XTX-915

Intel® Pentium® M/
Celeron® M Processor
DDRII SODIMM
With LCD, Ethernet, PCI-E,
Audio, SATA, SDVO

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Packing List

Before you begin installing your card, please make sure that the following materials have been shipped:

- 1   XTX-915 CPU Module

- 1   CD-ROM for manual (in PDF format) and drivers

- 4   M2.5 Screws

If any of these items should be missing or damaged, please contact your distributor or sales representative immediately.

Application Note

1. Intel Banias-core CPUs on XTX-915

TF-XTX-915-A10 supports Intel Dothan-core CPUs only. Please do not use Intel Banias-core CPUs on TF-XTX-915-A10. It may cause the damage of CPUs. If you want to use Intel Banias-core CPUs, some components on XTX-915 have to be changed. Please contact with your AAEON responsible sales for this specific requirement.

2. Display issue of 640x480 LVDS LCD panel

If you use 640x480 LVDS LCD panel and Intel Graphics Utility to set the Extended Desktop mode, the panel will show nothing.

For more detailed information, please contact with AAEON Application Engineer Department.

FAQ

Question: How do I install the OS into SATA HDD when I choose the "Enhanced Mode" in the BIOS for HDD setting?

Answer: If you are going to use SATA and IDE HDD simultaneously, please follow the steps below to install OS properly.

> Step 1: Choose the "Enhanced Mode" in the BIOS

> Step 2: Connect SATA HDD only

> Step 3: Install OS

> Step 4: Connect IDE HDD

Please be noted that you cannot connect SATA and IDE HDD to install OS at the same time since the OS installation may fail.

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Chapter

1

General Information

1.1 Introduction

XTX-915 equips with Intel® Pentium® M / Celeron® M processors and has one 200-pin DDR II 400/533 SODIMM to support system memory up to 2GB. XTX-915 adopts Intel® 915GME+ ICH6-M chipset that implements serial technologies with high performance. In addition, XTX-915 accommodates user-friendly expansion interfaces, such as four PCI-Express〔x1〕, four 32-bit PCI, one LPC bus, one SMBus and one I2C interface.

For the display specifications, XTX-915 integrates Intel® 915GME and shared system memory is up to 128MB. The display of XTX-915 supports CRT and 18-bit dual-channel LVDS LCD. Moreover, one SDVO port can be used through the SDVO connector to provide more flexibility for display function.

If you are looking for an economic, time-saving and high performance solution, XTX-915 definitely is your best choice.

1.2 Features

- Intel® Pentium® M/ Celeron® M Processors
- DDR II 400/533 Memory
- CRT/ 18-bit Dual-channel LVDS LCD
- 10/100Base-TX Ethernet
- AC97 Audio Codec
- PCI-Express〔x1〕x 4
- SATA x 2
- SDVO Connector x 1
- +5V Operating Voltage
- XTX Form Factor

1.3 Specifications

System

- CPU   Intel® (Socket 478-based) Pentium® M

                           Celeron® M Processors

- Memory   One 200-pin DDR II SODIMM, supports

                           DDR II 400/533 up to 2GB

- Chipset   Intel® 915GME+ICH6-M

- Ethernet   Intel 82562ET, 10/100Base-TX

- BIOS   Award, PLCC type, 1MB ROM

- Watchdog Timer   Generates a Time-out System Reset

- H/W Status Monitoring   Supports Power Supply Voltages, Fan

                           Speed and Temperature Monitoring

- Wake on LAN   Yes

- Expansion Interface   PCI-E〔x1〕x4

                           32-bit PCI x 4

                           LPC Bus x 1

                           SMBus x 1

                           I2C x 1

- Power Supply Voltage   +5V DC

- Board Size   4.5"(L) x 3.74"(W) (114mm x 95mm)

- Gross Weight   0.66lb (0.3kg)

- Operating Temperature   32°F~140°F (0°C~60°C)

- Storage Temperature   -40°F~176°F (-40°C~80°C)

Display: Supports CRT/LCD, simultaneous/ dual independent display

- Chipset   Intel® 915GME integrated
- Memory   Shared system memory up to 128MB
- Resolution   Up to 2048x1536 (QXGA) for CRT; Up to 1600x1200 (UXGA), 1920x1200(WUXGA) for LCD
- LCD Interface   18-bit dual-channel LVDS
- SDVO Port   One SDVO port can be used through the SDVO connector

I/O

- Storage   PATA x 1 channel (2 devices), SATA x 2
- Serial Port   2
- Parallel Port   1
- USB   USB2.0 x 6
- PS/2 Port   Keyboard x 1, Mouse x 1
- IrDA   One IrDA Tx/Rx header
- Audio   Mic-in, Line-in, Line-out (XTX-1 connector), AC97 digital audio (XTX-2 connector)

Chapter

2

Quick Installation Guide

OZONE SAFE

RECYCLABLE

2.1 Safety Precautions

Warning!

Always completely disconnect the power cord from your board whenever you are working on it. Do not make connections while the power is on, because a sudden rush of power can damage sensitive electronic components.

Caution!

