

EmCORE-i77M3

3.5" Compact Board Quick Installation Guide

Version 1.2

| | | |
|---|---|---|
| Form Factor <i>3.5" Compact Board</i> | CPU <i>Intel® Core™ i7-3517UE Processor</i> | Chipset <i>Intel® PCH QM77</i> |
| Video <i>Dual Channel 24-bit LVDS</i> | LAN <i>1 x Intel® 82579LM PCIe PHY with iAMT support, 1 x Intel® 82583V PCIe GbE controller</i> | Audio <i>Realtek ALC662 HD Audio CODEC, MIC-in/ Line-out/ Line-in</i> |
| I/O <i>CFast/ SATA/ USB/ COM/ micro SIM</i> | | |

◆ Technical Support

If you have any technical difficulties, please consult the user's manual first at:
<ftp://ftp.arbor.com.tw/pub/manual>

Contact our customer service at the following addresses if your problem persists.
<http://www.arbor.com.tw>
E-mail: info@arbor.com.tw

◆ Declaration of Conformity

FCC Class A

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions : (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.



Packing List

Before starting with the installation, make sure the following items are shipped:



1 x EmCORE-i77M3 3.5" Compact Board with cooler



1 x Driver CD



1 x Quick Installation Guide

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

Ordering Information

| | |
|-----------------------|--|
| EmCORE-i77M3 | 3.5" Intel® Core™ i7-3517UE Compact Board |
| CBK-06-77M3-00 | Cable Kit 1 x SATA cable 1 x SATA power cable 2 x USB dual port cables 1 x Audio cable 1 x COM port cable |

Find Device Drivers on CD

Windows XP

| Device | Driver Path |
|-------------------|---|
| Chipset | \EasyBoard-882E\Chipset_INF |
| VGA | \EasyBoard-882E\Graphic\32\WinXP_32_V6.14.10.5415 \EasyBoard-882E\Graphic\64\WinXP_64_V6.14.10.5415 |
| LAN | \EasyBoard-882E\Ethernet\32\WinXP \EasyBoard-882E\Ethernet\64\WinXP |
| Audio | \EasyBoard-882E\Audio\WinXP_32_64 |
| Management Engine | \EasyBoard-882E\ME\ME_8.0.20.1513 \EasyBoard-882E\RAID\WinXP |
| RAID | \EasyBoard-882E\RAID\32\Intel_RST_F6_floppy_Installer_WinXP_v11.1.0.1006 \EasyBoard-882E\RAID\64\Intel_RST_F6_floppy_Installer_WinXP_64_v11.1.0.1006 |
| .Net Framwork | \EasyBoard-882E\Framework 3.5 |

