BOXER-6914

Fanless Embedded Box PC Intel[®] Atom[™] D2550 1.86GHz Processor CFast[™]/SIM Slot 2 DIO, 14/16 COMs 2 USB 3.0, 4 USB 2.0

> BOXER-6914 Manual 1st Ed. April 10, 2015

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Packing List

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

- 1 BOXER-6914 Embedded Box PC
- 1 Phoenix Power Connector
- 4 M3 x 4mm Screws
- 4 6# -32 x 10mm Screws
- 2 Wallmount Brackets
- DVD-ROM for manual (in PDF format) and

Drivers

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

Safety & Warranty

Please read the following safety instructions carefully. It is advised that you keep this manual for future references

- 1. Disconnect this device from any AC supply before cleaning.
- 2. While cleaning, use a damp cloth instead of liquid or spray detergents.
- 3. For any pluggable equipment, the power outlet must be installed near the device and easily accessible.
- 4. Keep this device away from humidity.
- 5. Place this device on a solid surface during installation. Dropping it or letting it fall could cause damage.
- The openings on the device's enclosure are for dissipating heat. DO NOT COVER THE OPENINGS.
- 7. Watch out for high temperatures that may occur during system operation.
- 8. Make sure the voltage of the power source is correct before connecting the device to the power outlet.
- 9. Position the power cord so that people cannot step on it. Do not place anything over the power cord.
- 10. All cautions and warnings on the device should be noted.
- If the device is not to be used for a long time, disconnect it from the power supply to avoid damage by transient over-voltage.
- 12. Never pour any liquid into the openings. This could cause fire or electric shock.

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- 13. As most electronic components are sensitive to static electrical charge, be sure to ground yourself to prevent static charge when installing the internal components. Use a grounding wrist strap and contain all electronic components in any static-shielded devices.
- 14. If any of the following situations arises, please the contact our service personnel:
 - i. Damaged power cord or plug
 - ii. Liquid intrusion to the device
 - iii. Exposure to moisture
 - iv. Device is not working as expected or in a manner as described in this manual
 - v. The device is dropped or damaged
 - vi. Any obvious signs of damage displayed on the device
- 15. DO NOT LEAVE THIS DEVICE IN AN UNCONTROLLED ENVIRONMENT WHERE THE STORAGE TEMPERATURE IS BELOW -10° C (14°F) OR ABOVE 60° C (140° F) TO PREVENT DAMAGE.

FCC



This device complies with Part 15 FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received including interference that may cause undesired operation.

Caution:

There is a danger of explosion if the battery is incorrectly replaced. Replace only with the same or equivalent type recommended by the manufacturer. Dispose of used batteries according to the manufacturer's instructions and your local government's recycling or disposal directives.

Attention:

Il y a un risque d'explosion si la batterie est remplacée de façon incorrecte. Ne la remplacer qu'avec le même modèle ou équivalent recommandé par le constructeur. Recycler les batteries usées en accord avec les instructions du fabricant et les directives gouvernementales de recyclage.

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

AAEON Boxer/ Industrial System

	有毒有害物质或元素					
部件名称	铅	汞	镉	六价铬	多溴联苯	多溴二苯
	(Pb)	(Hg)	(Cd)	(Cr(VI))	(PBB)	醚(PBDE)
印刷电路板		0	0	0	0	0
及其电子组件		0	0	0	0	0
外部信号	~	0	0	0	0	C
连接器及线材		0	0	0	0	0
外壳	×	0	0	0	0	0
中央处理器		0	0		0	0
与内存	×	0	0		0	0
硬盘	×	0	0	0	0	0
电源	×	0	0	0	0	0
			and month	The second states		12. 2.

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:

一、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。 二、上述部件物质中央处理器、内存、硬盘、电源为选购品。

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General Information

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1.1 Introduction

Due to the growing popularity from the IPC market, AAEON proudly introduces the newest entry in Boxer series, BOXER-6914. Being a control center, the BOXER-6914 is suitable for Machine Control, Data Processing, Fleet Management, Data Management. BOXER-6914 equips a high efficiency heat conduction mechanism.

The BOXER-6914 has flexible expansion capabilities such as two USB 3.0 ports and four USB 2.0 ports, two Digital I/Os, 14/16 COM ports, and 2 Full-size Mini-PCIe slots.

Rugged Design for Harsh Environment

The BOXER-6914 is designed for harsh environment with the following features: It can withstand strong vibrations of up to 3 g rms, and is well suited for high-vibration environment with the anti-vibration hard drive device option. In addition, the BOXER-6914 offers low power consumption system that while operating in ambient temperatures ranging from -20° to 65°C with the Intel[®] Atom[™] D2550 processor.

The BOXER-6914 is a standalone high performance box PC designed for long-life operation and with high reliability. It can replace traditional methods and become the mainstream controller for the multimedia entertainment market.

1.2 Features

- Fanless Design
- Intel[®] Atom™ D2550 Processor
- Intel[®] NM10 Chipset
- Gigabit Ethernet, RJ-45 x 2
- DVI-D x 1
- SATA 3.0 Gb/s x 1, CFast[™] Slot x 1
- USB 3.0 x 2, USB 2.0 x 4, COM x 14/16, DI/O x 2
- 2.5" SATA HDD Bay x 1, CFast™ Slot x 1
- Full-size Mini-PCIe slots

1.3 Specifications

• CPU			Intel [®] Atom™ D2550 Processor,		
			1.86 GHz		
•	Chipset		Intel [®] NM10		
•	System Memo	ry	DDR3 800/1066 SODIMM x 1, Max. 4		
			GB		
•	Display	VGA	DB-15 x 1		
	Interface	DVI	DVI-D x 1		
		HDMI	_		
		Others	_		
•	Storage	SSD	CFast™ slot x 1		
	Device	HDD	2.5" SATA HDD Bay x 1		
		Others	_		
•	Network	LAN	Gigabit Ethernet		
		Wireless	Optional by MiniCard module		
•	Front I/O	USB Host	USB 2.0 x 2		
		LAN	_		
		Serial Port	_		
		DIO	_		
		Audio	_		
		KB/MS	_		
		Others	Power On/Off button x 1, 2-pin Remote		
			Power on/off terminal block x 1,		
			$CFast^{TM}$ slot x 1, SIM slot, Line-out x 1		

	Embedded Box PC		B O X E R - 6 9 1 4	
• Rear I/O		USB Host	USB 3.0 x 2, USB 2.0 x 2	
		LAN	RJ-45 x 2 for Gigabit Ethernet	
		Serial Port	DB-9 x 2 for RS-232/422/485	
			(cableless)	
			DB-9 x 12 for RS-232 (cableless)	
			DB-9 x 2 for RS-232 (optional by cable)	
		DIO	Programmable 30-channel digital I/O	
		Audio	_	
		KB/MS	_	
		Others	DC-in 3-pin terminal block (9~30V)	
			Antenna hole x 2	
			DB-15 x 1 for VGA	
			DVI-D x 1	
	Expansion	PCI-E[x1]	Mini PCI-E Full-Size Card x 2	
		PCI	_	
		Mini Card	_	
		Mini PCI	_	
		Others	_	
•	Indicator	Front	HDD LED x 1	
			System Power On LED x 1	
		Rear	_	
	Power Require	ement	DC-in 3-pin terminal block (9~30V)	
•	System Coolir	ng	Passive cooling	
•	Mounting		Wall-mount	
•	Operating Temperature		$-4^{\circ}F \sim 140^{\circ}F$ (-20°C ~ 60°C). Ambient	

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Embedded Box PC		B O X E R - 6 9 1 4
		w/ airflow, with wide-temp CFast [™] & RAM
		-4°F ~ 131°F (-20°C ~ 55°C). Ambient
		w/ airflow, with wide-temp HDD & RAM
		-4°F ~ 131°F (-20°C ~ 55°C). Without
		airflow, with wide-temp CFast [™] & RAM
		-4°F ~ 122°F (-20°C ~ 50°C). Without
		airflow, with wide-temp CFast [™] & RAM
(Storage Temperature	-4°F ~ 158°F (-20°C ~ 70°C)
(Anti-Vibration	5 g rms/ 5~500 Hz/ operation-CFast™;
		1 g rms/ 5~500 Hz/ operation-HDD
(Anti-Shock	50 G peak acceleration (11 msec.
		duration) –CFast™
		20 G peak acceleration (11 msec.
		duration) –HDD
(Certification EMC	CE/FCC Class A
	Safety	_
(Dimension (W x H x D)	13.10" x 5.39" x 7.48" (332.8mm x
		136.8mm x 190mm)
	 Gross Weight 	4.4kg
(Net Weight	2.6kg
(OS Support 	$Windows^{ extsf{B}}$ XP 32-bit, $Windows^{ extsf{B}}$ 7
		32-bit, Linux Fedora 32-bit

