



integration with integrity

2807960 User's Manual

Mini-ITX Motherboard with Socket M

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 2807960 is an Intel® 945GM GMCH chipset-based board designed. The 2807960 is an ideal all-in-one mITX board. Additional features include an enhanced I/O with CF, DVI/CRT/LVDS, TV-Out, dual Giga LAN, audio, SPDIF, SATA, 6 COM, IrDA, and USB2.0 interfaces.

Designed with the Intel® 945GM GMCH, the board supports Intel® Core™ 2 Duo/Core™ Duo/Core™ Solo processor 1.66~2.33GHz.

Its onboard ATA/33/66/100 to IDE drive interface architecture allows the 2807960 to support data transfers of 33, 66 or 100MB/sec. to one IDE drive connection. The Intel® ICH7-M serial ATA controller with two ports supporting transfer rates up to 150MB/sec.

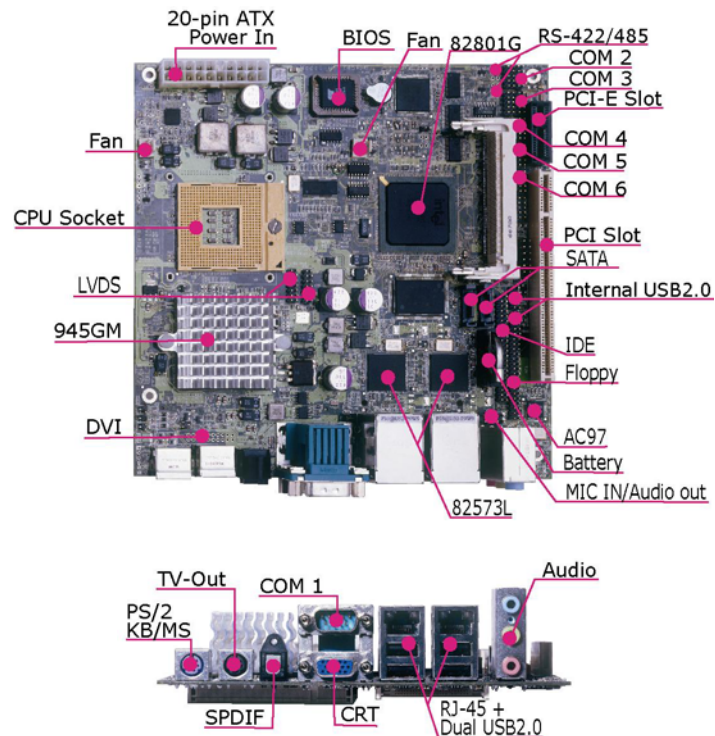
Onboard Intel® 945GM GMCH for CRT display with DVMT or CHRONTEL 7307 for DVI display supporting up to 2048 x 1536. It also supports 18-bit single channel/36-bit dual channel LVDS interface.

System memory is also sufficient with the one SO-DDRII socket that can support up to 1GB.

Additional onboard connectors include an advanced USB2.0 port providing faster data transmission. And two external RJ-45 connectors for 10/100 Based Ethernet use.

To ensure the reliability in an unmanned or standalone system, the watchdog timer (WDT) onboard 2807960 is designed with software that does not need the arithmetical functions of a real-time clock chip. If any program causes unexpected halts to the system, the onboard WDT will automatically reset the CPU or generate an interrupt to resolve such condition.

1.1 Major Features



The 2807960 comes with the following features:

- Intel® Core™ 2 Duo/Core™ Duo/Core™ Solo processor 1.66~2.33GHz
- Supports 667/533MHz FSB
- One SO-DDR2 socket with a max. capacity of 1GB
- Intel® 945GM GMCH/ICH7-M chipset
- Winbond W83627EHG super I/O chipset
- Intel® 945GM or CHRONTEL 7307 DVI graphics controller
- 18-bit/36-bit LVDS panel display interface
- Dual Intel® 82573L Gigabit Ethernet controller

