User's Manual

2807640 / 2807650

Copyright Disclaimers

Edition 1.0, December 21, 2006

Table of Contents

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
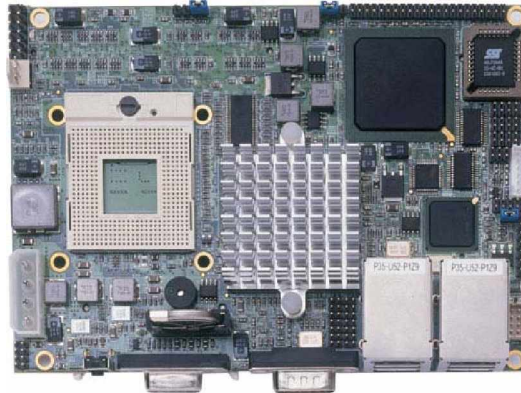
The 2807640 is an Intel® 852GME GMCH and 2807650 is an Intel® 852GM GMCH chipset-based board designed. The 2807640/2807650 is ideal all-in-one embedded engine board. Additional features include an enhanced I/O with CF, CRT/LVDS, dual LAN, audio, 4 COM, and USB2.0 interfaces.

Its onboard ATA/33/66/100 to IDE drive interface architecture allows the 2807640/2807650 to support data transfers of 33, 66 or 100MB/sec. to one IDE drive connection. The 2807640 supports Intel® Pentium® M/Celeron® M processor, and 2807650 supports ULV Intel® Celeron® M processor 600MHz/512K.

The Intel® 852GM with 8MB shared main memory supporting CRT display up to 1600 x 1200. It also supports 18-bit single channel/36-bit dual channel LVDS interface.

System memory is also sufficient with the one SO-DDR 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 2807640/2807650 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 2807640/2807650 comes with the following features:
- Intel® Pentium® M/Celeron® M processor 1.3~2.0GHz (2807640)
  ULV Intel® Celeron® M processor 600MHz/512K (2807650)
- Supports 533MHz FSB (only 2807640)
- One SO-DDR socket with a max. capacity of 1GB
  - Intel® 852GME GMCH/ICH4 system chipset (2807640)
    Intel® 852GM GMCH/ICH4 system chipset (2807650)
- Winbond W83627HF super I/O chipset
  - Intel® 82852GME graphics controller (2807640)
    Intel® 82852GM graphics controller (2807650)
- 18-bit/36-bit LVDS Panel display interface
- Intel® 82551QM and 82562ET fast Ethernet controller
- AC97 3D audio controller
- Fast PCI ATA/33/66/100 IDE controller
- CF card adapter, 4 COM, 6 USB2.0
- Single +5V power in
- Hardware Monitor function

2

1.2   Specifications

- **CPU:**
  2807640 provides
  Intel® Pentium® M processor 760 2.0GHz
  Intel® Pentium® M processor 745 1.8GHz
  Intel® Celeron® M processor 370 1.5GHz
  Intel® Celeron® M processor 320 1.3GHz
  2807650 provides ULV Intel® Celeron® M processor 600MHz/512K

- **Front Side Bus:**
  2807640 supports 400/533MHz FSB
  2807650 supports 400MHz FSB

- **Memory:** One SO-DDR socket supporting up to 1GB

- **Chipset:**
  Intel® 852GME GMCH/ICH4 (2807640)
  Intel® 852GM GMCH/ICH4 (2807650)

- **I/O Chipset:** Winbond W83627HF

- **CompactFlash:** One, Type I/II IDE interface adapter

- **PCI Slot:** One, Type III mini PCI slot

- **VGA:** Intel® 82852GME (2807640)/Intel® 82852GM (2807650) for
  CRT display with 8MB shared main memory supporting up to 1600 x
  1200

- **LVDS Panel:** Supports 18-bit single channel/36-bit dual channel LVDS
  interface

- **Ethernet:** Intel® 82551QM and 82562ET 10/100 Based LAN

- **Audio:** AC97 3D audio controller

- **IDE:** One 2.0-pitch 44-pin IDE connector

- **Serial Port:** 16C550 UART-compatible RS-232/422/485 x 1 and RS-232
  x 3 serial ports with 16-byte FIFO

- **USB:** 6 USB2.0 ports, internal x 2 and external x 4

- **Keyboard/Mouse:** 6-pin connector

- **BIOS:** AMI PnP Flash BIOS

- **Watchdog Timer:** Software programmable time-out intervals from
  1~256 sec.