Always ground yourself to remove any static charge before touching the board. Modern electronic devices are very sensitive to static electric charges. Use a grounding wrist strap at all times. Place all electronic components on a static-dissipative surface or in a static-shielded bag when they are not in the chassis

2.2 Mechanical Drawing

Component Side
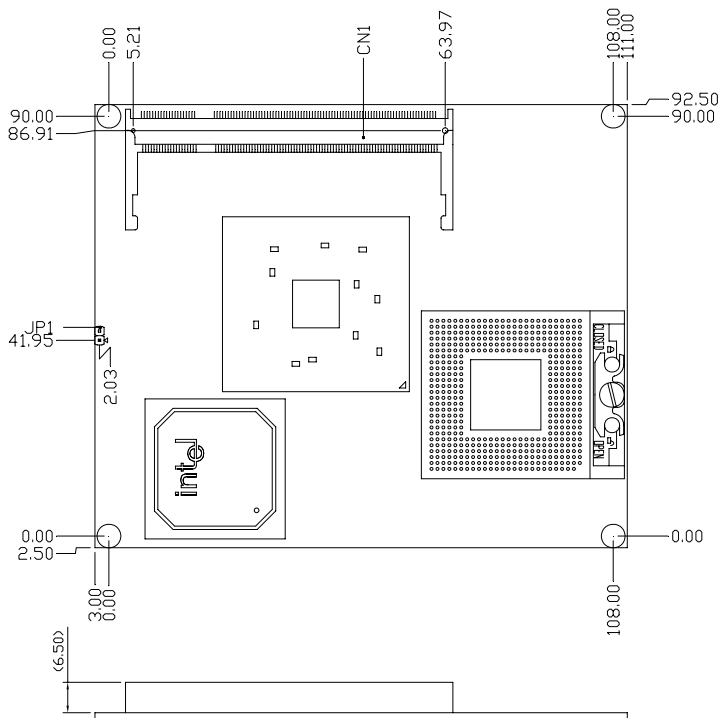
Solder Side
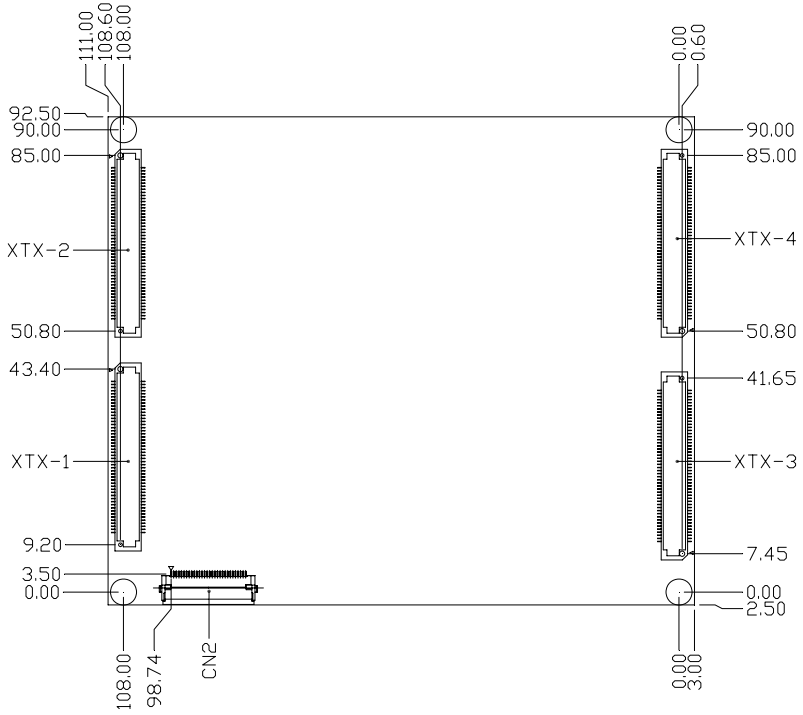
2.3 List of Jumpers

The board has a number of jumpers that allow you to configure your system to suit your application.

The table below shows the function of each of the board's jumpers:

Jumpers

Label	Function
JP1	BIOS write protect (Non-populated)

2.4 List of Connectors

The board has a number of connectors that allow you to configure your system to suit your application.

The table below shows the function of each of the connectors on board:

Connectors

Label	Function
CN1	DDRII SODIMM Slot
CN2	SDVO Connector
XTX-1	PCI / USB / Audio
XTX-2	PCI Express x1/ FAN/ LPC/ SATA/ Power management signals/ AC97 CODEC signals
XTX-3	VGA/ LCD/ COMs/ LPT/ IrDA/ Mouse/ Keyboard
XTX-4	IDE/ Ethernet/ Miscellaneous

2.5 Setting Jumpers

You configure your card to match the needs of your application by setting jumpers. A jumper is the simplest kind of electric switch. It consists of two metal pins and a small metal clip (often protected by a plastic cover) that slides over the pins to connect them. To "close" a jumper you connect the pins with the clip.

To "open" a jumper you remove the clip. Sometimes a jumper will have three pins, labeled 1, 2 and 3. In this case you would connect either pins 1 and 2 or 2 and 3.

Open   **Closed**   **Closed 2-3**
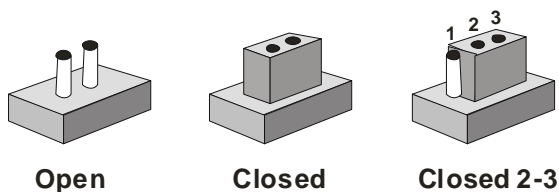
A pair of needle-nose pliers may be helpful when working with jumpers.

If you have any doubts about the best hardware configuration for your application, contact your local distributor or sales representative before you make any change.

Generally, you simply need a standard cable to make most connections.