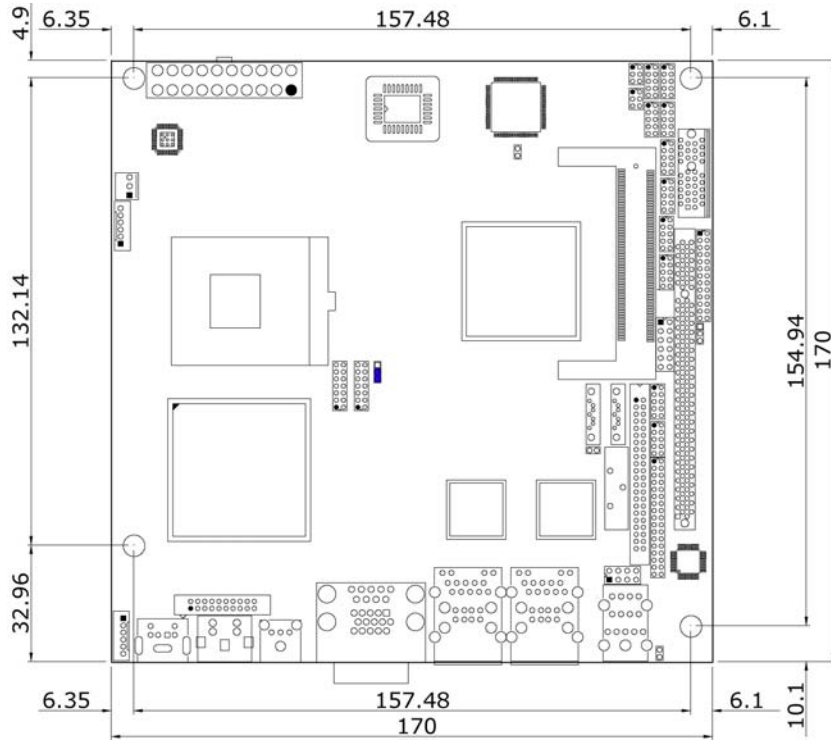
-
- AC97 3D audio controller
 - Intel® ICH7-M Serial ATA controller
 - Fast PCI ATA/33/66/100 IDE controller
 - CF, x1 PCI-E slot, SPDIF, 6 COM, 8 USB2.0
 - TV-Out function
 - Hardware Monitor function

1.2 Specifications

- **CPU:** Intel® Core™ 2 Duo/Core™ Duo/Core™ Solo processor
1.66~2.33GHz
Celeron® M: 410, 420, 430, 440, 450
Core™ Duo: T2300, T2400, T2500, T2600, T2700
Core™ 2 Duo: T5500, T5600, T7200, T7400, T7600
- **Front Side Bus:** 667/533MHz FSB
- **Memory:** One SO-DDRII socket supports up to 1GB
- **Chipset:** Intel® 945GM GMCH/ICH7-M
- **I/O Chipset:** Winbond W83627EHG
- **CompactFlash:** One, Type I/II IDE interface adapter
- **PCI Slot:** One x1 PCI-Express slot, one Type III mini PCI slot, one standard PCI slot
- **8-bit I/O:** 8-bit input/output (parallel port)
- **VGA:** Intel® 945GM for CRT display with DVMT or CHRONTEL 7307 for DVI display, supporting up to 2048 x 1536 (DVI and CRT connector is optional)
- **LVDS Panel:** Supports 18-bit single channel/36-bit dual channel LVDS interface
- **TV-Out:** Supports PAL or NTSC TV systems
- **Ethernet:** Dual Intel® 82573L 10/100/1000 Based LAN
- **Audio:** AC97 3D audio controller with SPDIF port
- **Serial ATA:** Intel® ICH7-M controller and with two ports supporting a transfer rate up to 150MB/sec.
- **IDE:** One 2.0-pitch 44-pin IDE connector
- **FDD:** Supports up to two floppy disk drives
- **Parallel:** One enhanced bi-directional parallel port supporting SPP/ECP/EPP
- **Serial Port:** 16C550 UART-compatible RS-232/422/485 x 2 and RS-232 x 4 serial ports with 16-byte FIFO
- **IrDA:** One IrDA TX/RX header
- **USB:** 8 USB2.0 ports, internal x 4 and external x 4
- **Keyboard/Mouse:** PS/2 6-pin Mini DIN or 6-pin header
- **BIOS:** AMI PnP Flash BIOS

- **Watchdog Timer:** Software programmable time-out intervals from 1~255 sec.
- **CMOS:** Battery backup
- **Hardware Monitor:** Winbond W83627EHG
- **Board Size:** 17.0(L) x 17.0(W) cm

1.3 Board Dimensions



Chapter 2

Unpacking

2.1 Opening the Delivery Package

The 2807960 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 2807960 delivery package contains the following items:

- 2807960 Board x 1**
- Utility CD Disk x 1**
- Cables Package x 1**
- Jumper Bag x 1**
- User's Manual**



Cables Package	
NO.	Description
1	SATA cable x 1
2	SATA power cable x 1
3	Keyboard/Mouse transfer cable x 1
4	COM flat cable x 2
5	Two USB flat cable with bracket x 1
6	IDE flat cable x 1
7	Floppy flat cable x 1
8	Parallel port cable 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

