3I525D / 3I525U

DDR3 800 MHz / VGA / 4 LAN / Mini card / 3G SIM Card Reader

Intel Atom D525 1.8 GHz CPU, DDR3 800MHz, All-In-One

PCIe mini card for PCIe & USB interface

SATA, 7 USB, CF

Multi-LAN Board

NO. 3I525D / 3I525U
Release date: MAY. 13 . 2011

Contents

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Trademarks

User Manual edition 0.1, MAY . 05 . 2011

Warning !

1. Battery

Battery on board is consumables. We doesn't guarantee the life time of it.

2. Fanless solution with HDD

Please be aware of specification & limitation for HDD when fanless solution is implemented.

3. We will not give further notification if there is any change about the product information and the manual.

4. SATA does not support Hot SWAP.

5. There would be ± 20% difference of WDT at room temperature.

6. Please make sure the voltage specification meet the requirement of the equipment before plugging into the power.

7. SSD has 2 types, commercial grade and industrial grade, which provide different read/write speed, operation temperature and life cycle. Please contact sales for further information before ordering.

8. Caution ! Please notice that the heat dissipation problem could cause the MB system unstable. Please handle the heat dissipation properly when buying single MB.

9. Please avoid to approach the heat sink area and prevent being scalded when using the Fanless products.

10. If the users repair, modify or destroy any component of product unauthorized, We would not take responsibility or provide warranty.

11. DO NOT apply any other material onto the thermal pad in case reducing cooling performance.

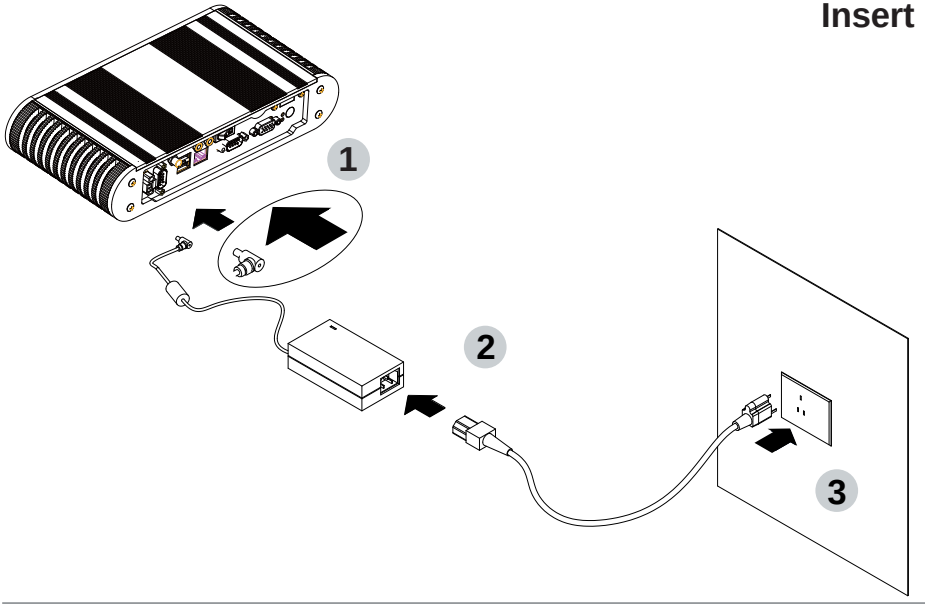
12. It is important to install a System Fan toward the CPU to prevent the possibility of overheating / system hang up issues from D510 / D525 series of motherboard or else customer is required to have well cooling system to dissipate heat from CPU.

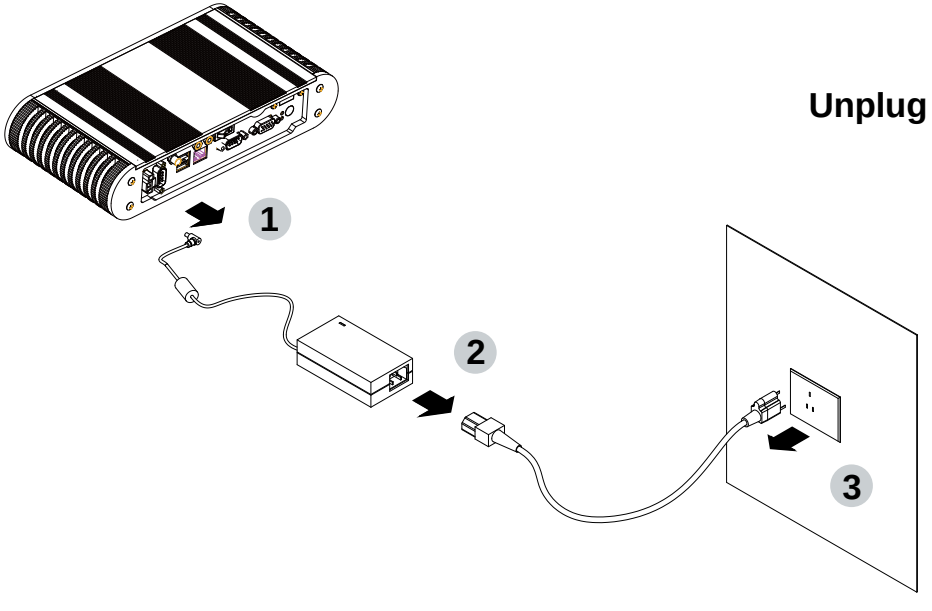
✻ Hardware Notice Guide

1. Before installing the power supply with this motherboard, please attach the 12V/DC (2 pin connector)of the adapter to motherboard first.
   After that, plug the adapter power to AC outlet.
   Always normally shut down the computer before you move the system unit or remove the power supply from the motherboard.
   Please unplug the 12V/DC (2 pin connector) of the adapter from motherboard first.
   Then unplug the adapter from the AC outlet.
   Please refer to procedure from the photo 1
2. There will be high possibility to burn out the CPU if you change/ modify any parts of the CPU cooler.
3. Please wear wrist strap and attach it to a metal part of the system unit before handling a component.
   You can also touch an object that is of ground connection or with metal surface if you don't have wrist strap.
4. Please be careful when you handle this product. Pay attention to & don't touch the sharp-pointed components at the bottom PCB .
5. Please pay attention to this: Remove or change any components form the motherboard will VOID the warranty of the motherboard you purchased .
6. Before you install/remove any components or make any jumper setting on the motherboard, please make sure to disconnect the power first.
   (Please follow the instructions as of this guide)
7. Please follow this instruction carefully when using the "POWERON after PWR-Fair" function.
   When the DC power adaptor runs out of power, unplug it from the DC current;
   when power returns plug it back in only after 5 seconds. If there is a power outage,
   unplug it from the AC current, when power returns plug it back in only after 30 seconds.
   Otherwise it will cause system locking or serious damage.

Remark 1:
Always insert/unplug the 12V/DC (2 pin connector) horizontally & directly from the motherboard.
DO NOT twist the 12V/DC (2 pin connector) gently, it is designed to fit snugly . Moreover, erratic pull / push testing with the DC Jack might cause the unpredictable damage to the component & system unit.

Photo 1





Chapter-1

General Information

The 3I525D & 3I525U are built to be all-in-one networking control boards. Its design to combines all necessary input and output interface, which make them to be ideal control board for thin client, firewall or server applications. 3I525D & 3I525U are the perfect platforms for whole range of small form factor, low-power devices.
High-performance and power-efficient networking platform, the embedded motherboard 3I525D & 3I525U are specially designed for advanced embedded VPN or firewall applications where the economical use of power is in high demand.
With the sizable memory bandwidth of on board 1GB DDR3 and DDR3 SODIMM socket or the flexibility of expanding the memory to 4GB DDR3 SODIMM socket, 3I525D & 3I525U ensure the high performance level required of today's most popular firewall applications.
3I525D & 3I525U are supported with four 10/100/1000 Mbps Ethernet for seamless broadband connectivity. With Wake-On LAN function and the PXE function in BIOS, these are perfect control board for networking devices.
The built-in LAN option are four Intel 82583V for 3I525U or
four RLT8111DL for 3I525D with RJ45 for 10/100/1000 Mbps Ethernet.
3I525D & 3I525U also offer 1 COM port supporting the TTL signal level to meet the needs of COM port connectivity.

3I525D & 3I525U can integrate with PCIe mini card for PCIe & USB interface. In addition, with the 7 Hi-speed USB ver. 2.0 enhanced host controller interface; it ensures the high performance level and also the powerful and flexible expansion.
The Compact Flash socket supports IDE/ATA interface.
A single flash chip holds the system BIOS, and you can change the flash BIOS by the Utility Update.

The3I525D & 3I525U all-in-one motherboard are fully compatible with industry standards, plus technical enhancements and thousands of software applications developed for IBM PC/AT compatible computers. The control logic provides high-speed performance for the most advanced multi user and multitasking applications available today.

1-1 Major Feature

1. Intel Atom D525 1.8 GHz CPU
2. Intel Pineview-D and ICH8M (82801HBM) chipset on board
3. Intel Luna Pier Refresh Pineview-D Integrated Graphics Engine
4. 1 x DDR3 SO-DIMM socket (max. 4GB) or

   On board DDR3 SDRAM 1GB and 1 x DDR3 SO-DIMM socket (max. 2GB)
5. On board SSD 2/4/8 GB (option)
6. Support 4 x 10/100/1000 Mbps LAN on Board (Realtek or Intel LAN chipset)
7. Support 1 pair LAN Bypass function when DC Power off (option)
8. Support 1 x Compact Flash Card Socket
9. Support 1 x SATA. (2^{nd}SATA is option)
10. Support PCIe mini card for PCIe & USB interface (Note: -5V, -12V no support)
11. On board DC +12V Power Supply
12. Compact PCB Dimension: 145 x 102 mm (3.5 inch)
13. 3G SIM card reader (for some 3G mini card use)
14. USB interface Touch screen controller, support 4-, 5-, 8- wire Analog Resistive touch screen,

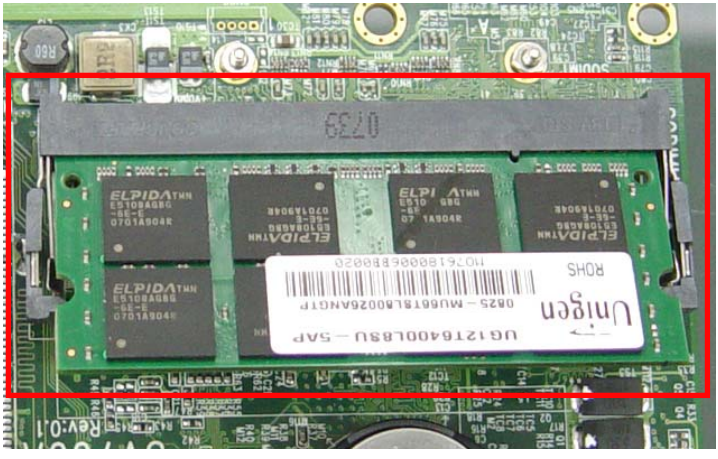
    Resolution is up to 2048 x 2048 (option)

1-2 Specification

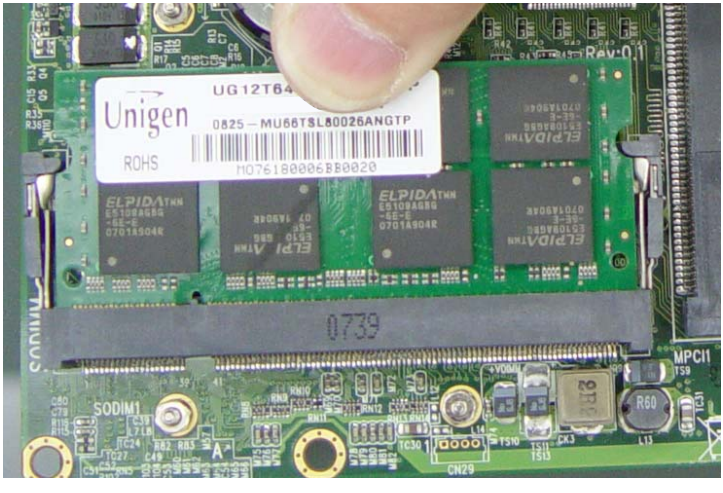
1. **CPU :** Intel Atom D525 CPU
2. **Chipset :** Intel Pineview-D and ICH8M (82801HBM) chipset on board
3. **Memory :** 1 x DDR3 SO-DIMM socket (max. 4GB) or
   On board DDR3 SDRAM 1GB and 1 x DDR3 SO-DIMM socket (max. 2GB)
4. **VGA :** Intel Luna Pier Refresh Pineview-D Integrated Graphics Engine
5. **I/O Chip :** F81801U I/O chipset
6. **SATA :** One SATA port with independent DMA operation supported
7. **NAND flash memory (Option) :**
   Support Compact Flash card type II for ATA interface On board SSD 2/4/8 GB
8. **LAN :** 4 x Intel 82583V LAN chip for 3I525U or
   4 x Realtek RLT8111DL for 3I525D with 10/100/1000 Mbps for PCIe x 1 interface
9. **Storage Device :** 1 x 50 pins Compact Flash Socket
10. **Serial Port :** 1 x COM1 supports TTL signal level
11. **USB :** 7 x USB 2.0 (2 external + 5 internal ports)
12. **Sound (option) :** Intel HD audio specification Rev. 1.0 Compliant
13. **LAN Bypass (option) :** supports 100Mb LAN Bypass function when DC Power off
14. **WDT (option) :** Hardware watch dog timer support, 0~255 sec programmable
15. **Expansion interface :** 2 x PCIe mini card for PCIe & USB interface
16. **BIOS :** Award BIOS version V6.1
17. **Dimension :** 145 x 102 mm (3.5 inch)
18. **Power :** On board DC 12V-In (12V +-5%) convert to +5V/+3V for system
19. **Power Consumption :** Please refer to following page 74
20. **3G Wireless :** 3G SIM card reader (for some 3G mini card use as option)
21. **LVDS :** 18 bit LVDS (option)
22. **Touch function :** USB interface Touch screen controller,
    support 4-, 5-, 8- wire Analog Resistive touch screen,
    Resolution is up to 2048 x 2048 (option)

1-3 Installing the SO-DIMM

1. Align the SO-DIMM with the connector at a 45 degree angle.

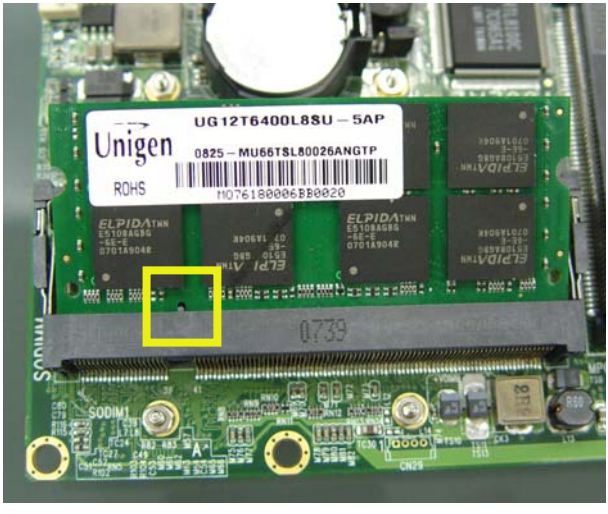


2. Press the SO-DIMM into the connector until you hear a click.

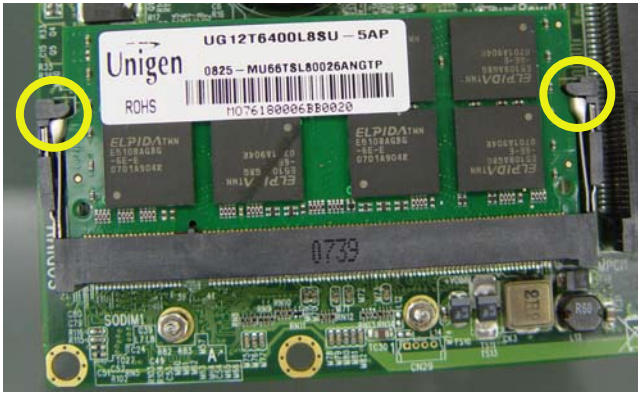


Notices:

1.The connectors are designed to ensure the correct insertion. If you feel resistance, check the connectors & golden finger direction, and realign the card.



2. Make sure the retaining clips (on two sides of the slot) lock onto the notches of the card firmly.



1-3-1.1 Removing the SO-DIMM

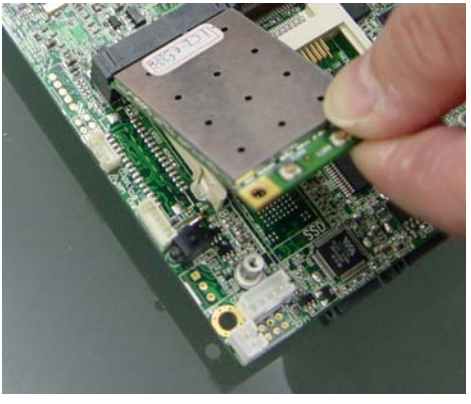
1. Release the SO-DIMM by pulling outward the two retaining clips and the SO-DIMM pops up slightly.