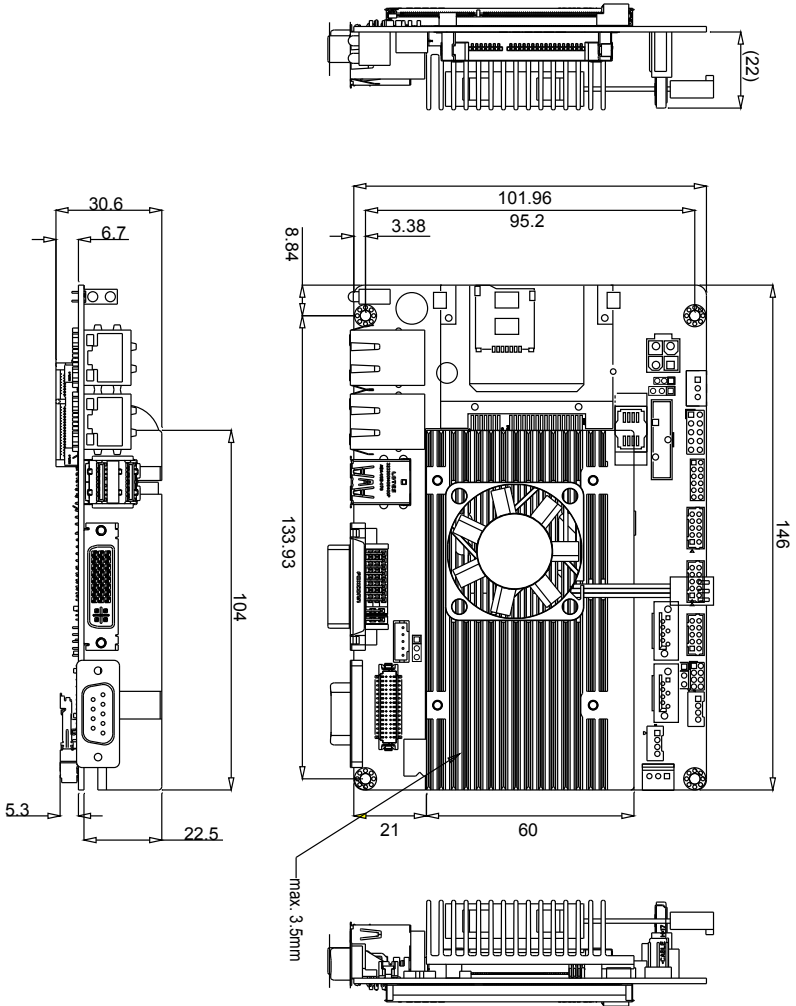
Windows 7

| Device | Driver Path |
|-------------------|--|
| Chipset | \EasyBoard-882E\Chipset_INF |
| VGA | \EasyBoard-882E\Graphic\32\Win7_Win8_V15.31.3.64.3071 \EasyBoard-882E\Graphic\64\Win7_Win8_V15.31.3.64.3071 |
| LAN | \EasyBoard-882E\Ethernet\32\Win7_WIN8 \EasyBoard-882E\Ethernet\64\Win7_Win8 |
| Audio | \EasyBoard-882E\Audio\Win7_Win8\32 \EasyBoard-882E\Audio\Win7_Win8\64 |
| Management Engine | \EasyBoard-882E\ME\ME_8.0.20.1513 |
| Intel Turbo | \EasyBoard-882E\Turbo Boost |
| USB3.0 | \EasyBoard-882E\USB3.0\Intel(R)_USB_3.0_win7_32_64_Driver_V1.0.5.235 |

Windows 8

| Device | Driver Path |
|-------------------|--|
| Chipset | \EasyBoard-882E\Chipset_INF |
| VGA | \EasyBoard-882E\Graphic\32\Win7_Win8_V15.31.3.64.3071 \EasyBoard-882E\Graphic\64\Win7_Win8_V15.31.3.64.3071 |
| LAN | \EasyBoard-882E\Ethernet\32\Win7_WIN8 \EasyBoard-882E\Ethernet\64\Win7_Win8 |
| Audio | \EasyBoard-882E\Audio\Win7_Win8\32 \EasyBoard-882E\Audio\Win7_Win8\64 |
| Management Engine | \EasyBoard-882E\ME\ME_8.0.20.1513 |
| Intel Turbo | \EasyBoard-882E\Turbo Boost |

Board Dimensions



Unit: mm

Specifications

| | | |
|-----------------------------|---|---|
| Form Factor | 3.5" Compact Board | |
| CPU | Soldered onboard Intel® Core™ i7-3517UE 1.7 GHz processor | |
| Chipset | Intel® PCH QM77 | |
| System Memory | 1 x 204-pin SO-DIMM socket, supporting up to 8GB 1333/1600MT/s DDR3 SDRAM | |
| Graphics Chipset | Integrated Intel® HD Graphics 4000 | |
| Graphics Interface | DVI-I: | Analog RGB support up to 2048 x 1536 @60Hz or TMDS support up to 1920 x 1200 via Chronitel CH7318 |
| | LCD: | Dual-channel 24-bit LVDS |
| | Dual independent displays support | |
| Ethernet | 1 x Intel® 82579LM PCIe GbE PHY with iAMT support | |
| | 1 x Intel® 82583V PCIe GbE controller | |
| Super IO Chipset | Fintek F71869ED | |
| BIOS | AMI® PnP Flash BIOS | |
| Audio | Realtek ALC662 HD Audio CODEC, MIC-in/ Line-out/Line-in | |
| Storage | 2 x Serial ATA ports with 600MB/s HDD transfer rate | |
| | 1 x CFast socket | |
| Serial Port | 2 x COM ports (1 x RS-232 port, 1 x RS-232/422/485 port selectable) | |
| Universal Serial Bus | 4 x USB 2.0 ports | |
| | 2 x USB 3.0 ports | |
| Expansion Bus | 1 x Mini-card socket | |
| | 1 x micro SIM socket | |
| Power Requirement | +12V DC | |
| Power Consumption | 3A@+12V (typical) | |
| Operating Temp. | -20°C ~ 70°C (-4°F ~ 158°F) | |
| Operating Humidity | 10% ~ 95% @ 70°C (non-condensing) | |
| Watchdog Timer | 1~255 levels reset | |
| Dimension (L x W) | 146 x 102 mm (5.7" x 4.0") | |