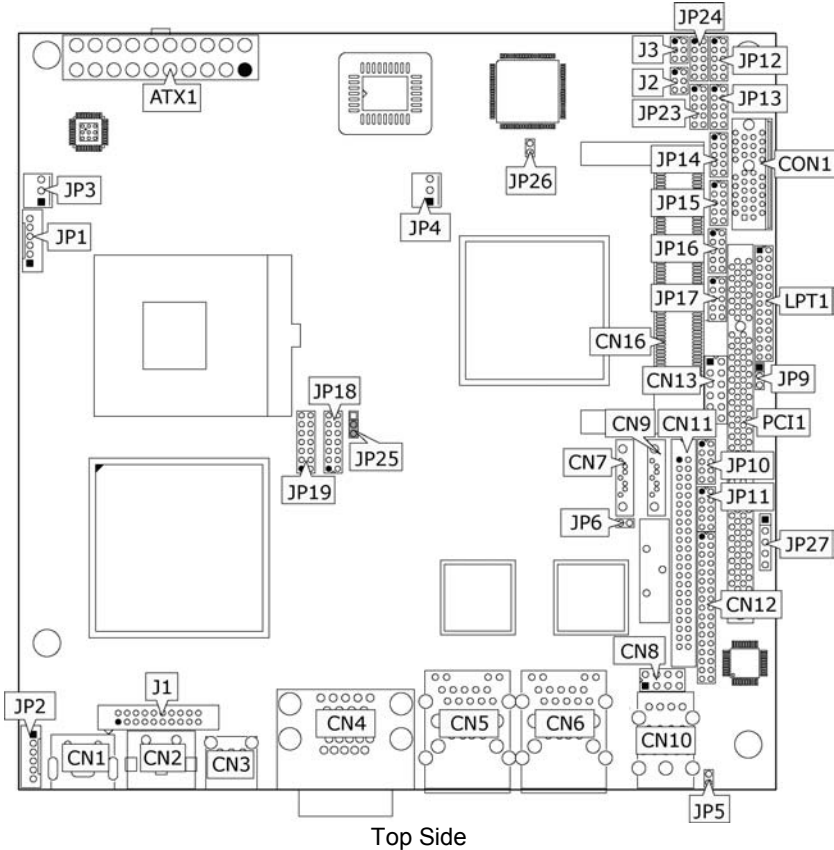
This chapter provides the information on how to install the hardware using the 2807960. This chapter also contains information related to jumper settings of switch, and watchdog timer selection etc.

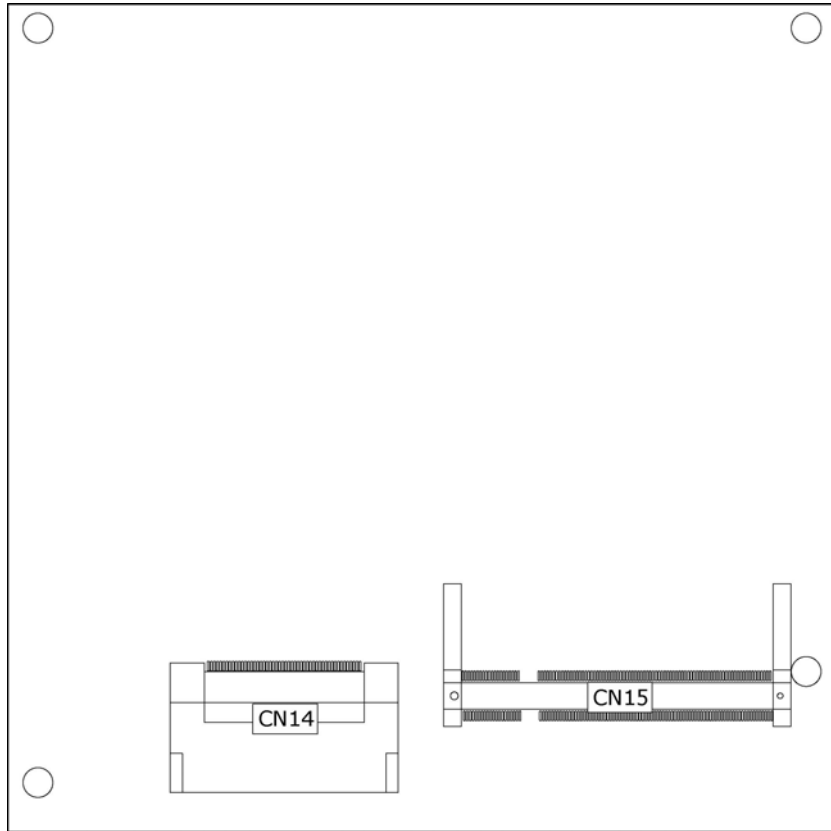
3.1 Before Installation

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 JP6 open)
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





