

## FCC Statement



This device complies with part 15 FCC rules. Operation is subject to the following two conditions  $\vdots$ 

This device may not cause harmful interference.

This device must accept any interference received including interference that may cause undesired operation.

This equipment has been tested and found to comply with the limits for a class "a" digital device, pursuant to part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at him own expense.

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## Warranty

We warrant that each of its products will be free from material and workmanship defects for a period of one year from the invoice date. If the customer discovers a defect, We will, at its option, repair or replace the defective product at no charge to the customer, provided it is returned during the warranty period of one year, with transportation charges prepaid. The returned product must be properly packaged in its original packaging to obtain warranty service.

If the serial number and the product shipping data differ by over 30 days, the inwarranty service will be made according to the shipping date. In the serial numbers the third and fourth two digits give the year of manufacture, and the fifth digit means the month (e. g., with A for October, B for November and C for December).

For example, the serial number 1W13Axxxxxx means October of year 2013.

## Packing List

Before using this Motherboard, please make sure that all the items listed below are present in your package :

- IV32 Motherboard
- User Manual
- ➢ User's Manual & Driver CD
- HDD SATA Cable

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

## **Customer Service**

We provide service guide for any problem as follow steps: The first, contact with your distributor, sales representative, or our customer service center for technical support if you need additional assistance. You may have the following information ready before you call :

- Product serial number
- Peripheral attachments
- Software (OS, version, application software, etc.)
- Description of complete problem
- > The exact wording of any error messages

In addition, free technical support is available from our engineers every business day. We are always ready to give advice on application requirements or specific information on the installation and operation of any of our products. Please do not hesitate to call or e-mail us.

## Safety Precautions

Warning!



Always completely disconnect the power cord from your chassis whenever you work with the hardware. Do not make connections while the power is on. Sensitive electronic components can be damaged by sudden power surges. Only experienced electronic personnel should open the PC chassis.

## **Caution!**



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

## Safety and Warranty

- 1. Please read these safety instructions carefully.
- 2. Please keep this user's manual for later reference.
- 3. Please disconnect this equipment from any AC outlet before cleaning. Do not use liquid or spray detergents for cleaning. Use a damp cloth.
- 4. For pluggable equipment, the power outlet must be installed near the equipment and must be easily accessible.
- 5. Keep this equipment away from humidity.
- 6. Put this equipment on a reliable surface during installation. Dropping it or letting it fall could cause damage.
- 7. The openings on the enclosure are for air convection. Protect the equipment from overheating. DO NOT COVER THE OPENINGS.
- 8. Make sure the voltage of the power source is correct before connecting the equipment 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 equipment should be noted.
- 11. If the equipment is not used for a long time, disconnect it from the power source to avoid damage by transient over-voltage.
- 12. Never pour any liquid into an opening. This could cause fire or electrical shock.
- 13. Never open the equipment. For safety reasons, only qualified service personnel should open the equipment.
- 14. If any of the following situations arises, get the equipment checked by service personnel:
  - A. The power cord or plug is damaged.
  - B. Liquid has penetrated into the equipment.
  - C. The equipment has been exposed to moisture.
  - D. The equipment does not work well, or you cannot get it to work according to the user's manual.
  - E. The equipment has been dropped and damaged.
  - F. The equipment has obvious signs of breakage.
- 15. Do not leave this equipment in an uncontrolled environment where the storage temperature is below  $-20^{\circ}$  C ( $-4^{\circ}$ F) or above  $60^{\circ}$  C ( $140^{\circ}$  F). It may damage the equipment.

# **Revision History**

Version	Date	Note	Author
1.1	2015.03.26	Jumper, Connector	Austin Chang
1.0	2013.06.25	Initial Draft	Pirson Liang

# Contents

CONTENTS		VIII
CHAPTER 1	GENERAL INFORMATION	2
1.1	INTRODUCTION	2
1.2	FEATURE	2
1.3	MOTHERBOARD SPECIFICATIONS	3
1.4	FUNCTION BLOCK	4
1.5	BOARD DIMENSION	5
CHAPTER 2	INSTALLATIONS	7
2.1	MEMORY MODULE (SO-DIMM) INSTALLATION	7
2.2	I / O EQUIPMENT INSTALLATION	8
2.3	JUMPER AND CONNECTOR LOCATION	9
2.4	JUMPERS	10
2.5	CONNECTORS AND PIN ASSIGNMENT	14
CHAPTER 3	DRIVER INSTALLATION	25
3.1	INSTALLATION OF ALL DRIVERS	25
3.2	INSTALLATION OF COM PORT'S DRIVER	27
CHAPTER 4	BIOS SETUP	31
4.11	ENTERING BIOS SETUP	31
4.24	Advanced Setting	33
4.30	CHIPSET CONFIGURATION	51
4.4	BOOT SETTING	57
4.55	SECURITY SETUP	59
4.65	SAVE & EXIT	60

# CHAPTER

# **General Information**

This chapter includes the IV32 Motherboard background information.

The section includes:

- Introduction
- Feature
- Motherboard Specification
- Function Block
- Board Dimension

# **Chapter 1 General Information**

## 1.1 Introduction

The IV32 SBC is integrated with Intel<sup>®</sup> Express Chipset HM76 (22x22mm) and 3<sup>rd</sup> Generation Intel<sup>®</sup> Core<sup>TM</sup> i7 Processors which offers a high performance computing platform with low power consumption. The new motherboard supports 204-pin SO-DIMM DDR3 at speeds of 1333/1600 MHz, up to 8GB.

One SATAII 3.0Gb/s and one SATAIII 6.0Gb/s interfaces provide ample capacity. With dual Gigabit Ethernet, four COM ports, three USB 3.0 and four USB 2.0, IV32 SBC meets the requirements of today's various applications.

Display requirements are met with rich interfaces, such as HDMI, LVDS, and CRT. The graphic engine adopts Intel<sup>®</sup> Express Chipset HM76 to offer high definition display function, and it also supports 24-bit Dual-Channel LVDS.

With all of the integrated features, IV32 SBC is designed to satisfy most of the applications in the industrial computer market, such as Gaming, POS, KIOSK, Industrial Automation, and Programmable Control System. It is a compact design to meet the demanding performance requirements of today's business and industrial applications.

## 1.2 **Feature**

- 3.5-inch Form Factor (146mm x 102mm / 5.7 x 4 inches)
- > Support  $3^{rd}$  Generation Intel<sup>®</sup> Core<sup>TM</sup>i7 processors
- $\succ$  Intel<sup>®</sup> ExpressChipsetHM7
- > 204-pin SO-DIMM DDR 1333/1600 MHz, up to 8GB
- > Intel<sup>®</sup> Graphic Accelerator 4000 Integrated Graphics Engine
- > VGA, 18/24-bit Dual-Channel LVDS, 2 x HDMI
- > Intel<sup>®</sup> 82579-LM GbE PHY and Intel<sup>®</sup> WG82574L GbE
- 1 x Mini PCIe, 1 x Mini Card Slot (for mSATA SSD), 4 x COM, 3 x USB 3.0, 4 x USB 2.0, 1 x SATA II, 1 x SATA III, 12-bit GPIO, 1 x 1394b
- $\rightarrow$  +12V only operation

# 1.3 Motherboard Specifications

Processor	Intel <sup>®</sup> Core i7-3555LE 2.5GHz / Core i7-3517UE 1.7GHz
Chipset	Intel <sup>®</sup> Express Chipset HM76
BIOS	AMI 16Mbit Flash
Graphic	Intel <sup>®</sup> Graphic Accelerator 4000 support DX11, OpenGL 3.1
LCD Interface	Dual-Channel 18/24-bit LVDS up to 1920 x 1200 @ 60Hz
Resolution	Up to 1920 x 1200 for VGA, HDMI
LAN	2 x Giga LAN (Intel <sup>®</sup> 82579-I M GbE PHY and Intel <sup>®</sup> WG82574I, GbE)
System Memory	204-nin SO-DIMM DDR 1333/1600 MHz up to 8GB
Super I/O	Fintek F81866
Sound	Realtek AI C886 HD Audio Codec
USR	3 x USB 3.0.4 x USB 2.0
COM	A x COM ports
	1 x DC IN Power Jack (+12V)
	$1 \times DC-110$ Fower Jack (+12.0) $1 \times DS222/A22/A85$
Edge Connectors	$1 \times \text{KS}252/422/405$
Euge Connectors	
	2 x Gigabit I AN RI 45
	$2 \times Oldon LAN NJ-45$
	$1 \times \text{USP} = 3.0 / 10 \text{ pin}(2x5)$
	$1 \times 0.05  5.0 / 10 - \text{pin}(2 \times 3)$
	$4 \times \text{USD} 2.07 \text{ o-pin}(2x4)$ 1 x LVDS / 40 pin(2x20) DE 12 connector
	$1 \times SATA \parallel 3 \text{ OCh/s}$
	$1 \times SATA II 5.000/S$
	1 x SATA Dowor
	1 x Digital $I/O(12)$ bit CDIO) / 14 pip(2x7)
	1 x Digital $1/O(12-0)$ O(10)/ 14-pin(2x7)
	1 x + 12V for avternal newer(Vallow) / 2 nin
On Board	$1 \times +12 \text{ V}$ for external power (Tenow) / 2-pin 1 x +5V for external power (Ped) / 2 pin
Pin-Header	$1 \times +3 \times 101$ external power(Rlue) / 2-pin
Connectors	$1 \times +3.5 \times 101 \text{ cxternal power(blue) / 2-pin}$
	1 x Panel inverter / 7 nin
	1 x Front papel / $10$ -pin(2x5)
	1 x Backlight brightness controller / 3-pin
	2 x Speaker with Amp / 2 pin
	$1 \times HDMI (DVI-D) / 20-nin(2\times10)$
	$1 \times VGA / 10-pin(2x5)$
	$1 \times 1394b / 10 \text{-pin}(2x5)$
	1 x Audio (Mic-in / Line-in / Line-out) / 12-pin(2x6)
	1 x Battery / 2-pin
Power Connector	2-pin Power-input connector
Expansion Slots	1 x Mini PCIe for wireless, 1 x Mini Card Slot for mSATA SSD
Form Factor	3.5 inch
Dimensions	146mm x 102mm
	Operating Temperature: 0~60°C (32~140°F)
	Operating Humidity: 10~90% Relative Humidity,
	non-condensing
Environmental	Shock: Operating 15G, 11ms duration
	Vibration: Operating 5 Hz~500Hz / 1Grms / 3 Axis
	Certification: CE, FCC, RoHS

## **1.4 Function Block**



# 1.5 Board Dimension



Ľ CHAPTE 2

# Installations

This chapter provides information on how to use the jumpers and connectors on the IV32 Motherboard.