1.4 Product Overview

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Quick Installation Guide

Chapter 2 Hardware Installation 2-1

2.1 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:

Label	Function
JP1	RS-232/422/485 Selector (COM2)
JP2	RS-232/422/485 Selector (COM1)
JP10	Clear CMOS

Note: By default, RS-232/422/485 to be selected via BIOS settings

2.2 List of Carrier Board Connectors

The carrier 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:

Label	Function
CN1	DCIN
CN2	COM1/2 Port
CN3	COM 3/4 Port
CN4	COM 13/14 Port
CN5	Digital I/O
CN6	USB 3.0 x 2 / LAN1 Connector
CN7	USB 2.0 x 2 / LAN2 Connector
CN8	Extender I/O 3
CN9	COM port Extender I/O 1
CN10	COM port Extender I/O 2
CN11	LPC Debug port
CN12	PCIe x 1 Riser Connector 1
CN14	MiniCard Connector (with onboard SIM)
CN15	MiniCard Connector (with onboard SIM)
CN16	SATA 2.0 Connector
CN17	PCIe x 1 Riser Connector 2
CN21	USB 2.0 Connector x 2
CN22	Audio Connector
CN23	Line out Connector
CN24	SATA Power Connector

Chapter 2 Hardware Installation 2 - 3

CN26	Remote Power SW
CN27, CN28	COM Express Type 6 Connector
CN29	COM 15 Connector
CN30	COM 16 Connector
CN31	CFast Connector
DVI + VGA	DVI-D & VGA Connector

Note 1: Wake-on-LAN supported in LAN1 only

Note 2: USB 3.0 drives must be installed before USB 3.0 ports can be used

Note 3: Max. resolution for DVI on Windows XP is 1920 x 1200

2.3 List of I/O Board Connectors

The I/O 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:

Label	Function
CN3A	COM 5
CN3B	COM 6
CN4A	COM 7
CN4B	COM 8
CN5A	COM 9
CN5B	COM 10
CN6A	COM 11
CN6B	COM 12

2.4 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.



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.

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

2.5 RS-232/422 Selector for COM1 and COM2 (JP1, JP2)

JP1,JP2	Connec	tion		
RS-232	1-2 close, 3-4 open			
RS-422	1-2, 3-4 close			
RS-232				
Pin	Signal	Pin	Signal	
1	DCD	6	DSR	
2	RXD	7	RTS	
3	TXD	8	CTS	
4	DTR	9	RI	
5	GND			
RS-422				
Pin	Signal	Pin	Signal	
1	TXD-	6	NC	
2	TXD+	7	NC	
3	RXD-	8	NC	
4	RXD+	9	NC	
5	GND			

RS-485

Pin	Signal	Pin	Signal
1	D-	6	NC
2	D+	7	NC
3	NC	8	NC
4	NC	9	NC
5	GND		

Chapter 2 Hardware Installation 2 - 7

2.6 Clear CMOS (JP10)

JP10	Function
1-2	Normal (Default)
2-3	Clear CMOS

2.7 Digital I/O (CN5 - Carrier Board)

CN5A (Carrier board)

Pin	Signal	Pin	Signal
1	DIO0-0	9	DIO1-0
2	DIO0-1	10	DIO1-1
3	DIO0-2	11	DIO1-2
4	DIO0-3	12	DIO1-3
5	DIO0-4	13	DIO1-4
6	DIO0-5	14	DIO1-5
7	DIO0-6	15	DIO1-6
8	DIO0-7		

CN5B (Carrier board)

Pin	Signal	Pin	Signal
1	DIO1-7	9	DIO2-7
2	DIO2-0	10	DIO3-0
3	DIO2-1	11	DIO3-1
4	DIO2-2	12	DIO3-2
5	DIO2-3	13	DIO3-3
6	DIO2-4	14	DIO3-4
7	DIO2-5	15	DIO3-5
8	DIO2-6		

2.8 SATA Power Connector (CN24)

Pin	Function
1	+12V
2	GND
3	GND
4	+5V

2.9 COM 3 - 16 (CN3, 3A, 3B, 4, 4A, 4B, 5A, 5B, 6A, 6B, 29, 30)

RS-232

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

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Chapter 3

AMI BIOS Setup

Chapter 3 AMI BIOS Setup 3-1

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.

System configuration verification

These routines check the current system configuration stored in the CMOS memory and BIOS NVRAM. If system configuration is not found or system configuration data error is detected, system will load optimized default and re-boot with this default system configuration automatically.

There are four situations in which you will need to setup system configuration:

- 1. You are starting your system for the first time
- 2. You have changed the hardware attached to your system
- 3. The system configuration is reset by Clear-CMOS jumper
- 4. The CMOS memory has lost power and the configuration information has been erased.

The BOXER-6914 CMOS 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 AMI BIOS Setup

AMI 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 and BIOS NVRAM so that it retains the Setup information when the power is turned off.

Entering Setup

Power on the computer and press or <F2> immediately. This will allow you to enter Setup.

Main

Set the date, use tab to switch between date elements.

Advanced

Enable disable boot option for legacy network devices.

Chipset

Host bridge parameters.

Boot

Enables/disable quiet boot option.

Security

Set setup administrator password.

Save & Exit

Exit system setup after saving the changes.

<u>Setup Menu</u>

Setup submenu: Main

Aptio Setup Utility – Main Advanced Chipset Boot Secu	Copyright (C) 2011 American rity Save & Exit	Megatrends, Inc.
BIOS Information BOXER-6914 R1.0(B914AM10) (03/04	/2015)	Set the Date. Use Tab to switch between Date elements.
BIOS Vendor Core Version Compliancy	American Megatrends 4.6.5.3 UEFI 2.3; PI 1.2	
Firmware VENDOR Firmware Information Firmware Version Build Date	AAEON Mother Board 6913AE11 2014/5/16	
System Date System Time	[Thu 01/01/2009] [00:54:05]	++: Select Screen 1↓: Select Item Enter: Select
Access Level	Administrator	+/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit
Version 2 14 1219 Co	nuright (C) 2011 American M	egatrends Inc

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Setup submenu: Advanced

Aptio Setup Utility – Copyright (C) 2011 American Main Advanced Chipset Boot Security Save & Exit	Megatrends, Inc.
 ACPI Settings SS RTC Make Settings CPU Configuration Dynamic Digital ID IDE Configuration SUper ID Configuration On-Module H/W Monitor 	System ACPI Parameters. ++: Select Screen 11: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit
Version 2.14.1219. Copyright (C) 2011 American M	egatrends, Inc.

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CPU Configuration

Aptio Setup Utili Advanced	ty – Copyright (C) 2011 Amer	rican Megatrends, Inc.
CPU Configuration		Enabled for Windows XP and Linux (OS optimized for
Intel(R) Atom(TM) CPU D2550 @	1.86GHz	Hyper-Threading Technology)
EMT64	Not Supported	and Disabled for other OS (OS
Processor Speed	1865 MHz	not optimized for
System Bus Speed	533 MHz	Hyper-Threading Technology).
Ratio Status	14	
Actual Ratio	14	
System Bus Speed	533 MHz	
Processor Stepping	30661	
Microcode Revision	269	
L1 Cache RAM	2x56 k	
L2 Cache RAM	2x512 k	
Processor Core	Dual	++: Select Screen
Hyper-Threading	Supported	↑↓: Select Item
		Enter: Select
Hyper-Threading		+/-: Change Opt.
		F1: General Help
		F2: Previous Values
		F3: Optimized Defaults
		F4: Save & Exit
		ESU: EXIT
Version 2.14.121	9. Copyright (C) 2011 Americ	an Megatrends. Inc.

Options summary:

Hyper-Threading	Disabled	
	Enabled	Optimal Default, Failsafe Default

IDE Configuration (IDE)

Aptio Setup Utility - Advanced	Copyright (C) 2011 Americar	n Megatrends, Inc.
SATA PortO SATA Port1	TOSHIBA MQ01AB (320.0 Not Present	SATA Ports (0–3) Device Names if Present and Enabled.
SATA Controller(s)		
Configure SATA as	[IDE]	
		<pre>++: Select Screen 14: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit</pre>
Version 2.14.1219. C	opyright (C) 2011 American ⊧	Wegatrends, Inc.