Solder Side

3.3 Jumper List

Jumper	Default Setting	Setting	Page
JP5	CF Use Master/Slave Select: <i>Slave</i>	Open	23
JP6	Clear CMOS: <i>Normal Operation</i>	Open	19
JP23	COM 3/COM 4 Use RS-232 or	Open	16
JP24	RS-422/485 Select: <i>RS-232</i>	Open	16
JP25	Panel Voltage Select: +3.3V	Short 2-3	11
JP26	FSB Frequency Select: <i>667MHz</i>	Open	10

3.4 Connector List

Connector	Definition	Page
ATX1	20-pin ATX Power In Connector	19
CN1	PS/2 6-pin Mini DIN KB/MS Connector	20
CN2	TV-Out Connector	22
CN3	SPDIF Connector	23
CN4	15-pin CRT Connector & COM 1 (DB9)	11/16
CN5/CN6	RJ-45 & Dual USB2.0 Port	18
CN7/CN9	Serial ATA Connector	14
CN8	MIC In/Line Out Connector	23
CN10	External Audio Connector	23
CN11	IDE Connector	13
CN12	Floppy Connector	15
CN13	System Front Panel Control	20
CN14	CompactFlash Connector	23
CN15	SO-DDRII Socket	11
CN16	Mini PCI Slot	25
JP1	Inverter Power In Connector	11
JP2	6-pin KB/MS Connector	20
JP3/JP4	Fan Power In Connector	19
JP9	Wake On LAN Connector	18
JP10/JP11	Internal USB2.0 Port	18
JP12~JP16	COM 2~COM 6 Connector (5x2 header)	16
JP17	8-bit I/O Port	25
JP18/JP19	LVDS Panel Connector	11
JP27	IrDA Connector	21
CON1	x1 PCI-E Slot	25
J1	DVI Connector	11
J2/J3	RS-422/485 Connector	16
LPT1	Parallel Port	16
PCI1	Standard PCI Slot	25

3.5 Configuring the CPU

The 2807960 provides with Intel® Core™ 2 Duo/Core™ Duo/Core™ Solo processor 1.66~2.33GHz. User don't need to adjust the frequently and check speed of processor.

- **JP26: FSB Frequency Select**

Options	Settings
533MHz FSB	Short
667MHz FSB (default)	Open



3.6 System Memory

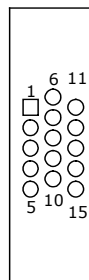
The 2807960 provides one SO-DDRII socket at locations *CN15*. The maximum capacity of the onboard memory is 1GB.

3.7 VGA Controller

The 2807960 provides two connection methods of a VGA device. *CN4A* offers a single standard CRT connector and *JP18/JP19* are the LVDS interface connectors onboard reserved for flat panel installation.

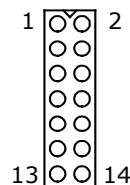
- **CN4A: CRT Connector**

PIN	Description	PIN	Description
1	Red	2	Green
3	Blue	4	N/C
5	GND	6	GND
7	GND	8	GND
9	N/C	10	GND
11	N/C	12	SDA
13	HSYNC	14	VSYNC
15	SCL		



- **JP18/JP19: LVDS Interface Connector**

PIN	Description	PIN	Description
1	V _{LCD}	2	V _{LCD}
3	GND	4	GND
5	Y0-/Z0-	6	Y0+/Z0+
7	Y1-/Z1-	8	Y1+/Z1+
9	Y2-/Z2-	10	Y2+/Z2+
11	CLK-	12	CLK+
13	N/C	14	N/C




NOTE: LVDS cable should be produced very carefully. Y0- & Y0+ have to be fabricated in twister pair (Y1- & Y1+, Y2- & Y2+ and so on) otherwise the signal won't be stable. Please set the proper voltage of your panel using JP25 before proceeding on installing it.

NOTE: If use JP18 only, it just supports 16-bit single channel LVDS panel; If you want to use 36-bit dual channel LVDS panel, please use JP18 and JP19 combined.

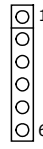
● **JP25: Panel Voltage Select**

Options	Settings
+5V	Short 1-2
+3.3V (default)	Short 2-3



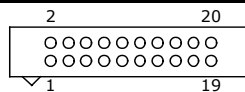
● **JP1: Inverter Power In Connector**

PIN	Description
1	+12V
2	+12V
3	+5V
4	+5V
5	VDDEN
6	GND



● **J1: DVI Connector**

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

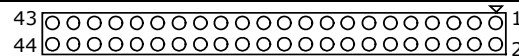


3.8 PCI E-IDE Drive Connector

CN11 is a standard 44-pin 2.0-pitch connector daisy-chain driver connector serves the PCI E-IDE drive provisions onboard the 2807960. A maximum of two ATA/33/66/100 IDE drives can be connected to the 2807960 via CN11.

