IFC INDUSTRIAL BOX PC User manual

Disclaimer

Our company reserves the right to make changes to this manual without prior notice in the event of any subsequent product modifications.

We are not responsible for any direct, indirect, intentional, or unintentional damage or potential hazards caused by improper installation, misuse, or usage beyond the specified limits.

Before purchasing, please consult your distributor to ensure that the product's performance meets your requirements.

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1 Product introduction

The SM09 is a fanless industrial computer equipped with an Intel Core i3/i5/i7 processor and DDR4 SO-DIMM memory. It supports dual displays, dual SSD storage, and features a wide voltage input range of 9-36V. With its compact, fanless design and high computing performance, it is widely used in factory automation, system monitoring, self-service terminals, wind power monitoring, environmental monitoring, coal mine monitoring, mechanical equipment, and oil drilling applications.

1.1 Package content

Please ensure that the following items are included together before powering on and using. If any of the following items is missing or damaged, please contact your sales representative immediately.

Packing list:

BOX PC Power adapter 2.5-inch hard drive bracket Screw Optional accessories: WIFI module 3G/4G module

Ordering information

	Intel® Core i3-6157U, 2 Cores, 4 Threads, Base 2.4 GHz, 3 MB Cache, Fanless
	Intel® Core i5-7287U, 2 Cores, 4 Threads, Base 3.3 GHz, Turbo 3.7 GHz, 4 MB Cache, Fanless
	Intel® Core i7-7560U, 2 Cores, 4 Threads, Base 2.4 GHz, Turbo 3.8 GHz, 4 MB Cache, Fanless
	Intel® Core i5-8259U, 4 Cores, 8 Threads, Base 2.2 GHz, Turbo 2.8 GHz, 6 MB Cache, Fanless
CPU Optiona	Intel® Core i7-8569U, 4 Cores, 8 Threads, Base 2.8 GHz, Turbo 4.7 GHz, 8 MB Cache, Fanless
·	Intel® Core i5-10310U, 4 Cores, 8 Threads, Base 1.7 GHz, Turbo 4.4 GHz, 6 MB Cache, Fanless
	Intel® Core i7-10610U, 4 Cores, 8 Threads, Base 1.8 GHz, Turbo 4.9 GHz, 8 MB Cache, Fanless
	Intel® Core i7-10810U, 6 Cores, 12 Threads, Base 1.1 GHz, Turbo 4.9 GHz, 12 MB Cache,
	Fanless
	Intel® Core i5-1155G7, 4 Cores, 8 Threads, Configurable TDP-up Base Frequency 2.5 GHz,
	Configurable TDP-down Base 1.0 GHz, Turbo 4.5 GHz, 8 MB Cache, Fanless

	Intel® Core i7-1195G7, 4 Cores, 8 Threads, Configurable TDP-up Base 2.9 GHz,
	Configurable TDP-down Base 1.3 GHz, Turbo 5 GHz, 12 MB Cache, Fanless

1.2 Product specification

PC								
CPU	Core i3/i5/i7 CPU							
Memory	DDR4 SODIMM x2, max 32GB							
Display	HDMI, VGA							
Network	2x 1GbE RJ45 Intel i210+i219-V or 2x 2.5GBE RJ45 I225-V							
I/O	2 x USB2.0, 4 x USB3.0							
	4 x DB-9 (4 of them Suports RS485/ RS422/ RS232)							
	1 x PS/2							
	1 x GPIO (7 input, 7 output)							
	1 x Power LED, 1 x HDD LED							
	1 x Power Button, 1 x Reset Button, 1 x Clear CMOS							
	button 1 x Audio Line-out, 1 x Audio Mic-in							
	1 x 3pin Power phoenix, SupportW 9-36V DC,							
	1 x Dip switch, support AT/ATX boot mode							
	selection 2x Antenna port, for WIFI/3G/4G,							
	1 x Phoenix Terminal for Remote Switching							
Storage 1 x MSATA								
	1 x HDD/SSD (2.5 " hard disk)							
	1 x M.2(Support for NVME: 2240,2260,2280 The default value is 2280)							
Expansion Slot	1x Mini-PCIe full card (with SIM card holder), support 3G/4G							
	module 1x Mini-PCIe half card, support WIFI Bluetooth							
	······································							
Other	Support hardware reset (256 level, 0-255 sec)							
	One-button restore							
Operation System	Windows® 7/8/10/11, WES 7/10, LINUX							
Power Supply								
Working voltage	DC 9 ~ 36 V							
Operating Environ	Operating Environment							
Operating temperature	-20°Cto 70°C							
Storage temperature	-30°Cto +80°C							
Storage humidity	10~95% @30 °C, non-condensing							
Enclosure								
Material	Aluminum Alloy							
Mounting	Wall mounting、Desk							
Dimension	249 x 150 x 86mm							

1.3 Product view

Front view



Rear view



1.4 Interface description

The following table describes the functions of various I/O interfaces.