Options summary:

SATA Controllors	Enable	Optimal Default, Failsafe Default
SATA Controllers	Disable	
En/Disable SATA Controlle	r	
SATA Modo	IDE	Optimal Default, Failsafe Default
SATAMODE	AHCI	

USB Configuration

Aptio Setup Uti Advanced	lity – Copyright (C) 2011 A	American Megatrends, Inc.		
USB Configuration USB Devices: 1 Drive, 1 Keyboard		Enables Legacy USB support. AUTO option disables legacy support if no USB devices are connected. DISABLE option will keep USB devices available		
Legacy USB Support	[Enabled]	<pre>++: Select Screen 11: Select Tem Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit</pre>		
Version 2.14.1219. Copyright (C) 2011 American Megatrends, Inc.				

Options summary:

Legacy USB Support	Enable	Optimal Default, Failsafe Default
	Disable	

Hardware Monitor

Aptio Setup Utili Advanced	ty – Copyright (C) 2011 Ame	erican Megatrends, Inc.
Pc Health Status		
Chassis Temperature(CPU) Chassis Temperature	: +38 °c : +37 °c	
+1.8V +5V +3.3V VMEM +1.05V VGFX	: +1.809 V : +4.902 V : +3.296 V : +1.507 V : +1.061 V : +1.126 V	
		++: Select Screen 11: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit
Version 2.14.121	9. Copuright (C) 2011 Amer	ESC: Exit
Dynamic Digital IO Configuration

Aptio Setup	Utility – Copyright (C) 3	2011 American Megatrends, Inc.
Huvanceu		
		▲ Set GPIO as Input or Output
GPIO_00 Direction		
Output Level	[Hi]	
GPIO_01 Direction	[Output]	
Output Level	[Hi]	
GPIO_02 Direction	[Output]	
Output Level	[Hi]	
GPIO_03 Direction	[Output]	
Output Level	[Hi]	
GPIO_04 Direction	[Output]	
Output Level	[Hi]	
GPIO_05 Direction	[Output]	
Output Level	[Hi]	
GPIO_06 Direction	[Output]	++: Select Screen
Output Level	[Hi]	↑↓: Select Item
GPIO_07 Direction	[Output]	Enter: Select
Output Level	[Hi]	+/-: Change Opt.
		F1: General Help
GPIO_10 Direction	[Output]	F2: Previous Values
Output Level	[Hi]	F3: Optimized Defaults
GPIO_11 Direction	[Output]	F4: Save & Exit
Output Level	[Hi]	ESC: Exit
GPIO_12 Direction	[Output]	
Output Level	[Hi]	
GPIO_13 Direction	[Output]	▼
Version 2 1	14 1219 Conuright (C) 20:	1 American Megatrends Toc

B O X E R - 6 9 1 4

Aptio Setup Advanced	Utility – Copyright (C) 201	1 American Megatrends, Inc.
GPI0_13 Direction Output Level GPI0_14 Direction Output Level GPI0_15 Direction Output Level GPI0_16 Direction Output Level GPI0_17 Direction Output Level GPI0_20 Direction	(Output) (Hi) (Output) (Hi) (Output) (Hi) (Output) (Hi) (Output) (Hi) (Output)	▲ Set GPIO Output as Hi or Low
Uutput Level GPI0_21 Direction Output Level GPI0_22 Direction Output Level GPI0_23 Direction Output Level GPI0_24 Direction Output Level GPI0_25 Direction Output Level GPI0_26 Direction Output Level	[H1] [Output] [H1] [Output] [H1] [Output] [H1] [Output] [H1] [Output] [H1]	<pre>++: Select Screen fl: Select Item Enter: Select +/-: Change Opt. Fl: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit</pre>

Aptio Setup Utility Advanced	y – Copyright (C) 2011	American Megatrends, Inc.
GPI0_22 Direction Output Level GPI0_23 Direction Output Level GPI0_24 Direction Output Level GPI0_25 Direction Output Level GPI0_26 Direction Output Level GPI0_27 Direction Output Level	[Output] [Hi] [Output] [Hi] [Output] [Hi] [Output] [Hi] [Output] [Hi] [Output] [Hi]	▲ Set GPIO Output as Hi or Low
GPI0_30 Direction Output Level GPI0_31 Direction Output Level GPI0_32 Direction Output Level GPI0_33 Direction Output Level GPI0_34 Direction Output Level GPI0_35 Direction Output Level	[Output] [Hi] [Output] [Hi] [Output] [Hi] [Output] [Hi] [Output] [Hi] [Output] [Hi]	<pre>++: Select Screen 11: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit</pre>

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GPIO[35:0] Direction	Input	
	Output	Optimal Default, Failsafe Default
Set GPI[35:0] as Input or Ou	Itput	
GPO[35:0] Output Level	Hi	Optimal Default, Failsafe Default
	Low	

Power Management

Aptio Setup Utility - Chipset	Copyright (C) 2011 American	Megatrends, Inc.
PCI Express Port 0 PCI Express Port 1 PCI Express Port 2 PCI Express Port 3	[Enabled] [Enabled] [Auto] [Auto]	Select the power type used on the system
Azalia Controller	[HD Audio]	
Power Management Configuration Power Mode PWRON After PWR-Fail	[ATX Type] [Last State]	
		++: Select Screen 14: Select Item Enter: Select +/-: Change Opt, F1: General Help F2: Previous Values F2: Optimized Defaults
		F3: Sove & Exit ESC: Exit
Version 2.14.1219. C	opyright (C) 2011 American M	legatrends, Inc.

Power Mode	АТХ Туре	Optimal Default, Failsafe Default
	АТ Туре	
Select power supply mode.		
	Last State	Optimal Default, Failsafe Default
Restore on Power Loss	Power On	
	Power Off	

PCI Express Port Configuration

Aptio Setup Util Chipset	ity – Copyright (C) 2011 Am	merican Megatrends, Inc.
PCI Express Port 0 PCI Express Port 1 PCI Express Port 2 PCI Express Port 3	[Enabled] [Enabled] [Auto] [Auto]	Select the power type used on the system
Azalia Controller	[HD Audio]	
Power Mode PWRON After PWR-Fail	[ATX Type] [Last State]	
		++: Select Screen 14: Select Item Enter: Select () Cherry Oct
		F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit
		ESU: EXIT
Version 2.14.12	19. Copyright (C) 2011 Amer	rican Megatrends, Inc.

Use This Device	Disabled	
	Enabled	Optimal Default, Failsafe Default
	Auto	
En/Disable/Auto PC	I Express Port	
PCI Express Port 0	Disable	
	Enable	Optimal Default, Failsafe Default
PCI Express Port 1	Disabled	
	Enabled	Optimal Default, Failsafe Default
PCI Express Port 2	Disabled	
	Enabled	
	Auto	Optimal Default, Failsafe Default
PCI Express Port 3	Disabled	
	Enabled	
	Auto	Optimal Default, Failsafe Default

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Setup submenu: Chipset

Aptio Setup Utility – Copyright (C) 2011 Americ Main Advanced <mark>Chipset</mark> Boot Security Save & Exit	can Megatrends, Inc.
▶ Host Bridge ▶ South Bridge	Host Bridge Parameters ++: Select Screen 14: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit
version 2.14.1219. Copyright (C) 2011 American	n Megatrends, Inc.

Host Bridge

Aptio Setup Utility - Chipset	Copyright (C) 2011 American	Megatrends, Inc.
 Intel IGD Configuration ********* Memory Information ******** Memory Frequency Total Memory DIMM#1 	1067 MHz(DDR3) 2048 MB 2048 MB	Config Intel IGD Settings. ++: Select Screen 11: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit
Version 2.14.1219. Co	pyright (C) 2011 American M	egatrends, Inc.

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South Bridge

Aptio Setup Utility Chipset	y – Copyright (C) 2011 Ame	rican Megatrends, Inc.
PCI Express Port 0 PCI Express Port 1 PCI Express Port 2 PCI Express Port 3	[Enabled] [Enabled] [Auto] [Auto]	Select the power type used on the system
HZAIIA CONTROLLER Power Management Configuration Power Mode PWRON After PWR-Fail	(ATX Type] [Last State]	
		++: Select Screen 14: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit
Version 2.14.1219	. Copyright (C) 2011 Ameri	can Megatrends, Inc.