Jumpers & Connectors Quick Reference

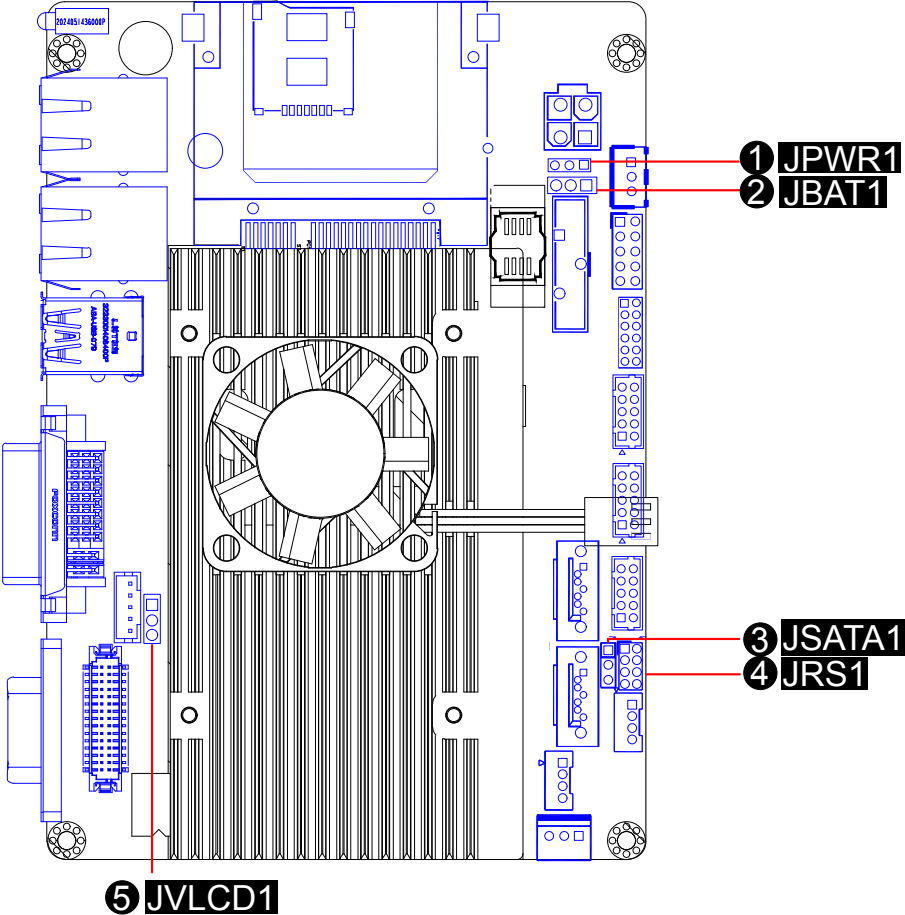
Jumpers

| Jumper | Description |
|---------------|---|
| JBAT1 | Clears/keeps CMOS setting. |
| JPWR1 | Sets power mode between AT and ATX. |
| JSATA1 | Sets the power for SATA1 pin 7. |
| JRS1 | Sets the data transmitting signals for COM2 between RS232, RS422 and RS485. |
| JVLCD1 | Sets the power voltage for LVDS1 LCD. |

