



integration with integrity

2807660 User's Manual
Mini-ITX Motherboard
Version 1.0

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Safety Instructions

Integrated circuits on computer boards are sensitive to static electricity. To avoid damaging chips from electrostatic discharge, observe the following precautions:

- Do not remove boards or integrated circuits from their anti-static packaging until you are ready to install them.
- Before handling a board or integrated circuit, touch an unpainted portion of the system unit chassis for a few seconds. This helps to discharge any static electricity on your body.
- Wear a wrist-grounding strap, available from most electronic component stores, when handling boards and components. Fasten the ALLIGATOR clip of the strap to the end of the shielded wire lead from a grounded object. Please wear and connect the strap before handle the product to ensure harmlessly discharge any static electricity through the strap.
- Please use an anti-static pad when putting down any components or parts or tools outside the computer. You may also use an anti-static bag instead of the pad. Please inquire from your local supplier for additional assistance in finding the necessary anti-static gadgets.

NOTE: *DO NOT TOUCH THE BOARD OR ANY OTHER SENSITIVE COMPONENTS WITHOUT ALL NECESSARY ANTI-STATIC PROTECTIONS.*

Chapter 1

General Description



The 2807660 series all-in-one mini ITX is designed to fit a high performance Pentium® M based processor and compatible for high-end computer system application with PCI bus architecture. It is made to meet today's demanding pace, and keep complete compatibility with hardware and software designed for the IBM PC/AT. The onboard devices support one PCI slot, integrated graphics, and onboard three Marvell Gigabit Ethernet controllers. It's beneficial to build up a high performance and high data availability system for VARs, or system integrators.

2807660 series support the following processors: Intel® uFC-PGA 478 Pentium® M/Celeron® M processor FSB 400/533MHz with 0.90 and 0.13 micron technology.

This mini ITX can run with Intel® socket 479 Pentium®/Celeron® M processors and support DIMM up to 2GB dual-channel DDR2 533 memory. The enhanced onboard one PCI-IDE interface can support 1 drive up to PIO mode 4 timing and Ultra ATA 33/66/100 synchronous mode feature, one CF socket interface, and 2 serial ATA high-speed data transfers at up to 150MB/s connectors. The onboard super I/O chipset supports two serial ports, one SIR(Serial Infrared) port, two high performance 16C550-compatible UARTs provide 16-byte send/receive FIFOs, and two RS-232 serial port interfaces. Besides, H/W monitor function, Intel® High Definition Audio as 5.1 surround sound, six Hi-Speed USB2.0 ports offering up to 40X greater bandwidth over USB1.1. Also provide dual display function by VGA and DVI, by VGA, and LVDS interface.

The mini ITX standard makes the 2807660 series work with the one slot PCI and one 6-pin Mini DIN connector for PS/2 mouse and keyboard. The onboard Flash ROM is used to make the BIOS update easier. The high precision Real Time Clock/calendar is built to support Y2K for accurate scheduling and storing configuration information. One 20-pin standard connector is designed to support ATX power function. A feature of CPU overheat protection will give user more security and stability. All of these features make 2807660 series excellent in stand-alone applications.

NOTE:

- *The 2807660 series only support Intel® Pentium®/Celeron® M processor (Dothan 400/533 FSB) for 0.13 and 0.90 micron.*
- *The 2807660 series only support DDR2 533 memory module*

1.1 Major Features

The 2807660 comes with the following features:

- Intel® Pentium® M/Celeron® M processor
- Two DDRII sockets with a max. capacity of 2GB
- Intel® 915GM GMCH/ICH6-M chipset
- Winbond W83627THG super I/O chipset
- Intel® 915GM graphics controller
- 18-bit/36-bit LVDS Panel interface
- Three 10/100/1000 Ethernet controller
- AC97 5.1CH audio controller
- Intel® ICH6-M SATA controller
- Fast PCI ATA/33/66/100 IDE controller
- CF, 8-bit I/O, 2 COM, 6 USB2.0
- Hardware Monitor function