Security

Aptio Setup Util Main Advanced Chipset Boot	ity – Copyright (C) 2011 American : Security Save & Exit	Megatrends, Inc.
Password Description		Set Administrator Password
If ONLY the Administrator's pa then this only limits access t only asked for when entering S If ONLY the User's password is is a power on password and mus boot or enter Setup. In Setup have Administrator rights. The password length must be in the following range: Minimum length	issword is set, to Setup and is ietup. to set, then this t be entered to the User will	
Maximum iengtn	20	++: Select Screen ↑↓: Select Item
		Enter: Select
User Password		+/-: Change Opt.
		F1: General Help
		F2: Previous Values
HDD Security Configuration:		F3: Optimized Defaults
HDDO:TOSHIBA MQO1		F4: Save & Exit ESC: Exit
Version 2.14.1219. Copyright (C) 2011 American Megatrends, Inc.		

Change User/Supervisor Password

You can install a Supervisor password, and if you install a supervisor password, you can then install a user password. A user password does not provide access to many of the features in the Setup utility.

If you highlight these items and press Enter, a dialog box appears which lets you enter a password. You can enter no more than six letters or numbers. Press Enter after you have typed in the password. A second dialog box asks you to retype the password for confirmation. Press Enter after you have retyped it correctly. The password is required at boot time, or when the user enters the Setup utility.

Removing the Password

Highlight this item and type in the current password. At the next dialog

box press Enter to disable password protection.

Setup submenu: Boot

Aptio Setup Utilit Main Advanced Chipset Boot	<mark>y – Copyright (C) 2011 America</mark> Security Save & Exit	h Megatrends, Inc.
Boot Configuration		Enables or disables Quiet Boot
Quiet Boot Launch On-Module LAN PXE OpROM	[Enabled] [Disabled]	
Boot Option Priorities Boot Option #1 Boot Option #2	[UEFI: InnostorInno] [SATA PM: TOSHIBA]	
Hard Drive BBS Priorities		
		++: Select Screen 14: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit
Version 2.14.1219	. Copyright (C) 2011 American	Megatrends, Inc.

Quiet Boot	Disabled	
	Enabled	Default
En/Disable showing boot logo.		
Option ROM Messages	Force BIOS	Default
	Keep Current	
Set display mode for Option ROM		
Launch On-Module LAN PXE OpROM	Disabled	Default
	Enabled	
En/Disable Legacy Boot Option		

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Setup submenu: Exit

Aptio Setup Utility – Copyright (C) 2011 American Main Advanced Chipset Boot Security <mark>Save & Exit</mark>	Megatrends, Inc.
Save Changes and Exit Discard Changes and Exit Save Changes and Reset Discard Changes and Reset	Exit system setup after saving the changes.
Save Options Save Changes Discard Changes	
Restore Defaults Save as User Defaults Restore User Defaults	
Boot Override UEFI: InnostorInnostor 1.00 SATA PM: TOSHIBA MQ01ABF032	++: Select Screen †↓: Select Item Enter: Select +/-: Change Ont
Launch EFI Shell from filesystem device	F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit
Version 2.14.1219, Copyright (C) 2011 American Me	gatrends. Inc.

Chapter

Driver Installation

Chapter 4 Driver Installation 4-1

The BOXER-6914 comes with a driver disk that contains all drivers and utilities that can help you setup your product.

Insert the disk and the installation guide will start automatically. If it doesn't, please follow the sequence below to install the drivers.

Follow the sequence below to install the drivers:

Step 1 – Install Chipset Driver Step 2 – Install VGA Driver Step 3 – Install LAN Driver Step 4 – Install Audio Driver Step 5 – Install USB 3.0 Driver Step 6 – Install AHCI Driver Step 7 – Install F81216 Patch Step 8 – Install F81512 Driver

Please read following instructions for detailed installations.

4.1 Installation:

Insert the BOXER-6914 driver disk into the disk drive. And install the drivers from Step 1 to Step 8 in order.

Step 1 – Install Chipset Driver

- Open the Step 1 Chipset folder and open the infinst_autol.exe file
- 2. Follow the instructions
- 3. Drivers will be installed automatically

Step 2 - Install VGA Driver

1. Open the Step 2 - VGA folder and select your OS

For Windows 7:

- 1. Open Setup.exe
- 2. Follow the instructions
- 3. Drivers will be installed automatically

For Windows XP:

- 1. Open and install *dotnetfx35.exe*
- 2. After installation completes, open

WindowsDriverSETUP.cmd

- 3. Follow the instructions
- 4. Drivers will be installed automatically

Step 3 – Install LAN Driver

- 1. Open the Step 3 LAN folder and select your OS
- 2. Open the **.exe** file in the folder
- 3. Follow the instructions
- 4. Drivers will be installed automatically
- Step 4 Install Audio Driver
 - 1. Open the Step 4 AUDIO folder and select your OS
 - 2. Open setup.exe
 - 3. Follow the instructions
 - 4. Drivers will be installed automatically
- Step 5 Install USB3.0 Driver
 - Open the Step 5 USB3.0 folder and open RENESAS-USB3-Host-Driver-21160-setup file
 - 2. Follow the instructions
 - 3. Drivers will be installed automatically
- Step 6 Install AHCI Driver
 - 1. Open the Step 6 AHCI folder and select your OS
 - 2. Open setup.exe
 - 3. Follow the instructions
 - 4. Drivers will be installed automatically

Step 7 – Install F81216 Patch

- Open the Step 7 F81216 Patch folder and open the setup.exe file
- 2. Follow the instructions
- 3. Drivers will be installed automatically
- Step 8 Install F81512 Driver
 - Open the Step 8 F81512 Driver folder and open the setup.exe file
 - 2. Follow the instructions
 - 3. Drivers will be installed automatically

BOXER-6914



Programming the Watchdog Timer

Appendix A Programming the Watchdog Timer A-1

A.1 Watchdog Timer Initial Program

```
ND_PROCESS MACRO
mov ah, 4ch
int 21h
ENDM
;********************* Code Segment ******************
```

.MODEL SMALL .CODE

begin:

```
; Set BRAM_Device as 0xA0
 mov dx. 284h
 mov al, 10h
 out dx, al
 inc dx
 mov al, 0A8h
 out dx, al
;Set BRAM_Command as 0x00 (GPIO device input/output
;access)
 dec dx
 mov al, 11h
 out dx, al
 inc dx
 mov al, 00h
 out dx, al
 ; Set BRAM_Data2 as 0xFF (WDT Counter)
 dec dx
 mov al, 15h
 out dx, al
 inc dx
 mov al, 3Ch
                   ;60 Sec
```

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out dx, al

; Set BRAM_Ctrl_Sts as 0x10 (Read & Start) dec dx mov al, 12h out dx, al inc dx mov al, 30h out dx, al

exit: END_PROCESS

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Appendix B

I/O Information

Appendix B I/O Information B-1

B.1 I/O Address Map

🔺 🏢 Input/output (IO)	
11 [00000000 - 0000001F]	Direct memory access controller
	PCI bus
	Motherboard resources
	Programmable interrupt controller
	Motherboard resources
	Programmable interrupt controller
	Programmable interrupt controller
	Programmable interrupt controller
	Motherboard resources
	Programmable interrupt controller
11 [00000034 - 00000035]	Programmable interrupt controller
	Programmable interrupt controller
	Programmable interrupt controller
	System timer
1 [00000044 - 0000005F]	Motherboard resources
	Motherboard resources
	System timer
	Motherboard resources
	System CMOS/real time clock
1 [00000072 - 0000007F]	Motherboard resources
	Motherboard resources
	Motherboard resources
	Direct memory access controller
	Motherboard resources
	Motherboard resources
	Motherboard resources

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[00000093 - 0000009F] Direct memory access controller
[000002E8 - 000002EF] Fintek Communications Port (COM4)
[000002F8 - 000002FF] Fintek Communications Port (COM2)
[000003C0 - 000003DF] Intel(R) Graphics Media Accelerator 3600 Series
[000003E8 - 000003EF] Fintek Communications Port (COM3)
[000003F8 - 000003FF] Fintek Communications Port (COM1)
[000004D0 - 000004D1] Motherboard resources
- 👰 [000004D0 - 000004D1] Programmable interrupt controller
[00000600 - 0000061F] Motherboard resources

