



integration with integrity

2808140 User's Manual

Mini-ITX Motherboard with Intel Atom N270 1.6 GHz Processor

Version 1.0

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Introduction

Product Description

The 2808140 Mini ITX board incorporates the Intel® 945GSE Express Chipset with ICH7M, configured with the Intel Atom processor N270 at 1.6GHz, FSB533 and the Mobile Intel 945GSE Express Chipset with the ICH7M.

The 2808140 Mini ITX board features the Intel's Graphics Media Accelerator 950 core, making it compatible with Windows Vista Premium, and Chronitel CH7307 DVI accelerator to support display interfaces including VGA CRT, dual channel LVDS and a DVI port.

The new Intel® Graphics Media Accelerator 950 (Intel® GMA 950) graphics core is an intelligent and responsive graphics engine built into the chipset that is on the motherboard. This integration provides incredible visual quality, faster graphics performance and flexible display options without the need for a separate graphics card.

The main features of the 2808140 Mini ITX Motherboard are:

- Supports Intel Atom 270 processor with 1.6GHz speed
- Two DDRII SDRAM DIMM supports up to 2GB of DDR2 400/533MHz memory
- Onboard 10/100 BaseT and Intel 82574L PCI-Express Gigabit LAN
- Intel® 945GSE VGA for CRT, LVDS, DVI
- 2x SATA, 8x USB 2.0, 4x COM, Watchdog timer
- 1x PCI, 1x MiniPCIe, CF socket, DC-in for +12V/+19V input

Dimensions of the board are 170mm x 170mm.

Ordering Information:

2808140B: Intel Atom, 1.6GHz, 945GSE chipset with DVI, LVDS, 1x 10/100 LAN, 1x *Gigabit LAN*, Mini PCI-E, PCI

2808140A: Intel Atom, 1.6GHz, 945GSE chipset with DVI, LVDS, 1x 10/100 LAN, Mini PCI-E, PCI

Checklist

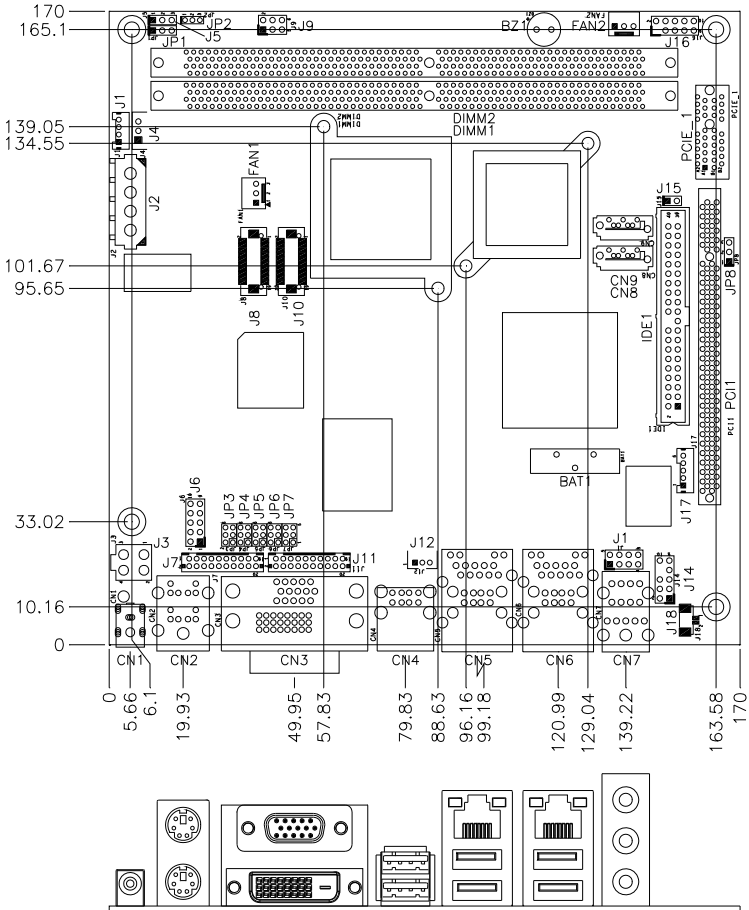
Your 2808140 package should include the items listed below.