Front view	position	Description
	1	COM1~4(RS232/422/485)
	2	ATX (Press the power button to turn on) AT (Auto Power On When Connected to Power)
3 5 8 10	3	USB1,USB2,PS/2
	4	Line out
	5	Mic in
	6	Reset button
COMI SECONAL SECONAL CPTI	7	DB25 print port
	8	Clear CMOS button Press and hold for 5 seconds. The BIOS restores the default value
	9	Remote Switch Interface

|--|

Rear view	position	Description
	1	GPIO
	2	COM5(RS232) COM6(RS232)
GPI 76 5 4 3 2 1 5V	3	USB3,4,LAN1
	4	USB5,6,LAN2
	5	HDMI,VGA
7	6	DC-IN
	7	Antenna interface for WIFI/3G/4G

2 Installation mode

2.1 Internal installation

Memory, hard disk, Wifi, 4G and other equipment installation

Internal view	position	Description
	1	LPT
	2	2.5-inch hard disk port
	3	M.2 (Supports Nvmeprotocol)
	4	4G
	5	mSATA
	6	WiFi
	7	SIM
	8	DDR4 SO-DIMM x 2

2.2 Dimensions

Unit:MM



3 IO Interface Definition

3.1 COM interface

Up to six serial ports can be supported, and the following is a list of the operating modes supported by each serial port:

serial port operating mode	COM1	COM2	СОМЗ	COM4	COM5	COM6
RS232	support	support	support	support	support	support
RS485	support	support	support	support	unsupported	unsupported
RS422	support	support	support	support	unsupported	unsupported

Note:

1.COM5,6 are 5-wire serial ports. (TXD / RXD /GND/RTS/CTS)

2. By default, COM1~6 are factory set to RS232 mode.

COM1~4 pin signal definition:



		DB9 Pin Name								
Mode	Pin1	Pin2	Pin3	Pin4	Pin5	Pin6	Pin7	Pin8	Pin9	
RS485	DATA -	DATA +								
RS422	TX+	TX-	RX+	RX-						
RS232	DCD#	RXD	TXD	DTR#	GND	DSR#	RTS#	CTS#	RI	
COM5,6 pin signal definition:										

	DB9 Pin Name									
Mode	Pin1	Pin2	Pin3	Pin4	Pin5	Pin6	Pin7	Pin8	Pin9	
RS232		RXD	TXD		GND		RTS#	CTS#		

3.2 GPIO Interface

The PIN of GPIO1 is defined as follows



address assignment、Base Address=0x500h

PIN	code	IO Address	initial level	orientations	Output Driving Capability
1	+5V	-	-	-	-
3	GPI1	0xA06.bit0	+5V	import	
5	GPI2	0xA06.bit1	+5V	import	
7	GPI3	0xA06.bit2	+5V	import	
9	GPI4	0xA06.bit3	+5V	import	
11	GPI5	0xA06.bit4	+5V	import	
13	GPI6	0xA06.bit5	+5V	import	
15	GPI7	0xA06.bit6	+5V	import	
2	GND	-	-	-	-
4	GPO1	0xA07.bit4	0V	exports	35mA
6	GPO2	0xA07.bit5	0V	exports	35mA
8	GPO3	0xA07.bit6	0V	exports	35mA
10	GPO4	0xA07.bit7	0V	exports	35mA
12	GPO5	0xA04.bit6	0V	exports	35mA
14	GPO6	0xA04.bit7	0V	exports	35mA
16	GPO7	0xA03.bit0	0V	exports	35mA

3.3 COM1~4 Working Mode Setting

Step1

Step2

Power up the machine, turn it on and press the **Delete** key to enter the **BIOS** setup interface and navigate to the following path:

Advanced – SIO MISC Configuration – COM1 MODE Select RS232/422/485 option;

Advanced	– Copyright (C) 2019 Ame
PCB Version	[Ver B(WDT)]
Watch Dog Timer	[Disabled]
COM1 Mode COM2 Mode COM3 Mode COM4 Mode	[RS232] [RS232] [RS232] [RS232]
	COM1 Mode RS232 RS485 RS422

After setting the BIOS options, press the F10 key and select [YES] in the pop-up dialog box to save the settings and exit.