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🝸 [0000D000 - 0000D01F] Fintek Pcie To Serial
📲 [0000D000 - 0000DFFF] PCI standard PCI-to-PCI bridge
🟆 [0000D020 - 0000D03F] Fintek Pcie To Serial
[0000D040 - 0000D05F] Fintek Pcie To Serial
[0000D060 - 0000D07F] Fintek Pcie To Serial
🏆 [0000D080 - 0000D08F] Fintek Pcie To Serial
[0000F020 - 0000F03F] Intel(R) N10/ICH7 Family USB Universal Host Controller - 27CB
🟺 [0000F040 - 0000F05F] Intel(R) N10/ICH7 Family USB Universal Host Controller - 27CA
🟺 [0000F060 - 0000F07F] Intel(R) N10/ICH7 Family USB Universal Host Controller - 27C9
🟺 [0000F080 - 0000F09F] Intel(R) N10/ICH7 Family USB Universal Host Controller - 27C8
- 😋 [0000F0A0 - 0000F0AF] Intel(R) N10/ICH7 Family Serial ATA Storage Controller - 27C0
🎭 [0000F0F0 - 0000F0F7] Intel(R) Graphics Media Accelerator 3600 Series
[0000FFFF - 0000FFFF] Motherboard resources
IO000FFFF - 0000FFFF1 Motherboard resources

B.2 Memory Address Map

A Memory
[00000000 - 00000FFF] Motherboard resources
[00000000 - 00000FFF] Motherboard resources
[00000000 - 00003FFF] Motherboard resources
[000A0000 - 000BFFFF] Intel(R) Graphics Media Accelerator 3600 Series
[000A0000 - 000BFFFF] PCI bus
1 [000C0000 - 000DFFFF] PCI bus
1 [000E0000 - 000EFFFF] PCI bus
[000F0000 - 000FFFFF] PCI bus
[7F800000 - 7FFFFFF] PCI bus
[80000000 - FEBFFFF] PCI bus
[DFB00000 - DFB1FFFF] Intel(R) 82583V Gigabit Network Connection
[DFB20000 - DFB23FFF] Intel(R) 82583V Gigabit Network Connection
… 掌 [DFC00000 - DFC0000F] Fintek Pcie To Serial
[DFC00000 - DFCFFFFF] PCI standard PCI-to-PCI bridge
[DFD00000 - DFD01FFF] Renesas Electronics USB 3.0 Host Controller
[DFD00000 - DFDFFFFF] Intel(R) N10/ICH7 Family PCI Express Root Port - 27D2
[DFE00000 - DFE1FFFF] Intel(R) 82583V Gigabit Network Connection #2
IDFE00000 - DFEFFFFF] Intel(R) N10/ICH7 Family PCI Express Root Port - 27D0
DFE20000 - DFE23FFF] Intel(R) 82583V Gigabit Network Connection #2
[DFF04000 - DFF043FF] Intel(R) N10/ICH7 Family Serial ATA Storage Controller - 27C0
FED00000 - FED003FF] High precision event timer
FED14000 - FED19FFF] System board
[FED1C000 - FED1FFF] Motherboard resources
[FED1C000 - FED1FFFF] Motherboard resources
IFED20000 - FED8FFFF1 Motherboard resources
IFED45000 - FED8FFFF1 Motherboard resources
IEEE00000 - EEE00EEE1 Motherboard resources
(EE00000 - EEEEEEE) Intol/P) 92902 Eirmunare Hub Device
- From the second secon

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B.3 IRQ Mapping Chart

1000

Interrupt request (IRQ)	
	System timer
	Fintek Communications Port (COM2)
	Fintek Communications Port (COM1)
	System CMOS/real time clock
	Fintek Communications Port (COM4)
	Fintek Communications Port (COM3)
	Numeric data processor
	Microsoft ACPI-Compliant System
(ISA) 0x00000066 (102)	Microsoft ACPI-Compliant System
	Microsoft ACPI-Compliant System
	Microsoft ACPI-Compliant System
	Microsoft ACPI-Compliant System

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 (ISA) 0x0000006A (106)
 (ISA) 0x0000006B (107)
 (ISA) 0x000006C (108)
 (ISA) 0x0000006D (109)
 (ISA) 0x0000006E (110)
 (ISA) 0x0000006F (111)
 (ISA) 0x00000070 (112)
 (ISA) 0x00000071 (113)
 (ISA) 0x00000072 (114)
 (ISA) 0x00000073 (115)
 (ISA) 0x00000074 (116)
 (ISA) 0x00000075 (117)
 (ISA) 0x00000076 (118)
 (ISA) 0x00000077 (119)
 (ISA) 0x00000078 (120)
 (ISA) 0x00000079 (121)
 (ISA) 0x0000007A (122)
 (ISA) 0x0000007B (123)
 (ISA) 0x0000007C (124)
 (ISA) 0x0000007D (125)
 (ISA) 0x0000007E (126)
 (ISA) 0x0000007F (127)
 (ISA) 0x00000080 (128)
 (ISA) 0x00000081 (129)
 (ISA) 0x00000082 (130)
 (ISA) 0x0000083 (131)
 (ISA) 0x00000084 (132)
 (ISA) 0x0000085 (133)
 (ISA) 0x00000086 (134)
 (ISA) 0x00000087 (135)
 (ISA) 0x0000088 (136)
 (ISA) 0x0000089 (137)
 (ISA) 0x000008A (138)

Microsoft ACPI-Compliant System Microsoft ACPI-Compliant System

1	(ISA) 0x000008B (139)	1
	(ISA) 0x0000008C (140)	1
1	(ISA) 0x000008D (141)	1
1	(ISA) 0x000008E (142)	N
1	(ISA) 0x0000008F (143)	N
1	(ISA) 0x00000090 (144)	١
	(ISA) 0x00000091 (145)	١
1	(ISA) 0x00000092 (146)	N
	(ISA) 0x00000093 (147)	N
1	(ISA) 0x00000094 (148)	١
	(ISA) 0x00000095 (149)	١
1	(ISA) 0x00000096 (150)	١
(B)	(ISA) 0x00000097 (151)	N
į.	(ISA) 0x00000098 (152)	N
	(ISA) 0x00000099 (153)	١
1	(ISA) 0x0000009A (154)	1
1	(ISA) 0x0000009B (155)	1
1	(ISA) 0x0000009C (156)	1
1	(ISA) 0x0000009D (157)	1
1	(ISA) 0x0000009E (158)	١
, E	(ISA) 0x0000009F (159)	١
(B)	(ISA) 0x000000A0 (160)	1
(Ę	(ISA) 0x000000A1 (161)	1
1	(ISA) 0x000000A2 (162)	1
1	(ISA) 0x000000A3 (163)	1
1	(ISA) 0x000000A4 (164)	1
(B)	(ISA) 0x000000A5 (165)	1
(E)	(ISA) 0x000000A6 (166)	1
1	(ISA) 0x000000A7 (167)	1
	(ISA) 0x000000A8 (168)	1
1	(ISA) 0x000000A9 (169)	1
1	(ISA) 0x000000AA (170)	
1	(ISA) 0x000000AB (171)	1

Microsoft ACPI-Compliant System Vicrosoft ACPI-Compliant System Microsoft ACPI-Compliant System Vicrosoft ACPI-Compliant System **Microsoft ACPI-Compliant System Microsoft ACPI-Compliant System** Vicrosoft ACPI-Compliant System Microsoft ACPI-Compliant System Vicrosoft ACPI-Compliant System **Microsoft ACPI-Compliant System** Microsoft ACPI-Compliant System Microsoft ACPI-Compliant System