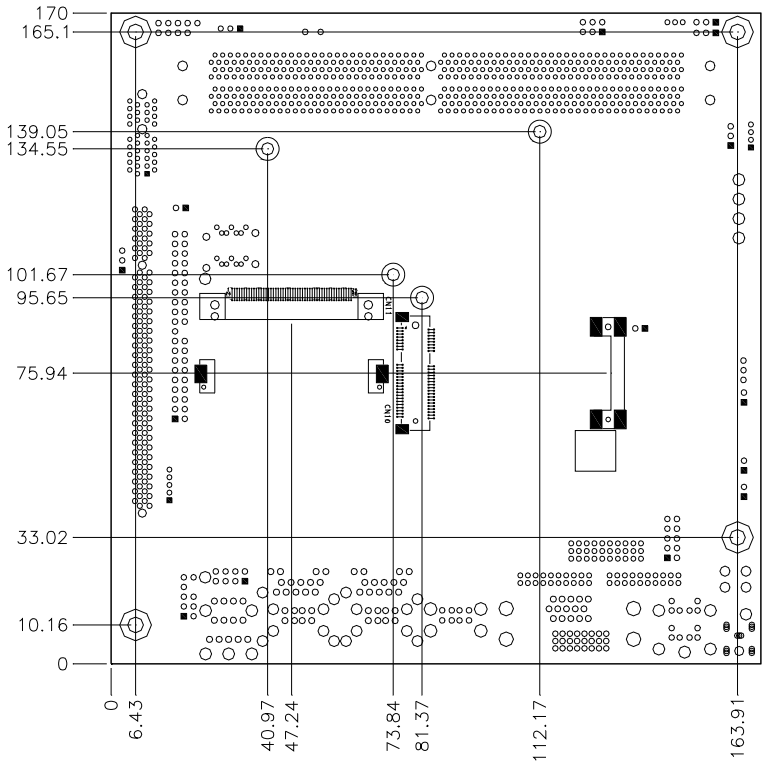
- The 2808140 Intel® Atom Mini-ITX motherboard
- This User's Manual
- 1 CD containing chipset drivers and flash memory utility
- Cable kit (IDE, 2x Serial port, Serial ATA)

2808140 Specifications

CPU Type	Intel New architecture CPU on 45nm processor, Intel® Atom™ processor N270, 1.60GHz L2 Cache=512K
FSB	533MHz
Green /APM	APM1.2
BIOS	Award BIOS, support ACPI Function
Chipset	INTEL 945GSE Chipset GMCH: 82945GSE 27 mm x 27 mm -998-pin FCBGA ICH7M: 82801GBM 31mm x 31mm -652-pin BGA
Memory	DDRII 533 DIMM x 2 (w/o ECC function), supports single channel. Max. 2GB
VGA	945GSE built-in, Intel® Graphics Media Accelerator 950 Graphics Core, Supports CRT & 18 bits dual channels LVDS interface w/ DF13 socket x2
DVI onboard	Chrontel CH7307C for DVI with connector on edge
LAN	1. ICH7M built-in 10/100BT MAC + Intel 82562ET PHY 2. Intel 82574L PCI Express Gigabit LAN controller x1
USB (Universal Serial Bus)	ICH7M built-in USB 2.0 host controller, support 8 ports
Serial ATA Ports	ICH7M built-in SATA controller, supports 2 ports
Parallel IDE	ICH7M built-in one channel Ultra DMA 33/66/100, CF
Audio	ICH7M Built-in Audio controller ALC 662 5.1-Channel (Line-in, Line-out & MIC)
LPC I/O	Winbond W83627EHG: COM1(RS232), COM2 (RS232/422/485), Hardware monitor (3 thermal inputs, 4 voltage monitor inputs, VID0-4 & 2 Fan Headers)
2nd LPC I/O	Fintek F81216DG COM3 & COM4(RS232)
Digital IO	4 in & 4 out
Keyboard/Mouse Connector	Supports PS/2 Keyboard/Mouse
Expansion Slots	PCI slot x1, PCI-E (x1) slot x1 and Mini PCI-E (x1) socket x1
Power Connector	DC Power jack x1 for +12V/+19V DC-in
Edge Connector	DC-IN jack PS/2 Connector x1 for keyboard/mouse VGA+DVI-D stack connector Dual USB stack connector 10/100 LAN RJ45 + dual USB stack connector Gigabit LAN RJ-45 + dual USB stack connector 3x1 stack mini jacks for HD audio (Line-in, Line-Out, Mic)
On Board Header/Connector	40 pins box-header x1 for IDE1 CF Connector x1 @ solder side 10 pins pin-header x1 for Digital I/O 20 pins DF11 connector x2 for COM1/COM2, COM3/COM4 (Pin9 can be powered with 5V or 12V or as ring-in) 8 pins pin-header x 1 for USB7,8 10 pins pin-header x1 for audio Line-Out & Mic SATA connector x2 for 2 SATA ports DF13 connector x2 for LVDS
Watchdog Timer	Yes (256 segments, 0, 1, 2...255 sec/min)
Other	Modem Wakeup, LAN Wakeup
RoHS	Yes
Board Size	170mm x 170mm