Connectors

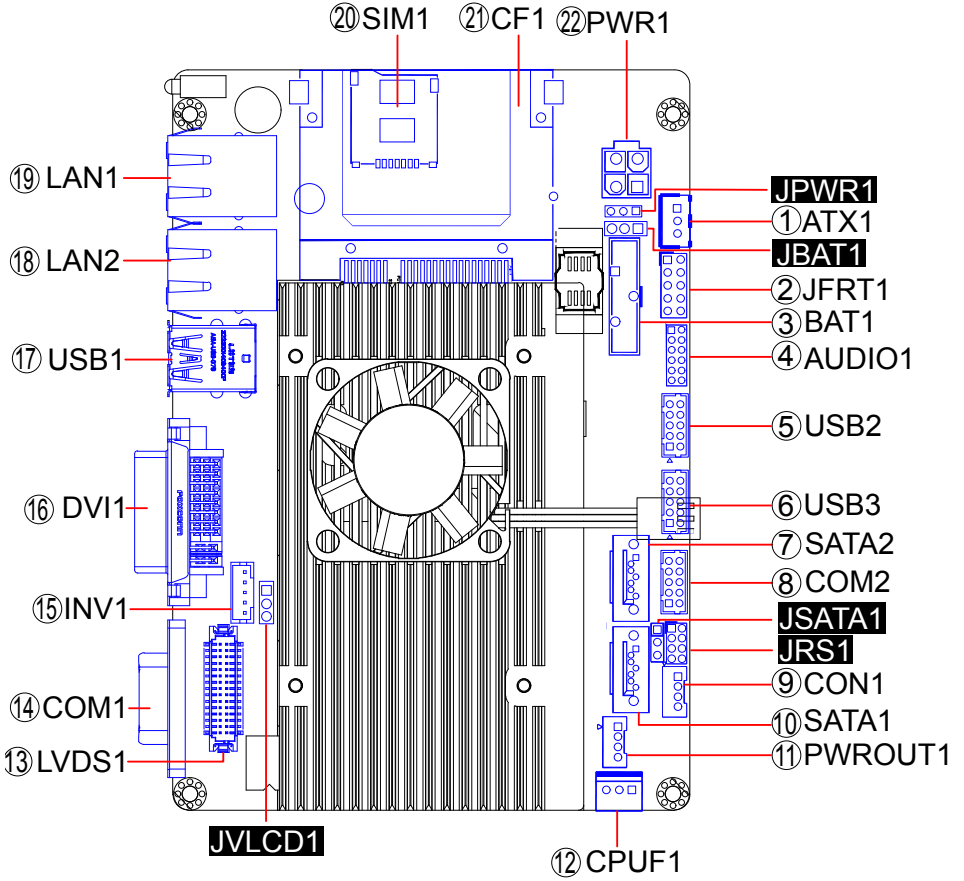
| Connector | Description |
|----------------|--|
| ATX1 | Connector for ATX feature |
| JFRT1 | Provides connectors LED lights to signify system status and toggle switches to enable/disable system feature(s) that are presented on the front panel. |
| BAT1 | RTC battery holder |
| AUDIO1 | Audio connector |
| USB2,3 | USB port connectors |
| SATA1,2 | Serial ATA connectors |
| COM1 | Serial port |
| COM2 | Serial port connector |
| CON1 | Connector for RS422/485 output |
| PWROUT1 | SATA Power Connector |
| CPUF1 | Power connector for CPU fan |
| LVDS1 | LVDS LCD panel connector |
| INV1 | LCD inverter connector |
| DVI1 | DVI-I display connector |
| USB1 | Doubled-stacked USB 3.0 ports |
| LAN1,2 | Gigabit Ethernet ports |
| SIM1 | Micro SIM card socket |
| CF1 | CFast socket |
| PWR1 | ATX +12V power connector |
| MC1 | Mini-card socket (at board bottom) |
| DIMM1 | DDR3 SO-DIMM socket (at board bottom) |