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	(ISA) 0x000000AC (172)	Microsoft ACPI-Compliant System
	(ISA) 0x000000AD (173)	Microsoft ACPI-Compliant System
	(ISA) 0x000000AE (174)	Microsoft ACPI-Compliant System
	(ISA) 0x000000AF (175)	Microsoft ACPI-Compliant System
	(ISA) 0x000000B0 (176)	Microsoft ACPI-Compliant System
	(ISA) 0x000000B1 (177)	Microsoft ACPI-Compliant System
	(ISA) 0x000000B2 (178)	Microsoft ACPI-Compliant System
	(ISA) 0x000000B3 (179)	Microsoft ACPI-Compliant System
	(ISA) 0x000000B4 (180)	Microsoft ACPI-Compliant System
	(ISA) 0x000000B5 (181)	Microsoft ACPI-Compliant System
	(ISA) 0x000000B6 (182)	Microsoft ACPI-Compliant System
	(ISA) 0x000000B7 (183)	Microsoft ACPI-Compliant System
	(ISA) 0x000000B8 (184)	Microsoft ACPI-Compliant System
	(ISA) 0x000000B9 (185)	Microsoft ACPI-Compliant System
	(ISA) 0x000000BA (186)	Microsoft ACPI-Compliant System
	(ISA) 0x000000BB (187)	Microsoft ACPI-Compliant System
	(ISA) 0x00000BC (188)	Microsoft ACPI-Compliant System
	(ISA) 0x00000BD (189)	Microsoft ACPI-Compliant System
	(ISA) 0x000000BE (190)	Microsoft ACPI-Compliant System
	(PCI) 0x00000005 (05)	Intel(R) N10/ICH7 Family SMBus Controller - 27DA
	(PCI) 0x00000010 (16)	Intel(R) N10/ICH7 Family PCI Express Root Port - 27D0
	(PCI) 0x00000010 (16)	Intel(R) N10/ICH7 Family USB Universal Host Controller - 27CB
	(PCI) 0x00000011 (17)	Intel(R) N10/ICH7 Family PCI Express Root Port - 27D2
	(PCI) 0x00000011 (17)	PCI standard PCI-to-PCI bridge
	(PCI) 0x00000011 (17)	PCI standard PCI-to-PCI bridge
	(PCI) 0x00000011 (17)	PCI standard PCI-to-PCI bridge
	(PCI) 0x00000012 (18)	Intel(R) N10/ICH7 Family PCI Express Root Port - 27D4
	(PCI) 0x00000012 (18)	Intel(R) N10/ICH7 Family USB Universal Host Controller - 27CA
	(PCI) 0x00000012 (18)	PCI standard PCI-to-PCI bridge
	(PCI) 0x00000013 (19)	Communications Port (COM10)
-7	(PCI) 0x00000013 (19)	Communications Port (COM11)
	(PCI) 0x00000013 (19)	Communications Port (COM12)
101	(PCI) 0x00000013 (19)	Communications Port (COM13)

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	(PCI) 0x00000013 (19)	Communications Port (COM13)
1	(PCI) 0x00000013 (19)	Communications Port (COM13)
	(PCI) 0x00000013 (19)	Communications Port (COM13)
1	(PCI) 0x00000013 (19)	Communications Port (COM5)
1	(PCI) 0x00000013 (19)	Communications Port (COM6)
1	(PCI) 0x00000013 (19)	Communications Port (COM7)
	(PCI) 0x00000013 (19)	Communications Port (COM8)
	(PCI) 0x00000013 (19)	Communications Port (COM9)
一里	(PCI) 0x00000013 (19)	Fintek Pcie To Serial
	(PCI) 0x00000013 (19)	Intel(R) N10/ICH7 Family PCI Express Root Port - 27D6
	(PCI) 0x00000013 (19)	Intel(R) N10/ICH7 Family Serial ATA Storage Controller - 27C0
	(PCI) 0x00000013 (19)	Intel(R) N10/ICH7 Family USB Universal Host Controller - 27C9
	(PCI) 0x00000013 (19)	PCI standard PCI-to-PCI bridge
	(PCI) 0x00000013 (19)	PCI standard PCI-to-PCI bridge
	(PCI) 0x00000016 (22)	High Definition Audio Controller
	(PCI) 0x00000017 (23)	Intel(R) N10/ICH7 Family USB Universal Host Controller - 27C8
	(PCI) 0x00000017 (23)	Intel(R) N10/ICH7 Family USB2 Enhanced Host Controller - 27CC
- 2	(PCI) 0xFFFFFF1 (-15)	Intel(R) 82583V Gigabit Network Connection
💗	(PCI) 0xFFFFFF2 (-14)	Renesas Electronics USB 3.0 Host Controller
	(PCI) 0xFFFFFF3 (-13)	Renesas Electronics USB 3.0 Host Controller
	(PCI) 0xFFFFFFF4 (-12)	Renesas Electronics USB 3.0 Host Controller
-	(PCI) 0xFFFFFFF5 (-11)	Renesas Electronics USB 3.0 Host Controller
	(PCI) 0xFFFFFF6 (-10)	Renesas Electronics USB 3.0 Host Controller
🛡	(PCI) 0xFFFFFFF7 (-9)	Renesas Electronics USB 3.0 Host Controller
	(PCI) 0xFFFFFF8 (-8)	Renesas Electronics USB 3.0 Host Controller
	(PCI) 0xFFFFFF9 (-7)	Renesas Electronics USB 3.0 Host Controller
	(PCI) 0xFFFFFFA (-6)	Intel(R) 82583V Gigabit Network Connection #2
	(PCI) 0xFFFFFFB (-5)	Intel(R) Graphics Media Accelerator 3600 Series
	(PCI) 0xFFFFFFFC (-4)	PCI standard PCI-to-PCI bridge
	(PCI) 0xFFFFFFD (-3)	PCI standard PCI-to-PCI bridge
L	(PCI) 0xFFFFFFFE (-2)	PCI standard PCI-to-PCI bridge

B.4 DMA Channel Assignments

⊿ 📇 test-PC

▲ ... Direct memory access (DMA)

4 Direct memory access controller



Programming the Digital I/O

Appendix C Programming the Digital I/O C-1

C.1 DIO Programming

1. General Description

F75113 is a low power general purpose IO chip providing 40 GPIO. Level or pulse mode can be programmed by registers so all GPIO can be programmed to logic one, zero, high pulse or low pulse. GPIO0X~GPIO2X can be programmed to be power LED. F75113 includes two sets of watchdog timer for system reset. Besides, two power-down modes (Manual or Smart) can be selected to save power and control the total consumption under 10uA, so F75113 can fit the requirement of mobile device such as PDA or cell phone.

2. Access Interface

The F75113 provides three auto-detected access interfaces, LPC, SMBus or SPI, to read/write internal registers. In LPC interface, the default address of Configuration Register I/O port is 2Eh. When user writes data 10h to LPC configuration register 27h, the address of Configuration Register I/O port will be 4Eh. In SMBus interface, Serial Bus address default value is 6Eh (0110_1110). Another SPI interface only care the least eight bits (LSB) of 24 bits address. SPI interface write register by 02h instruction (Page Program) and read register by 03h instruction (Read Data). Also SPI interface supported byte write/read function.

Besides, the pin 46, 47, 48, 1, 2, 3, 4 are multi-function pins. If user want to access internal register by LPC interface, the F75113 will

only supported 39 GPIO function and the pin 4 won't be used for GPIO function. If user wants to access internal register by SMBus interface, the pin 48, 1, 2, 3 must be set internal pull-high with 10K Ω . When user don't use the pin 4 (GPIO function), the pin will must be set internal pull-high. In SPI interface, the pin 2, 3 must be set internal pull-high with 10K Ω . Also, the pin 4 will be selectively set internal pull-high with 10K Ω by user.

3. Register Description

When users access internal registers by LPC interface, the configuration register will be used to control the behavior of the corresponding devices. To configure the register, using the index port to select the index and then writing data port to alter the parameters. The default index port and data port are 2Eh and 2Fh respectively. Write data 10h in index 27h of global control register to change the default value to 4Eh/4Fh. To enable configuration, the entry key 50h must be written to the index port. To disable configuration, write exit key AAh to the index port. Following is an example to enable configuration and disable configuration by using debug.

-o 2e 50

-o 2e 50 (enable configuration)

-o 2e aa (disable configuration)

The Following is a register map (total devices) grouped in hexadecimal address order, which shows a summary of all registers and their default value. Please refer each device chapter if you want more detail information.

4. GPIO Function

The F75113 with GPIO0X~GPIO4X General Purpose I/O port is composed of independent I/O pins controlled and controls multi-pin function by Index 02~06h register. Each of GPIO group has input capability, output (push-pull and open-drain) capability, internal pull-up resister with 10K Ω . Also F75113 has GPIO2x groups with the Low Level Input, LED, SMI and RSTOUT function. Please check below table how to select the GPIO multi-function pin that user wants.