- **CN11: IDE Connector**

PIN	Description	PIN	Description
1	IDERST	2	GND
3	PDD7	4	PDD8
5	PDD6	6	PDD9
7	PDD5	8	PDD10
9	PDD4	10	PDD11
11	PDD3	12	PDD12
13	PDD2	14	PDD13
15	PDD1	16	PDD14
17	PDD0	18	PDD15
19	GND	20	N/C
21	PDDREQ	22	GND
23	IOW#	24	GND
25	IOR#	26	GND
27	PIORDY	28	470Ω with GND
29	PDDACK#	30	GND
31	IRQ14	32	N/C
33	PDA1	34	PD33/66
35	PDA0	36	PDA2
37	PDCS1#	38	PDCS3#
39	HDD Active	40	GND
41	VCC	42	VCC
43	GND	44	N/C

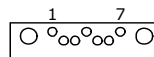


3.9 Serial ATA Connector

You can connect the Serial ATA device that provides you high speeds transfer rates (150MB/sec.). If you wish to use RAID function, please note that these two serial ATA connectors just support RAID0 and only compatible with WIN XP.

- **CN7/CN9: Serial ATA Connector**

PIN	Description
1	GND
2	SATATXP
3	SATATXN
4	GND
5	SATARXN
6	SATARXP
7	GND

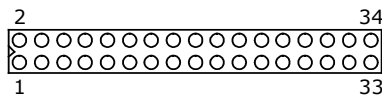


3.10 Floppy Disk Drive Connector

The 2807960 uses a standard 34-pin header connector, *CN12*, for floppy disk drive connection. A total of two FDD drives may be connected to *CN12* at any given time.

- **CN12: Floppy Connector**

PIN	Description	PIN	Description
1	GND	2	DRVDEN0
3	GND	4	N/C
5	GND	6	DRVDEN1
7	GND	8	INDEX#
9	GND	10	MTR0#
11	GND	12	DS1#
13	GND	14	DS0#
15	GND	16	MTR1#
17	GND	18	DIR#
19	GND	20	STEP#
21	GND	22	WDATA#
23	GND	24	WGATE#
25	GND	26	TRAK00#
27	GND	28	WRTPRT#
29	GND	30	RDATA#
31	GND	32	HDSEL#
33	GND	34	DSKCHG#



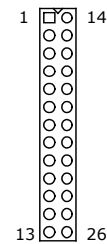
3.11 Parallel Connector

LTP1 is a standard 26-pin flat cable connector designed to accommodate parallel port connection on the 2807960.

NOTE: If you want to use parallel port, 8-bit I/O function will be disabled.

- **LPT1: Parallel Connector**

PIN	Description	PIN	Description
1	Strobe	14	Auto Form Feed
2	DATA 0	15	ERROR#
3	DATA 1	16	Initialize
4	DATA 2	17	Printer Select LN#
5	DATA 3	18	GND
6	DATA 4	19	GND
7	DATA 5	20	GND
8	DATA 6	21	GND
9	DATA 7	22	GND
10	Acknowledge	23	GND
11	Busy	24	GND
12	Paper Empty	25	GND
13	Printer Select	26	GND

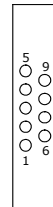


3.12 Serial Port Connectors

The 2807960 offers NS16C550 compatible UARTs with Read/Receive 16-byte FIFO serial ports and five internal 10-pin headers and two RS-422/485 connectors.

- **CN4A: COM 1 Connector (DB9)**

PIN	Description	PIN	Description
1	DCD	2	DSR
3	RXD	4	RTS
5	TXD	6	CTS
7	DTR	8	RI
9	GND		



● **JP12~JP16: COM 2~COM 6 Connector (5x2 Header)**

PIN	Description	PIN	Description
1	DCD	2	DSR
3	RXD	4	RTS
5	TXD	6	CTS
7	DTR	8	RI
9	GND	10	+12V



● **J2/J3: RS-422/485 Connector (3x2 Header, COM 3/COM 4)**

PIN	Description	PIN	Description
1	TX-	2	TX+
3	RX+	4	RX-
5	GND	6	+5V



NOTE: The terminal resistance of RX & TX is set at 180 Ω.

