MAI-8525 系列工业主板
使用说明书

深圳市华邦德科技有限公司

Chapter 1

Introduction

1.1 Copyright Notice

1.2 About this User's Manual

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

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

1. Disconnect your Embedded Miniboard 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 Embedded Miniboard, 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 requlations concerning special waste.

1.5 Warranty

This product is warranted to be in good working order for a period of two years from the date of purchase. Should this product fail to be in good working order at any time during this period, we will, at our option, replace or repair it at no additional charge except as set forth in the following terms. This warranty does not apply to products damaged by misuse, modifications, accident or disaster.

Vendor assumes no liability for any damages, lost profits, lost savings or any other incidental or consequential damage resulting from the use, misuse of, or inability to use this product. Vendor will not be liable for any claim made by any other related party.

Vendors disclaim all other warranties, either expressed or implied, including but not limited to implied warranties of merchantibility and fitness for a particular purpose, with respect to the hardware, the accompanying product's manual(s) and written materials, and any accompanying hardware. This limited warranty gives you specific legal rights.

Return authorization must be obtained from the vendor before returned merchandise will be accepted. Authorization can be obtained by calling or faxing the vendor and requesting a Return Merchandise Authorization (RMA) number. Returned goods should always be accompanied by a clear problem description.

1.6 Ordering Information

MAI-8525 R1.0/CM600

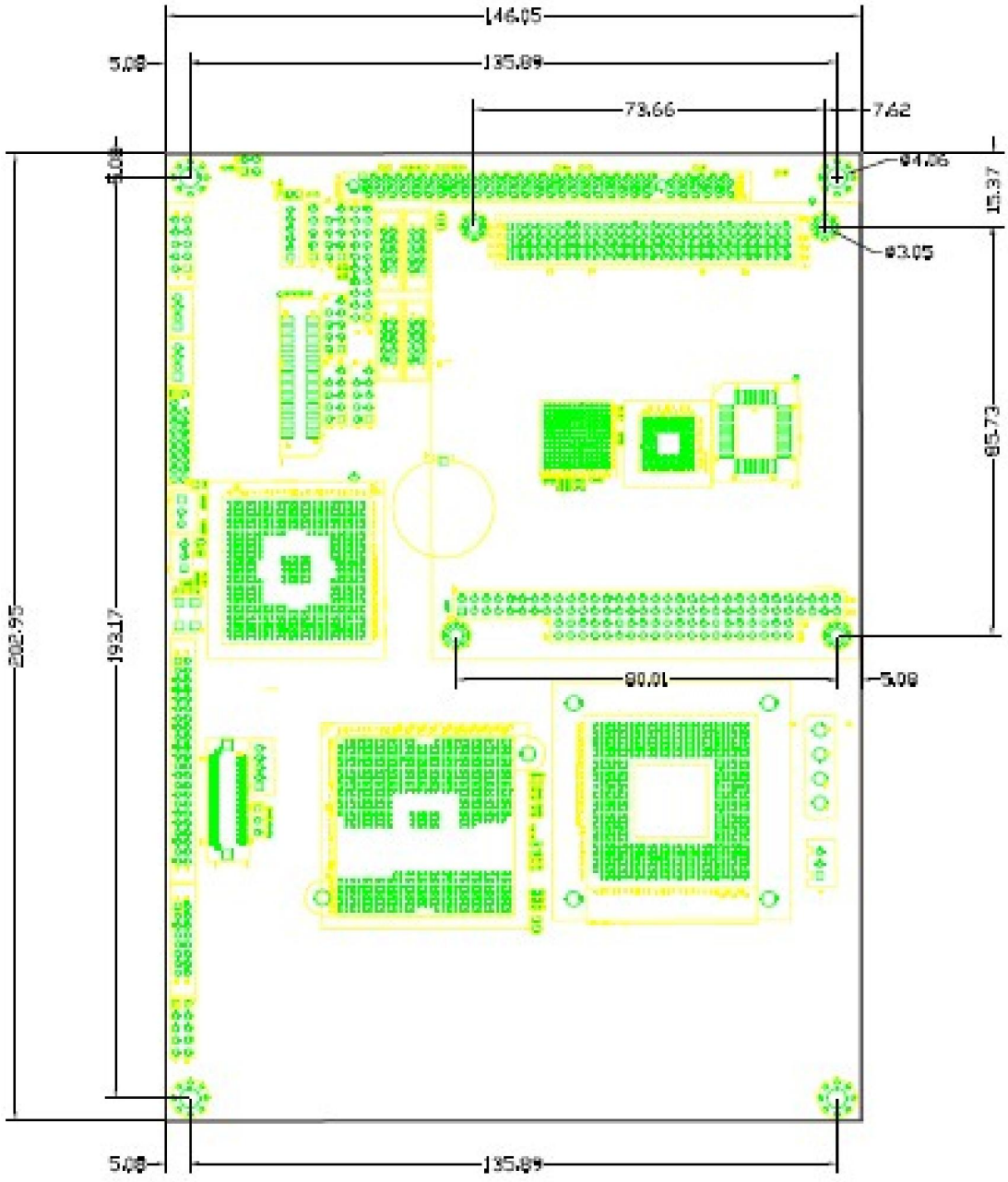
5.25" Intel ULV Celeron M 600MHz Miniboard with CRT/LCD, LAN, Audio, PC/104 & PC/104 Plus and DOC Socket