Jumper Locations

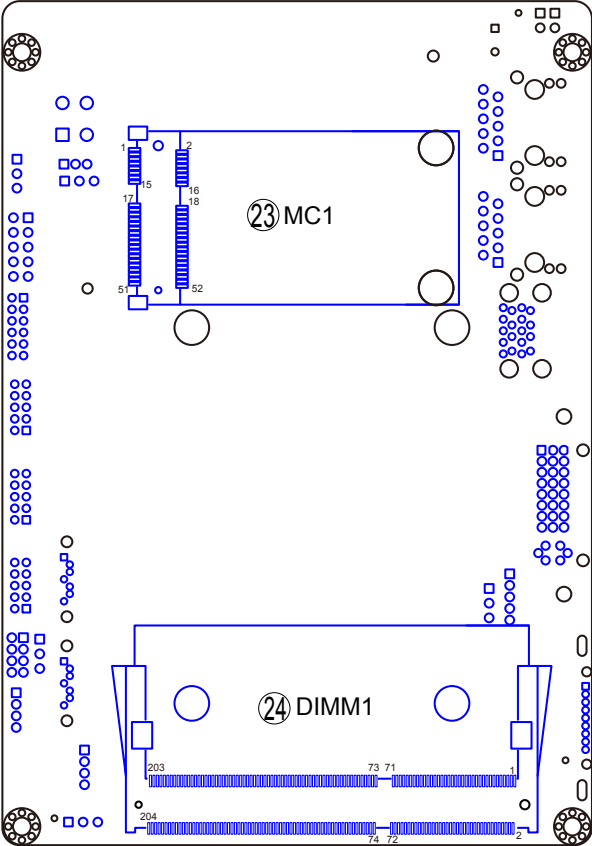


Connector Locations

Board Top





Board Bottom



Jumpers



① JPWR1: Sets the power mode between AT and ATX.

Jumper type: 2.00 mm pitch 1x3-pin header

| Pin | Description | |
|-----|--------------------|---|
| 1-2 | ATX mode (default) |  |
| 2-3 | AT mode |  |



② JBAT1: Clears/keeps CMOS

Jumper type: 2.54 mm pitch 1x3-pin header

| Pin | Description | |
|-----|----------------------|---|
| 1-2 | Keeps CMOS (default) |  |
| 2-3 | Clears CMOS |  |

③ JSATA1: Sets the power for SATA1 pin 7.

Jumper type: 2.54mm pitch 1x3-pin header

| Pin | Description | |
|-----|---------------|---|
| 1-2 | +5V |  |
| 2-3 | GND (default) |  |

④ JRS1: Configures COM2 data transmitting signals.



Jumper type: 2.00mm pitch 2x4-pin header

| Signal Pin | RS232 (default) | RS422 | RS485 | |
|---------------|--------------------|-------|-----------------------|----------------------|
| | | | Auto-flow Disabled | Auto-flow Enabled |
| 1-2 | Short | Open | Open | Open |
| 3-4 | Open | Short | Open | Open |
| 5-6 | Open | Open | Short | Short |
| 7-8 | Short | Open | Short | Open |



⑤ JVLCD1: Sets the power voltage for LVDS1 LCD.

Jumper type: 2.54mm pitch 1x3-pin header

| Pin | Description | |
|-----|-----------------|---|
| 1-2 | +5V |  |
| 2-3 | +3.3V (default) |  |

Connectors

① ATX1: Connector for ATX feature

Connector type: 2.54 mm pitch 1x3-pin box wafer connector

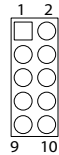
| Pin | Description |
|-----|-------------|
| 1 | PS-ON |
| 2 | GND |
| 3 | 5V_SB |



② JFRT1: Provides connectors to front-panel status LED and toggles.

Connector type: 2.54mm pitch 2x5-pin header

| Pin | Description | Pin | Description |
|-----|-------------|-----|-------------|
| 1 | RESET+ | 2 | RESET- |
| 3 | PLED+ | 4 | PLED- |
| 5 | HLED+ | 6 | HLED- |
| 7 | SPEAK+ | 8 | SPEAK- |
| 9 | PS-ON+ | 10 | PS-ON- |



③ BAT1: RTC battery holder

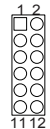
| Pin | Description |
|-----|---------------|
| 1 | Battery power |
| 2 | GND |
| 3 | Battery power |