- **CMOS:** Battery backup

- **Power In:** Single +5V power in

- **Hardware Monitor:** Winbond W83627HF

- **Board Size:** 14.5(L) x 10.2(W) cm

1.3 Board Dimensions
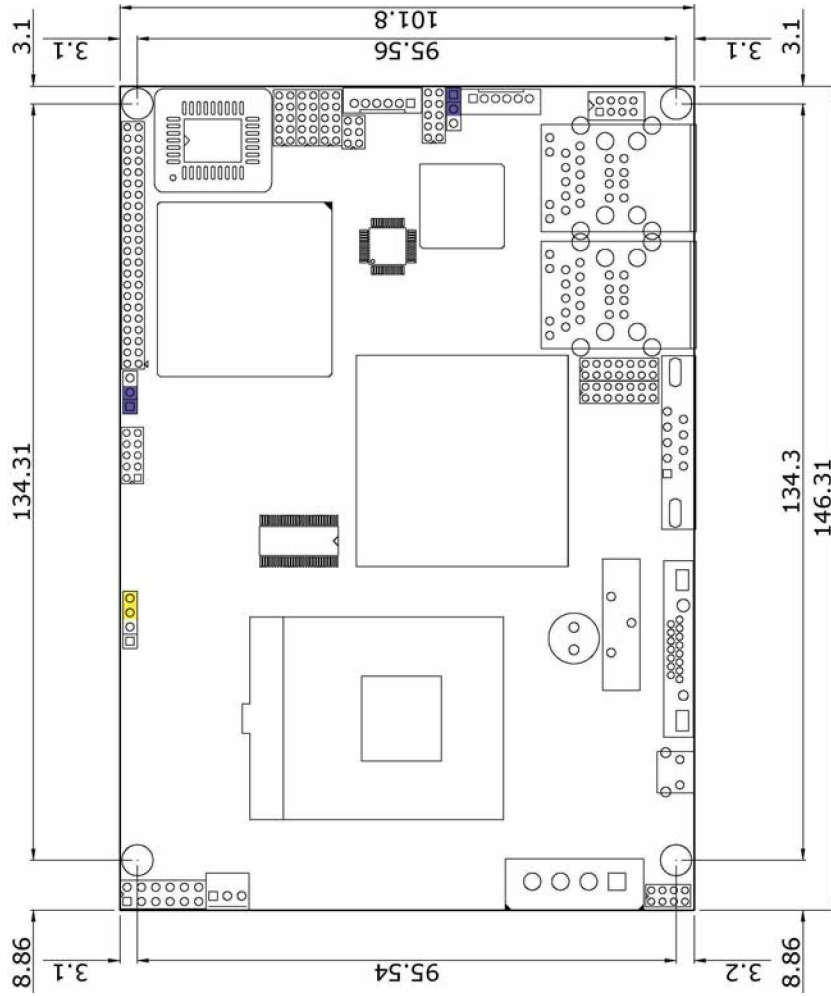
Chapter 2

Unpacking

2.1 Opening the Delivery Package

The 2807640/2807650 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 2807640/2807650 delivery package contains the following items:

- „ 2807640 or 2807650 Board x 1
- „ Utility CD Disk x 1
- „ Cables Package x 1
- „ Jumper Bag x 1
- „ User's Manual

5

Cables Package	
NO.	**Description**
1	Keyboard/Mouse transfer cable x 1
2	Two USB cable with bracket x 1
3	Audio cable x 1
4	Serial Port flat cable x 2
5	IDE flat cable x 1

If you want to use ATA/66/100 IDE device, please purchase this cable separately.

Optional Cable	
Cable	**Description**
IDE cable	ATA/66/100 IDE cable for 2.0-pitch IDE connector

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.

6

Chapter 3

Hardware Installation

This chapter provides the information on how to install the hardware using the 2807640/2807650. 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 JP2 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.