3.4 GPIO Settings

GPIO address assignment、Base Address=0x500h 1,8-way GPIO GPIO0~GPIO7 register address:

NO.	GPIO0	GPIO1	GPIO2	GPIO3	GPIO4	GPIO5	GPIO6	GPIO7
add	0xA06.bit0	0xA06.bit1	0xA06.bit2	0xA06.bit3	0xA06.bit4	0xA06.bit5	0xA06.bit6	0xA06.bit7

2, GPIO

Set the port direction in BIOS (Input, Output): GPIO0~3 Default Output, GPIO4~7 Default Input

BIOS Setup Path: Advanced SIO MISC Configuration GPIO Mode

GPIO Port Access

Output port access:

Use the **outportb()** function to output a byte of data directly to a specified port, to make the corresponding GPO port output a low level, write 0 to the corresponding port, for example, the following example is to make GPO1 output a low level:

TEMP=inportb(0x50c); Read the contents of port 0x50c first

TEMP=TEMP&0xfe; Set bit0 of port 0x50c to 0.

outportb(0x50c,TEMP); Write data to port

To make the corresponding GPO port output a high level, write 1 to the corresponding port, for example, the

following example is to make GPO1 output a high level:

TEMP=inportb(0x50c); Read the contents of port 0x50c first

TEMP=TEMP|0x01 ; Set bit0 of port 0x50c to 1. outportb(0x50c,TEMP); Write data to port

Input port access:

Use the **inportb()** function to read a byte from the port and then take the corresponding **bit** against the table above.

3.5 Watch Dog

#define SIO_CONFIG_INDEX 0x2E #define SIO_CONFIG_DATA 0x2F

```
void WatchDogTimer(UINT16 TimerValue) // 1 < TimerValue < 65535 , Unit = Second
{</pre>
```

// Enter Configuration Mode. loWrite8(SIO_CONFIG_INDEX, 0x87); loWrite8(SIO_CONFIG_INDEX, 0x01); loWrite8(SIO_CONFIG_INDEX, 0x55); loWrite8(SIO_CONFIG_INDEX, 0x55);

//=======// loWrite8(SIO_CONFIG_INDEX, 0x07); loWrite8(SIO_CONFIG_DATA, 0x07);

//========// loWrite8(SIO_CONFIG_INDEX, 0x72);

IoWrite8(SIO_CONFIG_DATA, 0x90); //Enable WDT

IoWrite8(SIO_CONFIG_INDEX, 0x74); IoWrite8(SIO_CONFIG_DATA, (UINT8)((TimerValue & 0xFF00)>>8)); //MSB

IoWrite8(SIO_CONFIG_INDEX, 0x73);IoWrite8(SIO_CONFIG_DATA , (UINT8)(TimerValue & 0x00FF));//LSB

}

void DisableWdt()

{

// Enter Configuration Mode. loWrite8(SIO_CONFIG_INDEX, 0x87); loWrite8(SIO_CONFIG_INDEX, 0x01); loWrite8(SIO_CONFIG_INDEX, 0x55); //========// IoWrite8(SIO_CONFIG_INDEX, 0x07); IoWrite8(SIO_CONFIG_DATA, 0x07);

IoWrite8(SIO_CONFIG_INDEX, 0x72); IoWrite8(SIO_CONFIG_DATA , 0x00); //Disable WDT

IoWrite8(SIO_CONFIG_INDEX, 0x74); IoWrite8(SIO_CONFIG_DATA, 0x00); //MSB

IoWrite8(SIO_CONFIG_INDEX, 0x73); IoWrite8(SIO_CONFIG_DATA, 0x00); //LSB

```
}
```

4 BIOS function

4.1 UEFI Introduction

UEFI (Unified Extensible Firmware Interface: Standard Extensible Firmware Interface) is a new generation of computer firmware that replaces the traditional BIOS. UEFI firmware is stored in the flash memory of the motherboard, and its main functions include: initializing the system hardware, setting the working status of each system component, adjusting the working parameters of each system component, diagnosing the function of each system component and reporting faults, providing the hardware operation control interface to the upper software system, and booting the operating system. UEFI provides a menu-type man-machine interface for users to configure system parameters to make the system work stably and reliably and improve the overall system performance. Improper or even incorrect UEFI parameter Settings will greatly reduce the system performance, making the system work unstable, or even unable to work properly.