④ AUDIO1: Audio connector

Connector type: 2.00mm pitch 2x6-pin header

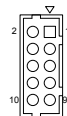
| Pin | Description | Pin | Description |
|-----|-------------|-----|-------------|
| 1 | LINE-L | 2 | LINE-R |
| 3 | LINE_JD | 4 | AGND |
| 5 | MIC1L | 6 | MIC1R |
| 7 | MIC1_JD | 8 | AGND |
| 9 | LOUT-L | 10 | LOUT-R |
| 11 | LOUT-JD | 12 | AGND |



⑤ ⑥ USB2,3: USB port connectors

Connector type: 2.00mm pitch 2x5-pin wafer connector

| Pin | Description | Pin | Description |
|-----|-------------|-----|-------------|
| 2 | +5V | 1 | +5V |
| 4 | USB3/5- | 3 | USB2/4- |
| 6 | USB3/5+ | 5 | USB2/4+ |
| 8 | GND | 7 | GND |
| 10 | N/C | 9 | N/C |



⑩⑦ SATA1,2: Serial ATA connectors

High speed transfer rates (600MB/s).
* Pin 7 can be set to +5V by JSATA1.

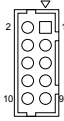
| Pin | Description | Pin | Description |
|-----|------------------------|-----|-------------|
| 1 | GND | 2 | TX+ |
| 3 | TX- | 4 | GND |
| 5 | RX- | 6 | RX+ |
| 7 | GND / +5V (SATA1 only) | | |



⑧ COM2: Serial port connector

Connector type: 2.00mm pitch 2x5-pin wafer connector

| Pin | Description | Pin | Description |
|-----|-------------|-----|-------------|
| 2 | RXD2 | 1 | DCD#2 |
| 4 | DTR#2 | 3 | TXD2 |
| 6 | DSR#2 | 5 | GND |
| 8 | CTS#2 | 7 | RTS#2 |
| 10 | NC | 9 | RI2 |



⑨ CON1: Connector for RS422/485 output

Connector type: 2.00mm-pitch 1x4-pin box wafer connector

| Pin | RS422 | RS485 |
|-----|--------|-------|
| 1 | 422TX+ | DATA+ |
| 2 | 422TX- | DATA- |
| 3 | 422RX+ | NC |
| 4 | 422RX- | NC |



⑪ PWROUT1: SATA power connector

Connector type: 2.00mm pitch 1x4-pin wafer connector

| Pin | Description |
|-----|-------------|
| 1 | 5V |
| 2 | GND |
| 3 | GND |
| 4 | 12V |



⑫ CPUF1: CPU fan power connector

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

| Pin | Description |
|-----|-------------|
| 1 | GND |
| 2 | +12V |
| 3 | Fan_Detect |



⑬ LVDS1: LVDS LCD panel connector

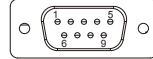
Connector type: ACES 1.25mm 87209-3040-06 connector that supports 24-bit dual channels.

| Pin | Description | Pin | Description |
|-----|-------------|-----|-------------|
| 2 | VDD | 1 | VDD |
| 4 | TX2_CLK+ | 3 | TX1_CLK+ |
| 6 | TX2_CLK- | 5 | TX1_CLK- |
| 8 | GND | 7 | GND |
| 10 | TX2_D0+ | 9 | TX1_D0+ |
| 12 | TX2_D0- | 11 | TX1_D0- |
| 14 | GND | 13 | GND |
| 16 | TX2_D1+ | 15 | TX1_D1+ |
| 18 | TX2_D1- | 17 | TX1_D1- |
| 20 | GND | 19 | GND |
| 22 | TX2_D2+ | 21 | TX1_D2+ |
| 24 | TX2_D2- | 23 | TX1_D2- |
| 26 | GND | 25 | GND |
| 28 | TX2_D3+ | 27 | TX1_D3+ |
| 30 | TX2_D3- | 29 | TX1_D3- |