1.2 Specifications

- **CPU:** Intel® Pentium® M/Celeron® M processor
- **Front Side Bus:** 400/533MHz FSB
- **Memory:** Two DDRII sockets supports up to 2GB
- **Chipset:** Intel® 915GM MCH/ICH6-M
- **I/O Chipset:** Winbond W83627THG
- **CompactFlash:** Type I/II IDE interface adapter x 1
- **PCI Slot:** Standard PCI slot x 1
- **8-bit I/O:** 8-bit input/output (parallel port)
- **VGA:** Intel® 915GM for CRT or optional CHRONTEL 7307 for DVI display, supports up to 2048 x 1536 @ 75Hz

-
- **LVDS Panel:** Supports 18-bit single channel/36-bit dual channel LVDS interface
 - **Ethernet:** Three 10/100/1000 Based LAN
 - **Audio:** AC97 5.1CH audio controller
 - **Serial ATA:** Intel® ICH6-M controller and with 2 ports
 - **IDE:** One 2.54-pitch 40-pin IDE connector
 - **Serial Port:** 16C550 UART-compatible RS-232 x 2 serial ports with 16-byte FIFO
 - **USB:** 6 USB ports, internal x 4 and external x 2
 - **Keyboard:** PS/2 6-pin Mini DIN
 - **Mouse:** PS/2 6-pin Mini DIN
 - **BIOS:** Award PnP Flash BIOS
 - **Watchdog Timer:** Software programmable time-out intervals from 1~255 sec.
 - **CMOS:** Battery backup
 - **Hardware Monitor:** Winbond W83627THG
 - **Board Size:** 17.0(L) x 17.0(W) cm

Chapter 2

Unpacking

2.1 Opening the Delivery Package

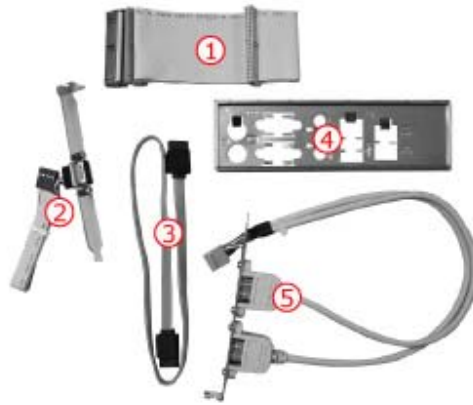
The 2807660 is packed in an anti-static bag. The board has components that are easily damaged by static electricity. Do not remove the anti-static wrapping until proper precautions have been taken. Safety Instructions in front of this manual describe anti-static precautions and procedures.

2.2 Inspection

After unpacking the board, place it on a raised surface and carefully inspect the board for any damage that might have occurred during shipment. Ground the board and exercise extreme care to prevent damage to the board from static electricity.

Integrated circuits will sometimes come out of their sockets during shipment. Examine all integrated circuits, particularly the BIOS, processor, memory modules, ROM-Disk, and keyboard controller chip to ensure that they are firmly seated. The 2807660 delivery package contains the following items:

- 2807660 Board x 1
- Utility CD Disk x 1
- Cables Package x 1
- Jumper Bag x 1
- User's Manual



Cables Package	
NO.	Description
1	IDE flat cable x 1
2	Serial port flat cable x 1
3	SATA cable x 1
4	I/O Bracket x 1
5	2 USB cable with bracket x 1

It is recommended that you keep all the parts of the delivery package intact and store them in a safe/dry place for any unforeseen event requiring the return shipment of the product. In case you discover any missing and/or damaged items from the list of items, please contact your dealer immediately.