The section includes:

- . Memory Module Installation
- . I / O Equipment Installation
- . Jumper and Connector Location
- . Jumpers
- . Connectors and Pin Assignment

## **Chapter 2 Installations**

## 2.1 Memory Module (SO-DIMM) Installation

The IV32 Motherboard provides one 204-pin SO-DIMM slot, and it supports up to 8GB DDR3 1333/1600MHz. When installing the Memory device, please follow the steps below :

Step 1. Firmly insert the SO-DIMM at an angle into its slot. Align the SO-DIMM on the slot such that the notch on the SO-DIMM matches the break on the slot.

Step 2. Press downwards on SO-DIMM until the retaining clips at both ends fully snap back in place and the SO-DIMM is properly seated.



## y Caution!



The SO-DIMM only fits in one correct orientation. It will cause permanent damage to the development board and the SO-DIMM if the SO-DIMM is forced into the slot at the incorrect orientation.

## 2.2 I / O Equipment Installation

#### 2.2.1 12V DC-IN

The Motherboard allows plugging 12V DC-IN jack on the board without another power module converter under power consumption of 3<sup>rd</sup> Generation Intel<sup>®</sup> Core<sup>TM</sup> Processor (Socket FCBGA1023) with Express Chipset HM76. Without power/reset OSD, short circuit pin 5 and 6 together to boot up the motherboard.(Front Panel Connector)

#### 2.2.2 Serial COM ports

One COM port connector which supports RS232/422/485 function by jumper setting has been built-in the rear I/O, and one internal COM port can be connected to a serial or an optional touch-screen when an optional touch-screen is ordered with Panel PC.

#### 2.2.3 External HDMI

The Motherboard has one HDMI port that can be connected to an external LCD monitor by using HDMI cable, and it also needs to be connected to the outlet by power cable. The HDMI connector is a standard 19-pin Type A connector.

#### 2.2.4 Ethernet interface

The Motherboard is equipped with Intel<sup>®</sup> Gigabit Ethernet Controller which is fully compliant with the PCI 10/100/1000 Mbps Ethernet protocol compatible. It is supported by major network operating systems. The Ethernet ports provide two standard RJ-45 jacks.

#### 2.2.5 USB ports

Seven USB devices (five with pin headers) may be connected to the system through an adapter cable. Various adapters may come with USB ports. USB usually connect the external system to the system. The USB ports support hot plug-in connection. Whatever, you should install the device driver before you use the device.

**≫**Note

## 2.3 Jumper and Connector Location



## **Component Side**

## Solder Side



## 2.4 Jumpers

## 2.4.1 Jumper List

Label Function Note JP1 Clear CMOS 3x1 header, pitch 2.0mm JP3 COM1 Setting (RS232/422/485) 2x3 header, pitch 2.0mm COM1 Setting (RS232 or RS422/485) JP4 3x4 header, pitch 2.0mm JP5 Backlight Inverter VCC Selection 3x1 header, pitch 2.0mm JP6 Backlight Inverter VCC Control 3x1 header, pitch 2.0mm JP7 **Operating VDD Selection** 3x1 header, pitch 2.0mm JP8 Backlight Brightness Control Mode Selection 3x1 header, pitch 2.0mm

The following table lists the function of each of the board's jumpers.

## 2.4.2 Jumper Settings

CON1

JP9

DC Capacitor

LCD Panel Voltage Selection

A metal-bridge jumper used to close an electric circuit, and it usually consists of two metal pins and one small clip protected by a plastic cover that slides over the pins to connect them. Users can connect the pins with the clip to close a jumper, and remove the clip to open a jumper. Generally, a jumper will have three pins which labeled 1, 2, and 3. In this case, you would connect either pins 1 and 2, or 2 and 3.

3x1 header, pitch 2.0mm

2x3 header, pitch 2.0mm

The jumper setting diagram is as below. If a jumper shorts pin 1 and pin 2, the setting diagram is shown as the right one.



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 changes.

## JP1: Clear CMOS



Pin No.	Functions
1-2	Clear CMOS
2-3	Normal (Default)

## JP3: COM1 Setting (RS232/422/485)



Pin No.	Functions
1-2	RS232 (Default)
3-4	RS422
5-6	RS485

## JP4: COM1 Setting (RS232 or RS422/485)

			RS422/485					
10	0	0	3	1	0	0	0	3
40	0	0	6	4	0	0	0	6
70	0	0	9	7	0	0	0	9
100	0	0	12	10	0	0	0	12

RS232 (Default)	RS422 / 485
1-2	2-3
4-5	5-6
7-8	8-9
10-11	11-12

## JP5: Backlight Inverter VCC Selection

	1 • 2 • 3 •	1 () 2 () 3 ()	
	+5V	+12V	
Pin No.	Functi	ons	
1-2	+5V (E	Default)	
2-3	+12V		

## JP6: Backlight Inverter VCC Control



]	BIOS GND	
Pin No.	Functions	
1-2	BIOS (Default)	
2-3	GND	

## JP7: Operating VDD Selection

	1 • 2 • 3 •	1 () 2 () 3 ()	
	+3.3V	+5V	
Pin No.	Functi	ons	
1-2	+3.3V	(Default)	
2-3	+5V		

## JP8: Backlight Brightness Control Mode Selection

1 0 2 0 3 0	1 () 2 () 3 ()		
DC	PWM		
Functions			
501	z 1		

Pin No.	Functions
1-2	DC Mode
2-3	PWM Mode (Default)

## JP9: DC Capacitor



Pin No.	Functions
1-2	Capacitor
2-3	N/C (Default)

## **CON1: LCD Panel Voltage Selection**

	3.3	/olts			5V	olts	_		12\	/olts	
1	0	•	2	1	0	0	2	1	0	0	2
3	0	0	4	3	0	0	4	3	0	0	4
5	0	0	6	5	0	0	6	5	0	0	6

Pin No.	Functions
1-2	+3.3V (Default)
3-4	+5V
5-6	+12V

# 2.5 Connectors and Pin Assignment

|--|

Label	Function
DC Jack	12V Power Input
COM1	RS232/422/485
USB 1/2	USB 3.0 Ports
HDMI 1	HDMI Connector
LAN1 / 2	Intel <sup>®</sup> LAN Ports
1394b	1394b (FireWire 800)
SPK	2W External Speaker
Audio	Line_in / Line_out / Mic_in
VGA	VGA Internal Wafer
HDMI 2	HDMI Internal Wafer
LVDS	LVDS Port
SATA II	SATA 2.0 3Gb/s Port
SATA III	SATA 3.0 6Gb/s Port
SATA Power	SATA Power
CPU Fan	CPU Fan
Front Panel	System Function (Power / Reset)
3.3V	3.3V Output
5V	5V Output
12V	12V Output
GPIO	General Purpose I/O
12V DC Input	12V DC Power Input Wafer
USB 3	USB 3.0 Wafer
USB 4/5	USB 2.0 Wafer
USB 6/7	USB 2.0 Wafer
COM2	RS232
COM3	RS232
COM4	RS232
Mini PCIe	Full / Half-Size Mini PCIe
Mini Card Slot	For mSATA SSD Card
DDR3 SO-DIMM	DDR3 SO-DIMM Socket

## 2.5.1 COM1: RS232/422/485



Pin No.	SYMBOL	Pin No.	SYMBOL
1	DCD	2	DxD
3	TxD	4	DTR
5	GND	6	DSR
7	RTX	8	CTS
9	RI		

#### 2.5.2 USB 1/2: USB 3.0 Ports



Pin No.	SYMBOL	Pin No.	SYMBOL
1	+5VUSB3.0_CONNA	10	+5VUSB3.0_CONNB
2	USB_PN0_C	11	USB_PN1_C
3	USB_PP0_C	12	USB_PP1_C
4	USB_GND	13	USB_GND
5	USB3_RXN1_C	14	USB3_RXN2_C
6	USB3_RXP1_C	15	USB3_RXP2_C
7	USB_GND	16	USB_GND
8	USB3_TXN1_C	17	USB3_TXN2_C
9	USB3_TXP1_C	18	USB3_TXP2_C

## 2.5.3 HDMI 1: HDMI Connector

-
2

Pin No.	SYMBOL	Pin No.	SYMBOL
1	HDMIB_TMDS0+	2	GND
3	HDMIB_TMDS0-	4	HDMIB_TMDS1+
5	GND	6	HDMIB_TMDS1-
7	HDMIB_TMDS2+	8	GND
9	HDMIB_TMDS2-	10	HDMIB_CLK+
11	GND	12	HDMIB_CLK-