1.7 Specification

Product Name	**EmCORE-i8527**
Form Factor	5.25" Embedded Board Size (203x146mm)
Processor	Intel Ultra-Low Voltage Celeron-M FSB 400MHz,
	Celeron-M FSB 400MHz,
	Low Voltage Pentium-M FSB 400MHz,
	Pentium-M FSB 400MHz Processor.
Chipset	NB : Intel 852GM SB: Intel ICH4
System Memory	On board DDR RAM 256MB (Optional: 512MB Max)
VGA/LCD Controller	UMA 852GM AGP Video Controller with LVDS and
	CRT support (Support Dual Display, Independent display)
Ethernet	Intel 82551QM 10/100 Base-T Fast Ethernet LAN
I/O Chips	WINBOUND W83627HF
BIOS	Phoenix-Award BIOS version 6.0PG, Support 4MB
	Flash ROM
Audio	AC'97 Codec Version: 2.3 supports MIC-In/ Line-In/
	Line-out; Optional Stereo Amplifier included (ALC655)
IDE Interface	ATA-33 x 1 channel (Support two ATAPI devices)
	Compact Flash Disk X 1 (Support up to 2GB)
Serial Port	Six COM ports:
	COM1,2: RS232/422/485 Selectable
	COM3~6: RS-232 (By FinTek F81216D)
Parallel Port	Parallel Port Supports SPP/ EPP/ ECP mode
K/B and Mouse	Support Standard PS/2 K/B and Mouse
Universal Serial Bus	6 x USB 2.0 Port
Expansion Interface	PCI slot, PC/104 and PC/104-plus
Watchdog Timer Chipset	Integrated in W83627HF, 1~255 Level (sec or min)
Hardware Monitor Chipset	Integrated in W83627HF
RTC	Support Real Time Clock
Power Input Connector	2 x 10 Pin ATX (AT power can be used)
Operation Temp.	0 ~ 60°C

* PCI Slot and PC/104-Plus can not be used at the same time, since they share PCI resource.

