	10	GND

4.3.4 X14 - USB connectors Port1 and Port 2

Pin No.	Description	Pin No.	Description
1	VCC-USB0	2	VCC-USB1
3	USBP0-	4	USBP1-
5	USBP0+	6	USBP1+
7	GND-USB0	8	GND-USB1
9	GND-USB0	10	GND-USB1

4.3.5 X20 - Speaker connector

Pin No.	Description
1	Speaker external
2	Speaker internal
3	VCC
4	VCC

4.4 VGA Interface

4.4.1 X7 - LC-Display connector

Pin No.	Description	Pin No.	Description
1	ENABKL	2	+12V Safe
3	LP	4	DE
5	SHFCLK	6	FLM
7	P0	8	VDDSAFE
9	P2	10	P1
11	P4	12	P3
13	P6	14	P5
15	P8	16	P7
17	P10	18	P9
19	P12	20	VDDSAFE
21	P14	22	P11
23	GND	24	P13
25	P16	26	P15
27	P18	28	P17
29	P20	30	ENAVEE
31	P22	32	P19
33	GND	34	P21
35	P24	36	P23
37	P26	38	P25
39	M/PCLK	40	GND
41	P28	42	P27
43	P30	44	P29
45	P32	46	P31
47	P34	48	P33
49	GND	50	P35

Description Table	
ENABKL	Backlight enable control pin
+12V Safe	Backlight power +12V or +5V
FLM	VSYNC / first line marker
LP	Hsync / latch pulse
DE	Display enable
SHFCLK	Pixel Clock / Shift Clock
P0-P35	Digital RGB pixel data

VDDSAFE	Panel power
GND	Ground
ENAVEE	Panel bias voltage enable signal
M/PCLK	Display enable / PCLK output

4.4.2 X25 – CRT VGA-connector

Pin No.	Description
1	Analog RED
2	Analog GREEN
3	Analog BLUE
4	N.C.
5	GND
6	GND
7	GND
8	GND
9	+5V
10	GND
11	N.C.
12	DDC (Display Data Channel)
13	HSYNC (horizontal sync)
14	VSYNC (vertical sync)
15	DDC (Display Data-channel Clock)

4.5 SER/PAR/IrDA Interface

4.5.1 X11 - IRDA connector

Pin No.	Description
1	IRRX (IR Receive)
2	IRTX (IR Transmit)
3	GND
4	IR_MODE
5	+5V

4.5.2 X13 - COM2 port connector (2x5 pin header)

Pin No.	Description	Pin No.	Description
1	DCD (Data Carrier Detect)	2	RXD (Receive Data)
3	TXD (Transmit Data)	4	DTR (Data Terminal Ready)
5	GND	6	DSR (Data Set Ready)
7	RTS (Ready To Send)	8	CTS (Clear To Send)
9	RI (Ring Indicator)	10	KEY/(+12V optional)

4.5.3 X15 - Parallel port connector

Pin No.	Description	Pin No.	Description
1	Strobe# (active low)	2	AFD# (active low)
3	Data 0	4	Error# (active low)
5	Data 1	6	Init
7	Data 2	8	Printer select IN# (active low)
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	ACK	20	GND
21	Busy	22	GND
23	PE	24	GND
25	Printer select	26	GND

4.5.4 X17 - COM1 port connector (D-Sub 9 pin)

Pin No.	Description
1	DCD (Data Carrier Detect)
2	RXD (Receive Data)
3	TXD (Transmit Data)
4	DTR (Data Terminal Ready)
5	GND
6	DSR (Data Set Ready)
7	RTS (Ready To Send)
8	CTS (Clear To Send)
9	RI (Ring Indicator)

4.6 System Management

4.6.1 X12 - SMBUS connector (optional, normally not populated)

Pin No.	Description
1	SMB-VCC
2	SMBDATA
3	SMBCLK
4	SMB-GND
5	Manual Reset

4.6.2 X21 - ATX switch input (population option)

Pin No.	Description
1	5V Standby
2	Switch input

4.6.3 X22 - ATX controller from power supply (population option)

Pin No.	Description
1	5V Standby
2	GND
3	Wakeup signal (PS_ON)

4.6.4 X26 - Internal Reset connector

Pin No.	Description
1	GND
2	Manual Reset

4.6.5 X27 - CPU-fan supply connector

Pin No.	Description
1	GND
2	+12V
3	Sense

5.0 IDSEL and Interrupt configuration

5.1 Configuration for external PCI-Slots 1-4

It is assumed that 1 is the PCI slot beside the PCI-ISA-Slot.