2.6 BIOS Write Protect (JP1) (Non-populated)

JP1	Function
Open	BIOS write protect disable (Default)
Short	BIOS write protect enable

2.7 SDVO Connector (CN2)

Pin	Signal	Pin	Signal
1	GND	2	SDVOC_BCLKN
3	SDVOC_BCLKP	4	GND
5	SDVOC_GREEN#	6	SDVOC_GREEN
7	GND	8	SDVOC_INT#
9	SDVOC_INT	10	GND
11	SDVOC_BLUE#	12	SDVOC_BLUE
13	GND	14	SDVOC_RED#
15	SDVOC_RED	16	GND
17	SDVO_FLDSTALL#	18	SDVO_FLDSTALL
19	GND	20	SDVOCTRL_CLK
21	SDVOCTRL_DATA	22	RESET#
23	+3.3V	24	+2.5V
25	+5V	26	GND
27	NC	28	NC
29	NC	30	NC

2.8 XTX Connector (XTX-1)

Pin	Signal	Pin	Signal	Pin	Signal	Pin	Signal
1	GND	2	GND	51	VCC	52	VCC
3	PCICLK 3	4	PCICLK4	53	PAR	54	SERR#
5	GND	6	GND	55	PERR#	56	NC
7	PCICLK1	8	PCICLK2	57	PME#	58	USB2-
9	REQ#3	10	GNT#3	59	LOCK#	60	DEVSEL#
11	GNT#2	12	VCC3	61	TRDY#	62	USB3-
13	REQ#2	14	GNT#1	63	IRDY#	64	STOP#
15	REQ#1	16	VCC3	65	FRAME#	66	USB2+
17	GNT#0	18	NC	67	GND	68	GND
19	VCC	20	VCC	69	AD16	70	CBE#2
21	SERIRQ	22	REQ#0	71	AD17	72	USB3+
23	AD0	24	VCC3	73	AD19	74	AD18
25	AD1	26	AD2	75	AD20	76	USB0-
27	AD4	28	AD3	77	AD22	78	AD21
29	AD6	30	AD5	79	AD23	80	USB1-
31	CBE#0	32	AD7	81	AD24	82	CBE#3
33	AD8	34	AD9	83	VCC	84	VCC
35	GND	36	GND	85	AD25	86	AD26
37	AD10	38	AUXAL	87	AD28	88	USB0+
39	AD11	40	MIC	89	AD27	90	AD29
41	AD12	42	AUXAR	91	AD30	92	USB1+
43	AD13	44	ASVCC	93	PCIRST#	94	AD31
45	AD14	46	SNDL	95	INTC#	96	INTD#
47	AD15	48	ASGND	97	INTA#	98	INTB#
49	CBE#1	50	SNDR	99	GND	100	GND

2.9 XTX Connector (XTX-2)

Pin	Signal	Pin	Signal	Pin	Signal	Pin	Signal
1	GND	2	GND	51	VCC	52	VCC
3	PCIE_CLK	4	SATA_RXP0	53	PCIE_RXN1	54	NC
5	PCIE_CLK#	6	SATA_RXN0	55	PCIE_RXP1	56	NC
7	GND	8	GND	57	GND	58	NC
9	PCIE_TXP3	10	SATA_TXN0	59	PCIE_TXN1	60	NC
11	PCIE_TXN3	12	SATA_TXP0	61	PCIE_TXP1	62	PM_THRM#
13	GND	14	5V_SB	63	PCIE_WAKE	64	NC
15	PCIE_RXP3	16	SATA_RXP1	65	SLP_S5#	66	NC
17	PCIE_RXN3	18	SATA_RXN1	67	GND	68	GND
19	VCC	20	5V_SB	69	PCIE_RXN0	70	NC
21	NC	22	SATA_TXN1	71	PCIE_RXP0	72	NC
23	EXC1_RST#	24	SATA_TXP1	73	GND	74	VCC
25	USB5+	26	GND	75	PCIE_TXN0	76	FAN_TAC2
27	USB5-	28	NC	77	PCIE_TXP0	78	FAN_CTL2
29	GND	30	NC	79	NC	80	VCC
31	PCIE_TXP2	32	PM_SUS_STAT#	81	ACZ_RST#	82	ACZ_SDOUT
33	PCIE_TXN2	34	PM_CLKRUN#	83	VCC	84	VCC
35	GND	36	GND	85	ACZ_SYNC	86	ACZ_SDIN0
37	PCIE_RXP2	38	NC	87	ACZ_SDIN1	88	ACZ_SDIN2
39	PCIE_RXN2	40	NC	89	ACZ_BITCLK	90	FAN_TAC1
41	NC	42	GND	91	LPC_AD0	92	FAN_CTL1
43	EXC0_RST#	44	NC	93	LPC_AD1	94	LPC_FRAME#
45	USB4+	46	NC	95	LPC_AD2	96	LPC_DRQ0#
47	USB4-	48	NC	97	LPC_AD3	98	LPC_DRQ1#
49	PM_SLP_S3#	50	SATA_LED#	99	GND	100	GND