2. Lift the SO-DIMM out of its connector carefully.

1-4 Directions for installing the Mini Card

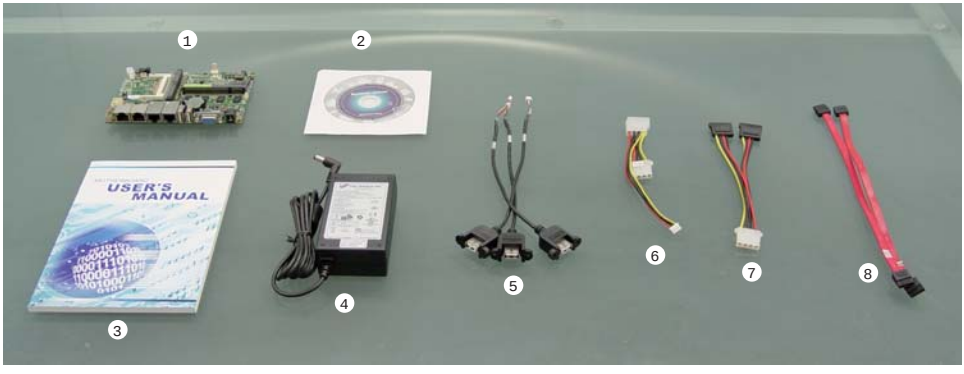
1. Unscrew the screw on the board

2. Plug in the Mini Card in a 45° angle



3. Gently push down the Mini Card and screw the screw back.

1-5 Packing List 3I525D / 3I525U



① Mainboard

② Utility CD Disk

③ User's Manual

④ DC 12V Power Adapter (2P)

⑤ USB Cable

⑥ DC Cable

⑦ SATA Power Cable

⑧ SATA Data Cable

*The packing list above is for the users who purchase single motherboard. The users who purchase the board with chassis may refer to the packing list in the Assembly Guide.

Please contact with your dealer if any of these items is missing or damaged on delivery. And please keep all parts of the delivery package with packing materials in case if you need to deliver or store the product in the future.

Chapter-2

Hardware Installation

This chapter provides the information how to install the hardware of 3I525D / 3I525U. Please follow section 1-5, 2-1 and 2-2 to check the delivery package and unpack carefully. Please follow the jumper setting procedure.

2-1 Unpacking Precaution

The 3I525D / 3I525U board has been well packed with an anti-static bag to protect its sensitive components and circuitry from damage due to static electric discharge.

NOTE!

1. Do not touch the board or any other sensitive components without all necessary anti-static protection.
2. Please pay attention to the voltage limitation of DC-IN12 V ± 5 %.
   Overuse of DC-IN voltage limitation or change to another power adapter (not provided with this system) will VOID warranty.

You should follow these steps to protect the board from the static electric discharge whenever you handle the board:

1. Ground yourself by a grounded wrist strap at all times when you handle the 3I525D / 3I525U.
   Well secure the ALLIGATOR clip of the strap to the end of the shielded wire lead from a grounded object. Please put on and connect the strap before handling the 3I525D / 3I525U for harmlessly discharge any static electricity through the strap.

2. Please use anti-static pad to put any components, parts, or tools on the pad whenever you work on them outside the computer. You may also use the anti-static bag instead of the pad. Please ask your local supplier for necessary parts on anti-static requirement.

3. Do not plug any connector or set any jumper when the power is on.

2-2 Unpacking checkup

First of all, please follow all necessary steps of section 2-1 to protect 3I525D / 3I525U from electricity discharge. With reference to section 1-5, please check the delivery package again with following steps:

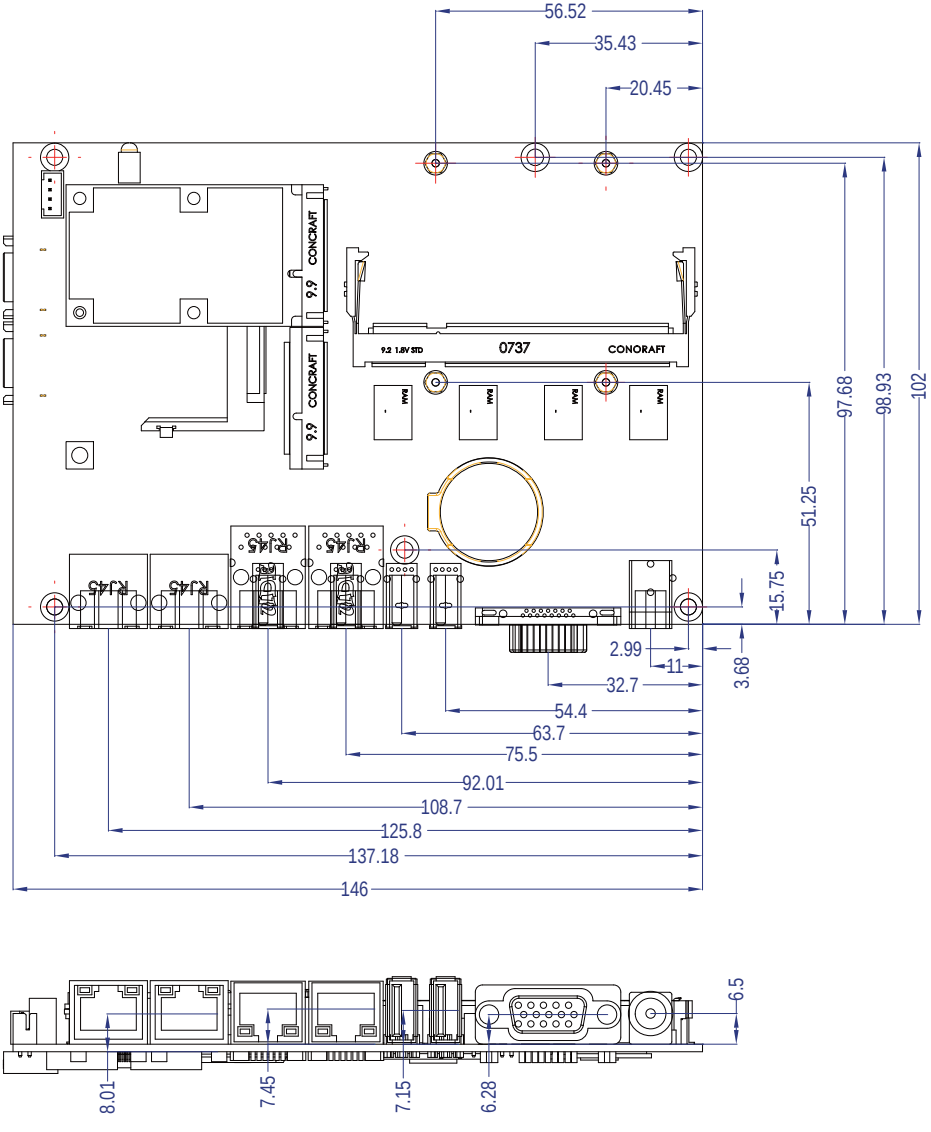
1. Unpack the 3I525D / 3I525U board and keep all packing material, manual and driver disc etc, do not dispose !

2. Is there any components lose or drops from the board? DO NOT CONTINUE TO INSTALL THIS BOARD! CONTACT THE DEALER YOU PURCHASED THIS BOARD FROM, IMMEDIATELY.
3. Is there any visible damage on the board? DO NOT CONTINUE TO INSTALL THIS BOARD!CONTACT THE DEALER YOU PURCHASED THIS BOARD FROM, IMMEDIATELY.
4. Check your optional parts (i.e. DDR, CF etc.), all necessary jumpers setting to jumper pin-set, and CMOS setup correctly.
   Please also refer to all information of jumper settings in this manual.

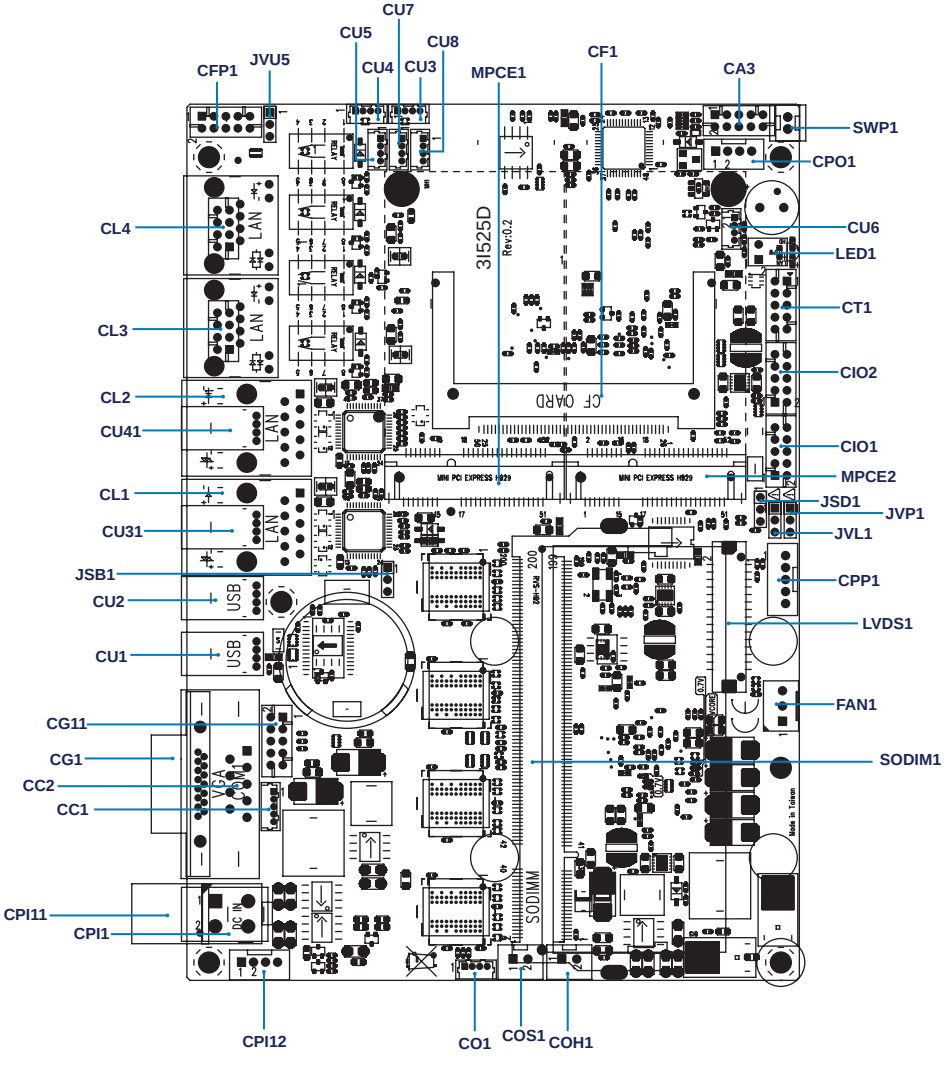
5. Check your external devices (i.e. Add-On-Card, Driver Type etc.) for complete add-in or connection and CMOS setup correctly.
   Please also refer to all information of connector connection in this manual.

6. Please keep all necessary manual and driver disc in a good condition for future re-installation if you change your Operating System.