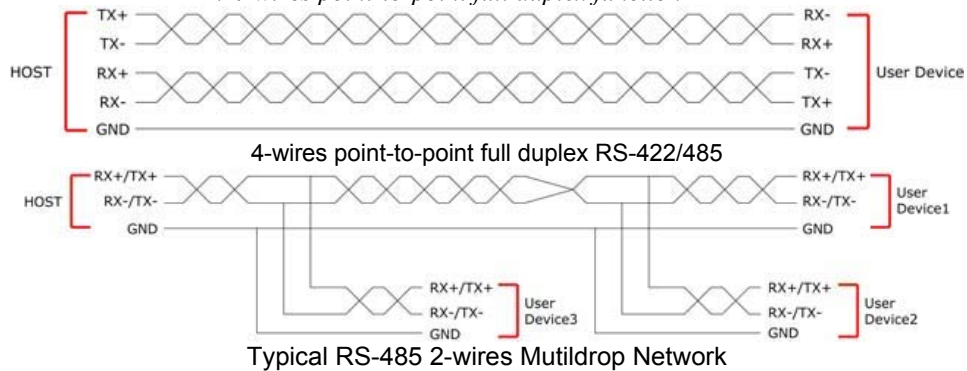
● **JP23/JP24: COM 3/COM 4 use RS-232 or RS-422/485 Select**

Options	Settings
RS-232 (default)	Open
RS-485 by Auto (*1)	Short 1-2, 3-4, 5-7, 8-10
RS-485 by -RTS (*-1)	Short 1-2, 3-4, 7-9, 8-10
RS-422/485 Full Duplex (*2)	Short 1-2, 3-4, 6-8



NOTE: *1: 2-wires RS-485 function

*2: 4-wires point-to-point full duplex function

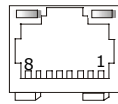


3.13 Ethernet Connector

The 2807960 provides two external RJ-45 interface connectors. Please refer to the following for its pin information.

- **CN5A/CN6A: RJ-45 Connector**

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



- **JP9: Wake On LAN**

PIN	Description
1	+5V
2	GND
3	Wake On LAN

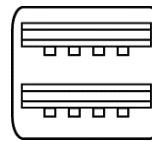


3.14 USB Connector

The 2807960 provides two 8-pin connectors, at location *JP10/JP11*, for four USB ports, and four external USB2.0 ports at *CN5B/CN6B*.

- **CN5B/CN6B: External USB2.0 Connector**

PIN	Description	PIN	Description
1	VCC	2	VCC
3	USBD0-/USB2-	4	USBD1-/USB3-
5	USBD0+/USB2+	6	USBD1+/USB3+
7	GND	8	GND



- **JP10/JP11: Internal USB2.0 Connector**

PIN	Description	PIN	Description
1	VCC	2	VCC
3	USBD4-/USBD6-	4	USBD5-/ USBD7-
5	USBD4+/USBD6+	6	USBD5+/ USBD7+
7	GND	8	GND



3.15 CMOS Data Clear

The 2807960 has a Clear CMOS jumper on *JP6*.

- **JP6: Clear CMOS**

Options	Settings
Normal Operation (default)	Open
Clear CMOS	Short



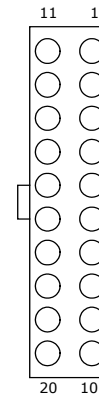
IMPORTANT: Before you turn on the power of your system, please set *JP6* to Open for normal operation.

3.16 Power and Fan Connectors

2807960 provides one 20-pin ATX power in at *ATX1*.

- **ATX1: 20-pin ATX Power In Connector**

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



- **JP3/JP4: Fan Power In Connector**

PIN	Description
1	GND
2	+12V
3	Fan In 1/Fan In 2



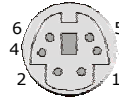
Connector *JP3/JP4* onboard 2807960 is a 3-pin fan power output connector. And 2807960 supports +12V Fan only.

3.17 Keyboard/Mouse Connectors

The 2807960 offers two possibilities for keyboard/mouse connections. The connections are via *CN1* for an external PS/2 type keyboard/mouse or via *JP2* for an internal 6-pin cable converter to a keyboard/mouse.

- **CN1: PS/2 6-pin Mini DIN Keyboard/Mouse Connector**

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



- **JP2: 6-pin Keyboard/Mouse Connector**

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



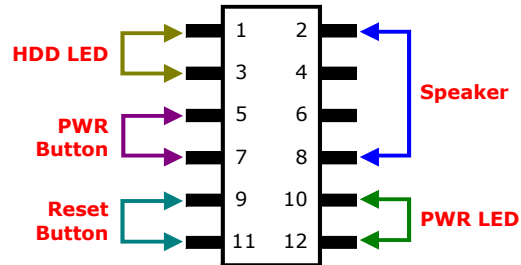
3.18 System Front Panel Control

The 2807960 has front panel control at location *CN13* that indicates the power-on status.