Board Dimensions





Installations

This section provides information on how to use the jumpers and connectors on the 2808140 in order to set up a workable system. The topics covered are:

Installing the Memory.....	7
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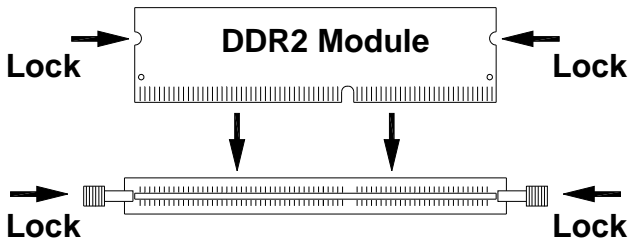
Installing the Memory

The 2808140 board supports two DDR2 memory socket for a maximum total memory of 2GB in DDR2 memory type.

Installing and Removing Memory Modules

To install the DDR2 modules, locate the memory slot on the board and perform the following steps:

1. Hold the DDR2 module so that the key of the DDR2 module align with those on the memory slot.
2. Gently push the DDR2 module in an upright position until the clips of the slot close to hold the DDR2 module in place when the DDR2 module touches the bottom of the slot.
3. To remove the DDR2 module, press the clips with both hands.

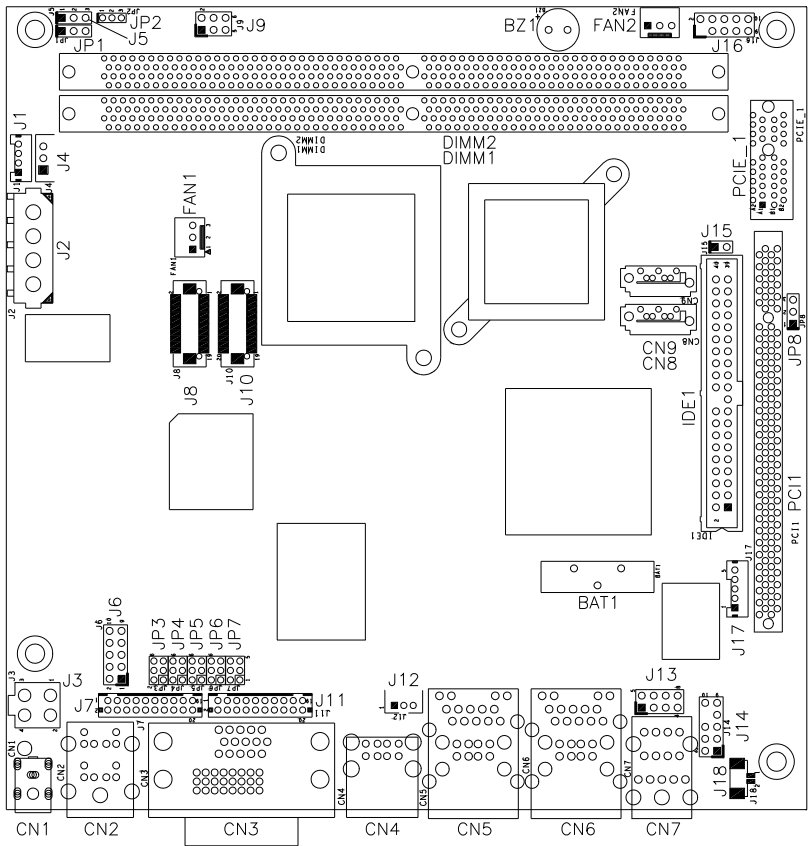


Setting the Jumpers

Jumpers are used on 2808140 to select various settings and features according to your needs and applications. Contact your supplier if you have doubts about the best configuration for your needs. The following lists the connectors on 2808140 and their respective functions.



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JP2: ATX/AT Mode Select.....	10
JP3, JP4, JP5: RS232/422/485 (COM2) Selection	10
JP6: COM4 RS232 +5V / +12V Power Setting.....	11
JP7: COM3 RS232 +5V / +12V Power Setting.....	11
JP8: Clear CMOS Setting	11
J15: CompactFlash Slave/Master Selection	11

Jumper Locations on 2808140





Jumpers on 2808140.....	Page
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J15: CompactFlash Slave/Master Selection.....	11

JP1: LCD Panel Power Selection

JP1	LCD Panel Power
	3.3V
	5V

JP2: ATX/AT Mode Select

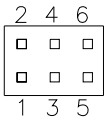
JP2	ATX / AT
	ATX mode
	AT mode

JP3, JP4, JP5: RS232/422/485 (COM2) Selection

COM1/3/4 is fixed for RS-232 use only.