1.8 Board Dimensions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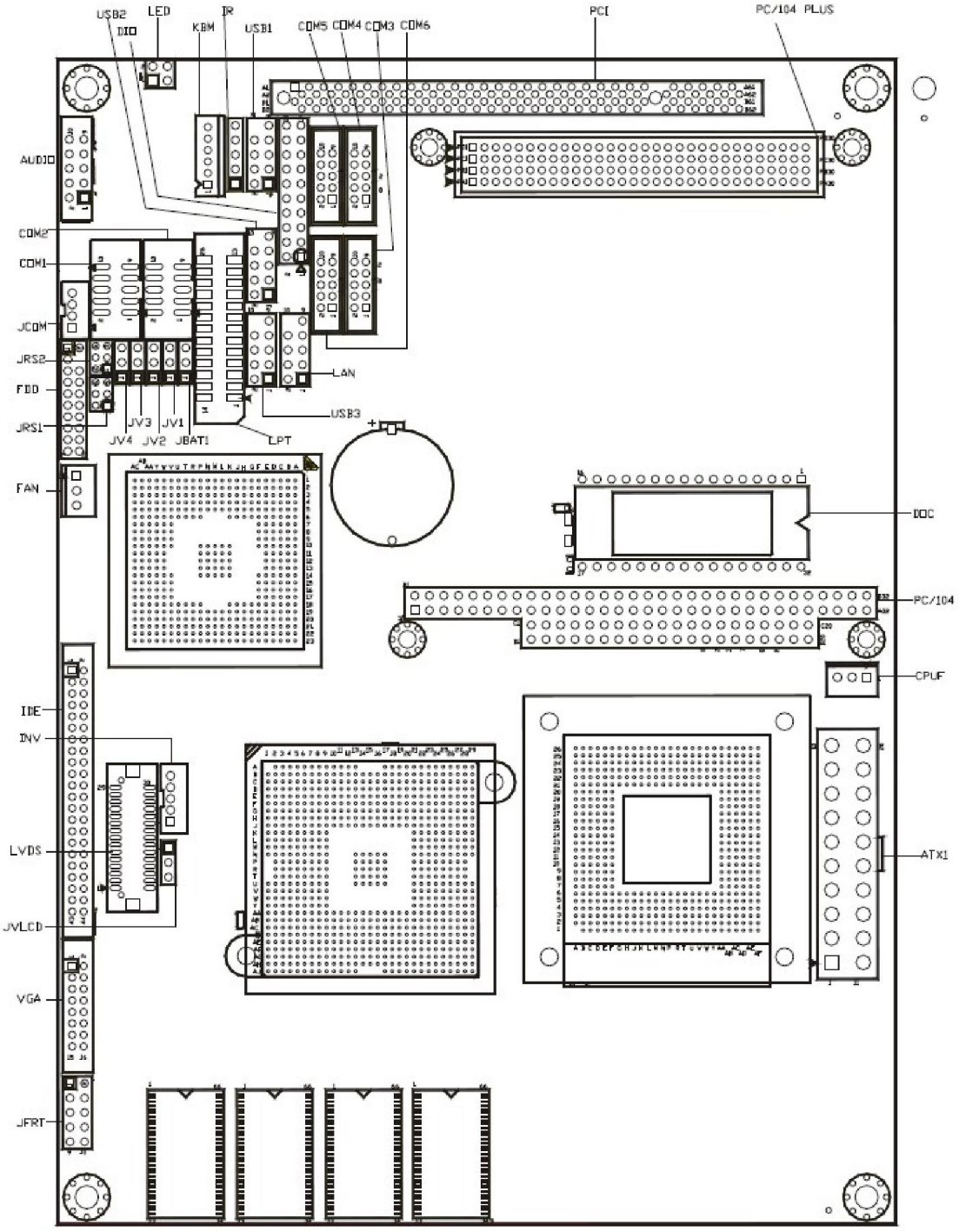
Chapter 2

Installation

2.1 Board layout



2.2 Jumpers and Connectors

Jumpers Setting

Label	Function
JBAT1	CMOS Jumper Settings
	Clear CMOS
JRS1	COM1 RS-232 / 422 / 485 Select
	RS-232/422/485 select
JRS2	COM2 RS-232 / 422 / 485 Select
	RS-232/422/485 select
JV1,JV2,JV3,JV4	COM1 Power Source Special Support
JDOC1	DOC Address select
JVLCD1	LVDS Panel Voltage Selects

CMOS Jumper Settings (JBAT1)

Type: Onboard 3-pin header (JBAT1)

CMOS	JBAT1
Keep CMOS	1-2 ON
Clear CMOS	2-3 ON

Default setting: Keep CMOS

COM1 RS-232 / 422 / 485 Select (JRS1)

Type: Onboard 3-pin header (JCF1)

JRS1 Select	1-2	3-4	5-6
RS-232	ON	OFF	OFF
RS-422	OFF	ON	OFF
RS-485	OFF	OFF	ON

Default setting:RS-232 mode

COM2 RS-232 / 422 / 485 Select (JRS2)