4.2 UEFI parameter Settings

When the system is powered on and powered on normally, you can see a message that enters UEFI setup program. At this time (not available at other times), press the key specified in the prompt (usually the key or <F2> key) to enter UEFI setup program. All UEFI Settings (except date and time) changed by UEFI setup program are saved in the flash memory of the system, and the contents will not be lost even if the mainboard battery is removed or the power is lost. The date and time It is stored in the CMOS memory of the system. The CMOS memory is powered by the battery, and its contents will not be lost even if the external power supply is cut off, unless the CMOS contents are cleared. Attention! UEFI setting directly affects the PC performance. Incorrect UEFI setting may cause damage to the PC and may even cause the PC to fail to boot. Use built-in default UEFI Settings to restore the PC. Because our company is constantly developing and updating UEFI, its setting interface will be slightly different. The following screen is for your reference. It may not be the same as the UEFI setting program you are currently using.

4.3 UEFI basic function Settings

When the SETUP program starts, you can see the main screen as follows:

Aptio Setup Utility – Main Advanced Chipset Security	Copyright (C) 2013 American Boot Save & Exit	Megatrends, Inc.
BIOS Information Project Version Build Date and Time	ITCA4 V1.04 x64 07/01/2019 17:16:03	Choose the system default language
Processor Information Intel(R) Celeron(R) CPU J1900 @ 1.99	GHz	
Memory Information Total Memory	4096 MB (DDR3L)	
System Language	[English]	
System Date System Time	[Mon 10/14/2019] [17:27:48]	
Access Level	Administrator	Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F9: Optimized Defaults F10: Save & Exit ESC: Exit
Version 2.16.1242. Co	pyright (C) 2013 American Mo	egatrends, Inc.

4.3.1 Main

System Date

Select this option to set the current date with < + > / < - >. It is expressed in month/day/year format. The appropriate range for each item is: Month/ month (1-12), Date/ day (01-31), Year/ year (Max. 2099), Week/ week (Mon. ~ Sun.).

System Time

Select this option to set the current time with < + > / < - >. It is expressed in the format of hour/minute/second. Reasonable ranges for each item are: Hour/ hour (00-23), Minute/ minute (00-59), Second/ second (00-59). PS: The RTC time of the 6,7,8 generation Core will be adjusted according to the OS.

Advanced

Aptio Setup Utility – Copyright (C) 2013 American Main Advanced Chipset Security Boot Save & Exit	Megatrends, Inc.
 ACPI Settings Lan PXE Config SIO MISC Configuration IT8786 Super IO Configuration Wakeup Configuration CPU Configuration IDE Configuration Network Stack Configuration CSM Configuration USB Configuration 	System ACPI Parameters.
	<pre> ++: Select Screen f↓: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F9: Optimized Defaults F10: Save & Exit ESC: Exit</pre>
Version 2.16.1242. Copyright (C) 2013 American M	egatrends, Inc.

ACPI Settings

Aptio Setup Utility – Advanced	Copyright (C) 2013 Americ	an Megatrends, Inc.
ACPI Settings		Enables or Disables BIOS ACPI Auto Configuration.
Enable ACPI Auto Configuration	[Disabled]	
Enable Hibernation ACPI Sleep State Lock Legacy Resources	[Enabled] [S3 (Suspend to RAM)] [Disabled]	
		<pre>++: Select Screen 11: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F9: Optimized Defaults F10: Save & Exit ESC: Exit</pre>
Version 2.16.1242. C	opyright (C) 2013 American	Megatrends, Inc.

Lan PXE Configuration

Aptio S Advanced	Setup Utility – Copyright (C) 2013 Ameri	can Megatrends, Inc.
PXE Boot	[Disabled]	Enable or Disable
		<pre> f↓: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values</pre>
		F9: Optimized Defaults F10: Save & Exit ESC: Exit
Versic	on 2.16.1242. Copyright (C) 2013 America	n Megatrends, Inc.
SIO MISC Configuration		
Aptio S	Setup Utility – Copyright (C) 2013 Ameri	can Megatrends, Inc.