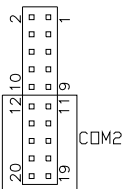
COM2 is selectable for RS232, RS-422 and RS-485.

The following table describes the jumper settings for COM2 selection.




COM2 Function	RS-232	RS-422	RS-485
Jumper Setting (pin closed)	JP5: 1-2	JP5: 3-4	JP5: 5-6
	JP4: 3-5 & 4-6	JP4: 1-3 & 2-4	JP4: 1-3 & 2-4
	JP3: 3-5 & 4-6	JP3: 1-3 & 2-4	JP3: 1-3 & 2-4

COM2 is jumper selectable for RS-232, RS-422 and RS-485.




Pin #	Signal Name		
	RS-232	RS-422	RS-485
11	DCD	TX-	DATA-
13	RX	TX+	DATA+
15	TX	RX+	NC
17	DTR	RX-	NC
19	Ground	Ground	Ground
12	DSR	RTS-	NC
14	RTS	RTS+	NC
16	CTS	CTS+	NC
18	RI	CTS-	NC
20	NC	NC	NC

JP6: COM4 RS232 +5V / +12V Power Setting

Pin #	Signal Name	JP6	Signal Name	Pin #
1	RI		+12V	2
3	RI (Default)		RI (Default)	4
5	RI		+5V	6



COM4 Settings: Pin 1-2 short = +12V, Pin 5-6 short = +5V, Pin 3-4 Standard COM Port

JP7: COM3 RS232 +5V / +12V Power Setting



Pin #	Signal Name	JP6	Signal Name	Pin #
1	RI		+12V	2
3	RI (Default)		RI (Default)	4
5	RI		+5V	6

COM3 Settings: Pin 1-2 short = +12V, Pin 5-6 short = +5V, Pin 3-4 Standard COM Port