7

3.2   Board Layout

Top Side

Solder Side

8
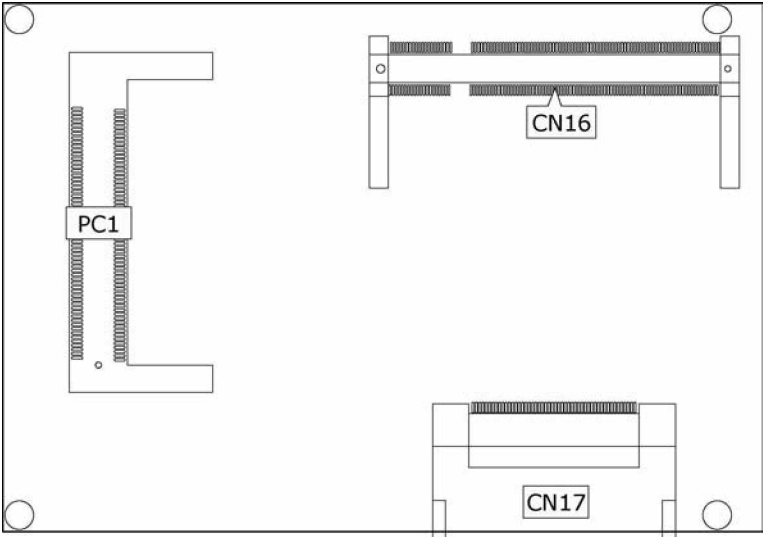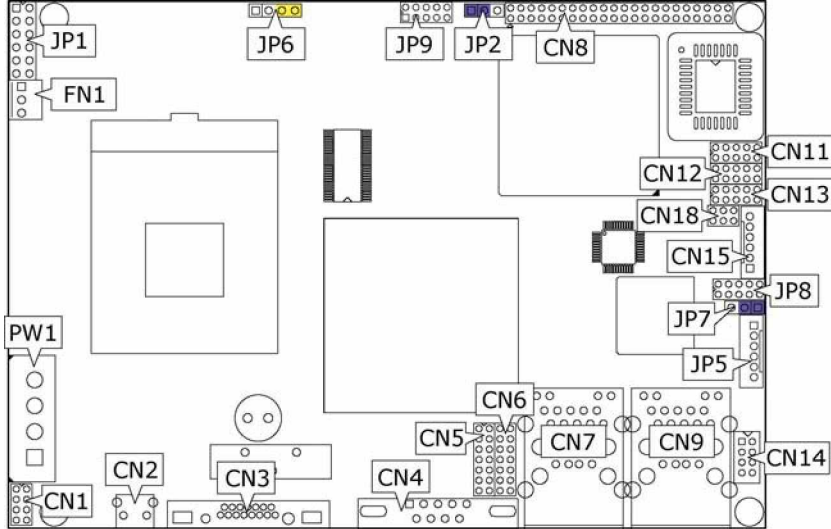
3.3   Jumper List

Jumper	Default Setting	Setting	Page
JP2	Clear CMOS: *Normal Operation*	Short 1-2	16
JP6	System Frequency Select: *400MHz*	Short 3-4	10
JP7	Onboard LAN 2 Enabled/Disabled Select: *Enabled*	Short 1-2	14
JP8	COM4 Use RS-232 or RS-422/485 Select: *RS-232*	Open	13

3.4   Connector List

Connector	Definition	Page
CN1	MIC In/Line Out Connector	19
CN2	External Reset Button	----
CN3	15-pin CRT Connector	10
CN4	COM 1 (DB9)	13
CN5/CN6	LVDS Panel Connector	10
CN7/CN9	RJ-45 & Dual USB2.0 Port	14/15
CN8	IDE Connector	12
CN11/CN12/CN13	COM 2~COM 4 Connector (5x2 header)	13
CN14	Internal USB2.0 Port	15
CN15	6-pin KB/MS Connector	17
CN16	SO-DDR Socket	10
CN17	CompactFlash Connector	19
CN18	RS-422/485 Connector	13
FN1	Fan Power In Connector	16
PW1	4-pin Power In Connector	16
JP1	System Front Panel Control	17
JP5	Inverter Power In Connector	10
JP9	8-bit I/O Connector	20
PC1	Mini PCI Slot	20

3.5 Configuring the CPU

The 2807640 provides Intel® Pentium® M processor 760 2.0GHz, Pentium® M processor 745 1.8GHz, Celeron® M processor 370 1.5GHz, and Celeron® M processor 1.3GHz. The 2807650 embedded with ULV Intel® Celeron® M processor 600MHz/512K. If you want to use 533MHz FSB processor, please set *JP6*, and *JP6* is only for 2807640.

ℤ **JP6: System Frequency Select**

Options	Settings
533MHz FSB	Short 1-2
400MHz FSB (default)	Short 3-4

3.6 System Memory
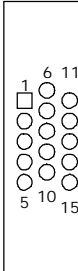
The 2807640/2807650 provides one SO-DDR socket at locations *CN16*. The maximum capacity of the onboard memory is 1GB.

3.7 VGA Controller

The 2807640/2807650 provides two connection methods of a VGA device. *CN3* offers a single standard CRT connector and *CN5/CN6* are the LVDS interface connectors onboard reserved for flat panel installation.
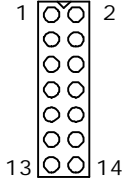
ℤ **CN3: CRT Connector**

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		

z CN5/CN6: LVDS Interface Connector

PIN	Description	PIN	Description
1	V_{LCD}	2	V_{LCD}
3	GND	4	GND
5	A0-/A4-	6	A0+/A4+
7	A1-/A5-	8	A1+/A5+
9	A2-/A6-	10	A2+/A6+
11	CLK1-/CLK2-	12	CLK1+/CLK2+
13	N/C	14	N/C
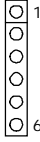
NOTE: *LVDS cable should be produced very carefully. A0- & A0+ have to be fabricated in twister pair (A1- & A1+, A2- & A2+ and so on) otherwise the signal won't be stable.*