Advanced		
Watch Dog Timer COM1 Mode COM2 Mode COM3 Mode COM4 Mode GPO1 Ouput Value GPO2 Ouput Value GPO3 Ouput Value GPO3 Ouput Value GPO5 Ouput Value GPO6 Ouput Value GPO7 Ouput Value	[Disabled [RS232] [RS232] [RS232] [Low] [Low] [Low] [Low] [Low] [Low]	Enable or Disable WDT ++: Select Screen 11: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F9: Optimized Defaults F10: Save & Exit ESC: Exit
V	ersion 2.16.1242. Copyright (C) 2013 American Megatrends, Inc.

Watch Dog Timer

When set to Enable, you can set minutes (seconds)

IT8786 Super IO Configuration

IT8786 Super 10 Configuration IT8786 Serial Port 1 Configuration IT8786 Serial Port 2 configuration Serial Port 4 Configuration Serial Port 5 Configuration Serial Port 6 Configuration Serial Port 5 Configuration Serial Port 6 Configuration Serial Port 5 Configuration Serial Port 5 Configuration Serial Port 6 Configuration Serial Port 6 Configuration Version 2.15.1242. Copyright (C) 2013 American Megatrends, Inc. Wake up Configuration Actio Setup Utility - Copyright (C) 2013 American Megatrends, Inc. Make up Configuration Actio Setup Utility - Copyright (C) 2013 American Megatrends, Inc. Make system from 85 (Disabled) Fibels of the Set Thema Actio Setup Utility - Copyright (C) 2013 American Megatrends, Inc. Make system from 85 (Disabled) Fibels of the Set Thema Set Thema Set Thema Height Done Set Thema Set Thema Set Thema Hake system from 85 (Disabled) Fibels of the Set Thema Set Thema Set Thema Set Thema Set Thema Set Thema Set Thema Set Thema Set Thema Set Thema<	Advanced	– Copyright (C) 2013 America	n Megatrends, Inc.
H: Select Item Enter: Select H: General Heip F2: Frevious Values F3: Optimized Defaults F1: General Heip F2: Frevious Values F3: Optimized Defaults F1: Select Item E0: Save & Exit Enable on disable System wake on alarm event. Wake up Configuration Kake system from S5 [Disabled] #t: Select Screen H: Select Item Enter: Select tri: General Heip F2: Previous Values F3: Optimized Defaults F1: General Heip F2: Previous Values F3: Optimized Defaults F3: Optimized Defaults F3	IT8786 Super IO Configuration Super IO Chip • Serial Port 1 Configuration • Serial Port 2 Configuration • Serial Port 3 Configuration • Serial Port 4 Configuration • Serial Port 5 Configuration • Serial Port 6 Configuration	IT8786	Set Parameters of Serial Port 1 (COMA)
Version 2.16.1242. Copyright (C) 2013 American Megatrends, Inc. Make up Configuration Make system from S5 [Disabled] Hake s			<pre>f4: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F9: Optimized Defaults F10: Save & Exit ESC: Exit</pre>
Actio Setup Utility - Copyright (C) 2013 American Megatrends, Inc. Advanced Makeup Configuration Enable or disable System wake on alarm event. Wake system from S5 [Disabled] **: Select Screen 11: Select Item Enter: Select V-Change Opt. F1: General Help F2: Previous Values F9: Optimized Defaults F10: Save & Exit ESC: Exit	Version 2.16.1242.	Copyright (C) 2013 American	Megatrends, Inc.
Wakeup Configuration Enable or disable System wake on alarm event. Wake system from S5 [Disabled] #:: Select Screen 1: Select Item II: Select Item Enter: Select :: Change Opt. Fi: General Help F2: Previous Values F9: Optimized Defaults F10: Save & Exit ESC: Exit	Aptio Setup Utility	– Copyright (C) 2013 America	n Megatrends, Inc.
Wake system from S5 [Disabled] **: Select Screen 11: Select Item Enter: Select Item Enter: Select */-: Change Opt. F1: General Help F2: Previous Values F9: Optimized Defaults F10: Save & Exit ESC: Exit			
Version 2 16 1242 Conumidat (C) 2013 American Medataende Toc	Wakeup Configuration		Enable or disable System wake on alarm event.
	Wakeup Configuration Wake system from S5	[Disabled]	Enable or disable System wake on alarm event.