2.10 XTX Connector (XTX-3)

Pin	Signal	Pin	Signal	Pin	Signal	Pin	Signal
1	GND	2	GND	51	NC	52	NC
3	R	4	B	53	VCC	54	GND
5	HSY	6	G	55	STB#	56	AFDX
7	VSY	8	DDCK	57	NC	58	PD7
9	NC	10	DDDA	59	IRRX	60	ERRX
11	TX2CLK#	12	TX2OUT#3	61	IRTX	62	PD6
13	TX2CLK	14	TX2OUT3	63	RXD2	64	INIT#
15	GND	16	GND	65	GND	66	GND
17	TX2OUT1	18	TX2OUT2	67	RTS#2	68	PD5
19	TX2OUT#1	20	TX2OUT#2	69	DTR#2	70	SLIN#
21	GND	22	GND	71	DCD#2	72	PD4
23	TX1OUT#3	24	TX2OUT0	73	DSR#2	74	PD3
25	TX1OUT3	26	TX2OUT#0	75	CTS#2	76	PD2
27	GND	28	GND	77	TXD2	78	PD1
29	TX1OUT#2	30	TX1CLK	79	RI#2	80	PD0
31	TX1OUT2	32	TX1CLK#1	81	VCC	82	VCC
33	GND	34	GND	83	RXD1	84	ACK#
35	TX1OUT0	36	TX1OUT1	85	RTS#1	86	BUSY
37	TX1OUT#0	38	TX1OUT#1	87	DTR#1	88	PE
39	VCC	40	VCC	89	DCD#1	90	SLCT
41	JILI_DAT	42	NC	91	DSR#1	92	MSCLK
43	JILI_CLK	44	BLON#	93	CTS#1	94	MSDAT
45	BIASON/ HSYNC	46	DIGON	95	TXD1	96	KBCLK
47	COMP	48	TV_Y	97	RI#1	98	KBDAT
49	NC	50	TV_C	99	GND	100	GND

2.11 XTX Connector (XTX-4)

Pin	Signal	Pin	Signal	Pin	Signal	Pin	Signal
1	GND	2	GND	51	NC	52	PIDE_IOR#
3	5V_SB	4	PWGIN	53	NC	54	PIDE_IOW#
5	PS_ON	6	SPEAKER	55	NC	56	PIDE_DRQ
7	PWRBTN#	8	BATT	57	NC	58	PIDE_D15
9	NC	10	LILED	59	NC	60	PIDE_D0
11	NC	12	ACTLED	61	NC	62	PIDE_D14
13	NC	14	SPEEDLED	63	NC	64	PIDE_D1
15	EXT_PRG	16	NC	65	GND	66	GND
17	VCC	18	VCC	67	NC	68	PIDE_D13
19	OVCR#	20	NC	69	NC	70	PIDE_D2
21	NC	22	NC	71	NC	72	PIDE_D12
23	SMBCLK	24	SMBDAT	73	NC	74	PIDE_D3
25	NC	26	NC	75	NC	76	PIDE_D11
27	NC	28	NC	77	NC	78	PIDE_D4
29	NC	30	PIDE_CS3#	79	NC	80	PIDE_D10
31	NC	32	PIDE_CS1#	81	VCC	82	VCC
33	GND	34	GND	83	NC	84	PIDE_D5
35	NC	36	PIDE_A2	85	NC	86	PIDE_D9
37	NC	38	PIDE_A0	87	NC	88	PIDE_D6
39	NC	40	PIDE_A1	89	GPE#2	90	CBLID_P#
41	NC	42	NC	91	RXD-	92	PIDE_D8
43	NC	44	PIDE_INTR	93	RXD+	94	NC
45	NC	46	PIDE_ACK#	95	TXD-	96	PIDE_D7
47	NC	48	PIDE_RDY	97	TXD+	98	HDRST#
49	VCC	50	VCC	99	GND	100	GND

Below Table for China RoHS Requirements
产品中有毒有害物质或元素名称及含量

AAEON Main Board/ Daughter Board/ Backplane

部件名称	有毒有害物质或元素					
	铅 (Pb)	汞 (Hg)	镉 (Cd)	六价铬 (Cr(VI))	多溴联苯 (PBB)	多溴二苯醚 (PBDE)
印刷电路板 及其电子组件	×	○	○	○	○	○
外部信号 连接器及线材	×	○	○	○	○	○

O：表示该有毒有害物质在该部件所有均质材料中的含量均在
　　SJ/T 11363-2006 标准规定的限量要求以下。

X：表示该有毒有害物质至少在该部件的某一均质材料中的含量超出
　　SJ/T 11363-2006 标准规定的限量要求。

备注：此产品所标示之环保使用期限，系指在一般正常使用状况下。

Chapter

3

Award BIOS Setup

3.1 System Test and Initialization

These routines test and initialize board hardware. If the routines encounter an error during the tests, you will either hear a few short beeps or see an error message on the screen. There are two kinds of errors: fatal and non-fatal. The system can usually continue the boot up sequence with non-fatal errors. Non-fatal error messages usually appear on the screen along with the following instructions:

> Press <F1> to RESUME
>
> Write down the message and press the F1 key to continue the boot up sequence.

System configuration verification

These routines check the current system configuration against the values stored in the CMOS memory. If they do not match, the program outputs an error message. You will then need to run the BIOS setup program to set the configuration information in memory.

There are three situations in which you will need to change the CMOS settings:

1. You are starting your system for the first time

2. You have changed the hardware attached to your system

3. The CMOS memory has lost power and the configuration information has been erased.

The XTX-915 memory has an integral lithium battery backup for data retention. However, you will need to replace the complete unit when it finally runs down.