- **CN13: System Front Panel Control**

PIN	Description	PIN	Description
1	VCC	2	Speaker
3	HDD LED	4	N/C
5	PWR Button	6	GND
7	VCC	8	GND
9	Reset Switch	10	VCC
11	GND	12	PWR LED

Connector CN13 Orientation



3.19 IrDA Function

JP27 is a 5-pin internal IR communication connector for connection of an IrDA device.

- **JP27: IrDA Connector**

PIN	Description
1	VCC
2	N/C
3	IRRX
4	GND
5	IRTX

3.20 Watchdog Timer

Once the Enable cycle is active a Refresh cycle is requested before the time-out period. This restarts counting of the WDT period. When the time counting goes over the period preset of WDT, it will assume that the program operation is abnormal. A system reset signal will restart when such error happens.

The following sample programs show how to enable, disable and refresh the watchdog timer:

```

;-----
;Enter the WDT function mode, interruptible double-write
;-----
MOV    DX, 2EH
MOV    AL, 87H
OUT    DX, AL
OUT    DX, AL
MOV    DX, 2EH
MOV    AL, 07H
OUT    DX, AL
MOV    DX, 2FH

```

```

MOV     AL, 08H
OUT     DX, AL
MOV     DX, 2EH
MOV     AL, F5H
OUT     DX, AL           ;select CRF0
MOV     DX, 2FH
MOV     AL, 80H
OUT     DX, AL
MOV     DX, 2EH
MOV     AL, F7H
OUT     DX, AL
MOV     DX, 2FH
MOV     AL, 00H
OUT     DX, AL
MOV     DX, 2EH
MOV     AL, F6H
OUT     DX, AL
MOV     DX, 2FH
MOV     AL, 00H           ; *00H=Disabled
OUT     DX, AL
;-----
;Exit extended function mode
;-----
MOV     DX, 2EH
MOV     AL, AAH
OUT     DX, AL

```

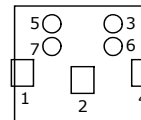
User can also use AL, 00H's defined time for reset purposes, e.g.00H for Disable, 01H = 1sec, 02H=2sec....FFH=255sec.

3.21 TV-Out Function

The 2807960 can support TV-out function whose input could be up to 800 x 600 graphics resolutions. World Wide Video standards are supported including NTSC-M (North America, Taiwan), NTSC-J (Japan), PAL-b, D, G, H, I (Europe, Asia), PAL-M (Brazil), PAL-N (Uruguay, Paraguay) and PAL-NC (Argentina).

- **CN2: TV-Out Connector**

PIN	Description	PIN	Description
1	GND	2	GND
3	DACB OUT	4	GND
5	DACC OUT	6	GND
7	GND		

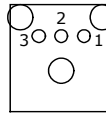


3.22 Audio Connectors

The 2807960 has an onboard AC97 3D audio controller. The following tables list the pin assignments of the Line In/Audio Out connector.

- **CN3: SPDIF Connector**

PIN	Description
1	GND
2	VCC
3	SPDIF

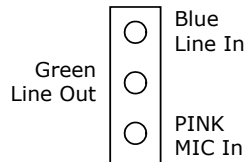


- **CN8: MIC In/Line Out Connector**

PIN	Description	PIN	Description
1	AOUTL	2	AOUTR
3	GND	4	GND
5	MIC IN	6	N/C
7	GND	8	GND



- **CN10: External Audio Connector**



3.23 CompactFlash™ Connector

The 2807960 also offers a Type I/II CompactFlash™ connector which is IDE interface located at the solder side of the board. The designated CN14 connector, once soldered with an adapter, can hold CompactFlash™ cards of various sizes. Please turn off the power before inserting the CF card.

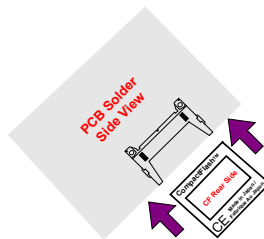
- **CN14: CompactFlash™ Connector**

PIN	Description	PIN	Description
1	GND	2	IDE_PDD3
3	IDE_PDD4	4	IDE_PDD5
5	IDE_PDD6	6	IDE_PDD7
7	IDE_PDCS1#	8	GND

...MORE ON NEXT PAGE...