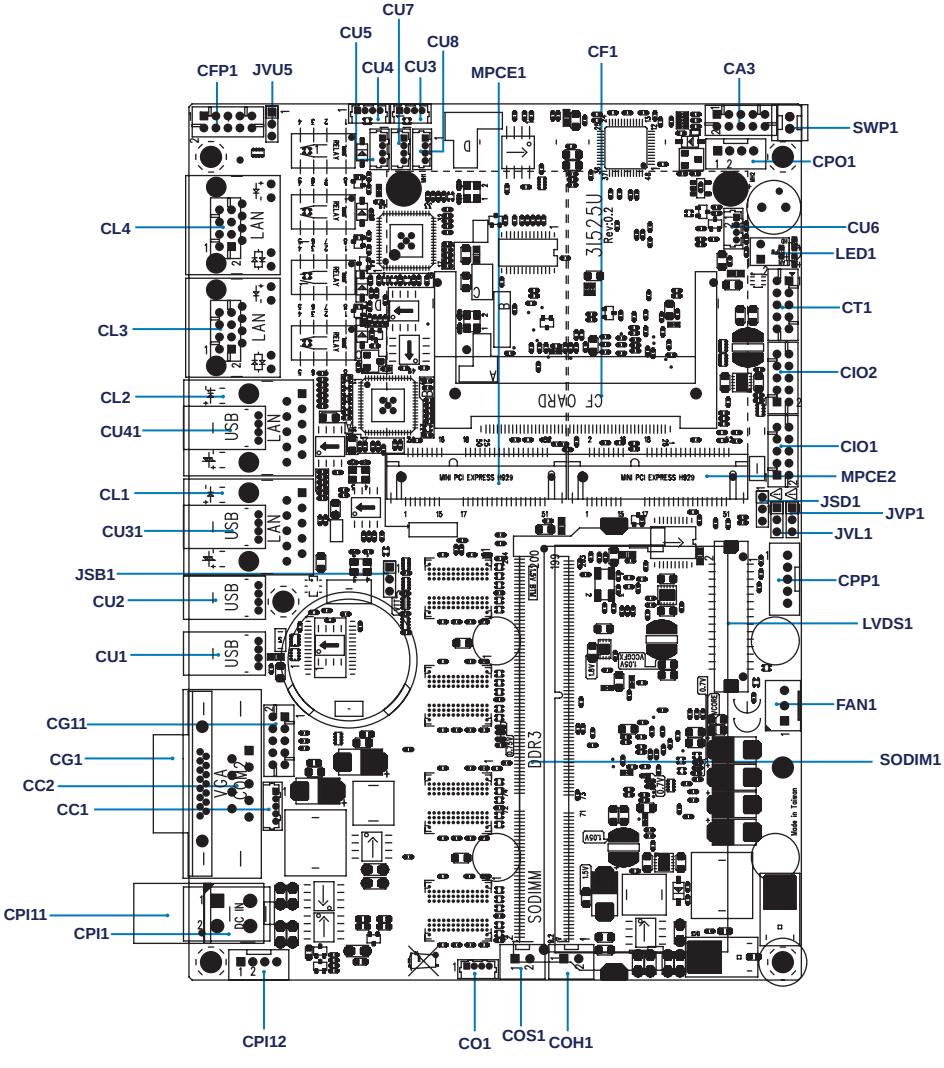
2-3 Dimension



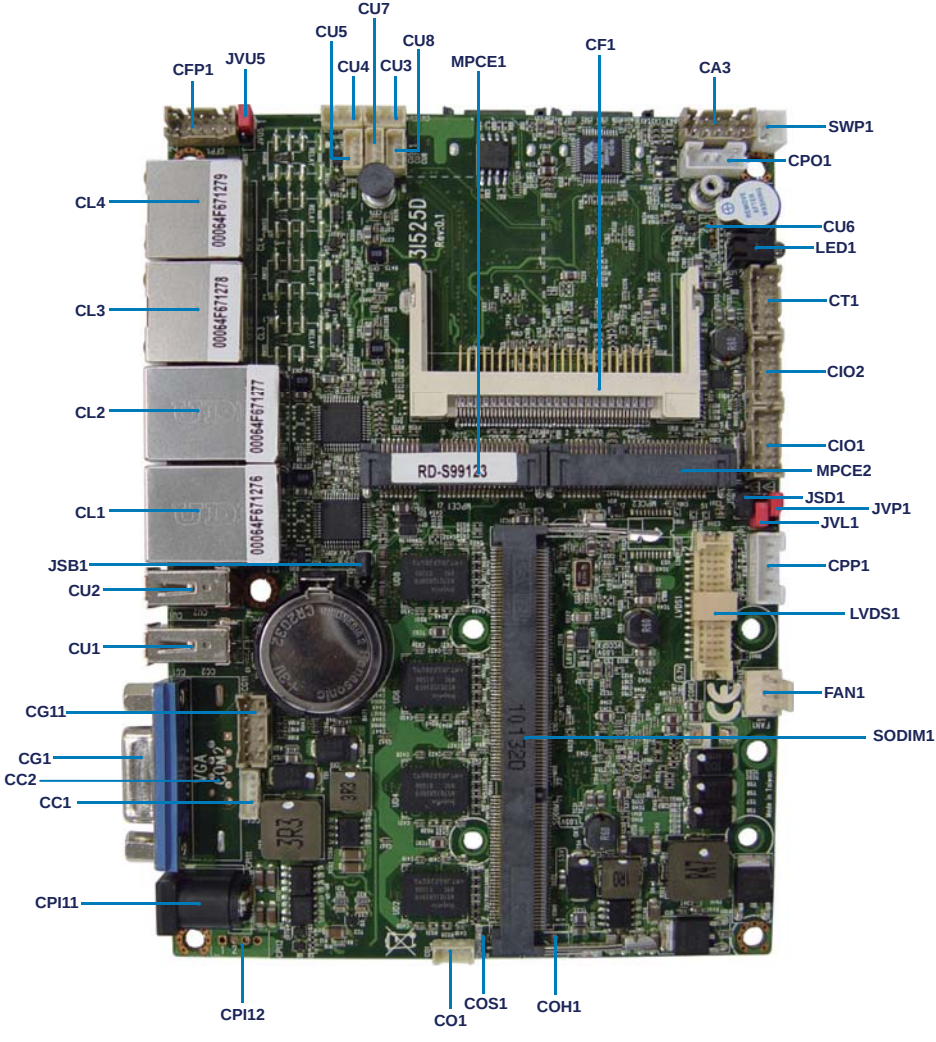
2-4 Layout - 3I525D



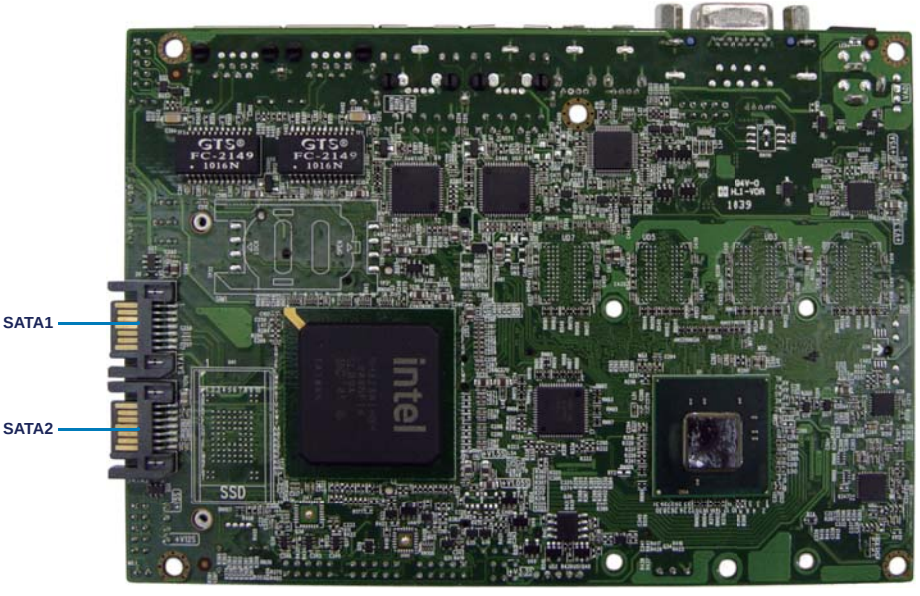
2-4-1 Layout - 3I525U



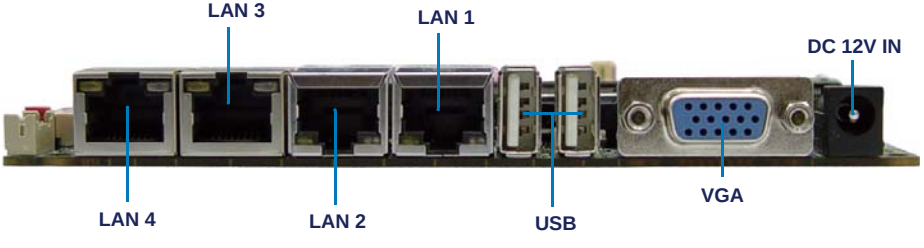
2-5 Diagram- 3I525D / 3I525U

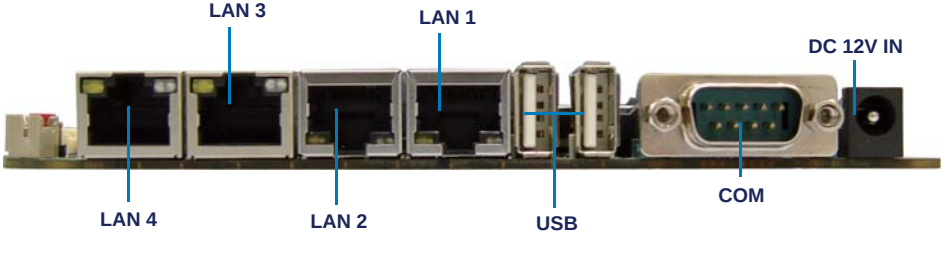


2-5-1 Bottom Side Diagram



Back Panel





2-6 Install Memory

This motherboard provides one 204-pin Small Outline Dual In-line Memory Module (SODIMM) socket for memory expansion available maximum to of 2GB/4GB DDR3 SDRAM. DDR3 clock supports: DDR3 800MT/S

Valid Memory Configurations

DIMM1	System Accept or Not	Total Memory
		Max.
DS/SS	Accept	4GB

DS: Double Sided DIMM **SS: Single Sided DIMM**

NOTE!
The detected memory size is less than actual installed memory size since some memory has been allocated for system use.
That's how PC works with system memory.

Please refer to page 7 for installation of memory module.

NOTE!

When you install SODIMM module fully into the SODIMM socket, the eject tab should be locked into the SODIMM module very firmly and fit into its indention on both sides.

WARNING!

Once you hear " Beep Beep Beep" sounds after turning on the power , please check if the DRAM is installed properly or not.

2-7 List of Jumpers

JSB1: CMOS clear select

JSD1 : DPC Duty select

JVL1: LCD Panel power select

JVP1: Panel Inverter power select

JVU5: USB5 voltage select

2-8 Jumper Setting Description

A jumper is ON as a closed circuit with a plastic cap covering two pins. A jumper is OFF as an open circuit without the plastic cap. Some jumpers have three pins, labeled 1, 2, and 3. You could connect either pin 1 and 2 or 2 and 3.
The below figure 2.2 shows the examples of different jumper settings in this manual.

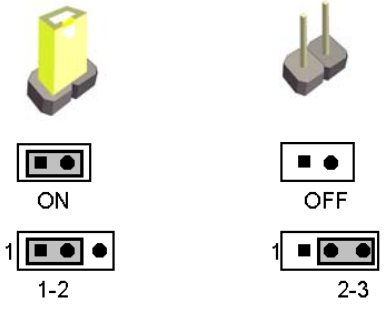


Figure 2.2

All jumpers already have its default setting with the plastic cap inserted as ON, or without the plastic cap as OFF. The default setting may be referred in this manual with a " * " symbol .

2-9 CMOS Data Set

A battery must be used to retain the motherboard configuration in CMOS RAM.
Close pin 1and pin 2 of JSB1 to store the CMOS data.

To clear the CMOS, follow the procedures below:
1. Turn off the system and unplug the AC power
2. Remove DC 12V power cable from DC 12V power connector
3. Locate JSB1 and close pin 2-3 for a few seconds
4. Return to its normal setting by shorting pin 1-2
5. Connect DC 12V power cable back to DC 12V power connector

JSB1: CMOS DATA SET

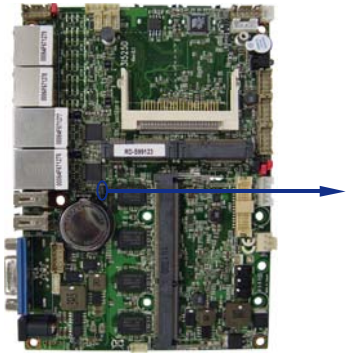
JSB1	Description
***1-2**	***Normal Set**
2-3	CMOS Data Clear

Note: Do not clear CMOS unless

1. Troubleshooting

2. Forget password

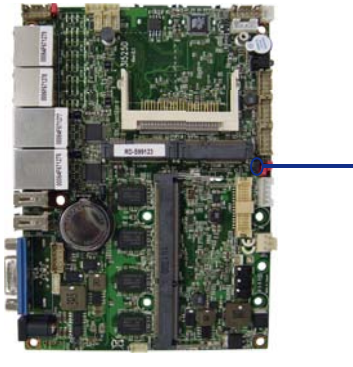
3. You fail over-clocking system

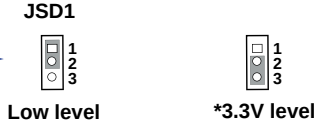


2-10 JSD1: DPC Duty select

JSD1	Description
1-2	Low 0% (Low level)
***2-3**	**Hi 100% (3.3V level)**

Note: Please be cautious about voltage setting.

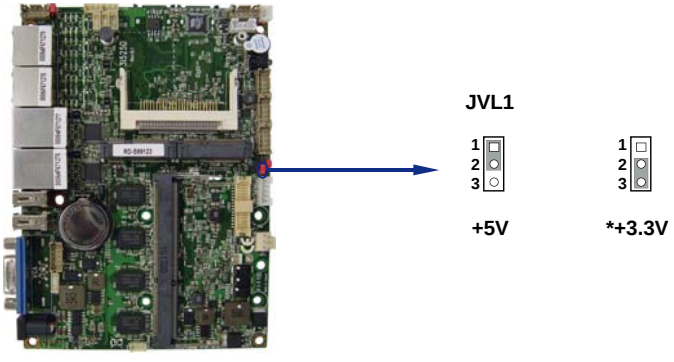




2-11 JVL1: LCD panel power select

JVL1	Description
1-2	+5V
***2-3**	**+3.3V**

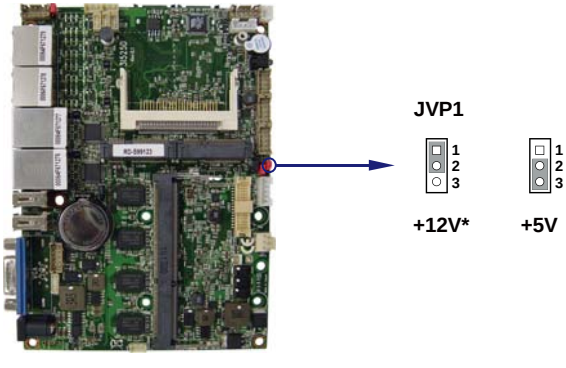
Note: Please be cautious about voltage setting.



2-12 JVP1: LVDS panel Inverter power select

JVP1	Description
1-2*	**+12V***
2-3	+5V

Note: Please be cautious about voltage setting.



2-13 JVU5: USB Port 5 Voltage select

JVU5	Description
1-2*	**+5V***
2-3	+3.3V

Note: Please be cautious about voltage setting.

JVU5

Chapter-3

Connection

This chapter provides all necessary information of the peripheral's connections, switches and indicators. Always power off the board before you install the peripherals.

3-1 List of Connectors

CA3: Line-out / Line-in / Mic-in 2x5 pin (2.0mm) Wafer

CC1: COM1 5 pin (2.0mm) Wafer

CC2: COM2 DB9 Connector

CF1: CF socket 50pin

CFP1: FP port 2x5 pin (2.0mm) Wafer

SWP1: PB SW 2pin(2.0mm)Wafer

CG1: VGA DB15 Connector

CG11: VGA port 2x5 pin (2.0mm) Wafer (share CG1)

CL1: LAN port RJ45

CL2: LAN port RJ45

CL3: LAN port RJ45

CL4: LAN port RJ45

CIO1,CIO2: Two DIO 2x5 pin (2.0mm) Wafer

CO1: I2C 4pin (1.25mm) Wafer

CPI1: DC 12V-IN Power Jack

CPI11: DC-In 2x2 pin (4.20mm) Wafer connector (Share to CPI1)

CPI12: DC-in 1x4 pin (2.0mm) Wafer connector

CPO1: +12V/+5V power output 4 pin (2.0mm) Wafer

LVDS1: LVDS 18 Bits 2x15 pin (1.25mm) connector

CPP1: Panel inverter power connector 1x5 pin (2.0mm) Wafer

CT1: Touch screen device 2x5 pin (2.0mm) Wafer

CU1: USB1 port Type A connector

CU2: USB2 port Type A connector

CU3: USB 3 port 4pin(1.25mm) Wafer

CU4: USB 4 port 4pin(1.25mm) Wafer

List of Connectors

CU5: USB 5 port 4pin(1.25mm) Wafer

CU6: USB 6 port 4pin(1.25mm) Wafer

CU7: USB 7 port 4pin(1.25mm) Wafer

CU8: USB 8 port 4pin(1.25mm) Wafer

FAN1: CPU FAN 3pin Wafer

LED1: power LED(Blue)

MPCE1/2: Two Mini card socket 52pin

SATA1,SATA2: Two SATA connector 7pin

SODIMM: DDR3 SO-DIMM 204pin

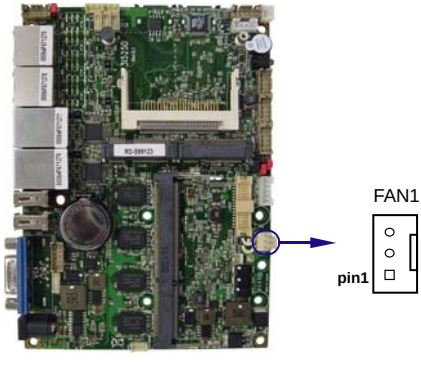
BAT1: 3V Battery holder 2pin

3-2 FAN Connector

FAN1: CPU FAN connector (3pin 2.5mm wafer)

PIN NO.	Description
1	GND
2	+12V*
3	FAN speed detect

Note: DC in +12V by switch to FAN power +12V,
so DC in need stable +12V input



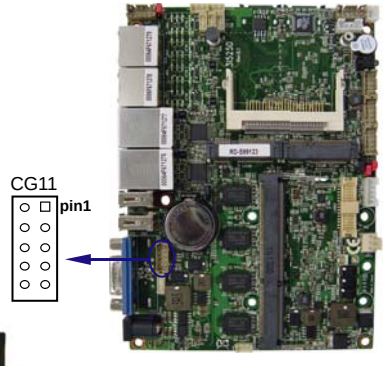
3-3 VGA port Connector

- **CG1: VGA Connector (DB15 pin)**

PIN NO.	Description	PIN NO.	Description	PIN NO.	Description
1	RED	6	GND	11	NC
2	GREEN	7	GND	12	DDC DATA
3	BULE	8	GND	13	H-SYNC
4	NC	9	NC	14	V-SYNC
5	GND	10	GND	15	DDC CLOCK

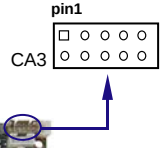
- **CG11: VGA 2x5pin 2.0mm wafer connector**

PIN NO.	Description	PIN NO.	Description
1	BULE	2	GND
3	GND	4	DDC CLOCK
5	GREEN	6	V-SYNC
7	GND	8	H-SYNC
9	RED	10	DDC DATA



3-4 Audio Port

The 3I525D / 3I525U has an on-board AC'97 3D sound interface.
There are the connectors of LINE OUT, MIC-IN and connectors.
The MIC-IN Jack and header are for audio sound input. The LINE-OUT connector is a 4-pin Jack for audio sound output.



CA3: Line-out/Line-in/Mic-in 2x5 pin (2.0mm) Wafer

- **CA3: Audio port (2x5pin 2.0mm Wafer)**

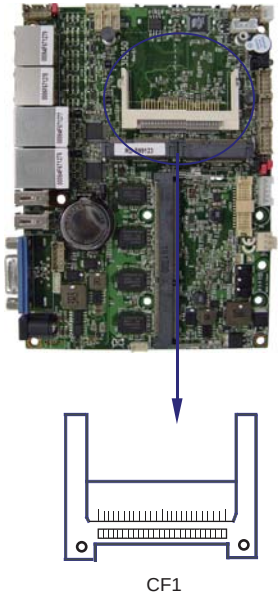
PIN NO.	Description	PIN NO.	Description
1	Line-out-R	2	MIC-IN
3	Line-in-R	4	GND
5	GND	6	GND
7	Line-in-L	8	NC
9	Line-out-L	10	MIC-IN

3-5 CF Card Reader

3I525D / 3I525U configures Compact Flash Storage Card in IDE mode.
It will use IDE channel when Compact Flash card is plugged in.
This socket supports CF Card Type I/II socket spec.
CF Socket 50pin--CF1

- **CF1: CF Socket For True IDE Mode (50pin CF Socket)**

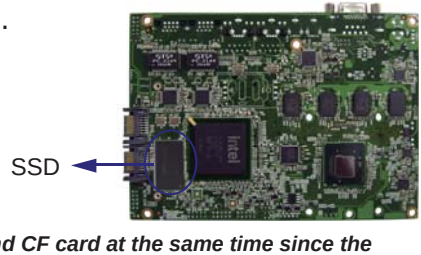
PIN NO.	Description	PIN NO.	Description
1	GND	26	GND(-CD1)
2	DATA3	27	DATA11
3	DATA4	28	DATA12
4	DATA5	29	DATA13
5	DATA6	30	DATA14
6	DATA7	31	DATA15
7	-CS0	32	-CS1
8	GND(A10)	33	GND(-VS1)
9	GND(-ATA_SEL)	34	-IOR
10	GND(A9)	35	-IOW
11	GND(A8)	36	-WE(PH)
12	GND(A7)	37	INTR
13	+5V	38	+5V
14	GND (A6)	39	-CSEL
15	GND (A5)	40	NC(-VS2)
16	GND (A4)	41	RESET
17	GND (A3)	42	IORDY
18	SDA2	43	DMAREG(-INPACK)
19	SDA1	44	DMAACK[-REG(PH)]
20	SDA0	45	-DASP
21	DATA0	46	-PDIAG
22	DATA1	47	DATA8
23	DATA2	48	DATA9



Note: 1. CF default set to master
2. SATA port 3 share with PATA interface so only use one interface .

3-5-1 SSD use at PATA slave channel

Note: 1. If SSD and CF card are using at same time . BIOS need to adjust to ATA 33 mode.
2. SSD(master) and CF(slave) use at same time .



We strongly recommend that you do not use SSD and CF card at the same time since the controller of CF card keeps changing on the market and it could cause compatibility issue.