Type: onboard 6-pin (2*3) header

JRS1 Select	1-2	3-4	5-6
RS-232	ON	OFF	OFF
RS-422	OFF	ON	OFF
RS-485	OFF	OFF	ON

Default setting: RS-232 mode

COM1 Power Source Special Support (JV1,JV3)

Type: onboard 2*3-pin header

COM1 Power Source Special Support	JV3	JV1
Standard	1-2	1-2
POS:5V on Pin1	2-3	1-2
POS:12V on Pin9	1-2	2-3
POS:5V on Pin1,12V on Pin9	2-3	2-3

Default setting: Standard

COM2 Power Source Special Support(JV2,JV4)

Type: onboard 2*3-pin header

COM1 Power Source Special Support	JV4	JV2
Standard	1-2	1-2
POS:5V on Pin1	2-3	1-2
POS:12V on Pin9	1-2	2-3
POS:5V on Pin1,12V on Pin9	2-3	2-3

Default setting: Standard

DOC Address Selects(JDOC1)

Type: onboard 4-pin header

Address	JDOC1
D000	1-2
D800	3-4

LVDS Panel Voltage Selects (JVLCD1)

Type: onboard 3-pin header

LCD Voltage	LCD Voltage
5V	3.3V
3.3V	5.0V

Default setting:3.3V

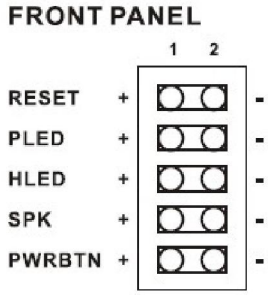
Connectors

Label	Function
JFRT1	Front Panel (Switches and Indicators)
VGA1	CRT Display
IDE1	Primary IDE Connector
LPC1	Low Pin Connector
U50(DOC)	DOC connector
JSMB1	SM BUS
FDD1	Floppy Disk Drive Connector
CPUF1	CPU Fan connector
SYSF1	System Fan connector
COM1	Serial Port 1
COM2	Serial Port 2
JCOM1	RS-422 / 485 Output
JCOM2	RS-422 / 485 Output
KBM1	PS/2 Keyboard and Mouse
LPT1	Parallel Port
USB1	USB 1/2 Connector
USB2	USB 3/4 Connector
USB3	USB 5/6 Connector
TV1	TV OUT Connector
INV1	LCD Inverter Connector
LVDS1	LVDS LCD Panel Connector
TMDS1	DVI Connector
IR1	Infrared (IR) Connector
LAN1	Ethernet Connector
LLED1	LAN LED Connector
AUDIO1	Audio Interface Port
CFD1	Compact Flash Socket
PC104	PC104 for ISA Interface
MPCI1	Mini PCI Slot
CON1	PC104 + Connector
PCI1	PCI Slot
ATX1	ATX Power Connector

JFRT1

Type: onboard 2.54 pitch 10-pin (2*5) header

Pin	Description	Pin	Description
1	RESET +	2	RESET -
3	Power LED+	4	Power LED-
5	HD LED+	6	HD LED-
7	Speak+	8	Speak-
9	PSON+	10	PSON-



Display Connector(VGA1)

Type Onboard 2.0mm 2X8 Pin Box Header

Pin	Description	Pin	Description
1	RED	2	GREEN
3	BLUE	4	N/C
5	GND	6	GND
7	GND	8	GND
9	+5V(Poly S/W)	10	GND
11	N/C	12	VDDAT
13	HSYNC	14	VSYNC
15	VDCLK	16	N/C

Enhanced IDE Connector(IDE1)

Type onboard 44-pin 2.0mm box headers

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 RWITE	24	GND
25	IO READ	26	GND
27	IO READY	28	IDESEL
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	+5V	42	+5V
43	GND	44	NC

LOW PIN CONNECTOR (LPC1)