Chapter 3

Hardware Installation

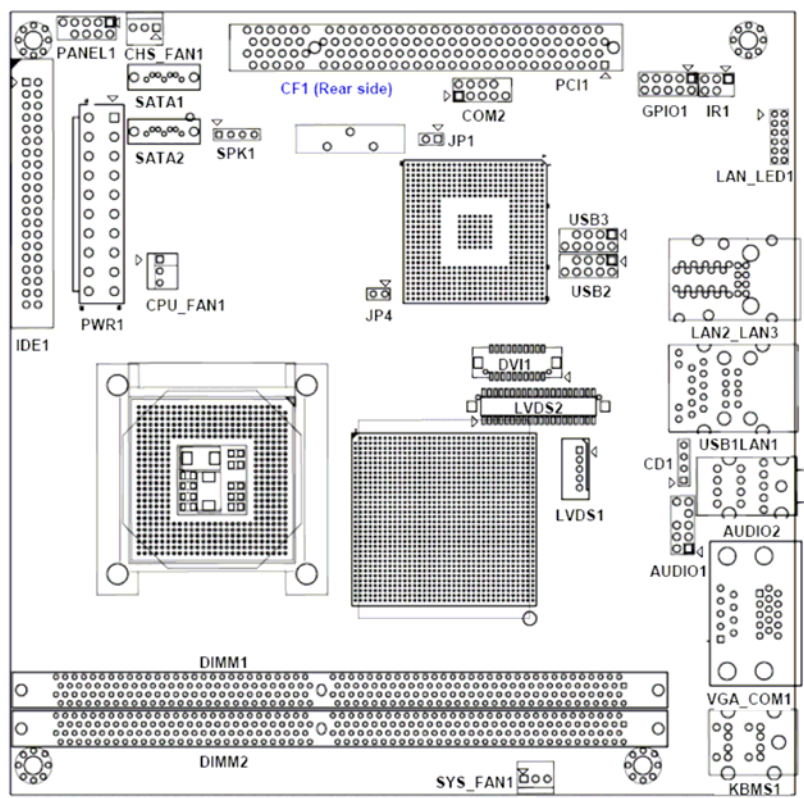
This chapter provides the information on how to install the hardware using the 2807660. This chapter also contains information related to jumper settings of switch, and watchdog timer selection etc.

3.1 Before Installation

After confirming your package contents, you are now ready to install your hardware. The following are important reminders and steps to take before you begin with your installation process.

1. Make sure that all jumper settings match their default settings and CMOS setup correctly. Refer to the sections on this chapter for the default settings of each jumper. (Set JP1 short 1-2)
2. Go through the connections of all external devices and make sure that they are installed properly and configured correctly within the CMOS setup. Refer to the sections on this chapter for the detailed information on the connectors.
3. Keep the manual and diskette in good condition for future reference and use.

3.2 Board Layout



3.3 Jumper List

Jumper	Default Setting	Setting	Page
JP1	Clear CMOS: <i>Normal Operation</i>	Open	19
JP4	CPU Frequency Select: <i>400MHz FSB</i>	Open	10

3.4 Connector List

Connector	Definition	Page
AUDIO1	Internal Audio for Chassis	
AUDIO2	Audio Connector	
CD1	CD-In from CD-ROM	
CF1	CompactFlash Card Connector	
CHS_FAN1	Chassis Fan Connector	
CPU_FAN1	CPU Fan Connector	
COM2	Serial Port 2 Connector	
DIMM1/DIMM2	240-pin DDR2 SDRAM 1 & 2 Socket	
DVI1	DVI Connector	
GPIO1	GPIO Connector	
IDE1	Primary IDE Connector	
IR1	IrDA Connector	
KBMS1	PS/2 Keyboard & Mouse Connector	
LAN_LED1	LAN LED Connector	
LAN2_LAN3	LAN 2 & LAN 3 Connectors	
LVDS1	LCD Inverter Connector	
LVDS2	LVDS Connector	
PANEL1	Front Side Indicators	
PCI1	PCI Slot	
PWR1	24-pin ATX Power Connector	
SATA1/SATA2	Serial ATA 1&2 Connector	
SPK1	Internal Speaker Connector	
SYS_FAN1	System Fan Connector	
USB1_LAN1	USB 1, 2 & LAN 1 Connectors	
USB2/USB3	Internal USB 3, 4 & 5, 6 Connectors	
VGA_COM1	15-pin VGA & 9-pin Serial Port 1 Connectors	

3.5 Configuring the CPU

The 2807660 provides with Intel® Pentium® M/Celeron® M processor. JP4 is the frequently select jumper.

- **JP4: CPU Frequency Select**

Options	Settings
400MHz FSB (default)	Open
533MHz FSB	Short

3.6 System Memory

The 2807660 provides two DDRII sockets at locations *DIMM1/DIMM2*. The maximum capacity of the onboard memory is 2GB.