3-6 COM Port Connector

- **CC2 : RS232 Mode COM1 connector (D-SUB 9pin)**

PIN NO.	Description	PIN NO.	Description
1	DCD	6	DSR
2	RXD	7	RTS
3	TXD	8	CTS
4	DTR	9	NC
5	GND		

- **CC2 : RS485 Mode COM1 connector (D-SUB 9pin)**

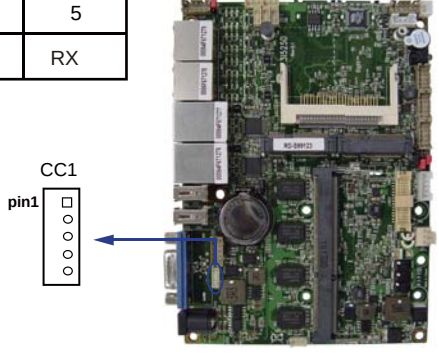
PIN NO.	Description	PIN NO.	Description
1	RS485 TX+	6	NC
2	RS485 TX-	7	NC
3	NC	8	NC
4	NC	9	NC
5	GND		

Note : 1. CC2 DB9 port share with VGA DB15
2. Default BOM set to VGA DB15
3. This port RS232 or RS485 function for option

- **CC1 : COM1 port (5pin 1.25mm Wafer)**

PIN NO.	1	2	3	4	5
Description	+5V	GND	RTS	TX	RX

Note : 1. All signal are TTL level .
2. This port can support RS485 function,
Pin 4: TX+ , Pin5: TX-



3-7 Digital Input / Output / Watch Dog Time

● CIO1 DIO 0~3 (2x5pin 2.0mm wafer)

PIN NO.	Description	PIN NO.	Description
1	DI-0	2	DO-3
3	DI-1	4	DO-2
5	DI-2	6	DO-1
7	DI-3	8	DO-0
9	GND	10	+5V

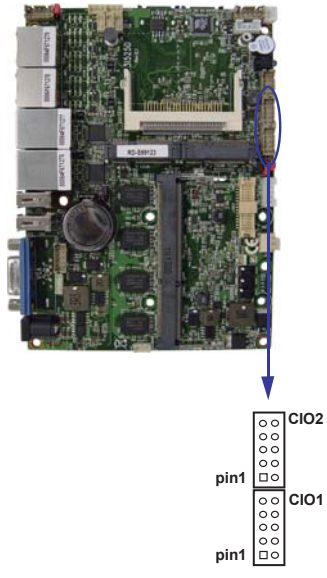
Note: All DI-0~7 external pull Hi 10KΩ to +V5S

● CIO2: DIO 4—7 (2x5pin 2.0mm wafer)

PIN NO.	Description	PIN NO.	Description
1	DI-4	2	DO-7
3	DI-5	4	DO-6
5	DI-6	6	DO-5
7	DI-7	8	DO-4
9	GND	10	+5V

Note:1. DIO port for option only

2. All DI-0~7 external pull Hi 10KΩ to +V5S



For F75111N / F81801U I2C watch dog timer device:

All DIO and WDT DC spec :
Input low Voltage (VIL):+0.8 Max ,
Input High Voltage(VIH) : +2V Min
Output low Current (IOL):10mA (Min) VOL=0.4V
Output High Current (IOH):-10mA (Min) VOL=2.4V
Watch Dog Time value 0~255 sec
The system will be issued reset.
When WDT is enable the hardware start down counter to zero.
The reset timer have 10~20% tolerance upon the Temperature.
Note: Please refer to Page 31 for sample code for detail description

3-7-1 IO Device:F75111 under DOS

The Sample code source you can download from

Source file: F75111_Dos_Src.rar https://tprd.info/lexwiki/index.php/IO_Device:F75111_under_DOS

Binary file: F75111_Dos_Bin.rar

USERNAME & PASSWORD: temp

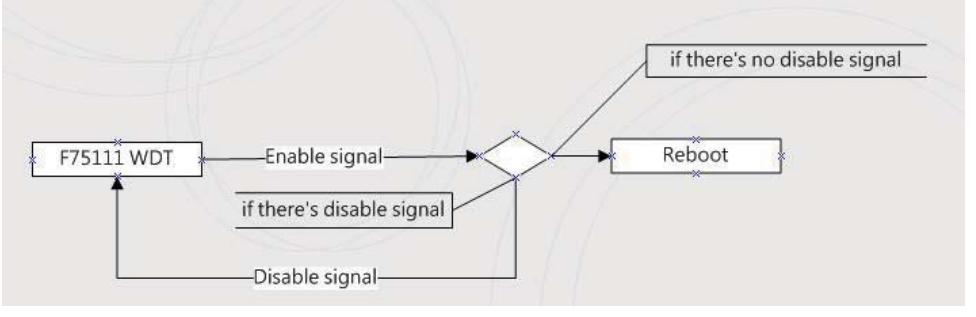
How to use this Demo Application

1.Boot Ms-Dos Operating System

2.execute "75WDT.EXE" binary file

3.Input 1 to Enable WDT timer or input 0 to Disable it.

4.input numbers of second for chip countdown and Reset Computer



Introduction

Enable Watch Dog Timer

```
WriteI2CByte(I2CADDR, CONFIG, 0x03);//Set Watch Dog Timer function
WriteI2CByte(I2CADDR, WDT_TIMER, timer);//Set Watch Dog Timer range from 0-255.
WriteI2CByte(I2CADDR, WDT_TIMER_CTL, 0x73);//Enable Watch Dog Timer in second and pulse mode
```

Disable Watch Dog Timer

```
WriteI2CByte(I2CADDR, WDT_TIMER_CTL, 0x00);
```

Time Pause for mini seconds

```
void pause(int time)
  {
    asm mov ah,0h;          //Ah = 00 Read System Time Counter
    asm int 1ah;   //read time from Time Counter and store it in DX register
    asm add dx,time;
    asm mov bx,dx;
    label:
    asm int 1ah;
    asm cmp bx,dx;
    asm jne label;
  }
```

3-7-2 IO Device: F75111 under Windows

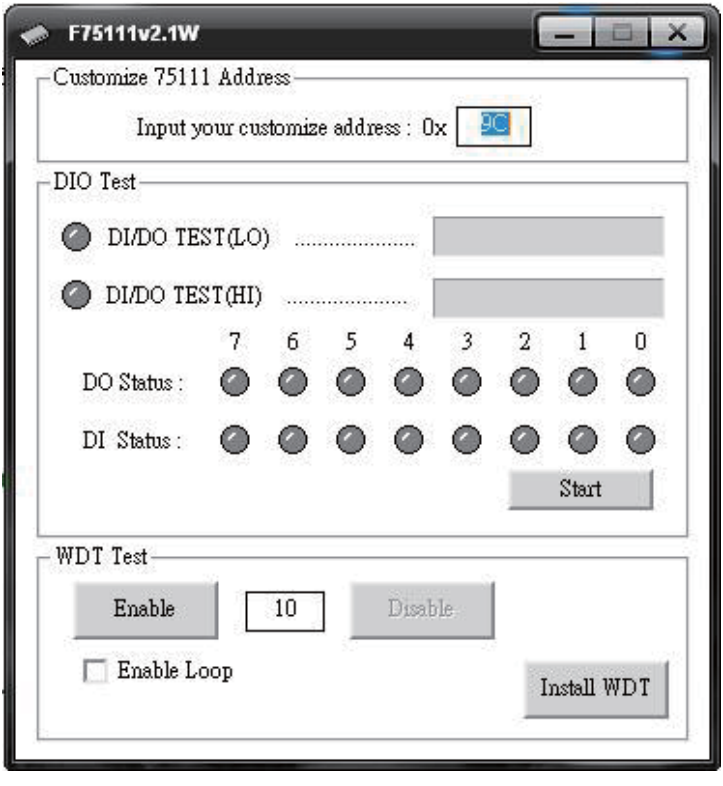
The Sample code source you can download from

Source file: F75111_DIOSrc.rar https://tprd.info/lexwiki/index.php/IO_Device:F75111

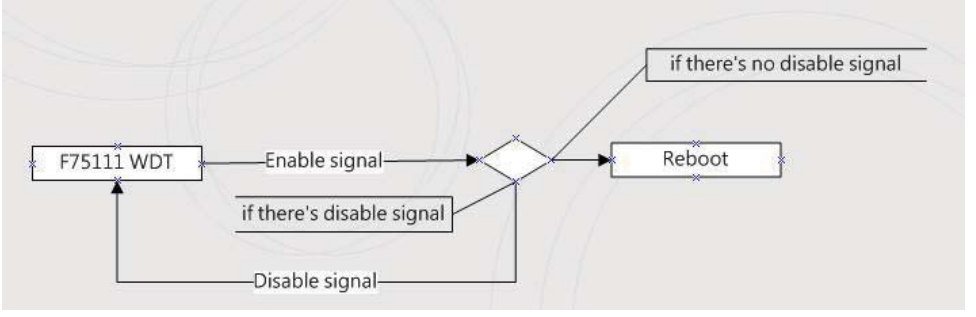
Binary file: F75111_DemoBin.rar

USERNAME & PASSWORD: temp

How to use this Demo Application



1. **Press the "Start" button to test DIO function**
2. **Press the "Enable" button to test WDT function**
3. **Press the "Disable" button to disable WDT**
4. **Check the "Enable Loop" box and press "Enable" to do WDT loop test**
5. **Press "Install WDT" to set the system to autorun this application when booting, press again to remove this application when booting.**
6. **If WDT enable, system icon will be**  **. if disable, system icon will be** 



p.s.
f75111 send "F75111_SetWDTEnable(BYTE byteTimer)" including a parameter "timer",
if there's no disable signal (F75111_SetWDTDisable()) to stop it before timer countdown to 0, System will reboot.
if there's disable signal received, resent Enable WDT signal, for a loop to prevent from reboot

Introduction

Initial Internal F75111 port address (0x9c)

define GPIO1X, GPIO2X, GPIO3X to input or output
and Enable WDT function pin

Set F75111 DI/DO (sample code as below Get Input value/Set output value)

DO: InterDigitalOutput(BYTE byteValue))
DI: InterDigitalInput()

Enable/Disable WDT

Enable : F75111_SetWDTEnable (BYTE byteTimer)
Disable: F75111_SetWDTDisable ()

PULSE mode

Sample to setting GP33, 32, 31, 30 output 1mS low pulse signal.

```
{
   this->Write_Byte(F75111_INTERNAL_ADDR, GPIO3X_PULSE_CONTROL,          0x00);   //This is setting low pulse output
   this->Write_Byte(F75111_INTERNAL_ADDR, GPIO3X_PULSE_WIDTH_CONTROL,  0x01);   //This selects the pulse width to 1mS
   this->Write_Byte(F75111_INTERNAL_ADDR, GPIO3X_CONTROL_MODE,          0x0F);   //This is setting the GP33, 32, 31, 30 to output function.
   this->Write_Byte(F75111_INTERNAL_ADDR, GPIO3X_Output_Data ,          0x0F);   //This is setting the GP33, 32, 31, 30 output data.
}
```

Initial internal F75111

```
void F75111::InitInternalF75111()
{
   this->Write_Byte(F75111_INTERNAL_ADDR,GPIO1X_CONTROL_MODE  ,0x00);     //set GPIO1X to Input  function
   this->Write_Byte(F75111_INTERNAL_ADDR,GPIO3X_CONTROL_MODE  ,0x00);     //set GPIO3X to Input  function
   this->Write_Byte(F75111_INTERNAL_ADDR,GPIO2X_CONTROL_MODE  ,0xFF);     //set GPIO2X to Output function

   this->Write_Byte(F75111_INTERNAL_ADDR,F75111_CONFIGURATION, 0x03);     //Enable WDT OUT function
}
```

Set output value

```
void F75111::InterDigitalOutput(BYTE byteValue)
{
    BYTE byteData = 0;
    byteData = (byteData & 0x01 )? byteValue + 0x01 : byteValue;
    byteData = (byteData & 0x02 )? byteValue + 0x02 : byteValue;
    byteData = (byteData & 0x04 )? byteValue + 0x04 : byteValue;
    byteData = (byteData & 0x80 )? byteValue + 0x08 : byteValue;
    byteData = (byteData & 0x40 )? byteValue + 0x10 : byteValue;
    byteData = (byteData & 0x20 )? byteValue + 0x20 : byteValue;
    byteData = (byteData & 0x10 )? byteValue + 0x40 : byteValue;
    byteData = (byteData & 0x08 )? byteValue + 0x80 : byteValue;                    // get value bit by bit

    this->Write_Byte(F75111_INTERNAL_ADDR,GPIO2X_OUTPUT_DATA,byteData);    // write byteData value via GPIO2X output pin
}
```

Get Input value

```
BYTE F75111::InterDigitalInput()
{
    BYTE byteGPIO1X = 0;
    BYTE byteGPIO3X = 0;
    BYTE byteData       = 0;

    this->Read_Byte(F75111_INTERNAL_ADDR,GPIO1X_INPUT_DATA,&byteGPIO1X) ;   // Get value from GPIO1X
    this->Read_Byte(F75111_INTERNAL_ADDR,GPIO3X_INPUT_DATA,&byteGPIO3X) ;   // Get value from GPIO3X

    byteGPIO1X = byteGPIO1X  & 0xF0;                                        // Mask unuseful value
    byteGPIO3X = byteGPIO3X  & 0x0F;                                        // Mask unuseful value

    byteData = ( byteGPIO1X & 0x10 )? byteData + 0x01 : byteData;
    byteData = ( byteGPIO1X & 0x80 )? byteData + 0x02 : byteData;
    byteData = ( byteGPIO1X & 0x40 )? byteData + 0x04 : byteData;
    byteData = ( byteGPIO3X & 0x01 )? byteData + 0x08 : byteData;

    byteData = ( byteGPIO3X & 0x02 )? byteData + 0x10 : byteData;
    byteData = ( byteGPIO3X & 0x04 )? byteData + 0x20 : byteData;
    byteData = ( byteGPIO3X & 0x08 )? byteData + 0x40 : byteData;
    byteData = ( byteGPIO1X & 0x20 )? byteData + 0x80 : byteData;           // Get correct DI value from GPIO1X & GPIO3X

    return byteData;
}
```

Enable WatchDog

```
void F75111_SetWDTEnable (BYTE byteTimer)
{
   WriteByte(F75111_INTERNAL_ADDR,WDT_TIMER_RANGE  ,byteTimer);                    // set WatchDog range and timer
   WriteByte(F75111_INTERNAL_ADDR,WDT_CONFIGURATION,WDT_TIMEOUT_FLAG | WDT_ENABLE | WDT_PULSE | WDT_PSWIDTH_100MS);
                                                                                   // Enable WatchDog, Setting WatchDog configure
}
```

Disable WatchDog

```
void F75111_SetWDTDisable ()
{
   WriteByte(F75111_INTERNAL_ADDR,WDT_CONFIGURATION,0x00);                    // Disable WatchDog
}
```

3-7-3 IO Device: F75111 VB6 under Windows

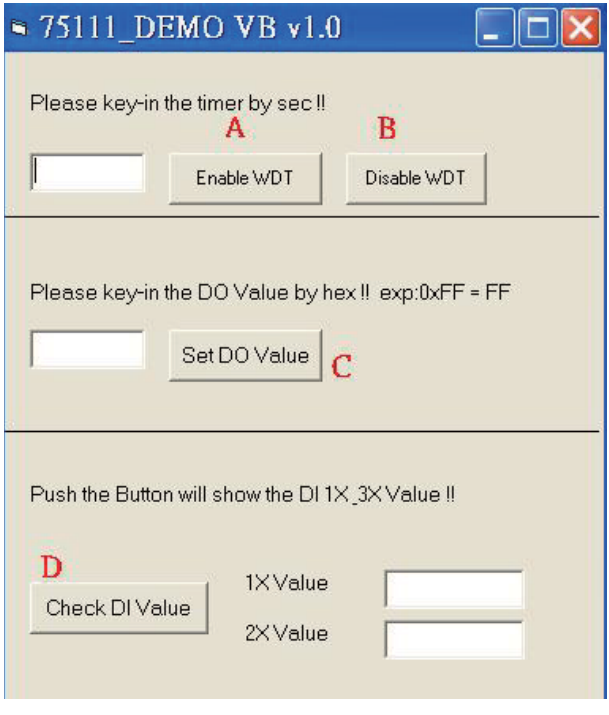
The Sample code source you can download from

Source file: 75111_VB_v10.rar https://tprd.info/lexwiki/index.php/IO_Device:F75111_VB6

Binary file: 75111_VB_Src.rar

USERNAME & PASSWORD: temp

How to use this Demo Application



A Function - Enable WDT timer ,Key-in the value by seconds then system will reboot after value which you key-in in left text box !!

B Function - Disable WDT timer ,Push down the button then WDT timer value will be clear !!

C Function - Set DO Value ,Key-in the DO value by hex then push the button !!

D Function - Check DI Value ,The right side two text box will display DI 1X & 2X Value when you push down the button!!

SDK Function Introduction

Function EnableWDT

```
Function EnableWDT(timer As Integer)

Call WriteI2CByte(&H3, &H3)
Call WriteI2CByte(&H37, timer)
Call WriteI2CByte(&H36, &H73)

   End Function
```

Function DisableWDT

```
Function DisableWDT()

Call WriteI2CByte(&H36, &H0)

   End Function
```

Function SetDOValue

```
Function SetDOValue(dovalue As Integer)

Call WriteI2CByte(&H23, &H0)
Call WriteI2CByte(&H20, &HFF)
Call WriteI2CByte(&H2B, &HFF)
Call WriteI2CByte(&H21, dovalue)

End Function
```

Function CheckDIValue

```
Function CheckDIValue()
Dim GPIO1X     As Integer
Dim GPIO3X     As Integer
Dim DI1Xhex    As String
Dim DI3Xhex    As String

Call ReadI2CByte(&H12, GPIO1X)
Call ReadI2CByte(&H42, GPIO3X)

DI1Xhex = Hex(GPIO1X)
DI3Xhex = Hex(GPIO3X)

Text3.Text = "0x" + DI1Xhex
Text4.Text = "0x" + DI3Xhex

End Function
```

3-7-4 IO Device: F75111 under linux

The Sample code source you can download from

Source file: F75111v2.0L.tar.gz https://tprd.info/lexwiki/index.php/IO_Device:F75111_under_linux

Binary file: F75111v2.0LBin.tar.gz

USERNAME & PASSWORD: temp

How to compile source code

1. Compile source code with Code::Blocks

download and install the Code::Block with command "apt-get install codeblocks"

Open an exist project(F75111.cbp) in Code::Blocks, click the compile button

(add an option 'pkg-config --libs gtk+-2.0 gthread-2.0' in "Project->Build Option->

Linker Setting->Other linker option")

2. Compile source code with "make"

1.cd F75111

1.make

1.src/f75111 // execute the binary file

How to use this Demo Application

1. Press the "Start" button to test DIO function

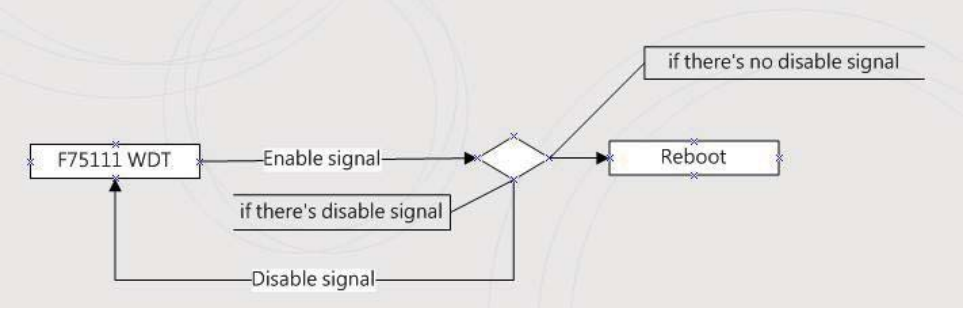
2. Press the "Enable" button to test WDT function

3. Press the "Disable" button to disable WDT

4. Check the "Enable Loop" box and press "Enable" to do WDT loop test

5. Press "Install" to set the system to autorun this application when booting, press "Uninstall" to remove this application when booting.