B O X E R - 6 9 1 4

Group	þ	Pin	Function1	Condition	Function2	Condition	Function3	Condition	Function4	Condition	Pull Cap
	0	28	GPIO00	GPIO00_MD=0	LED00	GPIO00_MD=1	SMI	GPIO00_MD=2	RSTOUT1	GPIO00_MD=3	UP
	1	27	GPIO01	GPIO01 MD=0	LED01	GPIO01 MD=1	SMI	GPIO01 MD=2	RSTOUT1	GPIO01 MD=3	UP
	2	26	GPIO02	GPIO02 MD=0	LED02	GPIO02 MD=1	SMI	GPIO02 MD=2	RSTOUT1	GPIO02 MD=3	UP
CDIOA	3	25	GPIO03	GPIO03_MD=0	LED03	GPIO03_MD=1	SMI	GPIO03_MD=2	RSTOUT1	GPIO03_MD=3	2 2
GPIO0	4	24	GPIO04	GPIO04_MD=0	LED04	GPIO04_MD=1	SMI	GPIO04_MD=2	RSTOUT2	GPIO04_MD=3	UP
	5	23	GPIO05	GPIO05_MD=0	LED05	GPIO05_MD=1	SMI	GPIO05_MD=2	RSTOUT2	GPIO05_MD=3	UP
	6	22	GPIO06	GPIO06 MD=0	LED06	GPIO06 MD=1	SMI	GPIO06 MD=2	RSTOUT2	GPIO06 MD=3	UP
	7	21	GPIO07	GPIO07 MD=0	LED07	GPIO07 MD=1	SMI	GPIO07 MD=2	RSTOUT2	GPIO07 MD=3	UP
	0	40	GPIO10	GPIO10 MD=0	LED10	GPIO10 MD=1					8 8
	1	39	GPI011	GPIO11 MD=0	LED11	GPIO11 MD=1					େ କଟେ କଟେ କଟେ କଟେ କଟେ କଟେ କଟେ କଟେ କଟେ କଟ
GPI01	2	38	GPIO12	GPIO12 MD=0	LED12	GPIO12 MD=1					UP
	3	37	GPIO13	GPIO13 MD=0	LED13	GPIO13 MD=1					UP
	4	36	GPIO14	GPIO14 MD=0	LED14	GPIO14 MD=1					UP
	5	35	GPIO15	GPIO15 MD=0	LED15	GPIO15 MD=1					3 3
	6	34	GPIO16	GPIO16 MD=0	LED16	GPIO16 MD=1					
	7	33	GPIO17	GPIO17 MD=0	LED17	GPIO17 MD=1					
	0	16	GPIO20/LV IN	GPI020 MD=0	LED20	GPI020 MD=1					UP
	1	15	GPIO21/LV IN	GPIO21 MD=0	LED21	GPIO21 MD=1					UP
	2	14	GPI022/LV IN	GPIO22 MD=0	LED22	GPIO22 MD=1					UP
2.28.00	3	13	GPI023/LV IN	GPIO23 MD=0	LED23	GPIO23 MD=1					UP
GPI02	4	12	GPIO24/LV IN	GPIO24 MD=0	LED24	GPIO24 MD=1					UP
	5	11	GPIO25/LV IN	GPIO25 MD=0	LED25	GPIO25 MD=1					UP
	6	10	GPIO26/LV IN	GPIO26 MD=0	LED26	GPIO26 MD=1					UP
	7	09	GPIO27/LV IN	GPIO27 MD=0	LED27	GPIO27 MD=1					UP UP UP UP
	0	32	GPIO30	_							LIP
	1	31	GPIO31								UP
GPI03	2	30	GPI032				8		-		LIP
	3	29	GPI033								UP
	4	20	GPIO34								UP
	5	19	GPI035								UP
	6	18	GPIO36								UP
	7	17	GPI037				8				UP
	0	45	GPIO40								UP
	1	44	GPIO41								LIP
	2	43	GPIO42								UP
	2	42	GPIO43								LIP
	4	07	GPIO4								LIP
	5	06	GPIO45								LIP
GPI04	- ×		011040	Conn't use							UP UP UP UP UP
	6	05	SIRQ/GPIO46	GPIO46 under							
				LPC interface							
	7	04	GPIO47	Cann't use GPIO47 under LPC interface							UP

5. Hi-Safe setting DIO

An Asus	assoc.co.		Jui	C				
) Current	t State	Dio					G	roup 1
	Dio1	Dio2	Dio3	Dio4	Dio5	Dio6	Dio7	Dio8
Mode								1
Value				[[]]]				
Setting								
	Dio1	Dio2	Dio3	Dio4	Dio5	Dio6	Dio7	Dio8
Mode	Output Input							
Value	Low High							
	ON assoc. co.	Hi-	Sal	e				
-----------	-------------------------	-------------	-------------	-------------	-------------	-------------	-------------	--------
		Dio						
o Current	t State			-			G	roup 2
	Dio9	Dio10	Dio11	Dio12	Dio13	Dio14	Dio15	Dio16
Mode	2	2			2	2		1
Value	0110	[1]0	011	[100	0110	0	0	[(@
o Setting								
	Dio9	Dio10	Dio11	Dio12	Dio13	Dio14	Dio15	Dio16
Mode	Output	Output	Output	Output	Output	Output	Output	Output
modo	Input	Input	Input	Input	Input	Input	Input	Input
Value	Low High	Low High	Low High	Low High	Low High	Low High	Low High	Low
			1	🖌 Set				

Embedded Box PC

B O X E R - 6 9 1 4

AT FELS assoc. HI-Safe								
		Dio						
Dio Current	t State						G	roup 3 🔄 💌
	Dio17	Dio18	Dio19	Dio20	Dio21	Dio22	Dio23	Dio24
Mode	1			1	2	1		2
Value	100			[100	0110	(III)@		[[]]]
Dio Setting								
	Dio17	Dio18	Dio19	Dio20	Dio21	Dio22	Dio23	Dio24
Mode	Output Input							
Value	Low High							
I Set								

25 Dio26	Dio27	Dio28	Dio29	Dio30	Gi Dio31	roup 4 Dio32
25 Dio26	Dio27	Dio28	Dio29	Dio30	Gi Dio31	roup 4 Dio32
25 Dio26	Dio27	Dio28	Dio29	Dio30	Dio31	Dio32
1	2	2	1	1		
25 Dio26	Dio27	Dio28	Dio29	Dio30	Dio31	Dio32
Output	Output	Output	Output	Output	Output	Output
Input	Input	Input	Input	Input	Input	Input
Low High	Low High	Low High	Low High	Low High	Low High	Low High
t	25 Dio26 t Output Input Low High	25 Dio26 Dio27 t Output Output Input Input Low Low High High	25 Dio26 Dio27 Dio28 t Output Output Input Input Low Low Low High	25 Dio26 Dio27 Dio28 Dio29 t Output Output Output Input Input Input Low Low Low High High	25 Dio26 Dio27 Dio28 Dio29 Dio30 t Output Output Output Output Input Input Input Input Input Low Low Low Low Low Low High High High	25 Dio26 Dio27 Dio28 Dio29 Dio30 Dio31 t Output Output Output Output Input Input Input Input Cow Low Low Low Low High High High High

BOXER-6914

嵌入式无风扇型工业控制计算机

USER'S MANUAL(中文版)

Version 1.0

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包装清单

在您打开包装后,请检查包装内如下对象是否齐全:

- BOXER-6914 整机一台
- 电源连接器一个
- 硬盘螺丝四颗
- 壁挂架螺丝四颗
- 壁挂架一组
- 驱动光盘光盘一片(内含使用手册)
- 保修证明以及合格证一套 如果以上任何物品不齐全或者有损坏,请立刻与当地经销商或者销售代表联系。

安全与警告

- 1. 请仔细阅读如下安全说明。
- 2. 请保存好本用户手册以供日后参考。
- 在清洁本设备之前,首先要切断所有交流电源。不要用液体或者气雾清洁剂进行清洗。请使用潮湿的棉布进行清洁。
- 4. 电源插座必须安装在设备附近,以方便接通电源。
- 5. 保持设备干燥,以防潮湿
- 6. 安装过程中,须将本设备放置在牢固的桌面。如果跌落会造成损坏。
- 7. 在接入电源之前请确认设备与电源电压等是否匹配。
- 8. 请将电源线绑好,以防止被踩到。不要在电源线上放置任何物体。
- 9. 请认真阅读设备上的任何小心和警告提示内容
- 10. 如果长时间不使用本设备,请断开电源线以防瞬间高压带来损伤。
- 11. 请不要在机器上倾倒任何液体,因为可能导致火灾或者电源短路。
- 12. 请不要打开本设备,出于安全的原因,只有有资格的维修人员才能打开本设备。
- 13. 如有以下情况发生,请专业维修人员检查本设备:
 - a) 电源线或者插头损坏
 - b) 有液体渗入设备内部
 - c) 设备已经暴露在潮湿的环境中
 - d) 设备不能正常工作,或者不能使其按照使用说明书使其运转
 - e) 设备跌落或者损伤
 - f) 设备有任何明显的损坏的迹象
- 14. 不要将设备储存在温度低于-20℃(-4°F)或者高于+80℃(158°F)的环境中,以免造成损坏。