Type onboard 2*10pin 2.0mm PIN headers

Pin	Description	Pin	Description
1	VCC	2	VCC
3	#LDRQ1	4	GND
5	SERIRQ	6	LAD3
7	LAD2	8	LAD2
9	LAD0	10	LAD1
11	#PCIRST	12	GND
13	SMBDATA	14	PCLK
15	GND	16	SMBCLK
17	48MHZ	18	#LPC_PME
19	VCC3	20	VCC3

DOC CONNECTOR (DOC1)

Type onboard 2*10pin 2.0mm PIN headers

Pin	Description	Pin	Description
1	NC	32	VCC
2	SA16	31	#SMEMW
3	SA15	30	VCC
4	SA12	29	SA14
5	SA7	28	SA18
6	SA6	27	SA8
7	SA5	26	SA9
8	SA4	25	SA11
9	SA3	24	#SMEMR
10	SA2	23	SA10
11	SA1	22	#CE
12	SA0	21	SD7
13	SD0	20	SD6
14	SD1	19	SD5
15	SD2	18	SD4
16	GND	17	SD3

External SMBus Connector (SMBUS1)

Type: onboard 2.54pitch 3-pin wafer

Pin	Description
1	DATA
2	CLK
3	GND

Floppy Disk Drive Connector (FDD1)

Type: onboard standard 2.00pitch 34-pin (2*17) holes

Pin	Description	Pin	Description
1	GND	2	#RWC
3	GND	4	N.C
5	GND	6	#DS1
7	#WD	8	#INDEX
9	#WE	10	#MOA
11	#TRAK0	12	#DSB
13	#WP	14	#DSA
15	#RDATA	16	#MOB
17	#HEAD	18	#DIR
19	#DSKCHG	20	#STEP

FAN Connector (CPUF1)

Type: onboard 3-pin wafer connector

Pin	Description
1	GND
2	+12V
3	Fan_Detect

FAN Connector (SYSF1)

Type: onboard 3-pin wafer connector

Pin	Description
1	GND
2	+12V
3	Fan_Detect

RS-232 Serial Port (COM1)

Type: onboard 2X5-BOX HEADER(2.0mm)

Pin	Description	Pin	Description
1	DCDA	2	SINA
3	SOUTA	4	DTRA
5	GND	6	DSRA
7	RTSA	8	CTSA
9	RI A	10	NC

RS-232 Serial Port (COM2)

Type: onboard 2X5BOX HEADER(2.0mm)

Pin	Description	Pin	Description
1	DCDB	2	SINB
3	SOUTB	4	DTRB
5	GND	6	DSRB
7	RTSB	8	CTSB
9	RI B	10	NC

RS422/485 Output Connector (JCOM1)

Type: onboard 2.0pitch 4-pin header

Pin	RS-422	RS-485
1	TX+	DATA+
2	TX-	DATA-
3	RX+	N.C
4	RX-	N.C

RS-422/RS-485 Select by JRS1, share COM1 resource.

RS422/485 Output Connector (JCOM2)

Type: onboard 2.0pitch 4-pin header

Pin	RS-422	RS-485
1	TX+	DATA+
2	TX-	DATA-
3	RX+	N.C
4	RX-	N.C

RS-422/RS-485 Select by JRS2, share COM2 resource.

PS/2 Keyboard & Mouse Connector (KBM1)

Type: One onboard 2x4pin Header

Pin	Description
1	KB_DAT
2	GND
3	MS_DAT
4	KB_CLK
5	VCC
6	MS_CLK

Parallel Port (LPT1)

Type: onboard 2X13BOX HEADER(2.0mm)

Pin	Description	Pin	Description
1	#STB	2	#AFD
3	PD0	4	#ERR
5	PD1	6	#INIT
7	PD2	8	#SLIN
9	PD3	10	GND
11	PD4	12	GND
13	PD5	14	NC
15	PD6	16	BUSY
17	PD7	18	PE
19	#ACK	20	SLCT

USB Connector (USB1)

Type: onboard 2.54pitch 10-pin header for two USB ports

Pin	Description	Pin	Description
1	+5V	1	+5V
3	USBD0-	3	USBD0-
5	USBD0+	5	USBD0+
7	GND	7	GND
9	GND	9	GND

USB Connector (USB2)