NOTE: *If use CN5 only, it just supports 18-bit single channel LVDS panel; If you want to use 36-bit dual channel LVDS panel, please use CN5 and CN6 combined.*

z JP5: Inverter Power In Connector

PIN	Description
1	+12V
2	+12V
3	VCC5
4	BK_EN
5	LCD_EN
6	GND

3.8   PCI E-IDE Drive Connector

CN8 is a standard 44-pin 2.0-pitch connector daisy-chain driver connector serves the PCI E-IDE drive provisions onboard the 2807640/ 2807650. A maximum of two ATA/33/66/100 IDE drives can be connected to the 2807640/2807650 via *CN8*.

z   **CN8: IDE Connector**

PIN	Description	PIN	Description
1	Reset	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	N/C
21	PDREQ	22	GND
23	IOW#	24	GND
25	IOR#	26	GND
27	PIORDY	28	PR1PD1-
29	RPDACK-	30	GND
31	Interrupt	32	N/C
33	RPDA1-	34	PATA66
35	RPDA0-	36	RPDA2-
37	RPCS1-	38	RPCS3-
39	HDD Active	40	GND
41	VCC	42	VCC
43	GND	44	N/C

If you want to use ATA/66/100 IDE device, please purchase this cable separately.

Optional Cable	
Cable	Description
IDE Cable	ATA/66/100 IDE cable for 2.0-pitch IDE connector

3.9 Serial Port Connectors

The 2807640/2807650 offers NS16C550 compatible UARTs with Read/ Receive 16-byte FIFO serial ports and internal 10-pin headers and RS-422/485 connector.

z **CN4: COM 1 Connector (DB9)**

PIN	Description	PIN	Description
1	DCD	6	DSR
2	RXD	7	RTS
3	TXD	8	CTS
4	DTR	9	RI
5	GND		
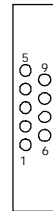
z **CN11/CN12/CN13: COM 2~COM 4 Connector (5x2 Header)**

PIN	Description	PIN	Description
1	DCD	2	DSR
3	RXD	4	RTS
5	TXD	6	CTS
7	DTR	8	RI
9	GND	10	N/C

z   CN18: RS-422/485 Connector (3x2 Header, COM4)

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

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

z   JP8: 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

4-wires point-to-point full duplex RS-422/485

Typical RS-485 2-wires Mutildrop Network

14
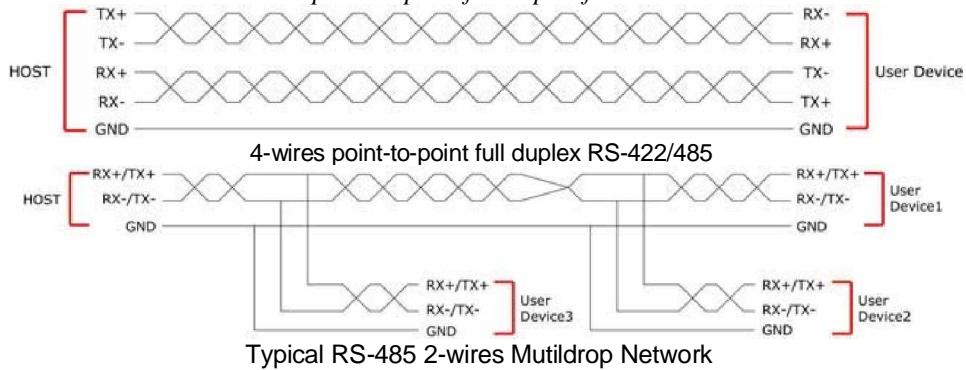
3.10 Ethernet Connector

The 2807640/2807650 provides two external RJ-45 interface connectors. Please refer to the following for its pin information.

z **CN7A/CN9A: 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
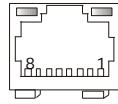
z **JP7: Onboard LAN 2 Enabled/Disabled Select**

Options	Settings
Enabled (default)	Short 1-2
Disabled	Short 2-3

3.11 USB Connector

The 2807640/2807650 provides one 8-pin connectors, at location *CN14*, for two USB ports, and four external USB2.0 ports at *CN7B/CN9B*.

z **CN7B/CN9B: 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
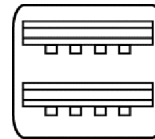
z **CN14: Internal USB2.0 Connector**

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

3.12 CMOS Data Clear

The 2807640/2807650 has a Clear CMOS jumper on *JP2.*

z **JP2: Clear CMOS**

Options	Settings
Normal Operation (default)	Short 1-2
Clear CMOS	Short 2-3

IMPORTANT: *Before you turn on the power of your system, please set JP2 to Short 1-2 for normal operation.*

3.13 Power and Fan Connectors

2807640/2807650 provides one 4-pin power in at *PW1.* z

PW1: 4-pin Power In Connector

PIN	Description
1	VCC
2	GND
3	GND
4	+12V
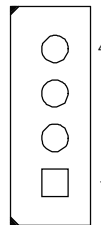
z **FN1: Fan Power In Connector**

PIN	Description
1	GND
2	+5V
3	N/C
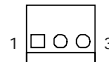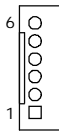
Connector *FN1* onboard 2807640/2807650 is a 3-pin fan power output connector. And 2807640/2807650 supports +5V Fan only.