13	GND	14	NC
15	HDMI_DDC_CLK	16	HDMI_DDC_DATA
17	GND	18	+5V
19	HDMI_HPD1		

# 2.5.4 LAN1 (LAN2): Intel<sup>®</sup> LAN Ports (RJ-45)



Pin No.	SYMBOL	Pin No.	SYMBOL
1	MDI0_IN+	2	MDI0_IN-
3	MDI1_IN+	4	MDI1_IN-
5	VLAN_12	6	LAN1_DGND
7	MDI2_IN+	8	MDI2_IN-
9	MDI3_IN+	10	MDI3_IN-
11	LAN_VDD(1.9V)	12	LAN_TRAFFICLED#
13	LAN_SPD100LED#	14	LAN_SPD1000LED#
15	UGND	16	UGND

## 2.5.5 1394b: FireWire 800



Pin No.	SYMBOL	Pin No.	SYMBOL
1	1394b_TPB0+	2	1394b_TPA0+
3	1394b_TPB0-	4	1394b_TPA0-
5	GND	6	GND
7	+12V	8	N/C
9	N/C	10	N/C

## 2.5.6 SPK: 2W External Speaker

Pin No.	SYMBOL	Pin No.	SYMBOL
1	LOUT+	2	LOUT-
Pin No.	SYMBOL	Pin No.	SYMBOL
1	ROUT+	2	ROUT-

## 2.5.7 Audio: Line\_in / Line\_out / Mic\_in



Pin No.	SYMBOL	Pin No.	SYMBOL
1	AZ_FOUT_R	2	AZ_FOUT_L
3	+5V	4	AUGND
5	LINE1_R	6	LINE1_L
7	MIC1_R	8	MIC1_L
9	AUGND	10	Font_SENSE
11	Mic_SENSE	12	Line_SENSE

## 2.5.8 VGA: VGA Internal Wafer



Pin No.	SYMBOL	Pin No.	SYMBOL
1	DAC_SDAT0	2	VGA_5V
3	DAC_SCL0	4	R_FILTER
5	3VHSYNC0	6	G_FILTER
7	3VVSYNC0	8	B_FILTER
9	GND	10	GND

## 2.5.9 HDMI 2: HDMI Internal Wafer



Pin No.	SYMBOL	Pin No.	SYMBOL
1	GND	2	HDMIC_TMDS2-
3	GND	4	HDMIC_TMDS2+
5	N/C	6	HDMIC_TMDS1-
7	N/C	8	HDMIC_TMDS1+
9	N/C	10	HDMIC_TMDS0-
11	HDMIC_HPD2	12	HDMIC_TMDS0+
13	N/C	14	HDMIC_CLK-
15	N/C	16	HDMIC_CLK+
17	+5V	18	HDMIC_DDC_CLK
19	+5V	20	HDMIC_DDC_DATA

## 2.5.10 LVDS: LVDS Port



Pin No.	SYMBOL	Pin No.	SYMBOL
1	LCDVDD	2	TXOUT_L0-
3	LCDVDD	4	TXOUT_L0+
5	LCDVDD	6	TXOUT_L1-
7	GND	8	TXOUT_L1+
9	GND	10	TXOUT_L2-
11	GND	12	TXOUT_L2+
13	GND	14	TXCLK_L-
15	GND	16	TXCLK_L+
17	GND	18	TXOUT_L3-
19	GND	20	TXOUT_L3+
21	GND	22	TXOUT_U0-

IV32 Motherboard User Manual

23	GND	24	TXOUT_U0+
25	GND	26	TXOUT_U1-
27	GND	28	TXOUT_U1+
29	GND	30	TXOUT_U2-
31	GND	32	TXOUT_U2+
33	GND	34	TXCLK_U-
35	GND	36	TXCLK_U+
37	GND	38	TXOUT_U3-
39	GND	40	TXOUT_U3+

## 2.5.11 SATA II: SATA 2.0 3Gb/s Port



Pin No.	SYMBOL	Pin No.	SYMBOL
1	GND	2	SATA_TXP
3	SATA_TXN	4	GND
5	SATA_RXN	6	SATA_RXP
7	GND		

## 2.5.12 SATA III: SATA 3.0 6Gb/s Port



Pin No.	SYMBOL	Pin No.	SYMBOL
1	GND	2	SATA_TXP
3	SATA_TXN	4	GND
5	SATA_RXN	6	SATA_RXP
7	GND		

#### 2.5.13 SATA Power:



Pin No.	SYMBOL	Pin No.	SYMBOL		
1	+12V	2	+12V		
3	GND	4	GND		
5	GND	6	GND		
7	+5V	8	+5V		

#### 2.5.14 CPU Fan:

	1
	2
	3

Pin No SVMBOL Pin No SVMBOL				
1	GND	2	+12V	
3	SENSE			

2.5.15 Front Panel: System Function (Power / Reset) Without power/reset OSD, short circuit pin 5 and 6 together to boot up the motherboard.



Pin No.	SYMBOL	Pin No.	SYMBOL
1	PW_LED+	2	HD_LED+-
3	PW_LED-	4	HD_LED-
5	PW_BT1	6	RT_BT1
7	PW_BT2	8	RT_BT2
9	RSEV	10	+5V

#### 2.5.16 (3.3V /5V / 12V): Power Output



2.3.13 BAIA I UWCI.
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1	3.3V/ 5V/ 12V	2	GND	

## 2.5.17 GPIO: General Purpose I/O



Pin No.	SYMBOL	Pin No.	SYMBOL
1	GND	2	+5V
3	DOUT3	4	DOUT1
5	DOUT2	6	DOUT0
7	DINT3	8	DINT2
9	DINT1	10	DINT0
11	GPIO53_IN0	12	GPIO56_OUT0
13	GPIO54_IN1	14	GPIO57_OUT1

## 2.5.18 12V DC Input: 12V DC Power Input Wafer



Pin No.	SYMBOL	Pin No.	SYMBOL
1	+12V	2	GND

## 2.5.19 USB 3: USB 3.0 Wafer



Pin No.	SYMBOL	Pin No.	SYMBOL
1	+5V	2	+5V
3	StdRx-	4	D-
5	StdRx+	6	D+
7	StdTx-	8	GND
9	StdTx+	10	GND

IV32 Motherboard User Manual

## 2.5.20 USB 4/5 (USB 6/7): USB 2.0 Wafer



Pin No.	SYMBOL	Pin No.	SYMBOL
1	VCC(5V)	2	VCC(5V)
3	DATA0-	4	DATA1-
5	DATA0+	6	DATA1+
7	GND	8	GND

## 2.5.21 COM2 (COM3 / COM4): RS232



Pin No.	SYMBOL	Pin No.	SYMBOL
1	FK_NDCD[2:4]	2	FK_NDSR[2:4]
3	FK_NSIN[2:4]	4	FK_NRTS[2:4]
5	FK_NSOUT[2:4]	6	FK_NCTS[2:4]
7	FK_NDTR[2:4]	8	FK_NRI[2:4]
9	GND	10	GND

## 2.5.22 Mini PCIe: Full / Half-Size Mini PCIe



Pin No.	SYMBOL	Pin No.	SYMBOL
2	3.3V_MINIPCIE1	1	PCIE_WAKE#
4	GND	3	NA
6	+V1.5S	5	NA

8	VREG_USIM	7	CLK_SLOT4_OE#
10	NA	9	GND
12	NA	11	CLK_PCIE_SLOT4_N
14	NA	13	CLK_PCIE_SLOT4_P
16	NA	15	GND
18	GND	17	NA
20	WLAN-RFON2	19	NA
22	BUF_PLT_RST2#	21	GND
24	+V3.3A	23	PCIE_RXN3_SLOT4
26	GND	25	PCIE_RXP3_SLOT4
28	+V1.5S	27	GND
30	SMB_CLK	29	GND
32	SMB_DATA	31	PCIE_TXN3_SLOT4
34	GND	33	PCIE_TXP3_SLOT4
36	USB_PN5	35	GND
38	USB_PP5	37	GND
40	GND	39	3.3V_MINIPCIE1
42	NA	41	3.3V_MINIPCIE1
44	NA	43	GND
46	NA	45	NA
48	NA	47	NA
50	GND	49	NA
52	3.3V_MINIPCIE1	51	NA
m2	GND	m1	GND

## 2.5.23 mSATA Card Slot

Pin No.	SYMBOL	Pin No.	SYMBOL
2	+V3.3_	1	NA
4	GND	3	NA
6	+V1.5S	5	NA
8	NA	7	NA
10	NA	9	GND
12	NA	11	NA
14	NA	13	NA
16	NA	15	GND
18	GND	17	NA
20	NA	19	NA
22	NA	21	GND
24	+V3.3A	23	SATA_RXP1
26	GND	25	SATA_RXN1
28	+V1.5S	27	GND
30	NA	29	GND
32	NA	31	SATA_TXN1
34	GND	33	SATA_TXP1
36	NA	35	GND
38	NA	37	GND
40	GND	39	+V3.3_
42	NA	41	+V3.3_
44	NA	43	GND
46	NA	45	NA
48	+V1.5S	47	NA
50	GND	49	SSD_LED#
52	+V3.3_MINIPCIE1	51	NA
m2	GND	m1	GND

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# **Driver Installation**

This chapter offers information on the drivers and installation utilities

The section includes:

- Installation of all drivers
- Installation of COM Port's driver

## **Chapter 3 Driver Installation**

## 3.1 Installation of all drivers

The IV32 comes with AutoRun DVD-ROM that contains all drivers, utilities, and an installation AP that will help the user to install the driver successfully.

While inserting the driver DVD, an installation AP will be run automatically. After executing the AP, the UI shown below is used for driver installation. It will contain the drivers of all mother boards of Ivy Bridge which support Windows<sup>®</sup> XP and Windows<sup>®</sup> 7 (32-bit / 64-bit).