JP8: Clear CMOS Setting

JP8	Setting
	Normal
	Clear CMOS

J15: CompactFlash Slave/Master Selection

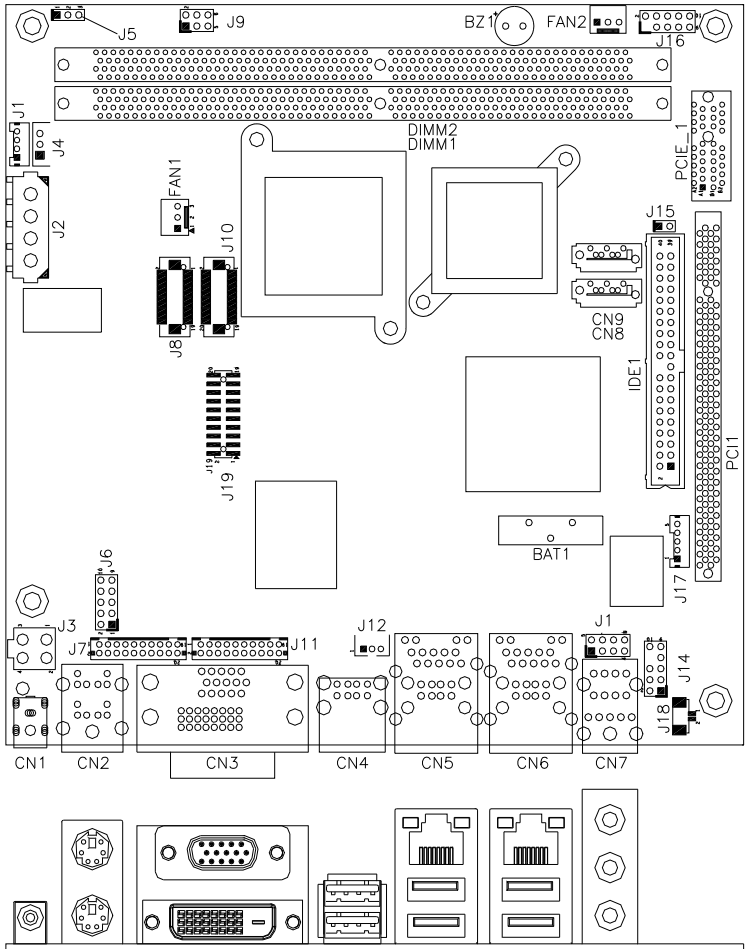
J15	CF Setting
	Master
	Slave

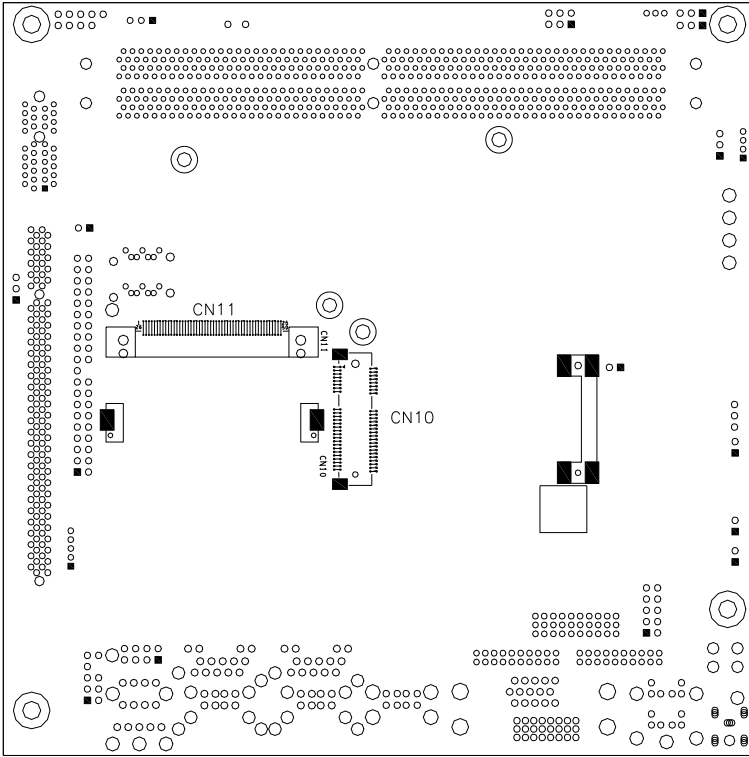
Connectors on 2808140

The connectors on 2808140 allows you to connect external devices such as keyboard, floppy disk drives, hard disk drives, printers, etc. The following table lists the connectors on 2808140 and their respective functions.

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J19: Parallel Port.....	21

Connector Locations on 2808140





FAN1: CPU Fan Power Connector

FAN1 is a 3-pin header for the CPU fan. The fan must be 12V (Max. 500mA).



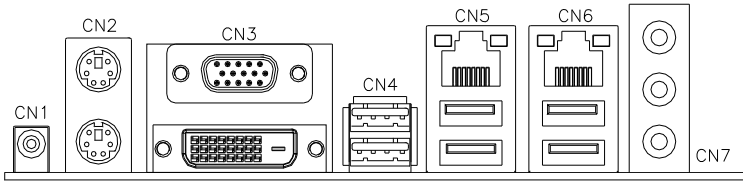
Pin #	Signal Name
1	Ground
2	+12V
3	Rotation detection

FAN2: System Fan Power Connector

FAN2 is a 3-pin header for system fans. The fan must be 12V (Max. 500mA).



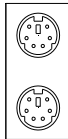
Pin #	Signal Name
1	Ground
2	+12V
3	Rotation detection



CN1: DC Jack (DC in, 12V or 19V)

Remarks: CN1 and J3 cannot be connected at the same time.

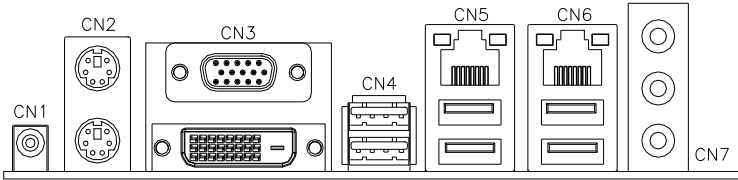
CN2: PS/2 Keyboard and PS/2 Mouse Connectors



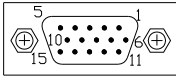
PS/2 Mouse

PS/2 Keyboard

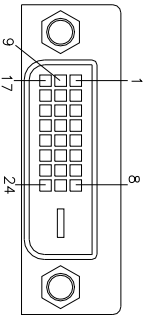
Signal Name	Keyboard	Mouse	Signal Name
Keyboard data	1	1	Mouse data
N.C.	2	2	N.C.
GND	3	3	GND
5V	4	4	5V
Keyboard clock	5	5	Mouse clock
N.C.	6	6	N.C.