3.2 Award BIOS Setup

Awards BIOS ROM has a built-in Setup program that allows users to modify the basic system configuration. This type of information is stored in battery-backed CMOS RAM so that it retains the Setup information when the power is turned off.

Entering setup

Power on the computer and press <Del> immediately. This will allow you to enter Setup.

Standard CMOS Features

Use this menu for basic system configuration. (Date, time, IDE, etc.)

Advanced BIOS Features

Use this menu to set the advanced features available on your system.

Advanced Chipset Features

Use this menu to change the values in the chipset registers and optimize your system performance.

Integrated Peripherals

Use this menu to specify your settings for integrated peripherals. (Primary slave, secondary slave, keyboard, mouse etc.)

Power Management Setup

Use this menu to specify your settings for power management. (HDD power down, power on by ring etc.)

PnP/PCI Configurations

This entry appears if your system supports PnP/PCI.

PC Health Status

This menu shows you the status of PC.

Frequency/Voltage Control

This menu shows you the display of frequency/Voltage Control.

Load Fail-Safe Defaults

Use this menu to load the BIOS default values for the minimal/ stable performance for your system to operate.

Load Optimized Defaults

Use this menu to load the BIOS default values that are factory settings for optimal performance system operations. While AWARD has designated the custom BIOS to maximize performance, the factory has the right to change these defaults to meet their needs.

Set Supervisor/User Password

Use this menu to set Supervisor/User Passwords.

Save and Exit Setup

Save CMOS value changes to CMOS and exit setup.

Exit Without Saving

Abandon all CMOS value changes and exit setup.

For more detailed information, you can refer to the "AAEON BIOS Item Description.pdf" file in the CD for the meaning of each setting in this chapter.

Chapter

4

Driver Installation

The XTX-915 comes with a CD-ROM that contains all drivers and utilities that meet your needs.

Follow the sequence below to install the drivers:

　　Step 1 – Install INF Driver

　　Step 2 – Install VGA Driver

　　Step 3 – Install LAN Driver

　　Step 4 – Install Audio Driver

　　Step 5 – Install Touchpanel Driver (Only for ECB-910M)

USB 2.0 Drivers are available for download using Windows Update for both Windows XP and Windows 2000. For additional information regarding USB 2.0 support in Windows XP and Windows 2000, please visit www.microsoft.com/hwdev/usb/.

Please read instructions below for further detailed installations.

4.1 Installation:

Insert the XTX-915 CD-ROM into the CD-ROM Drive. And install the drivers from Step 1 to Step 6 in order.

Step 1 – Install INF Driver

1. Click on the *Step 1 – ICH6-M INF* folder and then double click on the *infinst_autol.exe*

2. Follow the instructions that the window shows

3. The system will help you install the driver automatically

Step 2 – Install VGA Driver

1. Click on the *Step 2 – 915GM VGA* folder then double click on the *win2k_xp 142550.exe*

2. Follow the instructions that the window shows

3. The system will help you install the driver automatically

Step 3 – Install LAN Driver

1. Click on the *Step 3 - LAN* folder and double click on the *PRO2KXP.exe*

2. Follow the instructions that the window shows

3. The system will help you install the driver automatically

Step 4 – Install Audio Driver

1. Click on the *Step 4 – ALC655* folder and then double click on the *wdm_a371.exe*

2. Follow the instructions that the window shows

3. The system will help you install the driver automatically

Step 5 – Install Touch Panel Driver (Only for ECB-910M)

1. Click on the *Step 5 – touchpanel* folder and select the *Win2000_xp_4.3.7.3321* folder

2. Double click on *Setup.exe*

3. Follow the instructions that the window shows

4. The system will help you install the driver automatically

Appendix

A

Programming the Watchdog Timer

A.1 Programming

XTX-915 utilizes ITE 8712 chipset as its watchdog timer controller.

Below are the procedures to complete its configuration and the AAEON intial watchdog timer program is also attached based on which you can develop customized program to fit your application.

Configuring Sequence Description

After the hardware reset or power-on reset, the ITE 8712 enters the normal mode with all logical devices disabled except KBC. The initial state (enable bit) of this logical device (KBC) is determined by the state of pin 121 (DTR1#) at the falling edge of the system reset during power-on reset.
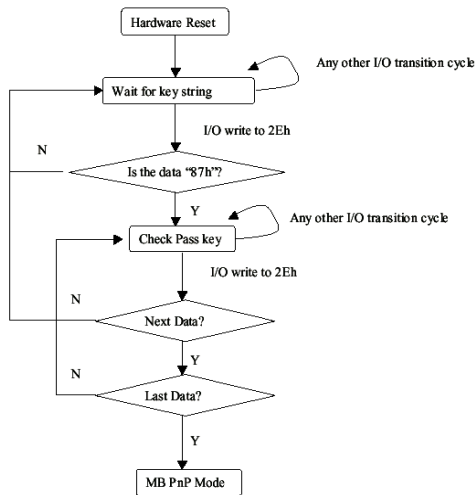
There are three steps to complete the configuration setup: (1) Enter the MB PnP Mode; (2) Modify the data of configuration registers; (3) Exit the MB PnP Mode. Undesired result may occur if the MB PnP Mode is not exited normally.

(1) Enter the MB PnP Mode

To enter the MB PnP Mode, four special I/O write operations are to be performed during Wait for Key state. To ensure the initial state of the key-check logic, it is necessary to perform four write opera-tions to the Special Address port (2EH). Two different enter keys are provided to select configuration ports (2Eh/2Fh) of the next step.