Depends on your operating system's version, select the corresponding one to find the drivers you need. (e.g. IV32\_Win7\_32 is used for IV32 with 32-bit Windows<sup>®</sup> 7) Then, each driver will be shown by various icons in the UI, and please follow the sequence below to install the drivers.



## Follow the sequence below to install the drivers :

Step 1. Install Intel<sup>®</sup> Chipset Driver

Step 2. Install Graphic Driver

Step 3. Install LAN Driver

Step 4. Install Audio Driver

Step 5. Install Intel<sup>®</sup> ME Driver (in the icon AP)

Step 6. Install USB 3.0 Driver (Windows<sup>®</sup> 7 only)

Please read the instruction below for further detailed installation.

## **Installation** :

Insert the Ivy Bridge DVD-ROM into the DVD-ROM drive, and install the drivers step by step.

- Step 1. Install Intel<sup>®</sup> Chipset Driver
  - 3.1.1Click on the icon *Intel Chipset* and the installation process will be executed.

## 3.1.2 Follow the instruction that the window shows.

3.1.3 The system will help you install the driver automatically.

#### Step 2. Install Graphic Driver

- 1. Click on the icon *Graphic* and the installation process will be executed.
- 2. Follow the instruction that the window shows.
- 3. The system will help you install the driver automatically.

#### Step 3. Install LAN Driver

- 1. Click on the icon *LAN* and the installation process will be executed.
- 2. Follow the instruction that the window shows.
- 3. The system will help you install the driver automatically.

#### Step 4. Install Audio Driver

- 1. Click on the icon Audio and the installation process will be executed.
- 2. Follow the instruction that the window shows.
- 3. The system will help you install the driver automatically.

## Step 5. Install Intel<sup>®</sup> ME Driver

1. Click on the icon *AP* and *Intel ME* folder, and select the OS folder your system is.

26

- 2. Double click on the Setup.exe file located in each OS folder.
- 3. Follow the instruction that the window shows.
- 4. The system will help you install the driver automatically.

Step 6. Install USB 3.0 Driver (Windows<sup>®</sup> 7 only)

- 1. Click on the icon **USB 3.0** and the installation process will be executed.
- 2. Follow the instruction that the window shows.
- 3. The system will help you install the driver automatically.

## 3.2 Installation of COM Port's driver

Step 1. If the system is WIN7, the UAC needs to be closed at first. (Refer to following "Disabling User Account Control (UAC) in Windows 7")

Step 2. Extract the *Patch\_0408.zip* to a folder.

Step 3. Double click on the batch file (*patch.bat*), and the driver will be installed.

Step 4. Check whether the driver has been installed successfully.

aniz	e 💌 📧 Open with	New folder		()== • [	1 (
1.*	Name	Date modified	Туре	Size	
	sbp2port.sys	2010/11/21 上午 05:29	System file	84 KB	
	scfilter.sys	2010/11/21 上午 05:29	System file	26 K.B	
	🚳 scsiport.sys	2010/11/21 上午 05:29	System file	137 KB	
	secdrv.sys	2009/7/14 上午 04:50	System file	20 K.B	
	🚳 serenum.sys	2009/7/14 上午 07:45	System file	18 KB	
	🚳 serial.sys	2009/7/14 上午 07:45	System file	82 KB	
	sermouse.sys	2009/7/14 上午 07:45	System file	20 KB	
	🚳 sffdisk.sys	2009/7/14 上午 07:45	System file	11 KB	
	🚳 sffp_mmc.sys	2009/7/14 上午 07:45	System file	12 KB	
	🚳 sffp_sd.sys	2010/11/21 上午 05:29	System file	13 KB	
122	(Th.				

Before the update or update fail.

After the update and update success.

	📕 « Windows 🕨 System	32 ▶ drivers ▶	• 4- Search d	rivers	5
Organize	• 🗐 Open with	New folder		8≅ - □	1 0
1.	Name	Date modified	Туре	Size	
2	sbp2port.sys	2010/11/21 上午 05:29	System file	84 KB	
	🚳 scfilter.sys	2010/11/21 上午 05:29	System file	26 KB	
a	🚳 scsiport.sys	2010/11/21 上午 05:29	System file	137 KB	
5	🚳 secdrv.sys	2009/7/14 上午 04:50	System file	20 KB	
	🚳 serenum.sys	2009/7/14 上午 07:45	System file	18 KB	
	serial.sys	2011/6/22 上午11:39	System file	90 KB	
<b>E</b>	SCHIVUSE Sys	2009/7/14 上午 07.45	System file	20 KO	
	🚳 sffdisk.sys	2009/7/14 上午 07:45	System file	11 KB	
	S sffp mmc.svs	2009/7/14 上午 07:45	System file	12 KB	

Step 5. You will need to restart your computer for driver install success. Type in the following command on the Run Menu:

> C:\Windows\System32\UserAccountControlSettings.exe or

Control Panel (1)

Change User Account Control settings

See more results

uac

Shut down

To turn off the UAC, move the slider to the *Never notify* position, and then click *OK*. If you're prompted for an administrator password or confirmation, type the password or provide confirmation.

Choose when to b User Account Control h Tell me more about Use	e notified about changes to your computer elps prevent potentially harmful programs from making changes to your computer. er Account Control settings
	Default - Notify me only when programs try to make changes to my computer • Don't notify me when I make changes to Windows settings
	Recommended if you use familiar programs and visit familiar websites.
	Cancel

To turn UAC back on, move the slider to choose when you want to be notified, and then click OK. If you're prompted for an administrator password or confirmation, type the password or provide confirmation.

You will need to restart your computer for UAC to be turned off.



4

# **BIOS Setup**

This chapter describes how to set up the BIOS configuration.

The section includes:

- Entering BIOS Setup
- Advanced Setting
- Chipset Configuration
- Boot Setting
- Security Setup
- Save & Exit Setup

# **Chapter 4 BIOS Setup**

Your computer comes with a hardware configuration program which called BIOS Setup that allows you to view and set up the system parameters.

The BIOS (Basic Input / Output System) is a layer of the software called 'firmware' which translates instructions from software (such as the operating system) into instructions that allow the computer hardware to understand the software programs. The BIOS settings also identify installed devices and establish many special features.

## 4.1 Entering BIOS Setup

You can access the BIOS program just after you turn on your computer. Just press the "DEL" key when the following prompt appears:

Press <DEL> to enter Setup.

When you press <DEL> to enter the BIOS Setup image, the system interrupts the Power-On Self-Test (POST).

When you first enter the BIOS Setup Utility, you will enter the Main setup image. You can always return to the Main setup image by selecting the Main tab. There are two Main Setup options. They are described in this section. The Main BIOS Setup image is shown as below.

Control Keys			
Above 4C Deceding	Enables or Disables 64 bit capable devices to be decoded in above 4G address		
Above 4G Decoding	space		
<enter></enter>	Select Item		
-East	Main Menu – Quit and not save changes into CMOS		
< <u>E</u> SC>	Sub Menu – Exit current page and return to Main Menu		
<page +="" up=""></page>	Increase the numeric value or make changes		
<page -="" down=""></page>	Decrease the numeric value or make changes		
<f1></f1>	General help, for Setup Sub Menu		
<f2></f2>	Load Previous Values		
<f3></f3>	Load Setup Defaults		
<f4></f4>	Save all CMOS changes		

Aptio Setup Main Advanced Chipset	Utility – Copyright (C) 2012 American Boot Security Save & Exit	n Megatrends, Inc.	
BIOS Information BIOS Vendor Core Version Compliancy Project Version VBIOS Type Build Date and Time	American Megatrends 4.6.5.3 UEFI 2.3; PI 1.2 IV32V104 x64 HDMI 06/21/2013 14:14:31	Choose the system default language	
Processor Information Name Brand String Frequency Processor ID Stepping Number of Processors Microcode Revision GT Info	IvyBridge Intel(R) Core(TM) i7–351 1600 MHz 306a9 E1 2Core(s) / 4Thread(s) 17 GT2 (1000 MHz)	++: Select Screen 14: Select Item Enter: Select +/-: Change Opt.	
IGFX VBIOS Version Memory RC Version Total Memory Memory Frequency PCH Information Name	2137 1.7.0.0 4096 MB (DDR3) 1333 Mhz PantherPoint	F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit	
Version 2.15.1229. Copyright (C) 2012 American Megatrends, Inc.			

The Main BIOS setup image has two main frames. The left frame displays all the options that can be configured. Grayed-out options cannot be configured. On the contrary, options in blue can be configured. The right frame displays the key legend. Above the key legend is an area reserved for a text message. When an option is selected in the left frame, it is highlighted in white. Often a text message will accompany it.

# 4.2 Advanced Setting

## **PCI Subsystem Setting**

Aptio Setup Utility – Copyright (C) 2012 American Main Advanced Chipset Boot Security Save & Exit	Megatrends, Inc.
<ul> <li>PCI Subsystem Settings</li> <li>ACPI Settings</li> <li>S5 RTC Wake Settings</li> <li>Trusted Computing</li> <li>CPU Configuration</li> <li>SATA Configuration</li> <li>Thermal Configuration</li> <li>Intel(R) Rapid Start Technology</li> <li>PCH-FW Configuration</li> <li>Intel(R) Anti-Theft Technology Configuration</li> <li>Acoustic Management Configuration</li> <li>USB Configuration</li> <li>SMART Settings</li> </ul>	PCI, PCI-X and PCI Express Settings.
<ul> <li>F81866 Super ID Configuration</li> <li>F81866 H/W Monitor</li> <li>Platform Misc Configuration</li> <li>Intel(R) Smart Connect Technology</li> <li>Serial Port Console Redirection</li> <li>Intel RC Drivers Version Detail</li> <li>CPU PPM Configuration</li> <li>Sandybridge DTS Configuration</li> </ul>	<pre>++: Select Screen  14: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save &amp; Exit ESC: Exit</pre>
Version 2.15.1229. Copyright (C) 2012 American Me	egatrends, Inc.