CN3: VGA and DVI Connectors



Signal Name	Pin #	Pin #	Signal Name
Red	1	2	Green
Blue	3	4	N.C.
GND	5	6	GND
GND	7	8	GND
VCC	9	10	GND
N.C.	11	12	DDCDATA
HSYNC	13	14	VSYNC
DDCCLK	15		



Signal Name	Pin #	Pin #	Signal Name
DATA 2-	1	16	HOT POWER
DATA 2+	2	17	DATA 0-
Shield 2/4	3	18	DATA 0+
DATA 4-	4	19	SHIELD 0/5
DATA 4+	5	20	DATA 5-
DDC CLOCK	6	21	DATA 5+
DDC DATA	7	22	SHIELD CLK
VSYNC	8	23	CLOCK -
DATA 1-	9	24	CLOCK +
DATA 1+	10		
SHIELD 1/3	11		
DATA 3-	12		
DATA 3+	13		
DDC POWER	14		
A GROUND 1	15		

CN4: USB5/6 Ports

CN5: 10/100 RJ-45 and USB1/2 Ports

CN6: GbE RJ-45 and USB3/4 Ports

CN7: Audio Connector

CN8, CN9: Serial ATA Connectors

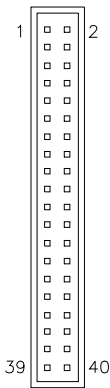
CN10: Mini PCI- E(x1) Connector (bottom side)

CN11: Compact Flash Connector (bottom side)

PCI1: PCI Slot (supports 2 Master)

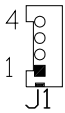
PCIE_1: PCIE x1 Slot

IDE1: IDE Connector

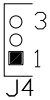


Signal Name	Pin #	Pin #	Signal Name
Reset IDE	1	2	Ground
Host data 7	3	4	Host data 8
Host data 6	5	6	Host data 9
Host data 5	7	8	Host data 10
Host data 4	9	10	Host data 11
Host data 3	11	12	Host data 12
Host data 2	13	14	Host data 13
Host data 1	15	16	Host data 14
Host data 0	17	18	Host data 15
Ground	19	20	Protect pin
DRQ0	21	22	Ground
Host IOW	23	24	Ground
Host IOR	25	26	Ground
IOCHRDY	27	28	Host ALE
DACK0	29	30	Ground
IRQ14	31	32	No connect
Address 1	33	34	No connect
Address 0	35	36	Address 2
Chip select 0	37	38	Chip select 1
Activity	39	40	Ground

J1, J4: LCD Backlight Connector



Pin #	Signal Name
1	+12V
2	Backlight Enable
3	Backlight ADJ
4	Ground



Pin #	Signal Name
1	+12V
2	Backlight ADJ
3	Ground

J2: HDD Power Connector (Output: Max. 2A)



Pin #	Signal Name
1	+12V
2	Ground
3	Ground
4	5V

Note: +12V power is provided with 2A maximum load.

J3: ATX_12V Connector

J3 is a DC-in internal connector supporting +12V or +19V.

Remarks: CN1 and J3 connectors cannot be connected at the same time.



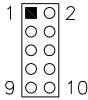
Pin #	Signal Name
1	Ground
2	Ground
3	+12V
4	+12V

J5: Power LED Connector



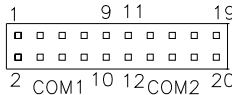
Pin #	Signal Name
1	Vcc
2	NC
3	PLED

J6: Digital I/O



Signal Name	Pin	Pin	Signal Name
GND	1	2	VCC
OUT3	3	4	OUT1
OUT2	5	6	OUT0
IN3	7	8	IN1
IN2	9	10	IN0

J7: COM1, COM2 Serial Ports

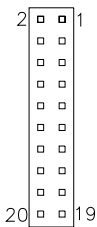


Pin #	Signal Name (RS-232)
1/11	DCD, Data carrier detect
3/13	RXD, Receive data
5/15	TXD, Transmit data
7/17	DTR, Data terminal ready
9/19	Ground
2/12	DSR, Data set ready
4/14	RTS, Request to send
6/16	CTS, Clear to send
8/18	RI, Ring indicator
10/20	No Connect.

*COM2 supports RS-232/422/485.

J8, J10: LVDS Connectors (1st channel, 2nd channel)

The LVDS connectors on board consist of the first channel and second channel and supports 18-bit.



Signal Name	Pin #	Pin #	Signal Name
TX0-	2	1	TX0+
Ground	4	3	Ground
TX1-	6	5	TX1+
5V/3.3V	8	7	Ground
NC	10	9	NC
TX2-	12	11	TX2+
Ground	14	13	Ground
TXC-	16	15	TXC+
5V/3.3V	18	17	ENABKL
+12V	20	19	+12V

J9: System Function Connector



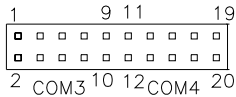
Signal Name	Pin	Pin	Signal Name
5VDUAL	1	2	PS_ON
5V	3	4	HDD Active
Ground	5	6	Reset

ATX power on switch: Pins 1-2

HDD LED: Pins 3-4

Reset switch: Pins 5-6

J11: COM3, COM4 Serial Ports



Pin #	Signal Name (RS-232)
1/11	DCD, Data carrier detect
3/13	RXD, Receive data
5/15	TXD, Transmit data
7/17	DTR, Data terminal ready
9/19	Ground
2/12	DSR, Data set ready
4/14	RTS, Request to send
6/16	CTS, Clear to send
8/18	RI, Ring indicator
10/20	No Connect.