	Address Port	Data Port
87h, 01h, 55h, 55h:	2Eh	2Fh

(2) Modify the Data of the Registers

All configuration registers can be accessed after entering the MB PnP Mode. Before accessing a selected register, the content of Index 07h must be changed to the LDN to which the register belongs, except some Global registers.

(3) Exit the MB PnP Mode

Set bit 1 of the configure control register (Index=02h) to 1 to exit the MB PnP Mode.

WatchDog Timer Configuration Registers

LDN	Index	R/W	Reset	Configuration Register or Action
All	02H	W	N/A	Configure Control
07H	71H	R/W	00H	WatchDog Timer Control Register
07H	72H	R/W	00H	WatchDog Timer Configuration Register
07H	73H	R/W	00H	WatchDog Timer Time-out Value Register

Configure Control (Index=02h)

This register is write only. Its values are not sticky; that is to say, a hardware reset will automatically clear the bits, and does not require the software to clear them.

Bit	Description
7-2	Reserved
1	Returns to the Wait for Key state. This bit is used when the configuration sequence is completed
0	Resets all logical devices and restores configuration registers to their power-on states.

WatchDog Timer Control Register (Index=71h, Default=00h)

Bit	Description
7	WDT is reset upon a CIR interrupt
6	WDT is reset upon a KBC (mouse) interrupt
5	WDT is reset upon a KBC (keyboard) interrupt
4	WDT is reset upon a read or a write to the Game Port base address
3-2	Reserved
1	Force Time-out. This bit is self-clearing
0	WDT Status
	1: WDT value reaches 0.
	0: WDT value is not 0

WatchDog Timer Configuration Register (Index=72h,

Default=00h)

Bit	Description
7	WDT Time-out value select
	1: Second
	0: Minute
6	WDT output through KRST (pulse) enable
5-4	Reserved
3-0	Select the interrupt level[Note] for WDT

WatchDog Timer Time-out Value Register (Index=73h,

Default=00h)

Bit	Description
7-0	WDT Time-out value 7-0

A.2 IT8712 Watchdog Timer Initial Program

```
        .MODEL SMALL
        .CODE
Main:
        CALL Enter_Configuration_mode
        CALL Check_Chip
        mov cl, 7
        call Set_Logic_Device
        ;time setting
        mov cl, 10 ; 10 Sec
        dec al
Watch_Dog_Setting:
        ;Timer setting
        mov al, cl
        mov cl, 73h
        call Superio_Set_Reg
        ;Clear by keyboard or mouse interrupt
        mov al, 0f0h
        mov cl, 71h
        call Superio_Set_Reg
        ;unit is second.
        mov al, 0C0H
        mov cl, 72h
        call Superio_Set_Reg
```

```
; game port enable
mov cl, 9
call Set_Logic_Device


Initial_OK:
CALL Exit_Configuration_mode
MOV AH,4Ch
INT 21h


Enter_Configuration_Mode PROC NEAR
MOV SI,WORD PTR CS:[Offset Cfg_Port]


MOV DX,02Eh
MOV CX,04h
Init_1:
MOV AL,BYTE PTR CS:[SI]
OUT DX,AL
INC SI
LOOP Init_1
RET
Enter_Configuration_Mode ENDP


Exit_Configuration_Mode PROC NEAR
MOV AX,0202h
CALL Write_Configuration_Data
```

```
        RET
        Exit_Configuration_Mode ENDP


        Check_Chip PROC NEAR


        MOV AL,20h
        CALL Read_Configuration_Data
        CMP AL,87h
        JNE Not_Initial


        MOV AL,21h
        CALL Read_Configuration_Data
        CMP AL,12h
        JNE Not_Initial


Need_Initial:
        STC
        RET
Not_Initial:
        CLC
        RET
        Check_Chip ENDP
        Read_Configuration_Data PROC NEAR
        MOV DX,WORD PTR CS:[Cfg_Port+04h]
        OUT DX,AL
```

```
MOV DX,WORD PTR CS:[Cfg_Port+06h]
IN AL,DX
RET
Read_Configuration_Data ENDP


Write_Configuration_Data PROC NEAR
MOV DX,WORD PTR CS:[Cfg_Port+04h]
OUT DX,AL
XCHG AL,AH
MOV DX,WORD PTR CS:[Cfg_Port+06h]
OUT DX,AL
RET
Write_Configuration_Data ENDP


Superio_Set_Reg proc near
push ax
MOV DX,WORD PTR CS:[Cfg_Port+04h]
mov al,cl
out dx,al
pop ax
inc dx
out dx,al
ret
Superio_Set_Reg endp.Set_Logic_Device proc near
Set_Logic_Device proc near
```

```
        push ax

        push cx

        xchg al,cl

        mov cl,07h

        call Superio_Set_Reg

        pop cx

        pop ax

        ret

        Set_Logic_Device endp


        ;Select 02Eh->Index Port, 02Fh->Data Port

        Cfg_Port DB 087h,001h,055h,055h


        DW 02Eh,02Fh
```

END Main

Note: Interrupt level mapping

0Fh-Dh: not valid

0Ch: IRQ12

　　.

　　.