Aptio Setup Utilit Advanced	y – Copyright (C) 2012 Amer	ican Megatrends, Inc.
PCI Bus Driver Version	V 2.05.02	Enables or Disables 64bit capable Devices to be Decoded in Above 4G Address Space
Above 4G Decoding	[Disabled]	(Unly if System Supports 64 bit PCI Decoding)
ADOVE 40 DECOUTING	[DISADIEU]	bit ( Ci Decouing).
PCI Common Settings PCI Latency Timer VGA Palette Snoop	[32 PCI Bus Clocks] [Disabled]	
PERR# Generation	[Disabled]	
SERR# Generation	[Disabled]	
▶ PCI Express Settings		<pre>++: Select Screen 11: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save &amp; Exit ESC: Exit</pre>
Version 2.15.1229	. Copyright (C) 2012 Americ:	an Megatrends, Inc.

SETTING	DESCRIPTION		
Above 4C Deceding	Enables or Disables 64 bit capable devices to be decoded in above 4G address		
Above 4G Decouning	space		
PCI Latency Timer	Value to be programmed into PCI Latency Timer Register.(32~248)		
VGA Palette Snoop	Enables or Disables VGA palette registers snooping		
PERR# Generation	Enables or Disables PCI device to generate PERR#		
SERR# Generation	Enables or Disables PCI device to generate SERR#		

## **PCI Express Setting**

Aptio Setup Utility – Co Advanced	opyright (C) 2012 American	Megatrends, Inc.
PCI Express Device Register Settings Relaxed Ordering Extended Tag No Snoop Maximum Payload	[Disabled] [Disabled] [Enabled] [Auto]	Enables or Disables PCI Express Device Relaxed Ordering.
Maximum Read Request [ PCI Express Link Register Settings ASPM Support [ WARNING: Enabling ASPM may cause some	[Auto] [Disabled]	
PCI-E devices to fail Extended Synch	[Disabled]	
Link Training Retry [ Link Training Timeout (uS) 1 Unpopulated Links [	[5] 100 [Keep Link ON]	<pre>++: Select Screen 14: Select Item Enter: Select +/→: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save &amp; Exit ESC: Exit</pre>

SETTING	DESCRIPTION	
Relaxed Ordering	Enables or Disables PCI Express Device Relaxed Ordering	
Extended Tag	If Enabled allows device to use 8-bit tag field as a requester	
No Snoop	Enables or Disables PCI Express Device No Snoop option	
Maximum Payload	Set maximum payload of PCI express device or allow system BIOS to	
	select the value(128~4096 bytes)	
Marimum Dood Doguast	Set maximum Read Request size of PCI express device or allow system	
Maximum Keau Kequesi	BIOS to select the value(128~4096 bytes)	
	Set the ASPM Level: Force LOS-Force all links to LOs State: Auto- BIOS	
ASPM Support	auto configure: Disabled- disables ASPM	
Extended Synch	If Enabled allows generation of extended Synchronization patterns	
The Large States Defense	Defines number of retry attempts software will take to retrain the link if	
Link Training Ketry	previous training attempt was unsuccessful	
T ! L. T !	Defines number of microseconds software will wait before polling 'Link	
Link Training Timeout	Training" bit in link status register. Value range from 10 to 1000 uS	
	In order to save power, software will disable unpopulated PCI express	
Unpopulated Links	links, if this option set to 'Disabled'	

## **ACPI Setting**

Aptio Setup Utility - Advanced	Copyright (C) 2012 American	Megatrends, Inc.
ACPI Settings		Enables or Disables BIOS ACPI
Enable ACPI Auto Configuration	[Disabled]	nuto com igu ation.
Enable Hibernation ACPI Sleep State Lock Legacy Resources	[Enabled] [S3 only(Suspend to] [Disabled]	
		<pre> ++: Select Screen  f↓: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save &amp; Exit ESC: Exit</pre>
Version 2.15.1229. Co	pyright (C) 2012 American M	egatrends, Inc.

SETTING	DESCRIPTION	
Enabled ACPI Auto Configuration	Enables or Disables BIOS ACPI Auto Configuration.	
Enchle Hikemation	Enables or Disables System ability to Hibernate (OS/S4 Sleep	
Enable Hibernation	State). This option may be not effective with some OS.	
	Select the ACPI sleep state the system will enter, when the	
ACPI Sleep State	SUSPEND button is pressed.	
Lock Legacy Resources	Enables or Disables lock of legacy resources.	

## **Trusted Computing**

Aptio Setup Utility Advanced	y – Copyright (C) 2012 Amer	ican Megatrends, Inc.
Configuration Security Device Support	[Disable]	Enables or Disables BIOS support for security device. O.S. will not show Security Device. TCG EFI protocol and
Current Status Information NO Security Device Found		INT1A interface will not be available.
		++: Select Screen fl: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit
Version 2.15.1229.	Copyright (C) 2012 Americ	an Megatrends, Inc.

Security Device Support Enable or Disable BIOS support for security device

## **CPU Configuration**

This section shows the CPU Configuration parameters.



#### Hyper-threading

Enabled for Windows XP and Linux (OS optimized for Hyper-Threading Technology) and Disabled for other OS (OS not optimized for Hyper-Threading Technology). When Disabled, only one thread per enabled core is enabled.

#### **Active Processor Cores**

This field is used to enter the number of cores to enable in each processor package.

#### Limit CPUID Maximum

Disabled for Windows XP.

#### **Execute Disable Bit**

XD can prevent certain classes of malicious buffer overflow attacks when combined with a supporting OS (Windows Server 2003 SP1, Windows XP SP2, SuSE Linux 9.2, RedHat Enterprise 3 Update 3.)

#### **Hardware Prefetcher**

Turns on/off the MLC streamer prefetcher.

#### Adjacent Cache Line Prefetch

To turn on/off prefetching of adjacent cache lines.

#### TCC Activation offset

Offset from the factory TCC activation temperature.

## **Primary Plane Current value**

The maximum instantaneous current allow for Primary plane.

## **Secondary Plane Current value**

The maximum instantaneous current allow for Second plane.

## **SATA Configuration**

## SATA Device Configuration

Aptio Setup Utility - Advanced	Copyright (C) 2012 American	Megatrends, Inc.
SATA Controller(s) SATA Mode Selection SATA Test Mode Aggressive LPM Support SATA Controller Speed ▶ Software Feature Mask Configuration	[Enabled] [AHCI] [Disabled] [Enabled] [Gen3]	Enable or disable SATA Device.
Serial ATA Port 0 Software Preserve Port 0 Hot Plug External SATA SATA Device Type Spin Up Device Serial ATA Port 1 Software Preserve Port 1 Hot Plug External SATA SATA Device Type Spin Up Device Serial ATA Port 2 Software Preserve Port 2 Hot Plug	Empty Unknown [Enabled] [Disabled] [Disabled] [Hard Disk Driver] [Disabled] Empty Unknown [Enabled] [Disabled] [Hard Disk Driver] [Disabled] Empty Unknown [Enabled] [Disabled] [Disabled]	++: Select Screen 1↓: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit

Version 2.15.1229. Copyright (C) 2012 American Megatrends, Inc.

SETTING	DESCRIPTION
SATA Controller(s)	This item allows users to enable or disable the SATA controller(s).
SATA Mode Selection	This item allows users to select mode of SATA controller(s).
SATA Test Mode	This item allows users to enable or disable the Test mode.
Aggressive LPM Support	Enable PCH to aggressively enter link power state.

## **Thermal Configuration**

Aptio Setup Utility - Advanced	Copyright (C) 2012 America	n Megatrends, Inc.
Platform Thermal Configuration		Configure _CRT, _PSV and _ACO
Automatic Thermal Reporting	[Enabled]	recommended in BWG's Thermal
Active Trip Point O Fan Speed	100	Reporting for Thermal
Active Trip Point 1	[55 C]	Management settings. Set to
Active Trip Point 1 Fan Speed	75	Disabled for manual
Passive TC1 Value	1	configuration.
Passive TC2 Value	5	
Passive TSP Value	10	
ME SMBus Thermal Reporting	[Enabled]	
SMBus Buffer Length	[20]	
Thermal Reporting EC PEC	[Disabled]	
DIMM1 TS READ	[Disabled]	→+: Select Screen
DIMM2 TS READ	[Disabled]	↑↓: Select Item
DIMM3 TS READ	[Disabled]	Enter: Select
DIMM4 TS READ	[Disabled]	+/-: Change Opt.
		F1: General Help
PCH Thermal Device	[Disabled]	F2: Previous Values
PCH Temp Read	[Enabled]	F3: Optimized Defaults
CPU Energy Read	[Enabled]	F4: Save & Exit
CPU Temp Read	[Enabled]	ESC: Exit
Alert Enable Lock	[Enabled]	
PCH Alert	[Disabled]	
DIMM Alert	[Disabled]	

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SETTING	DESCRIPTION	
	Configure _CRT,_PSV and _ACO automatically based on values	
Automatic thermal reporting	recommended in BWG's thermal reporting for thermal management	
	settings. Set to disabled for manual configuration.	
Active trip point 0 fan speed	Active trip point 0 fan speed in percentage.	
	This value controls the temperature of the ACPI active trip point 1-	
Active trip point 1	the point in which the OS will turn the processor fan on active trip	
	point1 fan speed.	
Active trip point 1 fan speed	Active trip point 1 fan speed in percentage.	
Passive TC1 value	This value sets the TC1 value for the ACPI passive cooling formula.	
Passive TC2 value	This value sets the TC2 value for the ACPI passive cooling formula.	
Passive TSP value	This value sets the TSP value for the ACPI passive cooling formula.	