6. If WDT enable, system icon will be blinking.



p.s.
f75111 send "F75111_SetWDTEnable(BYTE byteTimer)" including a parameter "timer",
if there's no disable signal (F75111_SetWDTDisable()) to stop it before timer countdown to 0, System will reboot.
if there's disable signal received, resent Enable WDT signal, for a loop to prevent from reboot

Introduction

IO function In file SMBus.c

```
void SMBusIoWrite(BYTE byteOffset,BYTE byteData)
{
    outb( byteData , m_SMBusMapIoAddr + byteOffset);
}

BYTE SMBusIoRead(BYTE byteOffset)
{
    DWORD dwAddrVal;

    dwAddrVal = inb(m_SMBusMapIoAddr + byteOffset);
    return (BYTE)(dwAddrVal & 0x0FF);
}
```

Initial internal F75111

```
void F75111::InitInternalF75111()
{
    this->Write_Byte(F75111_INTERNAL_ADDR,GPIO1X_CONTROL_MODE  ,0x00);       //set GPIO1X to Input  function
    this->Write_Byte(F75111_INTERNAL_ADDR,GPIO3X_CONTROL_MODE  ,0x00);       //set GPIO3X to Input  function
    this->Write_Byte(F75111_INTERNAL_ADDR,GPIO2X_CONTROL_MODE  ,0xFF);       //set GPIO2X to Output function

    this->Write_Byte(F75111_INTERNAL_ADDR,F75111_CONFIGURATION, 0x03);          //Enable WDT OUT function
}
```

Set output value

```
void F75111::InterDigitalOutput(BYTE byteValue)
{
    BYTE byteData = 0;
    byteData = (byteData & 0x01 )? byteValue + 0x01 : byteValue;
    byteData = (byteData & 0x02 )? byteValue + 0x02 : byteValue;
    byteData = (byteData & 0x04 )? byteValue + 0x04 : byteValue;
    byteData = (byteData & 0x80 )? byteValue + 0x08 : byteValue;
    byteData = (byteData & 0x40 )? byteValue + 0x10 : byteValue;
    byteData = (byteData & 0x20 )? byteValue + 0x20 : byteValue;
    byteData = (byteData & 0x10 )? byteValue + 0x40 : byteValue;
    byteData = (byteData & 0x08 )? byteValue + 0x80 : byteValue;                    // get value bit by bit

    this->Write_Byte(F75111_INTERNAL_ADDR,GPIO2X_OUTPUT_DATA,byteData);   // write byteData value via GPIO2X output pin
}
```

Get Input value

```
BYTE F75111::InterDigitalInput()
{
   BYTE byteGPIO1X = 0;
   BYTE byteGPIO3X = 0;
   BYTE byteData   = 0;

   this->Read_Byte(F75111_INTERNAL_ADDR,GPIO1X_INPUT_DATA,&byteGPIO1X) ;   // Get value from GPIO1X
   this->Read_Byte(F75111_INTERNAL_ADDR,GPIO3X_INPUT_DATA,&byteGPIO3X) ;   // Get value from GPIO3X

   byteGPIO1X = byteGPIO1X  & 0xF0;                                        // Mask unuseful value
   byteGPIO3X = byteGPIO3X  & 0x0F;                                        // Mask unuseful value

   byteData = ( byteGPIO1X & 0x10 )? byteData + 0x01 : byteData;
   byteData = ( byteGPIO1X & 0x80 )? byteData + 0x02 : byteData;
   byteData = ( byteGPIO1X & 0x40 )? byteData + 0x04 : byteData;
   byteData = ( byteGPIO3X & 0x01 )? byteData + 0x08 : byteData;

   byteData = ( byteGPIO3X & 0x02 )? byteData + 0x10 : byteData;
   byteData = ( byteGPIO3X & 0x04 )? byteData + 0x20 : byteData;
   byteData = ( byteGPIO3X & 0x08 )? byteData + 0x40 : byteData;
   byteData = ( byteGPIO1X & 0x20 )? byteData + 0x80 : byteData;           // Get correct DI value from GPIO1X & GPIO3X

   return byteData;
}
```

Enable WatchDog

```
void F75111_SetWDTEnable (BYTE byteTimer)
{
    WriteByte(F75111_INTERNAL_ADDR,WDT_TIMER_RANGE  ,byteTimer);                    // set WatchDog range and timer
    WriteByte(F75111_INTERNAL_ADDR,WDT_CONFIGURATION,WDT_TIMEOUT_FLAG | WDT_ENABLE | WDT_PULSE | WDT_PSWIDTH_100MS);
                                                                                    // Enable WatchDog, Setting WatchDog configure
}
```

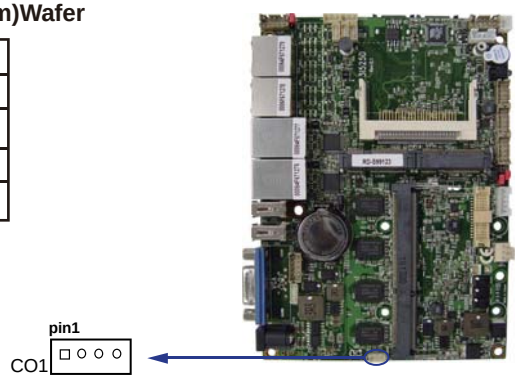
Disable WatchDog

```
void F75111_SetWDTDisable ()
{
    WriteByte(F75111_INTERNAL_ADDR,WDT_CONFIGURATION,0x00);                         // Disable WatchDog
}
```

3-8 I²C Bus Interface

- **CO1:I²C Bus 4pin (1.25mm)Wafer**

PIN NO.	Description
1	+3.3V
2	GND
3	I²C CLOCK
4	I²C DATA



3-9 DC 12V-IN power connector

- **CPI1 : DC 12V-in power Jack**

PIN NO.	Description
1	+12V DC-IN
2.3	GND

NOTE: Very important check Dc-in Voltage

- **CPI11 : DC 12V-in Internal connector (4pin ATX power 4.20mm)**

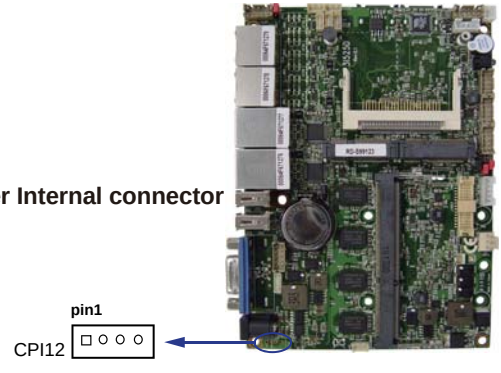
PIN NO.	Description
1.2	GND
3.4	+12V DC-IN

Note: Very important check Dc-in Voltage
CPI11 share with CPI1 position .

- **CPI12 : DC -in 1x4 (2.0mm) Wafer Internal connector**

PIN NO.	DESCRIPTION
1	GND
2	DC-IN(12V)
3	DC-IN(12V)
4	GND

Note: Very important check Dc-in Voltage



3-10 LAN port

- **CL1 / CL2 / CL3 / CL4: LAN port Giga /100Mb(RJ45 Jack)**

PIN NO	Description	PIN NO.	Description
1	TR0-/TX+	5	TR2-/NC
2	TR0+/TX-	6	TR2+/RX-
3	TR1-/RX+	7	TR3-/NC
4	TR1+/NC	8	TR3+/NC

Note : CL1 / CL2 share with USB CU31 , CU41

- **CL2 / CL3 : LAN port Giga /100Mb(2x4pin 2.0mm wafer)**

PIN NO	Description	PIN NO.	Description
1	TR0-/TX-	2	TR0+/TX+
3	TR2+/NC	4	TR1+/RX+
5	TR1-/RX-	6	TR2-/NC
7	TR3-/NC	8	TR3+/NC

LAN LED

Intel 82583V / Intel 82574L (3I525U)

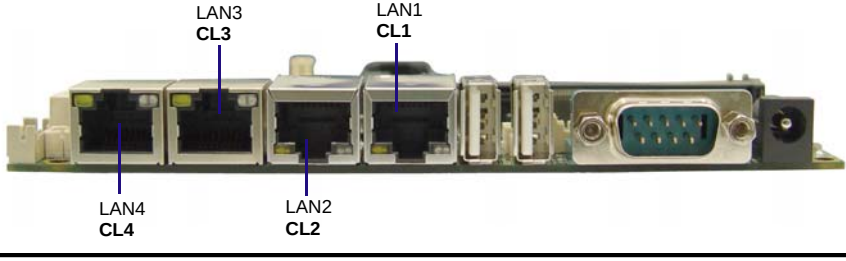
LAN LED

Speed	10 Mbps			100 Mbps			1000 Mbps		
Indicate	Back Side		Fornt Side	Back Side		Fornt Side	Back Side		Fornt Side
	Link Led	ACT Led	ACT Led	Link Led	ACT Led	ACT Led	Link Led	ACT Led	ACT Led
LAN light	Orange	Orange	Orange	Green	Orange	Orange	Red	Orange	Orange

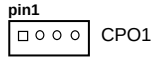
Realtek RTL8111C (3I525D)

LAN LED

Speed	10 Mbps			100 Mbps			1000 Mbps		
Indicate	Back Side		Fornt Side	Back Side		Fornt Side	Back Side		Fornt Side
	Link Led	ACT Led	ACT Led	Link Led	ACT Led	ACT Led	Link Led	ACT Led	ACT Led
LAN light	Orange		Orange	Green		Orange	Red		Orange



3-11 DC +5 / +12V Voltage output connector



- **CPO1 : +12V / +5V DC voltage output (4pin 2.0mm Wafer)**

PIN NO.	Description
1	+5V
2	GND
3	GND
4	+12V*

* Note : Attention ! Check Device Power in spec

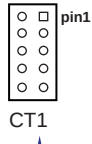
3-12 Touch screen device (Option)

CT1: Touch screen (2x5 pin 2.0mm wafer)
Default use USB interface,
can change COM interface By oem BOM .

- **For 8- wire type pin define**

PIN NO.	Description	PIN NO.	Description
1	Bottom	2	Bottom Sense
3	Top Sense	4	Top
5	Right	6	Right Sense
7	Left	8	Left Sense
9	GND	10	KEY

Note: For eight wire type cable Pin 3 and Pin4 need short.



- **For 4- wire type pin define**

PIN NO.	Description	PIN NO.	Description
1	Bottom	2	N/A
3	N/A	4	Top
5	Right	6	N/A
7	Left	8	N/A
9	GND	10	KEY

Note: For four wire type cable Pin 3 and Pin4 need short.

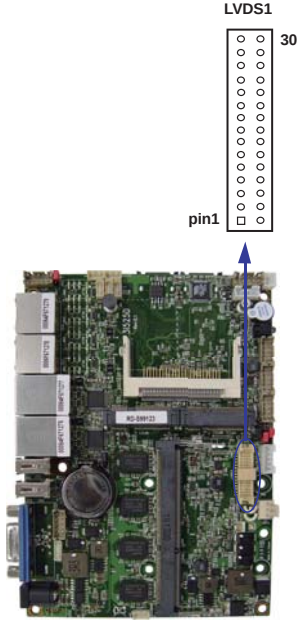
- **For 5- wire type pin define**

PIN NO.	Description	PIN NO.	Description
1	UR(H)	2	N/A
3	Sense	4	UL(Y)
5	LR(X)	6	N/A
7	LL(L)	8	N/A
9	GND	10	KEY

Note 1. This function for option

3-13 LVDS Interface (option)

- **LVDS1: 18bits LVDS interface from DC525 chipset (2x15 pin 1.25mm wafer)**

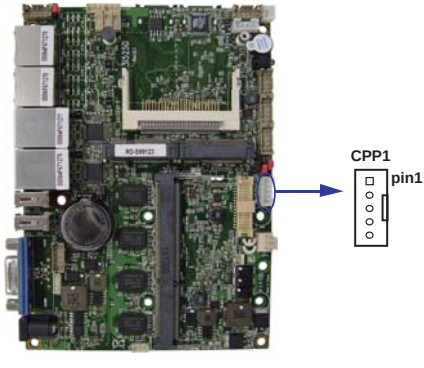


PIN NO.	Description	PIN NO.	Description
1	PWM dimming	2	+5V
3	+LCD (5V or 3.3V)	4	+LCD (5V or 3.3V)
5	Audio SPDIFO	6	NC
7	NC	8	NC
9	Channel-0-DATA2+	10	Channel-0-CLK+
11	Channel-0-DATA2-	12	Channel-0-CLK-
13	GND	14	GND
15	Channel-0-DATA1+	16	Channel-0-DATA0+
17	Channel-0-DATA1-	18	Channel-0-DATA0-
19	GND	20	GND
21	+LCD (5V or 3.3V)	22	+LCD (5V or 3.3V)
23	SM BUS CLOCK	24	NC
25	SM BUS DATA	26	NC
27	DDC CLOCK	28	NC
29	DDC DATA	30	NC

Note : 1. Attention ! Check Device Power in spec
2. JVL1: LVDS panel +5V/+3.3V Voltage select
3. JSD1 : PWM duty cycle by first time define.
4. Pin 1 back light dimming control. provided 200Hz / 275Hz / 380Hz / 20KHz / 25KHz and adjust PWM duty cycle by software program.
5. This port for option
6. Pin 5, 23, 25 for future board use.

- **CPP1: Panel backlight power (5pin 2.0mm wafer) (Option)**

PIN NO.	Description
1	+12V or +5V
2	GND
3	BRIGHT/ PWM dimming
4	ENBKL (3.3V level)
5	ENBKL (5V level)



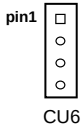
Note : 1. Attention ! Check Device Power in spec
2. JVP1 Inverter Voltage select
3. PIN 3 default by JSD1 select
4. This connector for option

3-14 USB Ports

- **CU1 / CU2 / CU31 / CU41: USB1 / USB2 ports (USB Type A connector)**

PIN NO.	Description	PIN NO.	Description
1	+5V	5	+5V
2	DATA -	6	DATA -
3	DATA +	7	DATA +
4	GND	8	GND

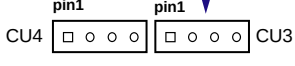
Note : CL1 / CL2 connector share with USB CU31, CU41



- **CU3 / CU4: USB3 / USB4 ports (4pin 1.25mm Wafer)**
  CU5: USB5, CU6: USB6, CU8: USB8

PIN NO.	Description
1	+5V
2	USB DATA -
3	USB DATA +
4	GND

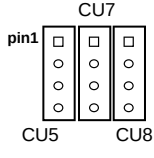
Note : 1. Attention ! Check Device Power in spec
2. CU5 PIN 1 Voltage select from JVU5
3. CU6 share with Touch controller (no connecter)

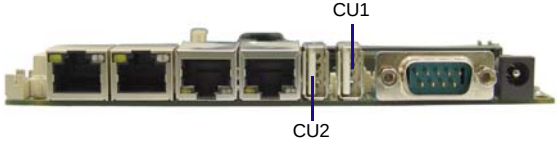


- **CU5: USB5 port (4pin 1.25mm Wafer)**

PIN NO.	Description
1	+5V or +3.3V
2	USB DATA -
3	USB DATA +
4	GND

Note: PIN 1 Voltage select from JVU5
Attention ! Check Device Power in spec

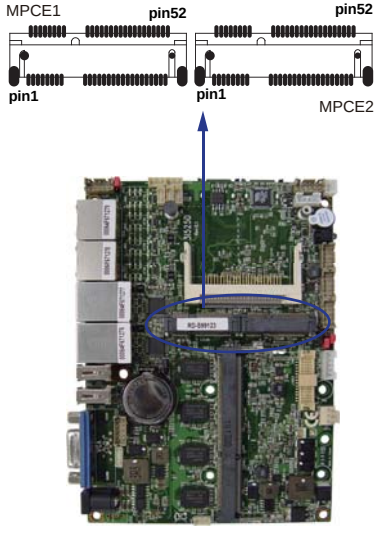




3-15 Mini card

- **MPCE1 / MPCE2: Support USB and PCIe by one Interface (Mini card socket 52pin)**

PIN NO.	Description	PIN NO.	Description
1	NC(Wake up)	2	+3.3V
3	NC	4	GND
5	NC	6	+1.5V
7	NC (CLKREQ-)	8	UIM_PWR
9	GND	10	UIM_DATA
11	PCIe-CLK-	12	UIM_CLK
13	PCIe-CLK+	14	UIM_RESET
15	GND	16	UIM_VPP
KEY	KEY	KEY	KEY
17	NC	18	GND
19	NC	20	NC
21	GND	22	PRST-
23	PCIe-RX-	24	+3.3V
25	PCIe-RX+	26	GND
27	GND	28	+1.5V
29	GND	30	SMB-CLK
31	PCIe-TX-	32	SMB-DATA
33	PCIe-TX+	34	GND
35	GND	36	USB-DATA-
37	GND	38	USB-DATA+
39	+3.3V	40	GND
41	+3.3V	42	NC
43	GND	44	NC
45	SATA_TX+	46	NC
47	SATA_TX+	48	+1.5V
49	SATA_RX+	50	GND
51	SATA_RX-	52	+3.3V

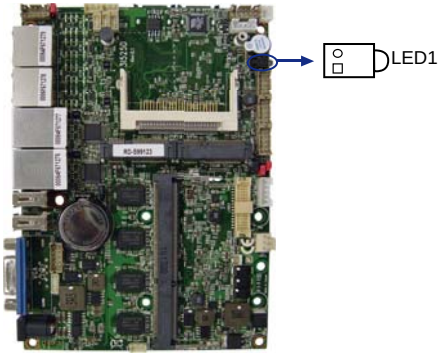


Note: 1. MPCE 1 provided UIM connector to SIM1 card socket for some 3G mini card
The function only by OEM BOM
2. MPCE 2 provide pin 45/47/49/51 special define for some mini card SATA SSD storage .
SATA port 3 interface share with PATA only use one.
3. MPCE 1 used USB port 9 , MPCE2 used USB port 10.