FCC 安全警告



本设备与 Part 15 FCC 的规定相符合。任何操作都必须遵 守如下两个条件:

- (1) 本设备不会引起严重的干涉,
- (2)本设备必须能适应其收到的任何干涉包括会 造成错误操作的干涉。

-

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第一章 规格介绍

1.1 BOXER-6914 无风扇型号工控机介绍

欢迎您购买研扬 BOXER-6914 系列无风扇型号工控机产品! BOXER-6914 嵌入式控制器在目前市场上同类产品中,性能最佳的多功能模块中的一款。 BOXER-6914 军工级紧凑型工业控制终端,主要技术指标包括: 抗震动能力可达 5G/5~500Hz (w/CFD); 抗冲击能力可达 50G (w/CFD); 主要应用于自动售票机、闸机、工厂自动化等多个领 域。

技术特色:

- 基于 Intel® AtomTM D2550 1.86 GHz 处理器的无风扇设计
- 专为节省空间而设计的單邊出線
- 专为节省空间而设计的壁挂式安装
- 支持嵌入式操作系统的应用
- 支持 CF 卡和可选得 HDD 模块
- 以太网 / 14~16 COM / 6 USB / 30 Digital I/O
- 抗振动: 5grms, 抗冲击: 50g
- DIN-Rail 导轨或挂壁式安装
- 获得 CE/FCC A 级认证

详细规格:

CPU	Intel® Atom™ D2550 1.86GHz 低功耗处理器
系统内存	204-pin DDR3 SO-DIMM x 2,最大 4GB (PC 800/1066 MHz)
显示端口	DB-15 x 1 VGA 连接器 DVI-D 连接器
以太网	10/100/1000 Base-TX RJ-45 连接器 x 2
磁盘驱动器	2.5" HDD/SSD bay x 1 CFast™ 插槽 x 1
串口	RS-232/422/485 x 2 RS-232 x 12 RS-232 x 2 (可选)
USB	USB3.0 端口 x 2 USB2.0 端口 x 4
TV-out	S-video 与 RCA 输出
电源	直流输入 - 内部 DC-DC 转换 30W(标准) 输入电压:9VDC~30VDC 输出电压:+5V@6A 输出功率:30W 交流输入-外部电源适配器(该产品销售不配带电源适配器) 输入电压:100VAC~240VAC@50~60Hz 输出电压:+12V@5A 输出功率:60W
系统控制	电源按钮 x 1, 重启按钮 x 1
LED 指示灯	电源指示灯 x 1, HDD 指示灯 x 1
操作系统	Windows® 7, Windows® XP, Linux Fedora (可选)
构造	铝材机箱
颜色	灰
安装	壁挂式安装套件(已配)
尺寸	332.8mm(宽) x 136.8mm(高) x 190mm(深) (13.10" x 5.39" x 7.48")
净重	6.17lb (2.80Kg)
总重	9.70lb (4.4Kg)
工作温度	$-4^{\circ}F \sim 140^{\circ}F$ (-20°C ~ 60°C), with 0.5m/sec Airflow, with wide-temp CFast TM & RAM -4°F ~ 131°F (-20°C ~ 55°C), with 0.5m/sec Airflow, with wide-temp HDD & RAM
工作湿度	5~95%@40℃,无冷凝
振动	非 HDD 模块:5g/5~500Hz/随机/运行状态 HDD 模块:1g/5~500Hz/随机/运行状态
冲击	非 HDD 模块: 50g 峰值加速度(持续 6ms) HDD 模块: 20g 峰值加速度(持续 6ms)
EMC	CE/FCC A 级

注意

1.此为 A 级产品,在生活环境中,该产品可能会造成无线电干扰。

2.用错误型号电池更换会有爆炸危险,务必按照说明处置用完的电池 若更换电池有问题,请恰研扬中国各地分公司询问

尺寸规格



1.2 可供选择的型号介绍

BOXER-6914 系列详细型号列举如下,用户可以根据自己的实际需求进行选择:

BOXER-6914-A00-1010	嵌入式控制 PC,Intel® Atom™ D2550 CPU,9-30VDC,6USB, 2LAN,14COM,1VGA,1DVI,Digital I/O
BOXER-6914-A01-1010	嵌入式控制 PC,Intel® Atom™ D2550 CPU,9-30VDC,6USB, 2LAN,16COM,1VGA,1DVI,Digital I/O,PCIe[x1] x1,PCI x 1
BOXER-6914-A02-1010	嵌入式控制 PC, Intel® Atom™ D2550 CPU, 9-30VDC, 6USB, 2LAN, 16COM, 1VGA, 1DVI, Digital I/O, PCI x 2

1.3 可供选配的配件介绍

附件选项

- 1757908401
 84W 电源适配器
- 9761215303 WiFi 模块與天線
- 1702031802
 电源线(美规)
- 1702031803
 电源线(欧规)
- 170203180E
 电源线(日规)

第二章 安装及使用注意事项

2.1 装箱单的核查

首先在使用前请您核对整机的实际配置是否与"研扬工控机"的装箱单一致、随机 资料是否齐全,如有异议请您与销售商联系。

主机的标准配置一般包括:

- 1、 主机 (相关部件)及电源线
- 2、随机资料和驱动盘
- 3、其它可选件(显示器等)
- 4、机箱附件盒

检查完毕后,将主机与显示器或其它外设联接好后,接好电源;加电、打开工控机 电源开关,核查工控机运行情况。

- ★ 注意:
 - 请不要丢掉产品原包装箱,此包装箱具有防震功能。在需要移动、运输或贮存时请 使用本机的原始包装箱另返回的部件包装如不合要求将不予保修。
 - 装箱单本身有保修单的功能,如另附保修单(质保书)请您在详细填写并将回执寄 回研扬科技(中国)有限公司,如未附保修单(质保书)请在维修时携带装箱单以备 说明。
 - 请您认真阅读随机文件并妥善保管(请勿打开随机所带软盘的写保护,以避免感染 病毒)

2.2 软件的安装

"研扬"工控机可支持大多数操作系统和应用软件,如Windows[®]7,Windows[®] XP,你可任意安装而不会产生任何兼容性问题。

2.3 前后面板接口介绍





2.4 硬盘模组的安装

系统的安装只需一把螺丝刀,在安装前应准备好所有需要安装的零部件并把它们集中 到一起。

警告:在安装 CPU 卡前机箱不能与任何电源连接,不只是将电源关掉,应将电源插头 从电源插座上拔下。如果不清楚如何安装,应请富有经验的人来指导

2.4.1 硬盘的组装

1. 将 2.5"硬盘放上硬盘固定架



2. 将硬盘和固定架叠在一起,并使用十字起子锁上螺丝将他们固定



3. 将硬盘模块固定在底盖上。



4. 将排线的另一头接到 2.5"硬盘的 pin 脚上



5. 采用如图方式将底盖与主机联合在一起并锁上螺丝



2.5 内容模组的安装

1. 将 Thermal Pad 贴上 M/B



2. 插上内存模块



第三章 搬运的注意事项

"研扬工控机"的机箱及主机的外包装箱均采用特殊的设计,具有防震功能,能够承受运输过程中正常的碰撞。

产品在长途运输过程中不得装在敞开的船舱或车厢中,中途转运时不得存放在露天仓库

中,在运输过程中不允许和易燃,易爆等物品共同装运,不允许被雨、雪或其它液体物质淋湿,不允许有机械损伤。贮存环境(-20至+40℃,相对湿度30%[~]85%),

如用户在使用过程中需要搬运主机,首先请妥善保护好所有仪器设备,在完成以下步骤 后进行搬运动作。

- 保存好所使用的文件
- 从软盘驱动器中取出所有的软盘并妥善保管。
- 关闭工控主机电源并将电源插头从电源插座上拔下。
- 将主机与外设分开,拆下显示器电缆,拔下键盘电缆等安装在主机箱上的其它外部 设备。
- 将工控主机重新包装于原始的包装箱中后即可搬运仪器设备。