Intel(R) Rapid Start Technology       [Disabled]       Enable or disable Intel(R)         Rapid Start Technology.       **: Select Screen         **: Select Screen       **: Select Item         Enter: Select       */-: Change Opt.         F1: General Help       F2: Previous Values         F3: Optimized Defaults       F4: Save & Exit         ESC: Exit       **: Select Item	Aptio Setup Utility – Advanced	Copyright (C) 2012 American	Megatrends, Inc.
++: Select Screen 14: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit	Intel(R) Rapid Start Technology	[Disabled]	Enable or disable Intel(R) Rapid Start Technology.
			<pre> ++: Select Screen  f↓: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save &amp; Exit ESC: Exit</pre>

# Intel<sup>®</sup> Rapid Start Technology

This item allows users to enable or disable Intel<sup>®</sup> rapid start technology.

## **PCH-FW Configuration**

Aptio Setup Utility - Advanced	Copyright (C) 2012 American	Megatrends, Inc.
ME FW Version ME Firmware Mode ME Firmware Type ME Firmware SKU MEBx Type MDES BIOS Status Code Firmware Update Configuration	8.0.13.1502 Normal Mode Full Sku Firmware 1.5MB [miniMEBX] [Disabled]	MEBx Type ++: Select Screen fl: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit
Version 2.15.1229. Co	pyright (C) 2012 American M	egatrends, Inc.

This item allows users to enable or disable ME FW image re-flash function.

# Intel<sup>®</sup> Anti-Theft Technology Configuration

Aptio Setup Utility – Copyright (C) 2012 American Advanced	Megatrends, Inc.
Intel(R) Anti–Theft Technology Configuration	Enable/Disable Intel(R) AT in BIOS for testing only.
Intel(R) Anti-Theft Technology [Disabled] Intel(R) Anti-Theft Technology Rec 3 Enter Intel(R) AT Suspend Mode [Disabled]	
	<pre>++: Select Screen fl: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save &amp; Exit ESC: Exit</pre>
Version 2.15.1229. Copyright (C) 2012 American Ma	egatrends, Inc.

## Intel® Anti-theft Technology

This item allows users to enable or disable Intel<sup>®</sup> AT in bios for testing only.

## Intel® Anti-theft Technology Rec

Set the number of times recovery attempted will be allowed.

## **Acoustic Management Configuration**

Aptio Setup Utility – Copyright (C) 2012 American Megatrends, Inc. Advanced		
Acoustic Management Configuration		Option to Enable or Disable Automatic Acoustic Management
Automatic Acoustic Management	[Disabled]	
Sata Port O TOSHIBA MK1665GSX Acoustic Mode	[Not Available]	
		<pre> ++: Select Screen  14: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save &amp; Exit ESC: Exit</pre>
Version 2.15.1229. Co	oyright (C) 2012 American M	egatrends, Inc.

Option to enable or disable automatic acoustic management.

## **USB** Configuration

Aptio Setup Utility – Advanced	Copyright (C) 2012 American	Megatrends, Inc.
USB Configuration		Enables Legacy USB support. AUTO option disables legacy
USB Devices:		support if no USB devices are
1 Drive, 1 Keyboard, 1 Mouse,	4 Hubs	connected. DISABLE option will keep USB devices available
Legacy USB Support	[Enabled]	only for EFI applications.
USB3.0 Support	[Enabled]	
XHCI Hand-off	[Enabled]	
EHCI Hand-off	[Disabled]	
USB Mass Storage Driver Support	[Enabled]	
USB hardware delays and time-outs:		
USB transfer time-out	[20 sec]	
Device reset time-out	[20 SEC]	**: Select Screen
Device power-up delay	[Huto]	T+: Select Item
Mass Storage Devices:		t/-: Change Ont
TetElashTranscend 4GB 1100	[Auto]	F1: General Heln
	[hdto]	F2: Previous Values
		F3: Optimized Defaults
		F4: Save & Exit
		ESC: Exit
United at 1000 - 0		lastaturanda Tura
Version 2.15.1229. C	opyright (c) zviz American M	legatrenus, inc.

SETTING	DESCRIPTION
Lagon LICD Company	Enables support for legacy USB. Auto option disables legacy support if no
Legacy USB Support	USB devices are connected.
USB3.0 support	This item allows user to enable or disable USB3.0 function.
VIICI Hand off	This is a workaround for OS without XHCI hand-off support. The XHCI
AHCI Hand-oli	ownership change should claim by XHCI driver.
FIICI Hand off	This is a workaround for OS without EHCI hand-off support. The EHCI
EHCI Hand-on	ownership change should claim by EHCI driver.
USB transfer time-out	Time-out value for control, bulk, and interrupt transfers.
Device reset time-out	USB mass storage device starts unit command time-out.
Deries normen um deler	Maximum time the device will take before it properly report itself to the
Device power-up delay	host controller.

## **SMART Setting**

Aptio Setup Uti Advanced	lity – Copyright (C) 2012 Am	erican Megatrends, Inc.
SMART Settings		Run SMART Self Test on all
SMART Self Test	[Disabled]	
		tt. Salact Scheen
		↑↓: Select Item Enter: Select
		+/-: Change Opt. F1: General Help
		F2: Previous Values F3: Optimized Defaults F4: Save & Exit
		ESC: Exit
Version 2.15.1	229. Copyright (C) 2012 Amer	ican Megatrends, Inc.

## **Smart Self Test**

Enable or disable Run SMART Self test on all HDDs during Post.

## F81866 Super I/O Configuration

Aptio Setup Utility – Advanced	Copyright (C) 2012 American	Megatrends, Inc.
F81866 Super IO Configuration		Set Parameters of Serial Port O (COMA)
<ul> <li>F81866 Super IO Chip</li> <li>Serial Port 0 Configuration</li> <li>Serial Port 1 Configuration</li> <li>Serial Port 2 Configuration</li> <li>Serial Port 3 Configuration</li> <li>GPI0 Port Configuration</li> </ul>	F81866	
Watch Dog Timer Select	[Disabled]	
		<pre>++: Select Screen f↓: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save &amp; Exit ESC: Exit</pre>
Version 2.15.1229. Co	pyright (C) 2012 American M	egatrends, Inc.

## **Serial Port Configuration**

Set Parameters of Serial Ports. User can Enable/Disable the serial port and Select an optimal settings for the Super IO Device.

#### **Smart Fan Control**

Aptio Setup Utility Advanced	– Copyright (C) 2012 America	n Megatrends, Inc.
Advanced Pc Health Status System temperature1 System temperature2 Fan1 Speed Fan2 Speed VIN0 VIN1 VIN2 VIN3 VCC3V VSB3V	: +47 C : +38 C : 2290 RPM : N/A : +0.872 V : +11.968 V : +3.344 V : +5.003 V : +3.328 V : +3.376 V	Config smart fan mode
VBAT Fan 1 Smart Fan Control Fan 2 Smart Fan Control	: +3.296 V [Disabled] [Disabled]	<pre>++: Select Screen 14: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save &amp; Exit ESC: Exit</pre>

## Fan1/Fan2 Smart Fan Control

This field enables or disables the smart fan feature. At a certain temperature, the fan starts turning. Once the temperature drops to a certain level, it stops turning again.

Aptio Advanced	Setup Utility – Copyright (C) 2012 American	Megatrends, Inc.
Native PCIE Enable	[Disabled]	PCI Express Native Support Enable/Disable. This feature is only available in Vista.
		<pre>++: Select Screen 14: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save &amp; Exit ESC: Exit</pre>

## **Platform Misc Configuration**

PCI Express Native Support Enable/Disable. This feature is only available in vista.

Intel<sup>®</sup> Smart Connect Technology

Aptio Setup L Advanced	Jtility – Copyright (C) 2012 Amer	ican Megatrends, Inc.
ISCT Configuration	[Disabled]	Enable/Disable ISCT Configuration
		<pre>++: Select Screen fl: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save &amp; Exit ESC: Exit</pre>
Version 2.15	5.1229. Copyright (C) 201 <u>2</u> Americ	an Megatrends, Inc.

Enable/Disable ISCT configuration

#### **Serial Port Console Redirection**

Aptio Setup Utility - Advanced	Copyright (C) 2012 American	Megatrends, Inc.
Advanced COMO (Disabled) Console Redirection COM1(Pci BusO,DevO,FuncO) (Disabled) Console Redirection Serial Port for Out-of-Band Manageme Windows Emergency Management Service Console Redirection Console Redirection Settings	Port Is Disabled Port Is Disabled nt/ s (EMS) [Enabled]	Console Redirection Enable or Disable. ++: Select Screen fl: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults
		F4: Save & Exit ESC: Exit
Version 2.15.1229. Co	pyright (C) 2012 American Mo	egatrends, Inc.

#### **Console Redirection**

This item allows users to enable or disable console redirection for Microsoft Windows Emergency Management Services (EMS).

## **Out-of-Band Mgmt Port**

Select the port for Microsoft Windows Emergency Management Services (EMS) to allow for remote management of a Windows Server OS.

## **Terminal Type**

VT-UTF8 is the preferred terminal type for out-of-band management. The next best choice is VT100+ and then VT100. See above, in Console Redirection Settings page, for more Help with Terminal Type/Emulation.