3.14 Keyboard/Mouse Connectors

The 2807640/2807650 offers *CN15* for an internal 6-pin cable converter to keyboard/mouse.

ℤ **CN15: 6-pin Keyboard/Mouse Connector**

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

3.15 System Front Panel Control

The 2807640/2807650 has system front panel control at location *JP1*.

ℤ **JP1: System Front Panel Control**

PIN	Description	PIN	Description
1	220Ω pull VCC	2	Speaker
3	HDD LED	4	N/C
5	N/C	6	GND
7	N/C	8	220Ω pull VCC
9	Reset Switch	10	220Ω pull VCC
11	GND	12	GND

Connector JP1 Orientation
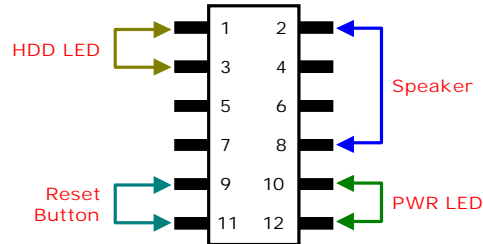
3.16 Watchdog Timer

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.

3.17 Audio Connectors

The 2807640 has an onboard AC97 3D audio controller. The following tables list the pin assignments of the Line In/Audio Out connector.

z CN1: 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

3.18 CompactFlash   Connector

The 2807640/2807650 also offers a Type I/II CompactFlash connector which is IDE interface located at the solder side of the board (beneath the SO-DIMM connector). The designated *CN17* connector, once soldered with an adapter, can hold CompactFlash cards of various sizes. Please turn off the power before inserting the CF card.

z CN17: 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
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#

...MORE ON NEXT PAGE**...**

19

PIN	Description	PIN	Description
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.
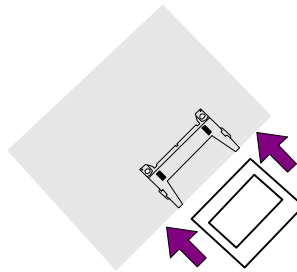
3.19 Mini PCI Slot

2807640/2807650 provides a   Mini PCI slot. The peripheral component with standard Type III Mini PCI card can be used.

3.20 8-bit I/O Function

The 2807640/2807650 offers one 8-bit input/output port by parallel port.

z   **JP9: 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
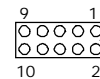
```
.286

        .MODEL SMALL
        .DATA                           ;this is data area
port    equ     0378h                   ;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              ;go back to dos
                int        21h
                .stack
                begin      endp
                end begin
```

Chapter 4

AMI BIOS Setup

The 2807640 uses AMI BIOS for the system configuration. The AMI BIOS setup program is designed to provide the maximum flexibility in configuring the system by offering various options that could be selected for end-user requirements. This chapter is written to assist you in the proper usage of these features.

4.1   Starting Setup

The AMI BIOS is immediately activated when you first power on the computer. The BIOS reads the system information contained in the CMOS and begins the process of checking out the system and configuring it. When it finishes, the BIOS will seek an operating system on one of the disks and then launch and turn control over to the operating system.

While the BIOS is in control, the Setup program can be activated in one of two ways:

1. By pressing <Del> immediately after switching the system on, or
2. By pressing the <Del> key when the following message appears briefly at the bottom of the screen during the POST (Power On Self Test).

Press DEL to enter SETUP.

If the message disappears before you respond and you still wish to enter Setup, restart the system to try again by turning it OFF then ON or pressing the "RESET" button on the system case. You may also restart by simultaneously pressing <Ctrl>, <Alt>, and <Delete> keys. If you do not press the keys at the correct time and the system does not boot, an error message will be displayed and you will be asked to...

PRESS F1 TO CONTINUE, DEL TO ENTER SETUP

4.2   Using Setup

In general, you use the arrow keys to highlight items, press <Enter> to select, use the <PageUp> and <PageDown> keys to change entries, and press <Esc> to quit. The following table provides more detail about how to navigate in the Setup program using the keyboard.