03h: IRQ3

02h: not valid

01h: IRQ1

00h: no interrupt selected

Appendix

B

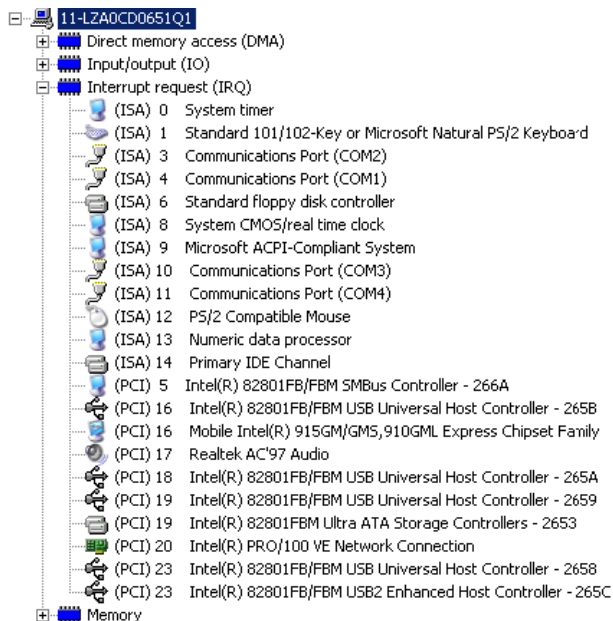# I/O Information

B.1 I/O Address Map

```
11-LZA0CD0651Q1
  Direct memory access (DMA)
  Input/output (IO)
      [00000000 - 0000000F] Direct memory access controller
      [00000000 - 00000CF7] PCI bus
      [00000010 - 0000001F] Motherboard resources
      [00000020 - 00000021] Programmable interrupt controller
      [00000022 - 0000003F] Motherboard resources
      [00000040 - 00000043] System timer
      [00000044 - 0000005F] Motherboard resources
      [00000060 - 00000060] Standard 101/102-Key or Microsoft Natural PS/2 Keyboard
      [00000061 - 00000061] System speaker
      [00000062 - 00000063] Motherboard resources
      [00000064 - 00000064] Standard 101/102-Key or Microsoft Natural PS/2 Keyboard
      [00000065 - 0000006F] Motherboard resources
      [00000070 - 00000073] System CMOS/real time clock
      [00000080 - 00000090] Direct memory access controller
      [00000091 - 00000093] Motherboard resources
      [00000094 - 0000009F] Direct memory access controller
      [000000A0 - 000000A1] Programmable interrupt controller
      [000000A2 - 000000BF] Motherboard resources
      [000000C0 - 000000DF] Direct memory access controller
      [000000E0 - 000000EF] Motherboard resources
      [000000F0 - 000000FF] Numeric data processor
      [000001F0 - 000001F7] Primary IDE Channel
      [00000274 - 00000277] ISAPNP Read Data Port
      [00000279 - 00000279] ISAPNP Read Data Port
      [00000290 - 0000029F] Motherboard resources
      [00000295 - 000002D4] Motherboard resources
      [000002E8 - 000002EF] Communications Port (COM4)
      [000002F8 - 000002FF] Communications Port (COM2)
      [00000378 - 0000037F] Printer Port (LPT1)
      [000003B0 - 000003BB] Mobile Intel(R) 915GM/GMS,910GML Express Chipset Family
      [000003C0 - 000003DF] Mobile Intel(R) 915GM/GMS,910GML Express Chipset Family
      [000003E8 - 000003EF] Communications Port (COM3)
      [000003F0 - 000003F5] Standard floppy disk controller
      [000003F6 - 000003F6] Primary IDE Channel
      [000003F7 - 000003F7] Standard floppy disk controller
      [000003F8 - 000003FF] Communications Port (COM1)
      [00000400 - 000004BF] Motherboard resources
      [000004D0 - 000004D1] Motherboard resources
      [00000500 - 0000051F] Intel(R) 82801FB/FBM SMBus Controller - 266A
      [00000880 - 00000088F] Motherboard resources
      [00000A79 - 00000A79] ISAPNP Read Data Port
      [00000D00 - 0000FFFF] PCI bus
      [0000C000 - 0000C03F] Intel(R) PRO/100 VE Network Connection
      [0000D000 - 0000D0FF] Realtek AC'97 Audio
      [0000D800 - 0000D81F] Intel(R) 82801FB/FBM USB Universal Host Controller - 265A
      [0000D900 - 0000D91F] Intel(R) 82801FB/FBM USB Universal Host Controller - 265B
      [0000DA00 - 0000DA07] Mobile Intel(R) 915GM/GMS,910GML Express Chipset Family
      [0000DB00 - 0000DB1F] Intel(R) 82801FB/FBM USB Universal Host Controller - 2658
      [0000DC00 - 0000DC3F] Realtek AC'97 Audio
      [0000DD00 - 0000DD1F] Intel(R) 82801FB/FBM USB Universal Host Controller - 2659
      [0000DF00 - 0000DF07] Intel(R) 82801FBM Ultra ATA Storage Controllers - 2653
      [0000E000 - 0000E003] Intel(R) 82801FBM Ultra ATA Storage Controllers - 2653
      [0000E100 - 0000E107] Intel(R) 82801FBM Ultra ATA Storage Controllers - 2653
      [0000E200 - 0000E203] Intel(R) 82801FBM Ultra ATA Storage Controllers - 2653
      [0000E300 - 0000E30F] Intel(R) 82801FBM Ultra ATA Storage Controllers - 2653
      [0000F000 - 0000F00F] Intel(R) 82801FB/FBM Ultra ATA Storage Controllers - 266F
  Interrupt request (IRQ)
  Memory
```