# Intel<sup>®</sup> RC Drivers Version Detail

Aptio Setup Advanced	Utility – Copyright (C)	) 2012 American	Megatrends, Inc.
Intel CPU RC Version Intel SA RC Version Intel PCH RC Version Intel PPM RC Version Intel ACPI RC Version Intel DTS RC Version Intel IFFS RC Version Intel DPTF RC Version	1.7.0.0 1.7.0.0 1.7.0.0 1.7.0.0 1.7.0.0 1.0.0.0 1.7.0.0 1.0.0.0		<pre>++: Select Screen 11: Select Item Enter: Select +/-: Change Opt, F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save &amp; Exit ESC: Exit</pre>
Version 2.1	15.1229. Copyright (C) 2	2012 American Me	egatrends, Inc.

# **CPU PPM Configuration**

Aptio Setup Utility - Advanced	- Copyright (C) 2012 America	an Megatrends, Inc.
Advanced CPU PPM Configuration EIST Turbo Mode CPU C3 Report CPU C6 report CPU C7 report Configurable TDP Config TDP LOCK Long duration power limit Long duration maintained Short duration power limit ACPI T State	[Enabled] [Enabled] [Enabled] [Enabled] [TDP NOMINAL] [Disabled] 0 0 0 [Disabled]	Enable/Disable Intel SpeedStep ++: Select Screen 11: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit
Version 2.15.1229. (	Copyright (C) 2012 American	Megatrends, Inc.

IV32 Motherboard User Manual

SETTING	DESCRIPTION
EIST	CPU runs at its default speed if disabled; CPU speed is controlled by
EISI	the operating system if enabled.
Turbo Mode	This item allows users to enable or disable turbo mode.
Config TDP lock	Lock the config TDP control register
Long duration power limit	Long duration power limit in watts, 0 means use factory default.
Long duration maintained	Time window which the long duration power is maintained.
Short duration power limit	This item allows users to enable or disable CPU TDP lock function.
ACPI T state	This item allows users to enable or disable ACPI T state function.

## **DTS Configuration**

Aptio Setup Ut: Advanced	ility – Copyright (C) 2012 Am	erican Megatrends, Inc.
Sandybridge DTS Configuration	۱	Disabled: ACPI thermal
CPU DTS	[Disabled]	<pre>management uses EC reported temperature values. Enabled: ACPI thermal management uses DTS SMM mechanism to obtain CPU temperature values. Out of Spec: ACPI Thermal Management uses EC reported temperature values and DTS SMM is used to handle Out of Spec **: Select Screen fl: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save &amp; Exit ESC: Exit</pre>
Version 2.15.1	1229. Copyright (C) 2012 Amer	ican Megatrends, Inc.

## **CPU DTS**

This item allows users to select the ACPI thermal management uses EC reported temperature value function.

## 4.3 Chipset Configuration

This section allows you to configure and improve your system and allows you to set up some system features according to your preference.

Aptio Setup Utility — C Chipset	Copyright (C) 2012 American	Megatrends, Inc.
Intel PCH RC Version Intel PCH SKU Name Intel PCH Rev ID	1.7.0.0 HM76 04/C1	PCI Express Configuration settings
<ul> <li>PCI Express Configuration</li> <li>USB Configuration</li> <li>PCH Azalia Configuration</li> <li>BIOS Security Configuration</li> </ul>		
Board Capability Display Logic CLKRUN# Logic SB CRID	[SUS_PWR_DN_ACK] [Enabled] [Enabled] [Disabled]	
High Precision Event Timer Configurat High Precision Timer	ion [Enabled]	++: Select Screen ↑↓: Select Item Enter: Select +/-: Change Opt.
SLP_S4 Assertion Width Restore AC Power Loss	[4–5 Seconds] [Power Off]	F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit
Version 2.15.1229. Cop	oyright (C) 2012 American Me	egatrends, Inc.

#### **PCI Express Configuration**

Detail of PCI Express items.

## **USB** Configuration

Details of USB items.

#### **PCH Azalia Configuration**

Details of PCH azalia items.

#### **High Precision Timer**

Enables or disables the high precision timer.

#### SLP\_S4 Assertion Width

This item allows users to set a delay of sorts.

#### **Restore AC Power Loss**

This item allows users to select off, on and last state.

## **PCI Express Configuration**

Aptio Setup Utility - Chipset	Copyright (C) 2012 Amer	ican Megatrends, Inc.
PCI Express Configuration		Enable or disable PCI Express
PCI Express Clock Gating DMI Link ASPM Control DMI Link Extended Synch Control PCIE–USB Glitch W/A Subtractive Decode	[Enabled] [Enabled] [Disabled] [Disabled] [Disabled]	port.
<ul> <li>PCI Express Root Port 1</li> <li>PCI Express Root Port 2</li> </ul>		
<ul> <li>PCI Express Root Port 2</li> <li>PCI Express Root Port 3</li> <li>PCI Express Root Port 4</li> </ul>		
		→+: Select Screen
		Enter: Select
		F1: General Help
		F2: Previous Values F3: Optimized Defaults
		F4: Save & Exit FSC: Exit
Version 2.15.1229. C	opyright (C) 2012 Americ	an Megatrends, Inc.

SETTING	DESCRIPTION	
DCI Express Clock Cating	Enable or disable PCI Express clock gating for each root	
PCI Express Clock Gating	port.	
DMIL intr ASDM Control	The control of active state power management on both NB	
DWI LINK ASPM Control	side and SB side of the DMI link.	
DMI Link Extended Synch Control	The control of extended synch on SB side of the DMI link.	
	PCIe-USB glitch W/A for bad USB device connected behind	
PCIE-USB Glich W/A	PCIE/PEG port.	
Subtractive Decode	Enable or disable PCI Express subtractive decode.	
	This item allows users to enable or disable the PCI Express	
PCI Express Kool Port 1~/	Root Port.	

#### **USB** Configuration

Aptio Setup Utility - Chipset	Copyright (C) 2012 American	Megatrends, Inc.
USB Configuration		Enable or disable XHCI
XHCI Pre-Boot Driver ×HCI Mode HS Port #1 Switchable HS Port #2 Switchable HS Port #3 Switchable HS Port #4 Switchable ×HCI Streams	[Enabled] [Smart Auto] [Enabled] [Enabled] [Enabled] [Enabled] [Enabled]	
EHCI1	[Enabled]	
EHC12	[Enabled]	
USB Ports Per-Port Disable Control	[Disabled]	<pre>fl: Select Screen fl: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save &amp; Exit ESC: Exit</pre>
Version 2.15.1229. Co	pyright (C) 2012 American M	legatrends, Inc.

#### **XHCI Pre-Boot Driver**

This item allows user to enable or disable XHCI Pre-boot driver.

#### **XHCI Mode**

This item allows user to enable or disable XHCI Mode.

## EHCI 1/2

Enables or disables the EHCI controller.

#### **USB Ports pre-port Disable Control**

This item allows users to enable or disable each USB port individually.

## **PCH Azalia Configuration**

Aptio Setup Utility - Chipset	Copyright (C) 2012 American	Megatrends, Inc.
PCH Azalia Configuration Azalia Azalia Docking Support Azalia PME Azalia Internal HDMI Codec Azalia HDMI codec Port B Azalia HDMI codec Port C	[Auto] [Disabled] [Disabled] [Enabled] [Enabled] [Enabled]	Control Detection of the Azalia device. Disabled = Azalia will be unconditionally disabled Enabled = Azalia will be unconditionally Enabled Auto = Azalia will be enabled if present, disabled otherwise.
		<pre>++: Select Screen fl: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save &amp; Exit ESC: Exit</pre>
Version 2.15.1229. Co	pyright (C) 2012 American M	legatrends, Inc.

This item allows user to enable or disable azalea device.

## **BIOS Security Configuration**

Aptio Setup Utility - Chipset	- Copyright (C) 2012 American	n Megatrends, Inc.
BIOS Security Configuration		Enable or disable SMI lockdown.
SMI Lock BIOS Lock GPIO Lock BIOS Interface Lock RTC RAM Lock	[Disabled] [Disabled] [Disabled] [Enabled] [Enabled]	++: Select Screen 14: Select Item Enter: Select
		<pre>+/-: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save &amp; Exit ESC: Exit</pre>
Version 2.15.1229.	Copyright (C) 2012 American M	Megatrends, Inc.

Enable or disable SMI/BIOS/GPIO/BIOS interface/RTC RAM Lock.

## System Agent Bridge Name

Aptio Setup Utili Chipset	ty – Copyright (C) 2012 f	American Megatrends, Inc.
System Agent Bridge Name System Agent RC Version VT-d Capability	IvyBridge 1.7.0.0 Supported	Check to enable VT-d function on MCH.
VT-d CHAP Device (B0:D7:F0) Thermal Device (B0:D4:F0) Enable NB CRID BDAT ACPI Table Support C-State Pre-Wake ► Graphics Configuration	[Enabled] [Disabled] [Disabled] [Disabled] [Disabled] [Enabled]	
<ul> <li>DMI Configuration</li> <li>NB PCIE Configuration</li> <li>Memory Configuration</li> <li>Memory Thermal Configuration</li> <li>GT - Power Management Control</li> </ul>		<pre>++: Select Screen f4: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save &amp; Exit ESC: Exit</pre>
	9. Copyright (C) 2012 Ame	erican Megatrends, Inc.

This item allows users to enable or disable VT-d.

# **Graphic Configuration**

Aptio Setup Utility - Chipset	Copyright (C) 2012 American	Megatrends, Inc.
Graphics Configuration IGFX VBIOS Version IGFX Frequency Graphics Turbo IMON Current Primary Display Internal Graphics GTT Size Aperture Size DVMT Pre-Allocated DVMT Total Gfx Mem Gfx Low Power Mode Graphics Performance Analyzers LCD Control	2137 350 MHz 31 [Auto] [Auto] [2MB] [256MB] [64M] [256M] [Enabled] [Disabled]	Graphics turbo IMON current values supported (14-31) 
Version 2.15.1229. Co	pyright (C) 2012 American M	egatrends, Inc.