↑	Move to previous item
↓	Move to next item
←	Move to previous item
→	Move to previous item
Esc key	Main Menu -- Quit and not save changes into CMOS Status Page Setup Menu and Option Page Setup Menu -- Exit current page and return to Main Menu
PgUp key	Decrease the numeric value or make changes
PgDn key	Increase the numeric value or make changes
+ key	Increase the numeric value or make changes
- key	Decrease the numeric value or make changes
F1 key	Reserved
F2 key	Change color from total 8 colors. F2 to select color forward
F3 key	F2 to select color backward
F4 key	Reserved
F5 key	Reserved
F6 key	Reserved
F7 key	Reserved
F8 key	Reserved
F9 key	Reserved
F10 key	Save all the CMOS changes, only for Main Menu

4.3 Main Menu

Once you enter the AMI BIOS CMOS Setup Utility, the Main Menu will appear on the screen. The Main Menu allows you to select from several setup functions and two exit choices. Use the arrow keys to select among the items and press <Enter> to enter the sub-menu.

```
                        BIOS SETUP UTILITY
┌──────────────────────────────────────────────────────────────────┐
│ Main   Advanced  PCIPnP   Boot  Security  Chipset   Power    Exit  │
├──────────────────────────────────────────────────────────────────┤
│ System Overview                                                    │
│ AMI BIOS                                                           │
│ Version     : 08.00.13                                            │
│ Build Date  : 11/01/06                                            │
│ ID          : HS261000                                           │
│                                                                    │
│ Processor                                                          │
│ Type        : Intel® Pentium® M processor 2.00GHz                 │
│ Speed       : 1995MHz                                             │
│ Count       : 1                                                   │
│                                                                    │
│ System Memory                                                      │
│ Size        : 112MB                                 Select Screen  │
│                                               ..┼   Select Item   │
│                                               a  – Change Field   │
│ System Time            [00:29:32]             Tab  Select Field   │
│ System Date            [Tue 01/01/2002]       F1   General Help   │
│                                               F10  Save and Exit  │
│                                               ESC  Exit           │
├──────────────────────────────────────────────────────────────────┤
│      v02.59 (C)Copyright 1985-2005, American Megatrends, Inc.      │
└──────────────────────────────────────────────────────────────────┘
```

NOTE: *A brief description of the highlighted choice appears at the bottom of the screen.*

4.4   Advanced Settings

This section allows you to configure your system for the basic operation. You have the opportunity to select the system's default speed, boot-up sequence, keyboard operation, shadowing and security.

BIOS SETUP UTILITY

Main	Advanced	PCIPnP	Boot	Security	Chipset	Power	Exit

Advanced Settings

WARNING: Setting wrong values in below sections
            may cause system to malfunction.

✗ CPU Configuration
✗ IDE Configuration
✗ SuperIO Configuration
✗ USB Configuration
✗ Hardware Health Configuration

f Select Screen
...✝   Select Item
ᵃ –   Change Field
Tab   Select Field
F1   General Help
F10   Save and Exit
ESC   Exit

v02.59 (C)Copyright 1985-2005, American Megatrends, Inc.

BIOS SETUP UTILITY

Main	Advanced	PCIPnP	Boot	Security	Chipset	Power	Exit

Configure advanced CPU settings

Module Version –13.04

Manufacturer	: Intel
Brand String	: Intel® Pentium® M processor 2.00GH
Frequency	: 1.99GHz
FSB Speed	: 532MHz
Cache L1	: 32 KB
Cache L2	: 2048 KB

f Select Screen

Execute Disable Bit   [Enabled]   ...✝   Select Item
CPU TM function   [Enabled]   ᵃ –   Change Field

                                             Tab   Select Field
Hyper Threading Technology   [Enabled]   F1   General Help
Intel® SpeedStep™ Tech   [Automatic] F10   Save and Exit
                                             ESC   Exit

v02.59 (C)Copyright 1985-2005, American Megatrends, Inc.

BIOS SETUP UTILITY

Main	Advanced	PCIPnP	Boot	Security	Chipset	Power	Exit

IDE Configuration

OnBoard PCI IDE Controller	[Both]	
OnBoard PCI IDE Operate Mode	[Legacy Mode]	
✕ Primary IDE Master	:	[Not Detected]
✕ Primary IDE Slave	:	[Not Detected]
✕ Secondary IDE Master	:	[Not Detected]
✕ Secondary IDE Slave	:	[Not Detected]
Hard Disk Write Protect	[Disabled]	
IDE Detect Time Out (Sec)	[35]	
ATA(PI) 80Pin Cable Detection	[Host & Device]	

ƒ   Select Screen
...†   Select Item
a –   Change Field
Tab   Select Field
F1   General Help
F10   Save and Exit
ESC   Exit

v02.59 (C)Copyright 1985-2005, American Megatrends, Inc.