J12: Wake On LAN Connector

J12 is a 3-pin header for the Wake On LAN function.



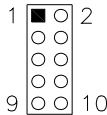
Pin #	Signal Name
1	+5VSB
2	Ground
3	-PME

J13: USB7/8 Port Pin Header



Signal Name	Pin	Pin	Signal Name
Vcc	1	5	Ground
D-	2	6	D+
D+	3	7	D-
Ground	4	8	Vcc

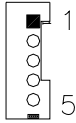
J14: Audio Front Header



Signal Name	Pin #	Pin #	Signal Name
MIC2_L	1	2	Ground
MIC2_R	3	4	Presence#
Line2_R	5	6	MIC2_ID
Sense	7	8	NC
Line2_L	9	10	Line2_ID

J16: SPI Debug Tools Port (Factory use only)

J17: Smart Battery Connector



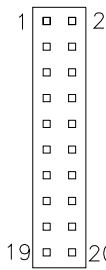
Pin #	Signal Name
1	PCIRST-
2	EMTSMI-
3	Ground
4	SMBDATA
5	SMBCLK

J18: SPDIF Out Connector

Pin #	Signal Name
1	SPDIF out
2	Ground

J19: Parallel Port

Remarks: This connector is supported only in board version B1 and above.



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

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Appendix

A. I/O Port Address Map

Each peripheral device in the system is assigned a set of I/O port addresses which also becomes the identity of the device. The following table lists the I/O port addresses used.

Address	Device Description
000h - 01Fh	DMA Controller #1
020h - 03Fh	Interrupt Controller #1
040h - 05Fh	Timer
060h - 06Fh	Keyboard Controller
070h - 07Fh	Real Time Clock, NMI
080h - 09Fh	DMA Page Register
0A0h - 0BFh	Interrupt Controller #2
0C0h - 0DFh	DMA Controller #2
0F0h	Clear Math Coprocessor Busy Signal
0F1h	Reset Math Coprocessor
1F0h - 1F7h	IDE Interface
278 - 27F	Parallel Port #2(LPT2)
2F8h - 2FFh	Serial Port #2(COM2)
2B0 - 2DF	Graphics adapter Controller
378h - 3FFh	Parallel Port #1(LPT1)
360 - 36F	Network Ports
3B0 - 3BF	Monochrome & Printer adapter
3C0 - 3CF	EGA adapter
3D0 - 3DF	CGA adapter
3F0h - 3F7h	Floppy Disk Controller
3F8h - 3FFh	Serial Port #1(COM1)

B. Interrupt Request Lines (IRQ)

Peripheral devices use interrupt request lines to notify CPU for the service required. The following table shows the IRQ used by the devices on board.

Level	Function
IRQ0	System Timer Output
IRQ1	Keyboard
IRQ2	Interrupt Cascade
IRQ3	Serial Port #2
IRQ4	Serial Port #1
IRQ5	Reserved
IRQ6	Floppy Disk Controller
IRQ7	Parallel Port #1
IRQ8	Real Time Clock
IRQ9	Reserved
IRQ10	Reserved
IRQ11	Reserved
IRQ12	PS/2 Mouse
IRQ13	80287
IRQ14	Primary IDE
IRQ15	Secondary IDE

C. Watchdog Timer Configuration

The WDT is used to generate a variety of output signals after a user programmable count. The WDT is suitable for use in the prevention of system lock-up, such as when software becomes trapped in a deadlock. Under these sorts of circumstances, the timer will count to zero and the selected outputs will be driven. Under normal circumstance, the user will restart the WDT at regular intervals before the timer counts to zero.