3-16 LED

- **Front side LED**

LED1 : Power LED (2pin 2.0mm Blue LED)



3-17 Front Panel connector

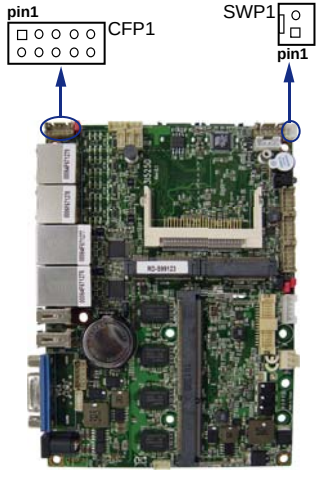
- **CFP1 FP connector (2x5pin 2.0mm wafer)**

PIN NO.	Description	PIN NO.	Description
1	HDD LED-	2	HDD LED+
3	LAN1 LED-	4	LAN1 LED+
5	LAN2 LED-	6	LAN2 LED+
7	LAN3 LED-	8	LAN3 LED+
9	LAN4 LED-	10	LAN4 LED+

Note: 1. pin1,2 default HDD LED , By OEM request change to Reset pin

- **SWP1: PB connector (2pin 2.0mm wafer)**

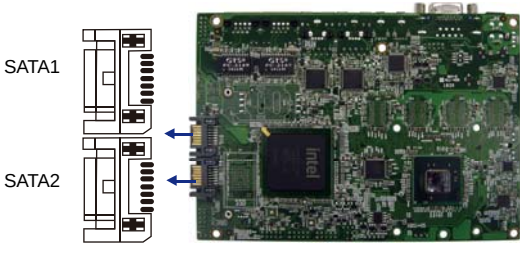
PIN NO.	Description
1	Power button pin
2	Power button GND



3-18 SATA Interface

- **SATA1,SATA2: Two SATA connector (7pin wafer)**

PIN NO.	Description
1	GND
2	DATA TX+
3	DATA TX-
4	GND
5	DATA RX-
6	DATA RX+
7	GND



Chapter 4

Introduction of BIOS

The BIOS is a program located in the Flash Memory on the motherboard. This program is a bridge between motherboard and operating system. When you start the computer, the BIOS program gains control. The BIOS first operates an auto-diagnostic test called POST (Power on Self Test) for all the necessary hardware, it detects the entire hardware devices and configures the parameters of the hardware synchronization. After these tasks are completed, BIOS will give control of the computer back to operating system (OS). Since the BIOS is the only channel for hardware and software to communicate with, it is the key factor of system stability and of ensuring your system performance at best.

In the BIOS Setup main menu, you can see several options. We will explain these options in the following pages. First, let us see the function keys you may use here:

Press <Esc> to quit the BIOS Setup.
Press ↑↓←→(up, down, left, right) to choose the option you want to confirm or modify.
Press <F10> to save these parameters and to exit the BIOS Setup menu after you complete the setup of BIOS parameters.
Press Page Up/Page Down or +/- keys to modify the BIOS parameters for the active option.

4-1 Enter Setup

Power on the computer and press <Del> key immediately to enter Setup.
If the message disappears before your respond but you still wish to enter Setup, restart the system by turning it OFF then ON. You may also restart the system by simultaneously pressing <Ctrl>, <Alt> and <Delete> keys.

4-2 Getting Help

Main Menu

The on-line description of the highlighted setup function is displayed at the bottom of the screen.

Status Page Setup Menu/ Option Page Setup Menu

Press F1 to pop up a small help window that describes the appropriate keys to use and the possible selections for the highlighted item.
To exit the Help Window, press <Esc>.

4-3 The Main Menu

Once you enter Award BIOS CMOS Setup Utility, the Main Menu will appear on the screen. The Main Menu has fourteen setup functions and two exit choices.
Use arrow keys to select among these items. Press <Enter> to accept or enter the sub-menu.

Phoenix-AwardBIOS CMOS Setup Utility

▶ Standard CMOS Features	▶ PC Health Status
▶ Advanced BIOS Features	Load Optimized Defaults
▶ Advanced Chipset Features	Set Supervisor Password
▶ Integrated Peripherals	Set User Password
▶ Power Management Setup	Save & Exit Setup
▶ PnP/PCI Configurations	Exit Without Saving
Esc : Quit F10 : Save & Exit Setup	↑ ↓ → ← : Select Item
Time, Date, Hard Disk Type…	

Standard CMOS Features
This Menu is for basic system configurations.

Advanced BIOS Features
This menu is to set the Advanced Features available in your system.

Advanced Chipset Features
This menu is to change the values in the chipset registers and optimize your system performance.

Integrated Peripherals
This menu is to specify your settings for integrated peripherals.

Power Management Setup
This menu is to specify your settings for power management.

PnP/PCI configurations
This entry appears if your system supports PnP/PCI.

PC Health Status
This entry shows your PC health status.

Load Optimized Defaults
Use this menu to load the BIOS default values for optimal system performances.

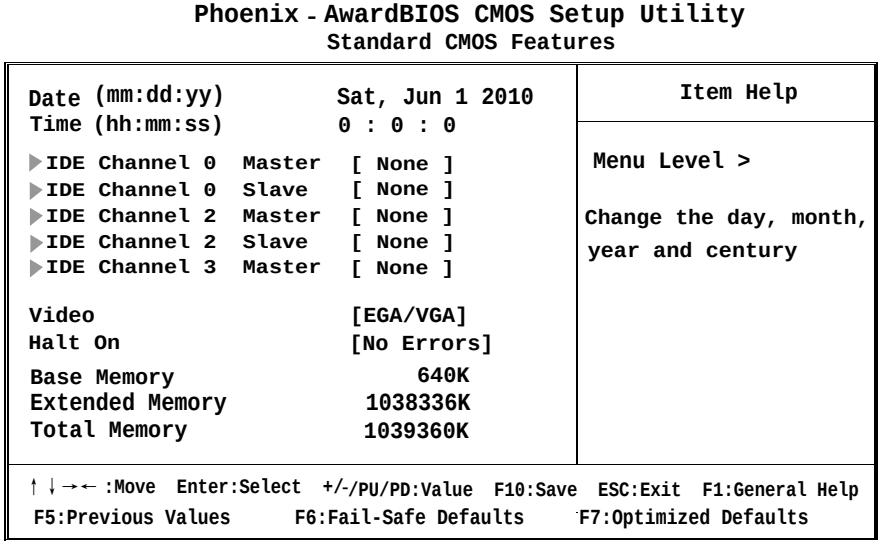
Set Supervisor/User Password
This menu is to set User and Supervisor Passwords.

Save & Exit Setup
Save CMOS values modified to CMOS and exit setup.

Exit Without Saving
Abandon all the CMOS values modified and exit setup.

4-4 Standard CMOS Features

The items in Standard CMOS Setup Menu are divided into several categories. Each category includes none, one or more than one setup items. Use the arrow keys to highlight the item and then use the <PgUp> or <PgDn> keys to select the value you want to modify with this item.



IDE Primary/Secondary Master/Slave

Press PgUp/<+> or PgDn/<-> to select Manual, None, Auto type. Note that the specifications of your drive must match with the drive table. The hard disk will not work properly if you enter improper information for this category. If your hard disk drive type is not matched or listed, you can use Manual to define your own drive type manually. If you select Manual, related information is asked to be entered to the following items. Enter the information directly from the keyboard. This information should be provided in the documentation from your hard disk vendor or the system manufacturer

Video

The setting controls the type of video adapter used for the primary monitor of the system. Settings are: EGA/VGA (default), CGA 40, CGA 80 and Mono.

Halt On

The setting determines whether the system will stop if an error is detected at boot.

Settings are: All Errors: The system stops when any error is detected.
No Errors (default): The system doesn't stop for any detected error.
All, But Keyboard: The system doesn't stop for a keyboard error.

4-5 Advanced BIOS Features

Phoenix - AwardBIOS CMOS Setup Utility
Advanced BIOS Features

▶ Hard Disk Boot Priority	[Press Enter]	Item Help
▶ USB Boot Priority	[Press Enter]	
Virus Warning	[Disabled]	
Hyper-Threading Technology	[Enabled]	
Quick Power On Self Test	[Enabled]	Menu Level >
First Boot Device	[USB-FDD]	
Second Boot Device	[CDROM]	
Third Boot Device	[Hard Disk]	
Boot Other Device	[Enabled]	
Boot Up NumLock Status	[On]	
Gate A20 Option	[Fast]	
Typematic Rate Setting	[Disabled]	
x Typematic Rate <Chars/Sec>	[6]	
x Typematic Delay <Msec>	[250]	
OS Select For DRAM > 64MB	[Non-OS2]	
HDD S.M.A.R.T Capability	[Disabled]	
Full Screen LOGO Show	[Enabled]	
Small Logo<EPA> Show	[Disabled]	

↑↓→←:Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help
F5:Previous Values F6: Fail-Safe Defaults F7:Optimized Defaults

Hard Disk Boot Priority
Please refer section.

USB Boot Priority
Please refer section.

Virus Warning
The Virus Warning feature can help you protect IDE Hard Disk boot sector.
If this function is enabled, BIOS will show a warning message on screen and alarm beep when someone attempts to write data into this area without permission.

Disabled (default) No warning message appears when anything attempts to access the boot sector or hard disk partition table.

Enabled Activate automatically when the system boots up. The system will show the warning message if anything attempts to access the boot sector of hard disk partition table.

Hyper-Threading Technology
This item allows you to enable or disable Intel Hyper Threading technology.

Quick Power On Self Test
This category speeds up Power On Self Test (POST) after you power on the computer. If this is set to Enabled, BIOS will shorten or skip some check items during POST.
Enabled (default) Enable quick POST
Disabled Normal POST

First/Second/Third Boot Device
The BIOS attempts to load the operating system from the devices in the sequence selected in these items.
Settings are: LS120, Hard Disk, CDROM, USB-Device, ZIP100, USB-FDD, USB-ZIP, Network and Disabled

Boot Other Device
Setting the option to Enabled allows the system to try to boot from other devices if the system fails to boot from the 1st/2nd/3rd boot device.

Boot Up NumLock Status
On (default) Keypad is numeric keys.
Off Keypad is arrow keys.

Gate A20 Option
Normal The A20 signal is controlled by keyboard controller or chipset hardware.
Fast (default) The A20 signal is controlled by port 92 or chipset specific method.

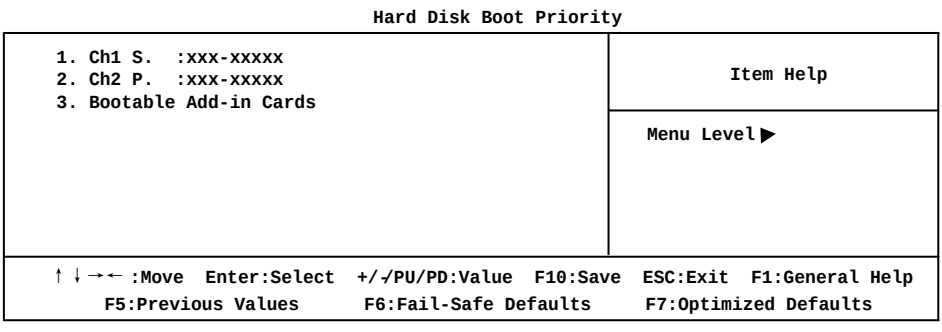
Typematic Rate Setting
Keystrokes repeat at a rate determined by the keyboard controller. When enabled, the typematic rate and typematic delay can be selected. The settings are: Enabled/Disabled.

Typematic Rate (Chars/Sec)
Sets the number of times a second to repeat a keystroke when you hold the key down.
Settings are: 6, 8, 10, 12, 15, 20, 24, and 30.

Typematic Delay (Msec)
Sets the delay time after the key is held down before is begins to repeat the keystroke.
Settings are 250, 500, 750, and 1000.

OS Select For DRAM > 64MB
Allows OS2 to be used with >64MB or DRAM. Settings are Non-OS/2 (default) and OS2. Set to OS/2 if using more than 64MB and running OS/2

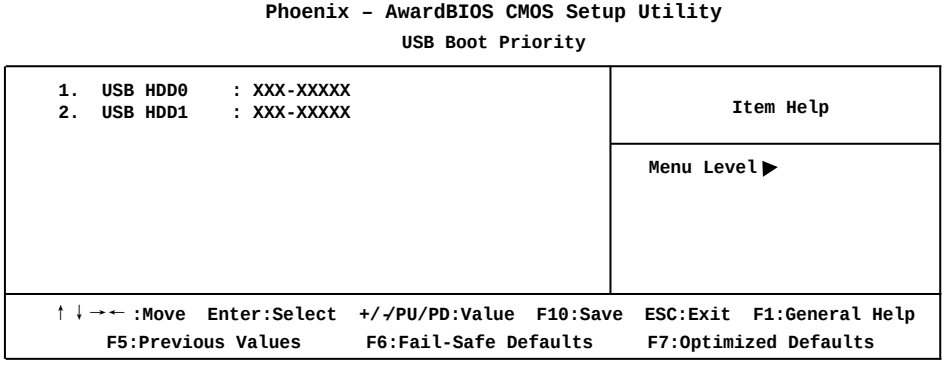
4-5-1 Hard Disk Boot Priority



Ch1 S/Ch2 P
It allows you to set the priority for hard disk boot. When you press enter, the selections shows the current hard disks used in your system

Bootable Add-in Cards
that is relevant to other boot sources media such as SCSI cards and LAN cards.

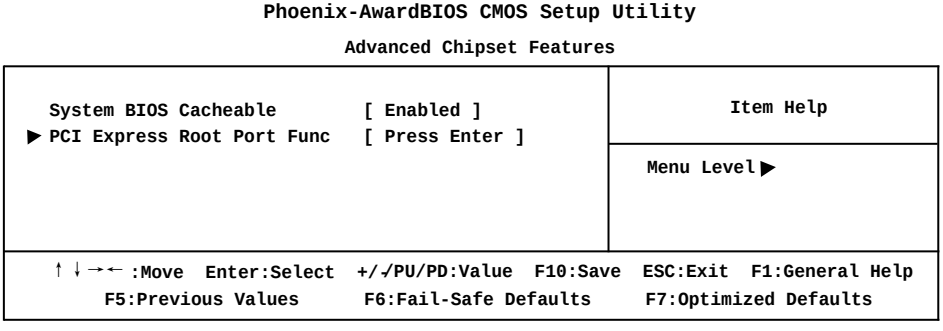
4-5-2 USB Boot Priority



USB HDD0/USB HDD1
It allows you to set the priority for USB storage boot. When you press enter, the selections shows the current USB storage used in your system

4-6 Advanced Chipset Features

The Advanced Chipset Features Setup option is used to change the values of the chipset registers. These registers control most of the system options in the computer.



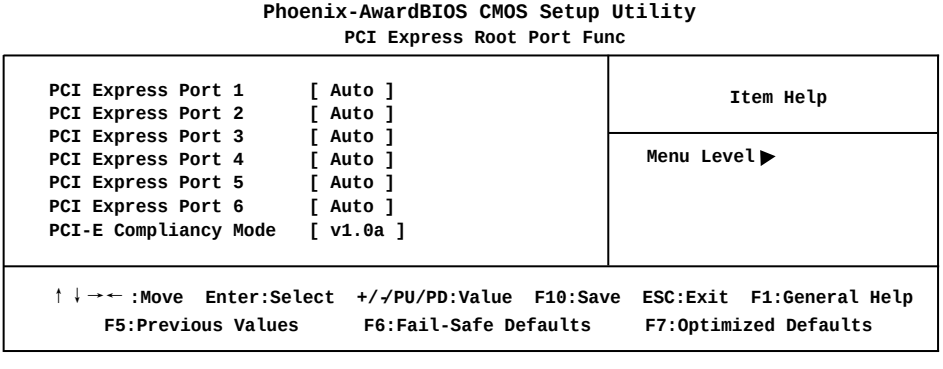
System BIOS Cacheable

Selecting Enabled allows caching of the system BIOS ROM at F0000h-FFFFFh, resulting in better system performance. However, if any program writes to this memory area, a system error may result.
Settings are: Enabled (default) and Disabled.

PCI Express Root Port Func

Please refer to section 4-6-1

4-6-1 PCI Express Root Port Func



PCI Express Port 1/2/3/4/5/6

These items are Disabled. Enabled and Auto (default) for port 1 to port 6 of PCIe device.

Note: Port 1 to port 6 will all disables, if you select "Disable" on Port 1 item.