BIOS SETUP UTILITY

Main	Advanced	PCIPnP	Boot	Security	Chipset	Power	Exit

Configure WIN627 Super IO Chipset

Serial Port1 Address	[3F8/IRQ4]
Serial Port2 Address	[2F8/IRQ3]
OnBoard MIDI Port	[330]
MIDI IRQ Select	[IRQ5]
Serial Port3 Address	[3E8]
Serial Port3 IRQ	[10]
Serial Port4 Address	[2E8]
Serial Port4 IRQ	[11]

ƒ   Select Screen
...†   Select Item
a –   Change Field
Tab   Select Field
F1   General Help
F10   Save and Exit
ESC   Exit

v02.59 (C)Copyright 1985-2005, American Megatrends, Inc.

BIOS SETUP UTILITY

Main	Advanced	PCIPnP	Boot	Security	Chipset	Power	Exit

USB Configuration

Module Version – 2.24.0-11.4

USB Devices Enabled :
    None

USB Function	[6 USB Ports]
Legacy USB Support	[Enabled]
USB 2.0 Controller	[Enabled]
USB 2.0 Controller Mode	[FullSpeed]
BIOS EHCO Hand-Off	[Enabled]

ƒ   Select Screen
...† Select Item
ᵃ – Change Field
Tab Select Field
F1   General Help
F10 Save and Exit
ESC Exit

v02.59 (C)Copyright 1985-2005, American Megatrends, Inc.

BIOS SETUP UTILITY

Main	Advanced	PCIPnP	Boot	Security	Chipset	Power	Exit

Hardware Monitor Configuration

H/W Health Function	[Enabled]
Chassis Intrusion	[Disabled]

Hardware Health Event Monitoring

CPU Temperature

System Fan

       Select Screen

VcoreA   ...† Select Item

+3.3Vin   ᵃ – Change Field

+5Vin   Tab Select Field

F1   General Help
F10 Save and Exit
ESC Exit

v02.59 (C)Copyright 1985-2005, American Megatrends, Inc.

4.5   Advanced PCI/PnP Settings

This section describes configuring the PCI bus system. PCI, or Personal Computer Interconnect, is a system that allows I/O devices to operate at speeds nearing the speed the CPU itself uses when communicating with its own special components. This section covers some very technical items and it is strongly recommended that only experienced users should make any changes to the default settings.

BIOS SETUP UTILITY

Main	Advanced	PCIPnP	Boot	Security	Chipset	Power	Exit

Advanced PCI/PnP Settings

WARNING:	Setting wrong values in below sections may cause system to malfunction.	
Clean NVRAM	[No]	
Plug & Play O/S	[No]	
PCI Latency Timer	[64]	
Allocate IRQ to PCI VGA	[No]	
Palette Snooping	[Disabled]	
PCI IDE BusMaster	[Disabled]	
OffBoard PCI/ISA IDE Card	[Auto]	
IRQ3	[Available]	
IRQ4	[Available]	
IRQ5	[Available]	
IRQ7	[Available]	
IRQ9	[Available]	
IRQ10	[Available]	
IRQ11	[Available]	
IRQ14	[Available]	
IRQ15	[Available]	
DMA Channel 0	[Available]	
DMA Channel 1	[Available]	Select Screen
DMA Channel 3	[Available]	..+ Select Item
DMA Channel 5	[Available]	a – Change Field
DMA Channel 6	[Available]	Tab Select Field
DMA Channel 7	[Available]	F1 General Help
		F10 Save and Exit
Reserved Memory Size	[Disabled]	ESC Exit

v02.59 (C)Copyright 1985-2005, American Megatrends, Inc.

4.6   Boot Settings

BIOS SETUP UTILITY

Main	Advanced	PCIPnP	Boot	Security	Chipset	Power	Exit

Boot Settings

✕ Boot Settings Configuration

✕ Boot Device Priority
✕ Removable Drives

 f Select Screen
...† Select Item
ª – Change Field
Tab Select Field
F1 General Help
F10 Save and Exit
ESC Exit

v02.59 (C)Copyright 1985-2005, American Megatrends, Inc.

BIOS SETUP UTILITY

Main	Advanced	PCIPnP	Boot	Security	Chipset	Power	Exit

Boot Settings Configuration

Quick Boot   [Enabled]
Quiet Boot   [Disabled]
AddOn ROM Display Mode [Force BIOS]
Bootup Nom-Lock   [On]
PS/2 Mouse Support   [Auto]
Wait For 'F1' If Error   [Disabled]
Hit 'DEL' Message Display [Enabled]
Interrupt 19 Capture   [Disabled]

 f Select Screen
...† Select Item
ª – Change Field
Tab Select Field
F1 General Help
F10 Save and Exit
ESC Exit

v02.59 (C)Copyright 1985-2005, American Megatrends, Inc.