Type: onboard 2.54pitch 10-pin header for two USB ports

Pin	Description	Pin	Description
1	+5V	1	+5V
3	USBD2-	3	USBD3-
5	USBD2+	5	USBD3+
7	GND	7	GND
9	GND	9	N.C

USB Connector (USB3)

Type: onboard 2.54pitch 10-pin header for two USB ports

Pin	Description	Pin	Description
1	+5V	1	+5V
3	USBD4-	3	USBD5-
5	USBD4+	5	USBD5+
7	GND	7	GND
9	GND	9	N.C

LVDS Panel Inverter Connector (INV1)

Type: onboard 2.0pitch 5-pin wafer

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

LVDS LCD Connector (LVDS1)

Type: onboard DF13 30-pin header

Pin	Description	Pin	Description
1	VDD	2	VDD
3	TX1CLK+	4	TX2CLK+
5	TX1CLK-	6	TX2CLK-
7	GND	8	GND
9	TX1D0+	10	TX2D0+
11	TX1D0-	12	TX2D0-
13	GND	14	GND
15	TX1D1+	16	TX2D1+
17	TX1D1-	18	TX2D1-
19	GND	20	GND
21	TX1D2+	22	TX2D2+
23	TX1D2-	24	TX2D2-
25	GND	26	GND
27	TX1D3+	28	TX2D3+
29	TX1D3-	30	TX2D3-

VDD could be selected by JVLCD1 in +5V or +3.3V

DVI CONNECTOR (TMSDS1)

Type: onboard DF13 20-pin header

Pin	Description	Pin	Description
1	DVI_VCC	2	DVI_VCC
3	TX0P	4	TXCP
5	TX0M	6	TXCM
7	GND	8	GND
9	TX1P	10	5VDDCCLK
11	TX1M	12	5VDDCDATA
13	GND	14	GND
15	TX2P	16	DVI_HPD
17	TX2M	18	NC
19	GND	20	NC

Infrared (IR) Connector (IR1)

Type: onboard 2.54pitch 5-pin header

Pin	Description
1	+5V
2	N.C
3	IRRX
4	GND
5	IRTX

Fast Ethernet Connector (LAN1)

Type: onboard 2.54pitch 10-pin header

Pin	Description	Pin	Description
1	TX+	2	TX-
3	RX+	4	D2+
5	D2-	6	RX-
7	D3+	8	D3-
9	LAN_GND	10	Key

LAN LED Indicator (LLED1)

Type :onboard 1*4pin 2mm header

Pin	Description
1	ACT-
2	ACT+
3	LILED-
4	LILED+

Audio Port (Audio1):

Audio Interface Port

Type: onboard 2*5pin 2.0mm BOX header

Pin	Description	Pin	Description
1	GND	2	Line Right in
3	Line Left in	4	MIC1
5	GND	6	MIC2
7	NC	8	LOUT_L
9	GND	10	LOUT_R

Power Connector (ATX1)

Type : onboard 2*10-pin connector

Pin	Description	Pin	Description
1	NC	11	NC
2	NC	12	-12V
3	GND	13	GND
4	VCC	14	PSON#
5	GND	15	GND
6	VCC	16	GND
7	GND	17	GND
8	NC	18	-5V
9	5VSB	19	VCC
10	+12V	20	VCC

Compact Flash Connector (CFD1)

Pin	Description	Pin	Description
1	GND	26	GND
2	DATA3	27	DATA11
3	DATA4	28	DATA12
4	DATA5	29	DATA13
5	DATA6	30	DATA14
6	DATA7	31	DATA15
7	CS#1	32	CS#3
8	GND	33	GND
9	GND	34	IO READ
10	GND	35	IO WRITE
11	GND	36	+5V
12	GND	37	IRQ15
13	+5V	38	+5V
14	GND	39	CSEL
15	GND	40	N/C
16	GND	41	IDE RESET
17	GND	42	IO READY
18	ADDR2	43	N/C
19	ADDR1	44	+5V
20	ADDR0	45	DASP
21	DATA0	46	DIAG
22	DATA1	47	DATA8
23	DATA2	48	DATA9
24	N/C	49	DATA10
25	GND	50	GND