PIN	Description	PIN	Description
9	GND	10	GND
11	GND	12	GND
13	+3.3V	14	GND
15	GND	16	GND
17	GND	18	IDE_PDA2
19	IDE_PDA1	20	IDE_PDA0
21	IDE_PDD0	22	IDE_PDD1
23	IDE_PDD2	24	GND
25	GND	26	GND
27	IDE_PDD11	28	IDE_PDD12
29	IDE_PDD13	30	IDE_PDD14
31	IDE_PDD15	32	IDE_PDCS3#
33	GND	34	IDE_PDIOR#
35	IDE_PDIOW#	36	+3.3V
37	INT_IRQ15	38	+3.3V
39	+3.3V	40	N/C
41	RESET#	42	IDE_PDIORDY
43	CF_PDERQ	44	CF_REGB
45	IDE_ACTP#	46	DETECT
47	IDE_PDD8	48	IDE_PDD9
49	IDE_PDD10	50	GND

Inserting a CompactFlash™ card into the adapter is not a difficult task. The socket and card are both keyed and there is only one direction for the card to be completely inserted. Refer to the diagram on the following page for the traditional way of inserting the card.



- **JP5: CF Use Master/Slave Select**

Options	Setting
Master	Short
Slave(default)	Open



NOTE: When use CF card, IDE device function will be disabled.

3.24 Expansion Slot

The 2807960 offers one Type III mini PCI slot at *CN16*, one x1 PCI-E slot at *CON1*, one standard PCI slot at *PCI1*.

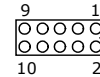
3.25 8-bit I/O Function

The 2807960 offers one 8-bit input/output port by parallel port.

NOTE: *If you want to use 8-bit I/O, parallel port function will be disabled.*

- **JP17: 8-bit Input/Output**

PIN	Description	PIN	Description
1	VCC	2	GND
3	GD0	4	GD4
5	GD1	6	GD5
7	GD2	8	GD6
9	GD3	10	GD7



.286

```

.MODEL SMALL
.DATA
port equ 0378h ;this is data area
;print port can be change to 278h

.CODE

print macro buff
mov dx, offset buff;
mov ah,09h
int 21h
endm

delay :
push cx
mov cx,0155h

@@:
jmp $+2
push cx
mov cx,0ffffh

wait1: loop wait1
pop cx
loop @b
pop cx
ret

begin proc near
mov ax,@data
mov ds,ax
STI

```

```

Mov     dx, port
Mov     al, 80h         out     dx, al
;;-----
;;ROR
mov     cx, 08h
@@:
ror     al, 1
call   delay
out     dx, al
loop   @b
pop     cx
;;ROL
push   cx
mov     cx, 08h
@@:
rol     al, 1
out     dx, al
call   delay
loop   @b
pop     cx
;;-----
;;-----
;;ROR
mov     cx, 08h
@@:
ror     al, 1
call   delay
out     dx, al
loop   @b
pop     cx
;;ROL
push   cx
mov     cx, 08h
@@:
rol     al, 1
out     dx, al
call   delay
loop   @b
pop     cx
;;-----
;;-----
;;ROR
mov     cx, 08h
@@:
ror     al, 1
call   delay
out     dx, al
loop   @b
pop     cx
;;ROL
push   cx
mov     cx, 08h
@@:
rol     al, 1
out     dx, al
call   delay
loop   @b

```

```

        pop     cx
;;-----
;;-----
;;ROR
        mov     cx, 08h
@@:
        ror     al, 1
        call delay
        out     dx, al
        loop   @b
        pop     cx
;;ROL
        push   cx
        mov     cx, 08h
@@:
        rol     al, 1
        out     dx, al
        call delay
        loop   @b
        pop     cx
;;-----
;;-----
;;ROR
        mov     cx, 08h
@@:
        ror     al, 1
        call delay
        out     dx, al
        loop   @b
        pop     cx
;;ROL
        push   cx
        mov     cx, 08h
@@:
        rol     al, 1
        out     dx, al
        call delay
        loop   @b
        pop     cx
;;-----
;;-----
;;ROR
        mov     cx, 08h
@@:
        ror     al, 1
        call delay
        out     dx, al
        loop   @b
        pop     cx
;;ROL
        push   cx
        mov     cx, 08h
@@:
        rol     al, 1
        out     dx, al
        call delay
        loop   @b
        pop     cx

```



```

;;-----
;;-----
;;ROR
    mov     cx, 08h
@@:
    ror     al, 1
    call   delay
    out    dx, al
    loop   @b
    pop    cx
;;ROL
    push   cx
    mov    cx, 08h
@@:
    rol    al, 1
    out    dx, al
    call   delay
    loop   @b
    pop    cx
;;-----
;flash LED 3 time
    mov    cx, 01h
@@:
    mov    al, 0ffh
    out    dx, al
    call   delay
    mov    al, 0h
    out    dx, al
    call   delay
    loop   @b
ee:
    mov    ah, 4ch
    int    21h
    .stack
    begin  endp
    end    begin
;go back to dos

```

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