B.2 1st MB Memory Address Map

```
⊟ ▓▓ Memory
     ├─ 🔲 [00000000 - 0009FFFF]  System board
     ├─ 🔲 [000A0000 - 000BFFFF]  Mobile Intel(R) 915GM/GMS,910GML Express Chipset Family
     ├─ 🔲 [000A0000 - 000BFFFF]  PCI bus
     ├─ 🔲 [000C0000 - 000DFFFF]  PCI bus
     ├─ 🔲 [000D1800 - 000D3FFF]  System board
     ├─ 🔲 [000E0000 - 000EFFFF]  System board
     ├─ 🔲 [000F0000 - 000F7FFF]  System board
     ├─ 🔲 [000F8000 - 000FBFFF]  System board
     ├─ 🔲 [000FC000 - 000FFFFF]  System board
     ├─ 🔲 [00100000 - 0F6DFFFF]  System board
     ├─ 🔲 [0F6E0000 - 0F6FFFFF]  System board
     ├─ 🔲 [0F700000 - FEBFFFFF]  PCI bus
     ├─ 🔲 [C0000000 - CFFFFFFF]  Mobile Intel(R) 915GM/GMS,910GML Express Chipset Family
     ├─ 🖳 [D0000000 - D0000FFF]  Intel(R) PRO/100 VE Network Connection
     ├─ 🔲 [D0100000 - D017FFFF]  Mobile Intel(R) 915GM/GMS,910GML Express Chipset Family
     ├─ 🔲 [D0180000 - D01BFFFF]  Mobile Intel(R) 915GM/GMS,910GML Express Chipset Family
     ├─ 🔌 [D01C0000 - D01C03FF]  Intel(R) 82801FB/FBM USB2 Enhanced Host Controller - 265C
     ├─ 🔊 [D01C1000 - D01C11FF]  Realtek AC'97 Audio
     ├─ 🔊 [D01C2000 - D01C20FF]  Realtek AC'97 Audio
     ├─ 🖴 [D01C3000 - D01C33FF]  Intel(R) 82801FBM Ultra ATA Storage Controllers - 2653
     ├─ 🔲 [E0000000 - EFFFFFFF]  Motherboard resources
     ├─ 🔲 [FEB80000 - FEBFFFFF]  Mobile Intel(R) 915GM/GMS,910GML Express Chipset Family
     ├─ 🔲 [FEC00000 - FEC00FFF]  System board
     ├─ 🔲 [FED13000 - FED1DFFF]  System board
     ├─ 🔲 [FED20000 - FED8FFFF]  System board
     ├─ 🔲 [FEE00000 - FEE00FFF]  System board
     ├─ 🔲 [FFB00000 - FFB7FFFF]  System board
     ├─ 🔲 [FFB80000 - FFBFFFFF]  Intel(r) 82802 Firmware Hub Device
     └─ 🔲 [FFF00000 - FFFFFFFF]  System board
```

B.3 IRQ Mapping Chart

```
□ 🖳 11-LZA0CD0651Q1
   ⊞ ▓▓ Direct memory access (DMA)
   ⊞ ▓▓ Input/output (IO)
   □ ▓▓ Interrupt request (IRQ)
         🖳 (ISA)  0   System timer
         ⌨ (ISA)  1   Standard 101/102-Key or Microsoft Natural PS/2 Keyboard
         ⌨ (ISA)  3   Communications Port (COM2)
         ⌨ (ISA)  4   Communications Port (COM1)
         🖴 (ISA)  6   Standard floppy disk controller
         🖳 (ISA)  8   System CMOS/real time clock
         🖳 (ISA)  9   Microsoft ACPI-Compliant System
         ⌨ (ISA) 10   Communications Port (COM3)
         ⌨ (ISA) 11   Communications Port (COM4)
         🖱 (ISA) 12   PS/2 Compatible Mouse
         🖳 (ISA) 13   Numeric data processor
         🖴 (ISA) 14   Primary IDE Channel
         🖳 (PCI)  5   Intel(R) 82801FB/FBM SMBus Controller - 266A
         🔌 (PCI) 16   Intel(R) 82801FB/FBM USB Universal Host Controller - 265B
         🖳 (PCI) 16   Mobile Intel(R) 915GM/GMS,910GML Express Chipset Family
         🔊 (PCI) 17   Realtek AC'97 Audio
         🔌 (PCI) 18   Intel(R) 82801FB/FBM USB Universal Host Controller - 265A
         🔌 (PCI) 19   Intel(R) 82801FB/FBM USB Universal Host Controller - 2659
         🖴 (PCI) 19   Intel(R) 82801FBM Ultra ATA Storage Controllers - 2653
         🖧 (PCI) 20   Intel(R) PRO/100 VE Network Connection
         🔌 (PCI) 23   Intel(R) 82801FB/FBM USB Universal Host Controller - 2658
         🔌 (PCI) 23   Intel(R) 82801FB/FBM USB2 Enhanced Host Controller - 265C
   ⊞ ▓▓ Memory
```

B.4 DMA Channel Assignments

```
□ 🖳 11-LZA0CD0651Q1
   □ ▓▓ Direct memory access (DMA)
         🖴 2   Standard floppy disk controller
         🖳 4   Direct memory access controller
   ⊞ ▓▓ Input/output (IO)
   ⊞ ▓▓ Interrupt request (IRQ)
   ⊞ ▓▓ Memory
```