3.7 VGA Controller

- **VGA: CRT Connector**

PIN	Description	PIN	Description
1	Red	2	Green
3	Blue	4	N/C
5	GND	6	GND
7	GND	8	GND
9	+5V	10	GND
11	N/C	12	DCC Data
13	HSYNC	14	VSYNC
15	DCC CLK		

- **DVI1: DVI Connector**

PIN	Description	PIN	Description
1	+5V	2	TDC0#
3	GND	4	TDC0
5	N/C	6	N/C
7	N/C	8	N/C
9	HPDET	10	TDC1#
11	MDVIDATA	12	TDC1
13	MDVICLK	14	N/C
15	GND	16	N/C
17	TLC#	18	TDC2#
19	TLC	20	TDC2

Signal	Type	Description
TDC0, TDC0#	O	DVI Data Channel 0 Output: These pins provide the DVI differential output for data channel 0 (Blue)
TDC1, TDC1#	O	DVI Data Channel 0 Output: These pins provide the DVI differential output for data channel 0 (Green)
TDC2, TDC2#	O	DVI Data Channel 0 Output: These pins provide the DVI differential output for data channel 0 (Red)
HPDET	I	Hot Plug Detect (internal pull-down): This input determines whether the DVI is connected to a DVI monitor. When terminated, the monitor is required to apply a voltage greater than 2.4 volts. Changes on the status of this pin will be relayed to the graphics controller via the P-OUT/TLDET* or GPIO(1)/TLDET* pin pulling low.
TMDSDATA	I/O	DVI I2C Data: This signal is used as the I2C DOC clock for a digital display connector (i.e. TV-Out Encoder, TMDS transmitter). This signal is tri-stated during a hard reset.
TMDSCLK	I/O	DVI DOC Clock: This signal is used as the DOC clock for a digital display connector (i.e. primary digital monitor). This signal is tri-stated during a hard reset.
TLC, TLC#	O	DVI Clock Output: These pins provide the differential clock outputs to the DVI interface corresponding a data on TDC(0:2) outputs.

- **LVDS2 Interface Connector**

PIN	Description	PIN	Description
1	+3.3V	2	+5V
3	+3.3V	4	+5V
5	GND	6	GND
7	LDDC_CLKL	8	LCTLB_CLK_L
9	LDDC_DATA_L	10	LCTLB_DATA_L
11	GND	12	GND
13	GND	14	GND
15	B_CLK-	16	A_CLK-
17	B_CLK+	18	A_CLK+
19	GND	20	GND
21	B_DATA0-	22	A_DATA0-
23	B_DATA0+	24	A_DATA0+
25	GND	26	GND
27	B_DATA1-	28	A_DATA1-
29	B_DATA1+	30	A_DATA1+
31	GND	32	GND
33	B_DATA2-	34	A_DATA2-
35	B_DATA2+	36	A_DATA2+
37	GND	38	GND
39	+12V	40	+12V

Signal	Type	Description
LCTLB_CLK_L	I/O	I2C Based control signal (Clock) for external SSC clock chip control
LCTLB_DATA_L	I/O	I2C Based control signal (Data) for external SSC clock chip control
LDDC_CLKL	I/O	EDID support for flat panel display
LDDC_DATA_L	I/O	EDID support for flat panel display

- **LVDS1: LCD Inverter Connector**

PIN	Description
1	+12V
2	GND
3	Backlight On/Off Control
4	Backlight Brightness Adjustment
5	+5V

3.8 Serial ATA Connector

These SATA connectors support Serial ATA 150. Each SATA connector can only support one serial ATA device.

Note: *With most storage devices, there is a power cable what you need attach to a power source (power supply).*

3.9 Serial Port Connectors

● COM 1/COM 2:

PIN	Description	PIN	Description
1	DCD	6	DSR
2	RXD	7	RTS
3	TXD	8	CTS
4	DTR	9	RI
5	GND	10	Not used

3.10 Ethernet Connector

Triple Marvell Gigabit Ethernet 10/100/1000 Base-TX controller by PCI Express. The 2807660 series provide three LED indicators on RJ-45 connectors to show LAN interface status. These messages will give you a guide for troubleshooting.

Yellow LED indicates transmit and receive activity.