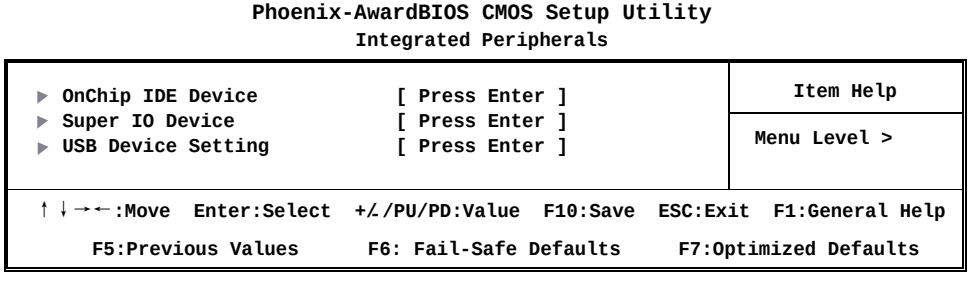
PCI-E Compliancy Mode

This item determines PCI Express bus in mode?

V1.0a (default) it's compliant PCI Express in v1.0a specification.

V1.0 it's compliant PCI Express in v1.0 specification.

4-7 Integrated Peripherals



OnChip IDE Device Function

Please refer to section 4-7-1

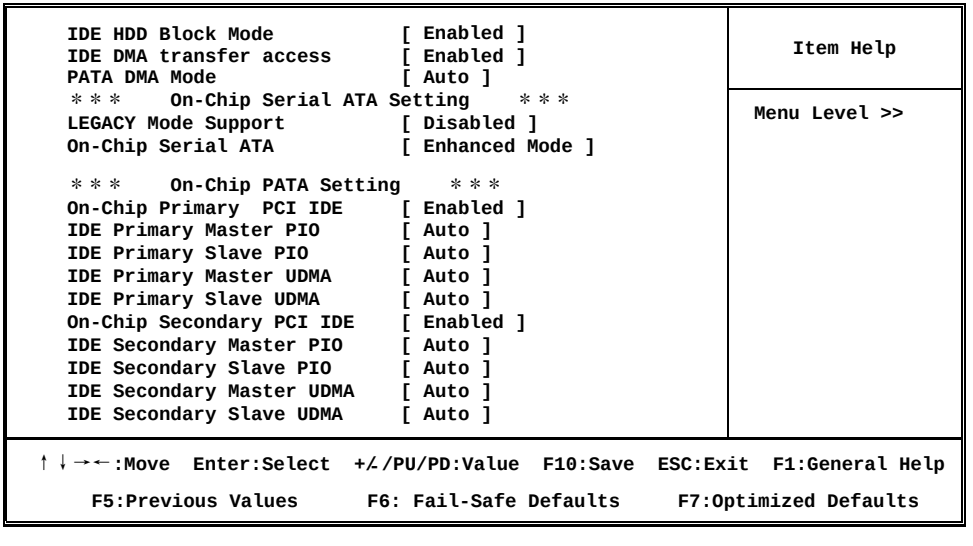
Super IO Device Function

Please refer to section 4-7-2

USB Device Setting

Please refer to section 4-7-3

4-7-1 OnChip IDE Device Function



IDE HDD Block Mode

Block mode is also called block transfer, multiple commands, or multiple sector read/write. If your IDE hard drive supports block mode (most new drives do), select Enabled for automatic detection of the optimal number of block read/writes per sector the drive can support. The settings are: Disabled, Enabled (default).

PATA DMA Mode

Force IDE device to work in DMA33 or DMA66/100 mode.

Auto (Default)	By system determine automatically.
DMA33	Work in DMA 33 mode.
DMA66/100	Work in DMA 66/100 mode.

Note: That is supported fastest speed by IDE device to determine in DMA66 or DMA100.

OnChip Serial SATA

That it has 4 choices as below:

Disabled	Disable SATA Controller.
Combined Mode	PATA and SATA are combined. Max of 2 IDE drives in each channel.
Enhanced Mode (default)	Enable both SATA and PATA. Max of 6 IDE drives are supported.
SATA Only	SATA is operating in legacy mode.

OnChip IDE Primary/Secondary

The integrated peripheral controller contains an IDE interface with support for two IDE channels.
Select Enabled to activate each channel separately.
Settings are: Enabled (default), Disabled.

Primary/Secondary Master/Slave PIO

The four IDE PIO (Programmed Input/Output) fields let you set a PIO mode (0-4) for each of the four IDE devices that the onboard IDE interface supports. Modes 0 through 4 provide successively increased performance. In Auto mode, the system automatically determines the best mode for each device.
The settings are: Auto (default), Mode 0, Mode 1, Mode 2, Mode 3 and Mode 4.

Primary/Secondary Master/Slave UDMA

Ultra DMA/33 implementation is possible only if your IDE hard drive supports it and the operating environment includes a DMA driver (Windows 95 OSR2 or a third-party IDE bus master driver)You're your hard drive and your system software both support Ultra DMA/33 and Ultra DMA/66, select Auto to enable BIOS support.
Settings are: Auto(default) , Disabled.

4-7-2 Super IO Device

```
Phoenix-AwardBIOS CMOS Setup U tility
Super IO Device
```

Onboard Serial Port 1 [3F8/IRQ4] COM1 422/485 flow control [Disabled] Onboard Serial Port 2 [2F8/IRQ3] COM2 422/485 flow control [Disabled] PWRON After PWR-Fail [Former-Sts]	Item Help Menu Level >>
↑↓→←:Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help F5:Previous Values F6: Fail-Safe Defaults F7:Optimized Defaults	

Onboard Serial Port 1&2

Select an address and corresponding interrupt for the first and the second serial ports. Settings are: 3F8/IRQ4, 2E8/IRQ3, 3E8/IRQ4, 2F8/IRQ3, Disabled, Auto.

COM1/2 422/485 flow control

This item allows you to disable or enable RS422 or RS485 function on COM 1/2, if you need.

PWRON After PWR-fail

This item specifies whether your system will reboot after a power failure or interrupt occurs.
Settings are: Off: Leaves the computer in the power off state.
On: Leaves the computer in the power on state.
Former-Sts: Restores the system to the status before power failure or interrupt occurred(Defualt).

4-7-3 USB Device Setting

```
Phoenix-AwardBIOS CMOS Setup Utility
USB Device Setting
```

USB 1.0 Controller [Enabled] USB 2.0 Controller [Enabled] USB Operation Mode [High Speed] USB Keyboard Function [Enabled] USB Mouse Function [Enabled] USB Storage Function [Enabled]	Item Help Menu Level >>
↑↓→←:Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help F5:Previous Values F6: Fail-Safe Defaults F7:Optimized Defaults	

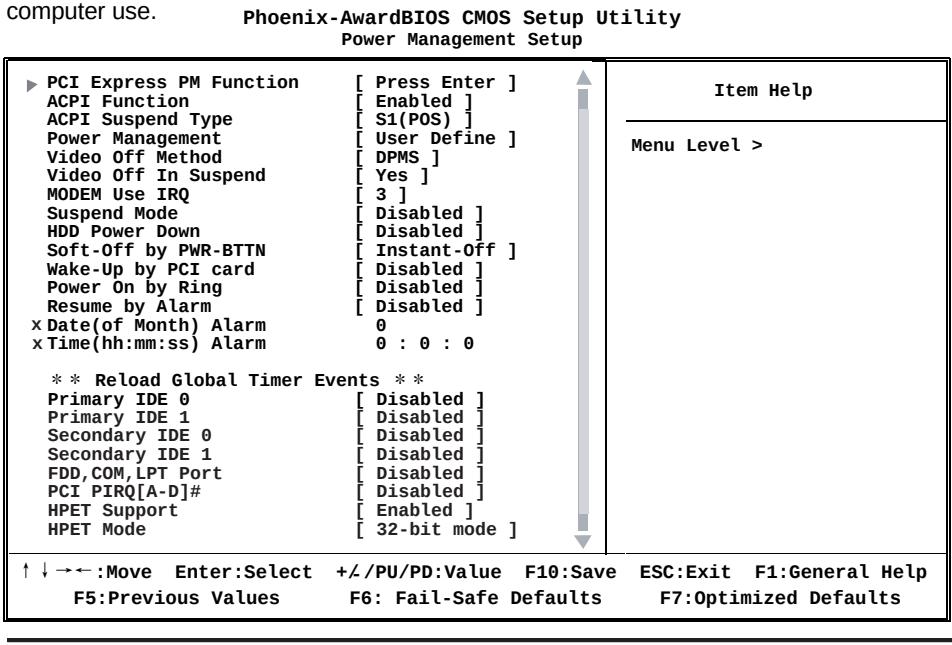
USB 1.0 Controller
Select Enabled if your system contains a Universal Serial Bus (USB) controller and you have a USB peripherals.
Settings are: Enabled (default), Disabled.

USB 2.0 Controller
Select Enabled if your system contains a Enhanced Serial Bus (USB) controller and you have a USB peripherals.
Settings are: Enabled (default), Disabled.

USB Operation Mode
High speed:
If USB device was high speed device, then it operated on high speed mode. If USB device was full/low speed device, then it operated on full/low speed mode.
Full/Low Speed:
All of USB device operated on full/low speed mode.

USB Keyboard Function/ USB MOUSE Function/USB Storage Function
Select Enabled if your system contains a Universal Serial Bus (USB) controller and you have a USB keyboard or USB mouse and USB storage.
Settings are: Enabled (default), Disabled.

4-8 Power Management Setup
The Power Management Setup allows you to configure your system to most effectively save energy saving while operating in a manner consistent with your own style of computer use.



PCI Express PM Function

Please refer to section 4-9

ACPI Function

This item allows you to Enabled/Disabled the Advanced Configuration and Power Management (ACPI).

Settings are: Enabled (default) and Disabled.

Video Off Method

This determines the manner in which the monitor is blanked.

DPMS (default)	Initial display power management signaling.
Blank Screen	This option only writes blanks to the video buffer.
V/H SYNC+Blank	This selection will cause the system to turn off the vertical and horizontal synchronization ports and write blanks to the video buffer.

Video Off in Suspend

This determines the manner in which the monitor is blanked.

Yes	Video will off.
No	Video always On.

MODEM Use IRQ

This determines the IRQ in which the MODEM can use.

The settings are: 3(default), 4, 5, 7, 9, 10, 11, NA.

Resume by Alarm

This function is for setting date and time for your computer to boot up. During Disabled, you cannot use this function. During Enabled, choose the Date and Time Alarm:

Date(of month) Alarm

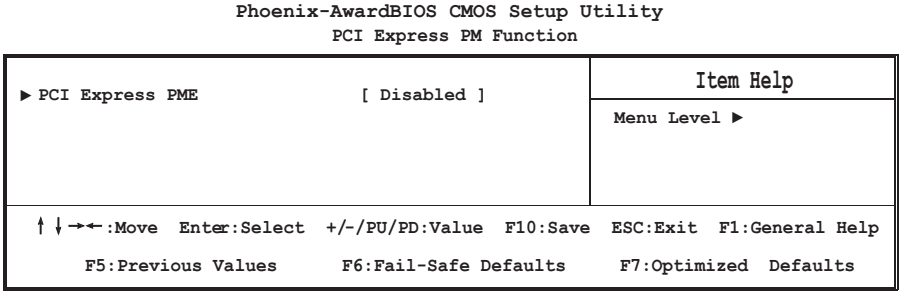
You can choose which month the system will boot up. Set to 0, to boot every day.

Time(hh:mm:ss) Alarm

You can choose what hour, minute and second the system will boot up.

Note: If you have change the setting, you must let the system boot up until it goes to the operating system, before this function will work

4-9 PCI Express PM Function

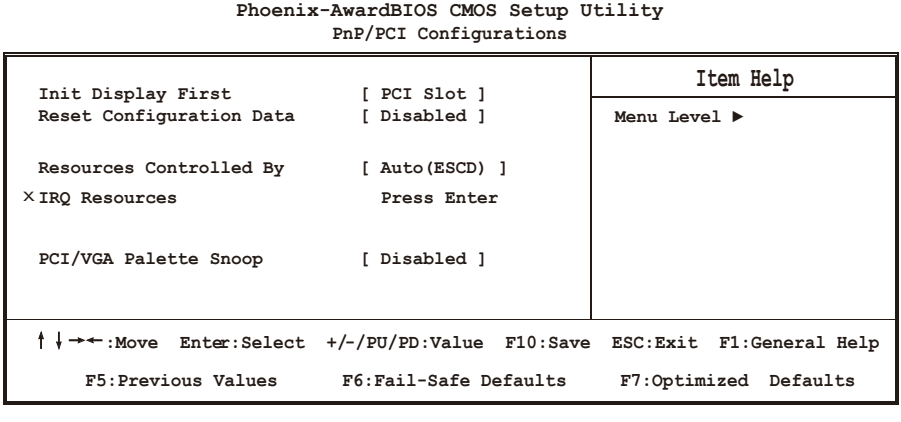


PCI Express PME

This item allows you to wake-up system, when PME event has presence.

4-10 PnP/PCI Configuration Setup

This section describes how to configure the PCI bus system. PCI, or Personal Computer Interconnect, is a system which allows I/O devices to operate at the speed the CPU itself keeps when CPU communicates with its own special components. This section covers some very technical items and we strongly recommended that only experienced users should make any change to the default settings.



Reset Configuration Data

Normally, you leave this field Disabled. Select Enabled to reset Extended System Configuration

Data (ESCD) when you exit Setup if you have installed a new add-on and the system reconfiguration has caused such a serious conflict that the operating system can not boot. The settings are: Enabled and Disabled.

Resource Controlled By

The Award Plug and Play BIOS can automatically configure all of the boot and Plug and Play compatible devices. However, this capability means absolutely nothing unless you are using a Plug and Play operating system such as Windows 95/98. If you set this field to "manual", choose a specific resource by going into each sub menu that follows this field (a sub menu is preceded by a ">").

Settings are: Auto(ESCD) (default) or Manual.

IRQ Resources

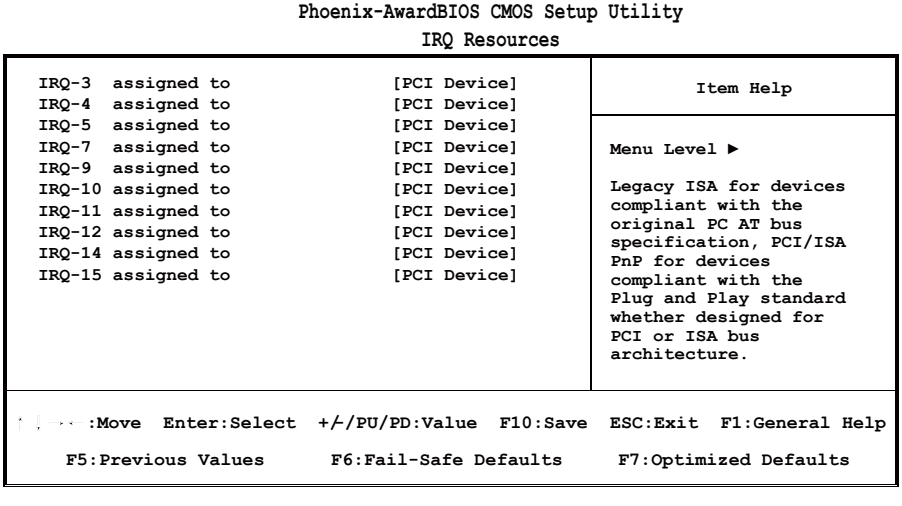
Please refer section.

PCI/VGA Palette Snoop

Leave this field at Disabled. The settings are Enabled or Disabled.

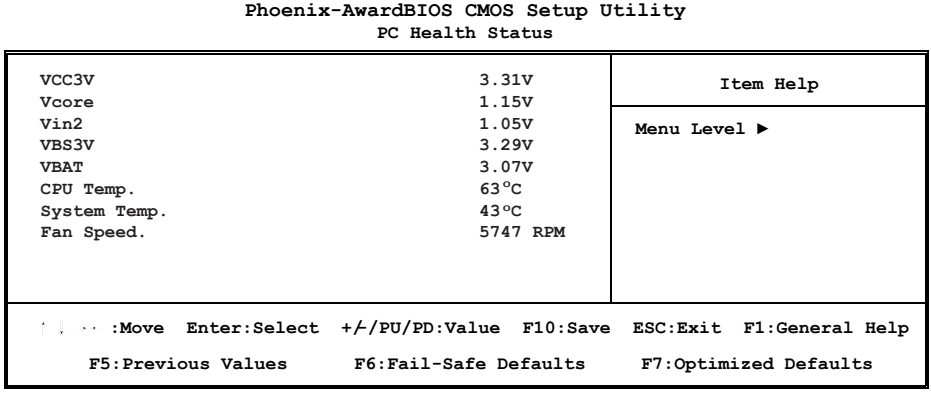
4-10-1 IRQ Resources

When resources are controlled manually, each system interrupt is assigned a type, depending on the type of device using the interrupt.



4-11 PC Health Status

This section shows the status of your CPU, Fan, and overall system.
This is only available when there is Hardware Monitor function onboard.



Current CPU Temperature/Current System Temp
Vcore/Vin2/VBS3V/VBAT
This will show the CPU/FAN/System voltage chart.

4-12 Load Optimized Defaults

When you press <Enter> on this item, you get a confirmation dialog box with a message similar to:

Load Optimized Defaults (Y/N)? N

Press <Y> to load the default values that are factory settings for optimal system operation performance.

4-13 Set Supervisor/ User Password

You can set supervisor password, user password, or both. The differences are:

Supervisor password: You can enter the setup menus and change the options.

User password: You can enter the setup menus but do not have the right to change the options. When you select this function, the following message will appear at the center of the screen to assist you in creating a password.