⑭ COM1: Serial port

Connector type: External 9-pin D-sub male connector



⑮ INV1: LCD inverter connector

Connector type: 2.00mm pitch 1x5-pin box wafer connector

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



⑯ DVI1: DVI-I display connector

| Pin | Description | Pin | Description | Pin | Description |
|-----|---------------------|-----|---------------------|-----|------------------|
| 1 | DATA2- | 13 | DATA3+ (LINK 1, NC) | 1 | VGA Red |
| 2 | DATA2+ | 14 | +5V | 2 | VGA Green |
| 3 | DATA2/4 SHIELD | 15 | GND (for +5V) | 3 | VGA Blue |
| 4 | DATA4- (LINK 1, NC) | 16 | Hot Plug Detect | 4 | VGA_H_Sync |
| 5 | DATA4+ (LINK 1, NC) | 17 | DATA0- | 5 | VGA_R,G,B_Return |
| 6 | DDC_CLK | 18 | DATA0+ | | |
| 7 | DDC_DATA | 19 | DATA0/5 SHIELD | | |
| 8 | VGA_V_Sync | 20 | DATA5- (LINK 1, NC) | | |
| 9 | DATA1- | 21 | DATA5+ (LINK 1, NC) | | |
| 10 | DATA1+ | 22 | Clock_SHIELD | | |
| 11 | DATA1/3 SHIELD | 23 | Clock+ | | |
| 12 | DATA3- (LINK 1, NC) | 24 | Clock- | | |

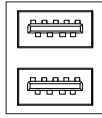


Note:
Signals are set to CRT by default.

⑰ USB1: Double-stacked USB ports

Connector type: Two SuperSpeed type-A USB 3.0 connectors

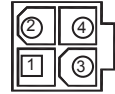
The pin assignments conform to the industry standard.



⑳ PWR1: Supplies ATX +12V (Vcore)

Connector type: 4-pin power connector

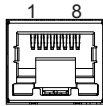
| Pin | Description | Pin | Description |
|-----|-------------|-----|-------------|
| 2 | GND | 4 | +12V |
| 1 | GND | 3 | +12V |



⑱ LAN1,2: Gigabit Ethernet ports

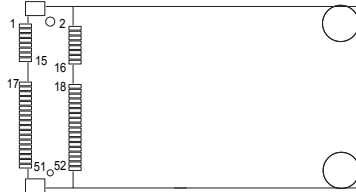
Connector type: RJ-45 connector that supports 10/100/1000Mbps fast Ethernet

| Pin | Description | Pin | Description |
|-----|-------------|-----|-------------|
| 1 | MDI0 | 2 | MDI0# |
| 3 | MDI1 | 4 | MDI1# |
| 5 | MDI2 | 6 | MDI2# |
| 7 | MDI3 | 8 | MDI3# |



㉓ MC1: Mini-card socket

Connector type: Onboard 0.8mm-pitch 52-pin edge card connector interconnected with SIM card socket



㉔ SIM1: Micro SIM card socket

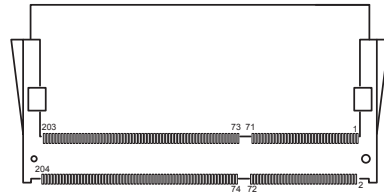
Connector type: REGO 80440GIH-061T-120L socket

| Pin | Description | Pin | Description |
|-----|-------------|-----|-------------|
| C1 | VCC | C2 | RST |
| C3 | CLK | C5 | GND |
| C6 | VPP | C7 | I/O |

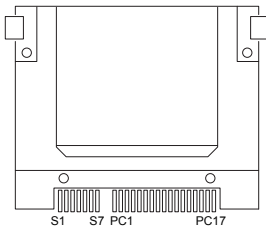


㉕ DIMM1: DDR3 SO-DIMM socket

Connector type: Standard 204-pin DDR3 SODIMM socket



㉖ CF1: CFast socket



| Pin | Desc. | Pin | Desc. | Pin | Desc. |
|-----|-------|-----|-------|------|-------|
| S1 | SGND1 | PC2 | GND | PC10 | IO1 |
| S2 | TXP | PC3 | TBD | PC11 | IO2 |
| S3 | TXN | PC4 | TBD | PC12 | IO3 |
| S4 | SGND2 | PC5 | TBD | PC13 | 3.3V |
| S5 | RXN | PC6 | TBD | PC14 | 3.3V |
| S6 | RXP | PC7 | GND | PC15 | GND |
| S7 | SGND | PC8 | LED1 | PC16 | GND |
| PC1 | CDI | PC9 | LED2 | PC17 | CD0 |