- Blinking: indicates transmit/receive activity
- On: Indicates no activity but link is valid
- Off: link is invalid

Green LED indicates link speed.

- On: link speed at 1000Mbps
- On: link speed at 100Mbps
- Off: link speed at 10Mbps

- LAN 1/2/3

PIN	Description
1	TX+
2	TX-
3	RX+
4	N/C
5	N/C
6	RX-
7	N/C
8	N/C

- LAN_LED1:

PIN	Description	PIN	Description
1	L1_LED_LINKACT	7	L2_LED_LINKACT_V
2	L1_LED_LINK100	8	L2_LED_LINK1000
3	L1_LED_LINKACT_V	9	L3_LED_LINKACT
4	L1_LED_LINK1000	10	L3_LED_LINK100
5	L2_LEDLINKACT	11	L3_LED_LINKACT_V
6	L2_LED_LINK100	12	L3_LED_LINK1000

3.11 USB Port

- USB 1/2

PIN	Description	PIN	Description
1	+5V (fused)	2	+5V (fused)
3	USBP0-	4	USBP1-
5	USBP0+	6	USBP1+
7	GND	8	GND

- USB2, USB3

PIN	Description	PIN	Description
1	5VSB	6	DATA_4+/DATA_6+
2	5VSB	7	GND
3	DATA_3-/DATA_5-	8	GND
4	DATA_3-/DATA_5+	9	N/C
5	DATA_4+/DATA_6-	10	N/C

3.12 CMOS Data Clear

- **JP1: Clear CMOS**

Options	Settings
Normal Operation (default)	Open
Clear CMOS	Short

3.13 Power and Fan Connectors

- **PWR1: 24-pin ATX Power In Connector**

PIN	Description	PIN	Description
1	+3.3V	13	+3.3V
2	+3.3V	14	-12V
3	GND	15	GND
4	+5V	16	PS_ON
5	GND	17	GND
6	+5V	18	GND
7	GND	19	GND
8	PW_OK	20	-5V
9	5VSB	21	+5V
10	+12V	22	+5V
11	+12V	23	+5V
12	+3.3V	24	GND

- **CHS_FAN1, CPU_FAN1, SYS_FAN1: Fan Power In Connector**

PIN	Description
1	GND
2	+12V
3	SENSE
4	Control (CPU_FAN1 only)

3.14 Keyboard/Mouse Connectors

- **KBMS1: PS/2 6-pin Mini DIN KB/MS Connector**

PIN	Description
1	Keyboard Data
2	Mouse Data
3	GND
4	+5V
5	Keyboard Clock
6	Mouse Clock

3.15 System Front Panel Control

- **Panel1: System Front Panel Control**

PIN	Description	Function
1	+5V	IDE1 Active LED
3	HDD active#	
5	Reset	System Reset LED
7	GND	
6	Power button control signal	System Power On Switch LED
8	GND	

3.16 Audio Connectors

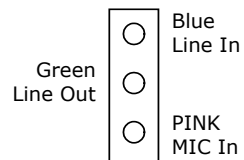
- **CD1: CD-In from CD-ROM**

PIN	Description
1	CD L
2	GND
3	GND
4	CD R

- **AUDIO1: Internal Audio for Chassis**

PIN	Description
1	F_MIC1
2	GND
3	F_MIC2
4	+5V
5	LOUTR
6	F_R
7	N/C
8	N/C
9	LOUTL
10	F_L

- **AUDIO2: External Audio Connector**



3.17 Spreader

- **CD1: CD-In from CD-ROM**

PIN	Description
1	GND
2	GND
3	N/C
4	+5V

3.18 IrDA Connector

- **IR1: IrDA Connector**

PIN	Description
1	N/C
2	N/C
3	+5V
4	Infrared transmitter output
5	GND
6	Infrared receiver input

3.19 GPIO Function

- **GPIO1: GPIO Connector**

PIN	Description	PIN	Description
1	+3.3V	6	GPIO bit 2
2	GPIO bit 3	7	GPIO bit 4
3	GPIO bit 5	8	GPIO bit 1
4	GPIO bit 0	9	GPIO bit 6
5	GPIO bit 7	10	GND

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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