SETTING	DESCRIPTION
Duimon Disulon	This item allows users to select which graphics controller to use
Primary Display	as the primary boot device.
Internal Graphics	This item allows users to enable or disable IGD.
GTT Size	This item allows users to select GTT size.
Aperture Size	This item allows users to select aperture size.
DYMT Dro Allocated	This item allows users to select DVMT pre-allocated memory
DVM1 Pre-Allocated	size.
DVMT Total Gfx Mem	This item allows users to select DVMT total memory size.
Cfr. Low Dower Mode	This item allows users to enable or disable IGD low power
GIX Low Power Mode	mode.
Cuarkia Daufannan a Analuman	This item allows users to enable or disable graphic performance
Graphic Performance Analyzers	analyzer function.

## **NB PCIe Configuration**

Aptio Setup Utility — ( Chipset	Copyright (C) 2012 American	Megatrends, Inc.
NB PCIe Configuration PEGO – Gen X PEGO ASPM Enable PEG Detect Non-Compliance Device De-emphasis Control PEG Sampler Calibrate	Not Present [Auto] [Auto] [Disabled] [-3.5 dB] [Auto]	Configure PEGO BO:D1:FO Gen1–Gen3
Swing Control Gen3 Equalization Gen3 Eq Phase 2 PEG Gen3 Root Port Preset Value for PEG Gen3 Endpoint Preset Value each PEG Gen3 Endpoint Hint Value each La Gen3 Eq Preset Search PEG Link Disabled Fast PEG Init RXCEM Loop back PETE Gen3 RVETLEN Setting	[Full] [Enabled] [Auto] each Lane Lane ane [Disabled] [Disabled] [Enabled] [Disabled]	<pre>++: Select Screen fl: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values E3: Ontimized Defaults</pre>
Version 2.15.1229. Co	oyright (C) 2012 American M	F4: Save & Exit ESC: Exit egatrends, Inc.

## PEG0 - Gen x

Select PEG0 speed.

#### **Enable PEG**

This item allows users to enable or disable PEG always.

## **PEG Sampler Calibrate**

This item allows users to enable or disable PEG sampler calibrate function.

## **Memory Information**

Aptio Setup Utility - Chipset	Copyright (C) 2012 American	Megatrends, Inc.
Memory Information	<b>^</b>	Select DIMM timing profile that should be used.
Memory RC Version	1.7.0.0	
Memory Frequency	1333 Mhz	
Total Memory	2048 MB (DDR3)	
DIMM#0	2048 MB (DDR3)	
DIMM#2	Not Present	
CAS Latency (tCL)	9	
Minimum delay time		
CAS to RAS (tRCDmin)	9	
Row Precharge (tRPmin)	9	
Active to Precharge (tRASmin)	24	
XMP Profile 1	Not Supported	
XMP Profile 2	Not Supported	**: Select Screen
DIMM profile	[Default DIMM profile]	Foton: Solect
Memory Erequency Limiter		+/-: Change Ont
FCC Support	[Fnabled]	F1: General Heln
Max TOLUD	[Dunamic]	F2: Previous Values
NMode Support	[Auto]	F3: Ontimized Defaults
Memory Scrambler	[Enabled]	F4: Save & Exit
MRC Fast Boot	[Enabled]	ESC: Exit
Force Cold Reset	[Enabled]	
DIMM Exit Mode	[Fast Exit]	
Power Down Mode	[PPD]	

# 4.4 **Boot Setting**

Aptio Setup Utility – Main Advanced Chipset <mark>Boot</mark> Secu	Copyright (C) 2012 American rity Save & Exit	Megatrends, Inc.
Boot Configuration Setup Prompt Timeout Bootup NumLock State	1 [0n]	Number of seconds to wait for setup activation key. 65535(0xFFFF) means indefinite
Quiet Boot Fast Boot	[Disabled] [Disabled]	waiting.
CSM16 Module Version	07.69	
GateA2O Active Option ROM Messages INT19 Trap Response	[Upon Request] [Force BIOS] [Immediate]	
Boot Option Priorities Boot Option #1 Boot Option #2 Boot Option #3 Hard Drive BBS Priorities ▶ CSM parameters	[JetFlashTranscend 8] [UEFI: JetFlashTrans] [UEFI: Built-in EFI]	<pre> ++: Select Screen  1↓: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save &amp; Exit ESC: Exit</pre>
Version 2 15 1229 - Co	nuridht (P) 2012 American M	eratrends Inc

SETTING	DESCRIPTION
Satur Duarunt Timoant	This item allows you to change number of seconds to wait for setup activation
Setup Prompt Timeout	key.
	This allows you to determine the default state of the numeric keypad. By
Destary Name Leals State	default, the system boots up with NumLock on wherein the function of the
Bootup NumLock State	numeric keypad is the number keys. When set to Off, the function of the
	numeric keypad is the arrow keys.
	If this option is set to Disabled, the BIOS display normal POST messages. If
Quiet Boot	Enabled, an OEM Logo is shown instead of POST messages.
East Dast	Enables/Disables boot with initialization of a minimal set of devices required to
Fast Boot	launch active boot option. Has no effect for BBS boot options.
	UPON REQUEST - GA20 can be disabled using BIOS services. ALWAYS -
GateA20 Active	do not allow disabling GA20; this option is useful when any RT code is
	executed above 1MB.
OptionROM Messages	Set display mode for Option ROM. Options are Force BIOS and Keep Current.
INT19 Trap Response	This item allows option ROMs to trap interrupt 19
Boot Option #1 \ #2 \ #3	Selects the boot sequence of the device.
Hard Drive BBS Priorities	Set the order of the legacy devices in this group.

#### **CSM Parameters**

Aptio Setup Utility - Boot	- Copyright (C) 2012 American	Megatrends, Inc.
Launch CSM Boot option filter Launch PXE OpROM policy Launch Storage OpROM policy Launch Video OpROM policy Other PCI device ROM priority	[Enabled] [UEFI and Legacy] [Do not launch] [Legacy only] [Legacy only] [UEFI OpROM]	This option controls if CSM will be launched ++: Select Screen fl: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit
Version 2.15.1229. (	Copyright (C) 2012 American M	legatrends, Inc.

IV32 Motherboard User Manual

SETTING	DESCRIPTION
Launch CSM	This option controls if CSM will be launch.
Boot option filter	This option controls what devices system can boot to.
Launch PXE OpROM policy	Controls the execution of UEFI and legacy PXE OpROM.
Launch Storage OpROM policy	Controls the execution of UEFI and legacy storage OpROM.
Launch Video OpROM policy	Controls the execution of UEFI and legacy video OpROM.
Other BCI device BOM priority	For PCI device than Network, mass storage or video defines which
Other FGI device ROW phonity	OpROM to launch.

## 4.5 Security Setup

This section allows you to configure and improve your system and allows you to set up some system features according to your preference.

Aptio Setup Utility – Main Advanced Chipset Boot Secu	Copyright (C) 2012 American rity Save & Exit	Megatrends, Inc.
Password Description		Set HDD Password
If ONLY the Administrator's password then this only limits access to Setu only asked for when entering Setup. If ONLY the User's password is set, is a power on password and must be e boot or enter Setup. In Setup the Us have Administrator rights. The password length must be in the following range: Minimum length	is set, o and is then this ntered to er will	
Maximum lengtn	20	++: Select Screen ↑↓: Select Item
Administrator Password		Enter: Select
User Password		+/−: Change Opt. F1: General Help F2: Previous Values
HDD Security Configuration: P0:TOSHIBA MK16		F3: Optimized Defaults F4: Save & Exit ESC: Exit
Version 2.15.1229. Co	pyright (C) 2012 American Mo	egatrends, Inc.

#### **Administrator Password**

Set Setup Administrator Password.

#### **User Password**

Set User Password.

## HDD 0: FUJITSU MHY2

Set the HDD password.

IV32 Motherboard User Manual

## 4.6 Save & Exit

Aptio Setup Utili Main Advanced Chipset Boot	ty – Copyright (C) 2012 American Security Save & Exit	Megatrends, Inc.
Save Changes and Exit Discard Changes and Exit Save Changes and Reset Discard Changes and Reset Save Options Save Changes Discard Changes Restore Defaults Save as User Defaults Restore User Defaults Boot Override JetFlashTranscend 8GB 1100 UEFI: JetFlashTranscend 8GB 1100 UEFI: Built-in EFI Shell	Save & Exit Setup Save configuration and exit? Yes No	<pre>Exit system setup after saving the changes.  +: Select Screen 4: Select Item nter: Select /-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save &amp; Exit ESC: Exit</pre>
Version 2.15.1229. Copyright (C) 2012 American Megatrends, Inc.		

#### Save Changes and Exit

Exit system setup after saving the changes.

#### **Discard Changes and Exit**

Exit system setup without saving any changes.

#### Save Changes and Reset

Reset the system after saving the changes.

#### **Discard Changes and Reset**

Reset system setup without saving any changes.

#### **Save Changes**

Save Changes done so far to any of the setup options.

#### **Discard Changes**

Discard Changes done so far to any of the setup options.

#### **Restore Defaults**

Restore/Load Defaults values for all the setup options.

#### Save as User Defaults

Save the changes done so far as User Defaults.

#### **Restore User Defaults**

Restore the User Defaults to all the setup options.

# Service / Update

# **Official Website**

The relevant information about IV32 including the latest news and downloads will be presented in the website below: <u>http://www.winmate.com.tw/BoxPc/EmbeddedSpec.asp?Prod=05\_0156</u> Please go there to obtain further details of IV32 Motherboard.

# **Company Information**

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