Pin-Name at PCI Expansion Slot 1 - 4	Slot 1 Pins are connected to .. at PCI-ISA-Slot	Slot 2 Pins are connected to .. at PCI-ISA-Slot	Slot 3 Pins are connected to .. at PCI-ISA-Slot	Slot 4 Pins are connected to .. at PCI-ISA-Slot
IDSEL	AD 31	AD 30	AD 29	AD28
INT A (A6)	INT B	INT C	INT D	INT A
INT B (B7)	INT C	INT D	INT A	INT B
INT C (A7)	INT D	INT A	INT B	INT C
INT D (B8)	INT A	INT B	INT C	INT D
GNT#	GNT 0#	GNT 1#	GNT 2#	GNT 3#
REQ#	REQ 0#	REQ 1#	REQ 2#	GNT 3#
PCICLK	PCICLK 0	PCICLK 1	PCICLK 2	PCICLK 3

Note A: The PCI-BUS at the PCI-ISA-Bus is the internal PCI-Bus 0. All internal PCI devices are located behind a PCI-to-PCI bridge at PCI-Bus 1.

Note B: The EAGLERAY will not support more than 4 external PCI-Devices at PCI-Bus 0 due to the limitation of loads on the bus. For more than 4 Devices, an additional PCI-to-PCI-Bridge has to be used on the backplane.

5.2 Configuration for PCI-to-PCI-Bridge at PCI-Bus 0:

Pin-Name at PCI-to-PCI Bridge	Signal-Name at PCI-Bus 0
IDSEL	AD 27
Not used	INT A
Not used	INT B
Not used	INT C
Not used	INT D
GNT#	GNT 4#
REQ#	REQ 4#
PCICLK	PCICLK 4

5.3 Configuration of PCI-Bus 1:

Signal-Name at PCI Device	SCSI-Controller Signals are connected to .. at PCI-Bus 1	Ethernet-Controller Signals are connected to .. at PCI-Bus 1
IDSEL	S_AD 23	S_AD 20
INT 1	INT A	INT B
GNT#	S_GNT 0#	S_GNT 3#
REQ#	S_REQ 0#	S_REQ 3#

PCICLK	S_PCICLK 0	S_PCICLK 3

6.0 BIOS

For information about the BIOS, please refer to the seperate BIOS-Manual.

- The actual revision (Nov.18th, 1999) is

  BIOS-Manual I-Bus EAGLERAY
  PICMG-Celeron-Slot-CPU-Board
  Version 1.0 / BIOS-Release 2A69K001 Rel.03

7.0 Hardware and Software Drivers and Software Utilities

For the most newest drivers and utilities please visit the following internet-pages:

7.1 Hardware-Driver

7.1.1 BIOS (System, VGA, SCSI) and Dokumentations

Please stop by and find the newest BIOS-versions as well as all public dokumentations.
IBUS-GERMANY GmbH : call

7.1.2 Grafic-Controller

Please stop by to find the newest drivers for the intel ct69000.
www.intel.com

7.1.3 Network-Controller

Please stop by and find the newest drivers and utilities for the intel 82559
www.intel.com

7.1.4 SCSI-Controller

Please stop by and find the newest drivers and utilities for the Adaptec AIC 7880 SCSI controller familiy.
www.adaptec.com

7.2 SOFTWARE (OS,..)

For the most newest drivers and tools please visit the internet-pages of the vendors of those software.

7.2.1 Microsoft OS

Windows 95 / 98, Windows NT, Windows 2000 from Microsoft:
www.microsoft.com

7.2.2 Unix and RT-OS

7.2.2.1 Solaris from SUN
www.solaris.com

7.2.2.2 SCO UNIX / UNIXWARE
www.sco.com

7.2.2.3 Novell NETWARE
www.novell.com

7.2.2.4 RealTime-OS
www.wrs.com (Wind River System)
www.qnx.com (QNX)