ENTER PASSWORD:

Type the password, up to eight characters in length, and press <Enter>. The password typed will clear any previous password from CMOS memory. You will be asked to confirm the password. Type the password again and press <Enter>. You may also press <Esc> to abort the selection without entering password. To disable a password, just press <Enter> when you are prompted to enter the password. A message will confirm if you want to disable the password. Once the password is disabled, the system will boot and you can enter Setup menus freely.

PASSWORD DISABLED.

When a password has been enabled, you have to enter it every time before you enter the Setup. This prevents an unauthorized person from changing any part of your system configuration.

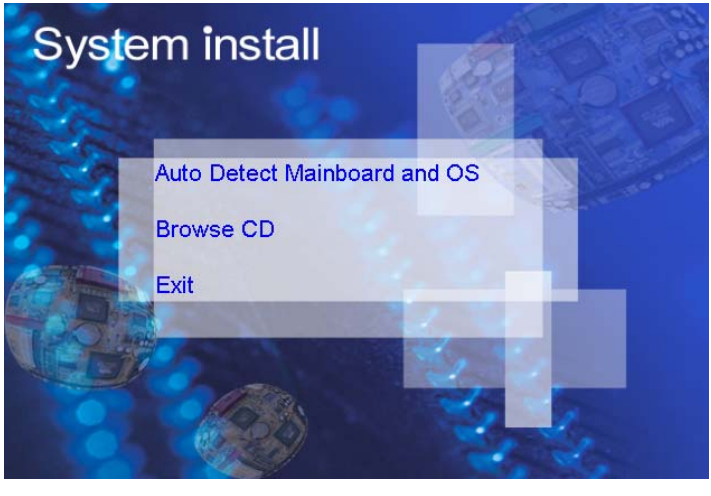
Chapter 5

DRIVER INSTALLATION

There is a SYSTEM INSTALL CD disk in the package. This CD has all the drivers you need and some free application programs and utility programs. In addition, this CD also includes an auto-detect software which can tell you which hardware is installed and which driver is needed so that your system can function properly.
We call this auto detect software SYSTEM INSTALL.

SYSTEM INSTALL Supports WINDOWS XP/Vista/Win7

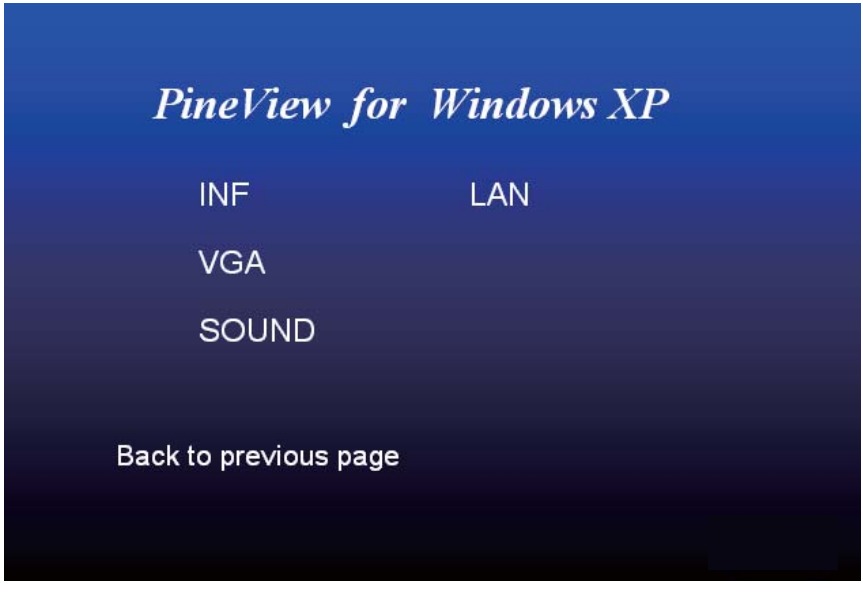
Insert the CD into your CD-ROM drive and the SYSTEM INSTALL Menu should appear as below. If the menu does not appear, double-click MY COMPUTER and double-click CD-ROM drive or click START, click RUN, and type X:\SETUP.EXE (assuming X is your CD-ROM drive).



From SYSTEM INSTALL MENU you may make 3 selections:

1 . Auto detect main board and OS Into auto install driver Menu
2 . Explore CD to explore the contents of the CD
3 . EXIT to exit from SYSTEM INSTALL menu

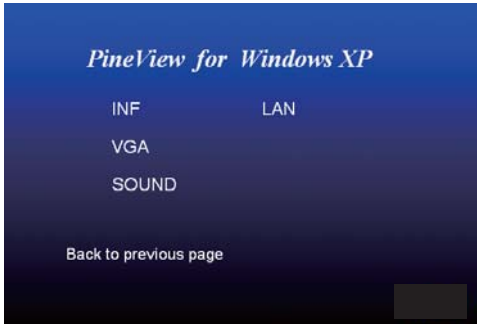
Auto install driver Menu



1. INF install Intel PineView chipset system driver
2. VGA install on-board VGA driver
3. SOUND install VIA HID Audio Codec Audio driver
4. DIRECTX install DirectX 9 driver
5. LAN to LAN install driver readme file

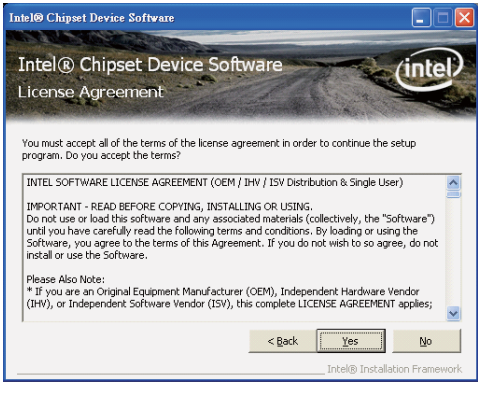
Each selection is illustrated as below:

5-1 INF Install INTEL PineView Chipset system driver

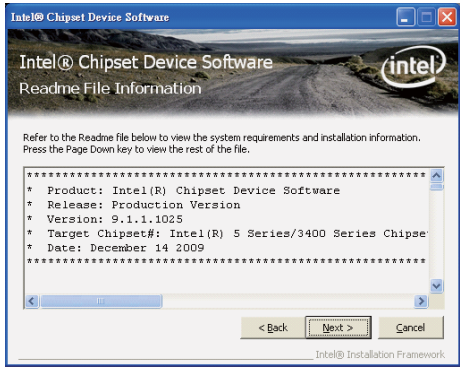


1. Click INF when System Install MENU appears.

2. Click NEXT when Chipset Software Install Utility appears.



3. This license agreement appear, click Yes, the Click NEXT.



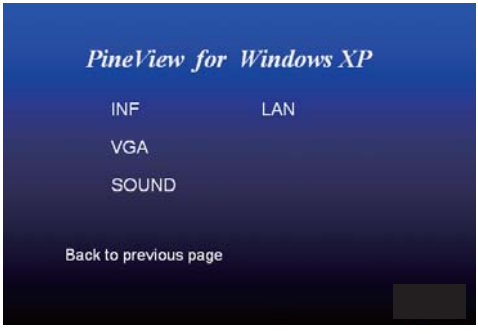
4. This is Readme information appear, Click NEXT.

5.Click NEXT.

6.Click Finish to restart computer.

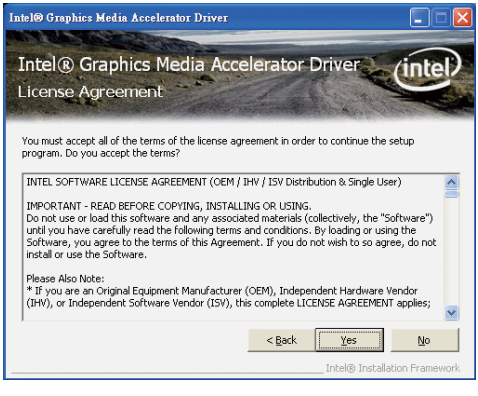
NOTE: SYSTEM INSTALL will auto detect file path
X:\driver\Intel\I945\INF\infinst911autol.exe
This driver supports WINDOWS XP32/XP64/Win7 32/Win7 64

5-2 VGA Install Intel PineView VGA Driver

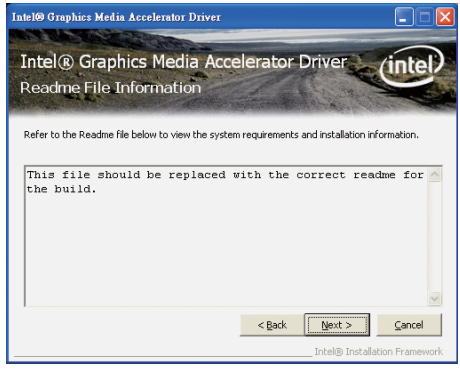


1.Click VGA when System Install MENU appears.

2.Click NEXT when Intel ® Chipset Graphics Driver Software Setup appears.

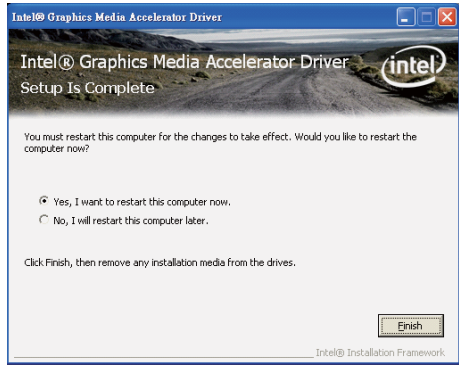


3.Click NEXT when Intel ® Graphics Media Accelerator Driver Software appear.



4.Click YES, This Announce CopyRight .

5.Click NEXT.



6.Click FINISH to Restart Computer.

NOTE: The path of the file

For WINDOWS XP 32

X:\driver\Intel\D510\VGA\winxp.exe

For WINDOWS XP 64

X:\driver\Intel\D510\VGA\winxp64.exe

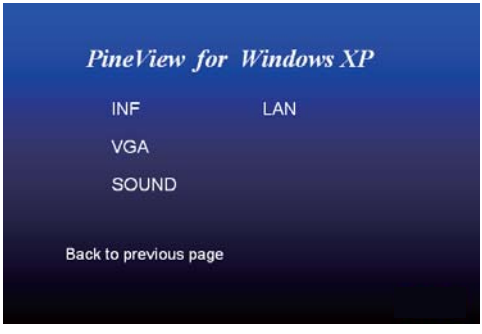
For WINDOWS 7 32

X:\driver\Intel\D510\VGA\win7.exe

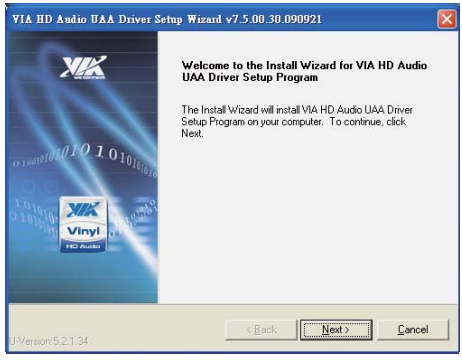
For WINDOWS 7 64

X:\driver\Intel\D510\VGA\winvista64.exe

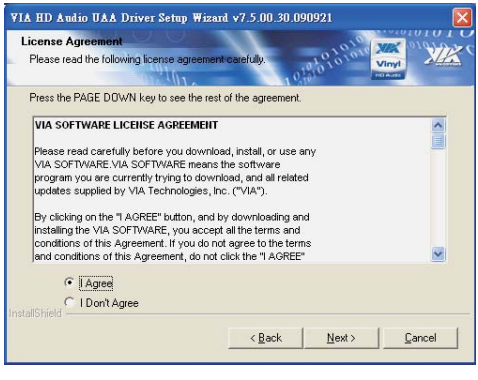
5-3 SOUND Install VIA HID Audio Codec Driver



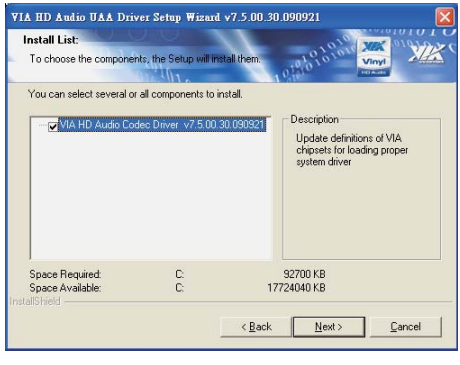
1.Click SOUND when System Install MENU appears.



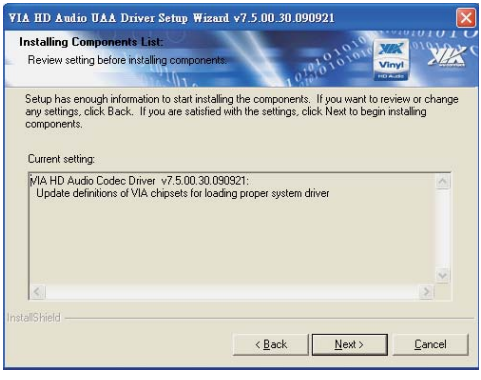
2.Click Next .



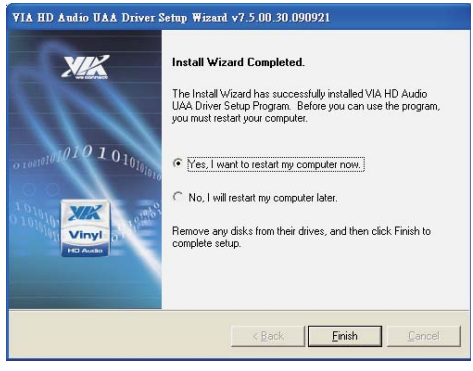
3.Click Next .



4.Click Next to begin installing driver. The program might be few minutes.



5.Click NEXT.



6.Click FINISH to Restart Computer.

NOTE: The path of the file

For XP 32/XP 64

X:\driver\INTEL\I945\SOUND\VIAHDAudV7500a_Setup.exe

For Win 7 32/Win7 64

X:\driver\INTEL\I945\SOUND\VIAHDAudV7500a_Setup.exe

5-4 HOW TO UPDATE BIOS

Under DOS Mode
STEP 1. Prepare a bootable disc.
(Storage device could be USB FDD, CF card, or USB pen drive.)
STEP 2. Copy utility program to your bootable disc. You may copy it from DRIVER CD X:\Dirver\bios\AWDFLASH.EXE or download it from our web site.
STEP 3. Copy the latest BIOS for your LEX motherboard from our web site to your bootable disc.
STEP 4. (Here take 3I525D/U as an example, please enter your motherboard's name)
Insert your bootable disc into X: (X could be C:, A: or others.
It depends on which type of storage device you use.)
Start the computer and type
X:\ Awdflash 3I525D/Uxx.BIN /SN/PY/WB/CP/CD/CC/R
3I525D/Uxxx.BIN is the file name of the latest BIOS.
It may be 3I525D/UA1.BIN or 3I525D/UA2.BIN, etc.
Please leave one space between .BIN & /SN/PY/WB/CP/CD/CC/R

By D525 series mainboard, pls type
X:\Awdflash 3I525D/Uxx.BIN /SN/PY/WB/CP/CD/CC/R

SN : don't save the current BIOS data
PY : renew the current BIOS data
WB : always programming Boot Block
CP : clear PnP(ESCD) data after programming
CD : clear DMI data after programming
CC : clear the current CMOS data
R : restart computer

STEP 5. Press ENTER and the BIOS will be updated,
Computer will restart automatically.

Appendix A: Power Consumption Test

Condition

Item	Spec
CPU	Intel Atom D525 1.8Ghz
SDRAM	DDR3 800 / 1GB
Operating System	Windows XPP/SP3
Test Program	3D Mark 2001SE
HDD 3.5" SATA	Standard HDD
HDD 2.5" SATA	Slim Type HDD

Test Result for reference !

Hard Disk	Power off	Start up		Operation	Shut down
		Maximum	Stable	Maximum	Maximum
Standard HDD	0.06A	3.18A	1.60A	1.88A	1.67A
Slim Type HDD	0.06A	1.35A	1.15A	1.44A	1.18A

The power consumption depends on your device choice!

Appendix B: Resolution list

640 x 480 x (256 / 16bit / 32bit)
800 x 600 x (256 / 16bit / 32bit)
1024 x 768 x (256 / 16bit / 32bit)
1152 x 864 x (256 / 16bit / 32bit)
1280 x 600 x (256 / 16bit / 32bit)
1280 x 720 x (256 / 16bit / 32bit)
1280 x 768 x (256 / 16bit / 32bit)
1280 x 800 x (256 / 16bit / 32bit)
1280 x 960 x (256 / 16bit / 32bit)
1280 x 1024 x (256 / 16bit / 32bit)
1400 x 1050 x (256 / 16bit / 32bit)
1440 x 900 x (256 / 16bit / 32bit)
1600 x 900 x (256 / 16bit / 32bit)
1600 x 1200 x (256 / 16bit / 32bit)
1680 x 1050 x (256 / 16bit / 32bit)
1920 x 1080 x (256 / 16bit / 32bit)
1920 x 1200 x (256 / 16bit / 32bit)

Appendix C: Memory combination for 3I525D / 3I525U

	DDR3 DRAM		Total Capacity
	On board	SODIMM	
1	1GB (128 x 8) x 8	—	1GB
2	—	1GB (128 x 8) x 8	1GB
3	1GB (128 x 8) x 8	1GB (128 x 8) x 8	2GB
4	2GB (256 x 8) x 8	—	2GB
5	—	2GB (128 x 8) x 16	2GB
6	2GB (256 x 8) x 8	1GB (128 x 8) x 8	3GB
7	—	4GB (256 x 8) x 16	4GB