BIOS SETUP UTILITY

Main	Advanced	PCIPnP	Boot	Security	Chipset	Power	Exit

Boot Device Priority

1st Boot Device   [1st FLOPPY DRIVE]

	Select Screen
..↑	Select Item
ᵃ –	Change Field
Tab	Select Field
F1	General Help
F10	Save and Exit
ESC	Exit

v02.59 (C)Copyright 1985-2005, American Megatrends, Inc.

BIOS SETUP UTILITY

Main	Advanced	PCIPnP	Boot	Security	Chipset	Power	Exit

Removable Drives

1st Drive   [1st FLOPPY DRIVE]

	Select Screen
..↑	Select Item
ᵃ –	Change Field
Tab	Select Field
F1	General Help
F10	Save and Exit
ESC	Exit

v02.59 (C)Copyright 1985-2005, American Megatrends, Inc.

4.7   Security Settings

BIOS SETUP UTILITY

Main	Advanced	PCIPnP	Boot	Security	Chipset	Power	Exit

Security Settings

| Supervisor Password | : | Not Installed |
| User Password | : | Not Installed |

Change Supervisor Password
Change User Password
Boot Sector Virus Protection   [Disabled]

ƒ	Select Screen
...↑	Select Item
ᵃ –	Change Field
Tab	Select Field
F1	General Help
F10	Save and Exit
ESC	Exit

v02.59 (C)Copyright 1985-2005, American Megatrends, Inc.

4.8   Advanced Chipset Settings

BIOS SETUP UTILITY

Main	Advanced	PCIPnP	Boot	Security	Chipset	Power	Exit

NorthBridge Chipset Configuration

DRAM Frequency	[200 Mhz]
Configure DRAM Timing by SPD	[Enabled]
Memory Hole	[Disabled]
Init. Graphic Adapter Priority	[Internal VGA]
Internal Graphics Mode Select	
	[Enabled, 16MB]
Graphics Aperture Size	[128MB]
I.G.D. 2nd Instance Control	[Enabled]
Video Function Configuration	
DVMT Mode Select	[Combo Mode]
Boot Display Device	[CRT + LFP]
Flat Panel Type	[800x600LVDS]
Local Flat Panel Scaling	[Auto]

ƒ   Select Screen
...†   Select Item
a   –   Change Field
Tab   Select Field
F1   General   Help
F10   Save and Exit
ESC   Exit

v02.59 (C)Copyright 1985-2005, American Megatrends, Inc.

BIOS SETUP UTILITY

Main	Advanced	PCIPnP	Boot	Security	Chipset	Power	Exit

SorthBridge Chipset Configuration

OnBoard AC'97 Audio	[Auto]
OnBoard LAN	[Enabled]
Restore on AC Power Loss	[Last State]

Select Screen
...†   Select Item
a   –   Change Field
Tab   Select Field
F1   General Help
F10   Save and Exit
ESC   Exit

v02.59 (C)Copyright 1985-2005, American Megatrends, Inc.

4.9　Power Settings

BIOS SETUP UTILITY

Main	Advanced	PCIPnP	Boot	Security	Chipset	Power	Exit

APM Configuration

Power Management/APM	[Enabled]
Video Power Down Mode	[Disabled]
Hard Disk Power Down Mode	[Disabled]
Standby Time Out	[Disabled]
Suspend Time Out	[Disabled]
Throttle Slow Clock Ratio	[50%]
Keyboard & PS/2 Mouse	[Monitor]
FDC/LPT/COM Ports	[Monitor]
Primary master IDE	[Monitor]
Primary slave IDE	[Monitor]
Secondary master IDE	[Monitor]
Secondary slave IDE	[Monitor]
System Thermal	[Disabled]
Resume On RTC Alarm	[Disabled]

Select Screen
..† Select Item
a – Change Field
Tab Select Field
F1 General Help
F10 Save and Exit
ESC Exit

v02.59 (C)Copyright 1985-2005, American Megatrends, Inc.

4.9   Exit Options

BIOS SETUP UTILITY

Main	Advanced	PCIPnP	Boot	Security	Chipset	Power	Exit

Exit Options

Save Changes and Exit

Discard Changes and Exit

Discard Changes

Load Optimal Defaults

Load Failsafe Defaults

f Select Screen

...†   Select Item

a –   Change Field

Tab   Select Field F1

      General Help

F10   Save and Exit

ESC   Exit

v02.59 (C)Copyright 1985-2005, American Megatrends, Inc.

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 you for your products, projects and business.

Global American Inc.

Address:	17 Hampshire Drive
	Hudson, NH 03051
TEL:	Toll Free (U.S. Only) 800-833-8999
	(603)886-3900
FAX:	(603)886-4545
Website:	http://www.globalamericaninc.com
E-Mail:	salesinfo@globalamericaninc.com