SAMPLE CODE:

```
//=====
//
// THIS CODE AND INFORMATION IS PROVIDED "AS IS" WITHOUT WARRANTY OF ANY
// KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE
// IMPLIED WARRANTIES OF MERCHANTABILITY AND/OR FITNESS FOR A PARTICULAR
// PURPOSE.
//
//=====
#include <stdio.h>
#include <stdlib.h>
#include "W627EHF.H"
//=====
int main (int argc, char *argv[]);
void copyright(void);
void EnableWDT(int);
void DisableWDT(void);
//=====
int main (int argc, char *argv[])
{
    unsigned char bBuf;
    unsigned char bTime;
    char **endptr;

    copyright();

    if (argc != 2)
    {
        printf(" Parameter incorrect!!\n");
        return 1;
    }

    if (Init_W627EHF() == 0)
    {
        printf(" Winbond 83627HF is not detected, program abort.\n");
        return 1;
    }
    bTime = strtol (argv[1], endptr, 10);
    printf("System will reset after %d seconds\n", bTime);

    EnableWDT(bTime);

    return 0;
}
//=====
```

```

void copyright(void)
{
    printf("\n===== Winbond 83627EHF Watch Timer Tester (AUTO DETECT) =====\n")
        " Usage : W627E_WD reset_time\n"
        " Ex : W627E_WD 3 => reset system after 3 second\n"
        " W627E_WD 0 => disable watch dog timer\n");
}
//=====
void EnableWDT(int interval)
{
    unsigned char bBuf;

    bBuf = Get_W627EHF_Reg( 0x2D);
    bBuf &= (!0x01);
    Set_W627EHF_Reg( 0x2D, bBuf); //Enable WDTO

    Set_W627EHF_LD( 0x08); //switch to logic device 8
    Set_W627EHF_Reg( 0x30, 0x01); //enable timer

    bBuf = Get_W627EHF_Reg( 0xF5);
    bBuf &= (!0x08);
    Set_W627EHF_Reg( 0xF5, bBuf); //count mode is second

    Set_W627EHF_Reg( 0xF6, interval); //set timer
}
//=====
void DisableWDT(void)
{
    Set_W627EHF_LD(0x08); //switch to logic device 8
    Set_W627EHF_Reg(0xF6, 0x00); //clear watchdog timer
    Set_W627EHF_Reg(0x30, 0x00); //watchdog disabled
}
//=====

```

```

//=====
//
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// KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE
// IMPLIED WARRANTIES OF MERCHANTABILITY AND/OR FITNESS FOR A PARTICULAR
// PURPOSE.
//
//=====
#include "W627EHF.H"
#include <dos.h>
//=====
unsigned int W627EHF_BASE;
void Unlock_W627EHF (void);
void Lock_W627EHF (void);
//=====
unsigned int Init_W627EHF(void)
{
    unsigned int result;
    unsigned char ucDid;

    W627EHF_BASE = 0x2E;
    result = W627EHF_BASE;

    ucDid = Get_W627EHF_Reg(0x20);
    if (ucDid == 0x88)
    {   goto Init_Finish;   }

    W627EHF_BASE = 0x4E;
    result = W627EHF_BASE;
    ucDid = Get_W627EHF_Reg(0x20);
    if (ucDid == 0x88)
    {   goto Init_Finish;   }

    W627EHF_BASE = 0x00;
    result = W627EHF_BASE;

Init_Finish:
    return (result);
}
//=====
void Unlock_W627EHF (void)
{
    outportb(W627EHF_INDEX_PORT, W627EHF_UNLOCK);
    outportb(W627EHF_INDEX_PORT, W627EHF_UNLOCK);
}
//=====
void Lock_W627EHF (void)
{
    outportb(W627EHF_INDEX_PORT, W627EHF_LOCK);
}
//=====
void Set_W627EHF_LD( unsigned char LD)
{
    Unlock_W627EHF();
    outportb(W627EHF_INDEX_PORT, W627EHF_REG_LD);
    outportb(W627EHF_DATA_PORT, LD);
    Lock_W627EHF();
}

```

```

=====
void Set_W627EHF_Reg( unsigned char REG, unsigned char DATA)
{
    Unlock_W627EHF();
    outportb(W627EHF_INDEX_PORT, REG);
    outportb(W627EHF_DATA_PORT, DATA);
    Lock_W627EHF();
}
=====
unsigned char Get_W627EHF_Reg(unsigned char REG)
{
    unsigned char Result;
    Unlock_W627EHF();
    outportb(W627EHF_INDEX_PORT, REG);
    Result = inportb(W627EHF_DATA_PORT);
    Lock_W627EHF();
    return Result;
}
=====

=====
//
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// KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE
// IMPLIED WARRANTIES OF MERCHANTABILITY AND/OR FITNESS FOR A PARTICULAR
// PURPOSE.
//
=====
#ifndef __W627EHF_H
#define __W627EHF_H                1
=====
#define W627EHF_INDEX_PORT        (W627EHF_BASE)
#define W627EHF_DATA_PORT        (W627EHF_BASE+1)
=====
#define W627EHF_REG_LD            0x07
=====
#define W627EHF_UNLOCK            0x87
#define W627EHF_LOCK              0xAA
=====
unsigned int Init_W627EHF(void);
void Set_W627EHF_LD( unsigned char);
void Set_W627EHF_Reg( unsigned char, unsigned char);
unsigned char Get_W627EHF_Reg( unsigned char);
=====
#endif //__W627EHF_H

```

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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