CPU Configuration

Aptio Setup Utility - Advanced	Copyright (C) 2013 American	Megatrends, Inc.
CPU Configuration		Socket specific CPU Information
 Socket 0 CPU Information CPU Thermal Configuration 		
CPU Speed 64-bit	2001 MHz Supported	
Active Processor Cores Limit CPUID Maximum Execute Disable Bit Hardware Prefetcher Adjacent Cache Line Prefetch Intel Virtualization Technology Power Technology	[A11] [Disabled] [Enabled] [Enabled] [Enabled] [Energy Efficient]	<pre> ++: Select Screen t↓: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F9: Optimized Defaults F10: Save & Exit ESC: Exit</pre>

Version 2.16.1242. Copyright (C) 2013 American Megatrends, Inc.

IDE Configuration

Aptio Setup Utility Advanced	, — Copyright (C) 2013 А	merican Megatrends, Inc.
IDE Configuration		Enable ∕ Disable Serial ATA
Serial-ATA (SATA) SATA Test Mode	[Enabled] [Disabled]	
SATA Speed Support SATA ODD Port SATA Mode	[Gen2] [No ODD] [AHCI Mode]	
Serial-ATA Port O SATA PortO HotPlug	[Enabled] [Disabled]	
Serial—ATA Port 1 SATA Port1 HotPlug	[Enabled] [Disabled]	
SATA PortO kimtigo SSD 12 (128.0GB)		Enter: Select +/–: Change Opt. F1: General Help
SATA Port1 Not Present		F2: Previous Values F9: Optimized Defaults F10: Save & Exit ESC: Exit
Version 2.16.1242.	. Copyright (C) 2013 Ame	rican Megatrends, Inc.

Network Stack Configuration

Aptio Setup U Advanced	tility – Copyright (C) 2013 Americ	an Megatrends, Inc.
Network Stack Ipv4 PXE Support Ipv6 PXE Support PXE boot wait time	[Enabled] [Enabled] [Enabled] 0	Enable/Disable UEFI Network Stack
		<pre>**: Select Screen f4: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F9: Optimized Defaults F10: Save & Exit ESC: Exit</pre>

CSM Configuration

Aptio Setup Utility – Advanced	Copyright (C) 2013 American	Megatrends, Inc.
Compatibility Support Module Config	uration	Enable/Disable CSM Support.
CSM Support	[Enabled]	
CSM16 Module Version	07.74	
GateA2O Active Option ROM Messages INT19 Trap Response	[Upon Request] [Force BIOS] [Immediate]	
Boot option filter	[UEFI and Legacy]	
Option ROM execution		
Storage Video Other PCI devices	[UEFI] [Legacy] [Legacy]	 fl: Select Screen fl: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F9: Optimized Defaults F10: Save & Exit ESC: Exit
Version 2.16.1242. Co	opyright (C) 2013 American M	egatrends, Inc.

USB Configuration

Aptio Setup Utility – Advanced	Copyright (C) 2013 American	Megatrends, Inc.
USB Configuration		Enables Legacy USB support.
USB Module Version	8.11.01	support if no USB devices are connected. DISABLE option will
USB Devices: 1 Drive, 1 Keyboard, 2 Mice, 1 Point, 3 Hubs		keep USB devices available only for EFI applications.
Legacy USB Support XHCI Hand–off EHCI Hand–off USB Mass Storage Driver Support	[Enabled] [Enabled] [Disabled] [Enabled]	
USB hardware delays and time-outs:		
USB transfer time-out	[20 sec]	++: Select Screen
Device reset time-out	[20 SEC]	I↓: Select Item Enter: Select
pevice home, -ah derag	[huto]	+/-: Change Opt.
Mass Storage Devices:		F1: General Help
Generic Flash Disk 8.07	[Auto]	F2: Previous Values F9: Optimized Defaults F10: Save & Exit ESC: Exit
Version 2.16.1242. Co	opyright (C) 2013 American M	egatrends, Inc.

4.3.2 Chipset

Main Adv	Aptio Setup anced Chipset	Utility – Security	Copyright (Boot Save	C) 2013 f & Exit	American	Megatrends, Inc.
▶ North Brid ▶ South Brid	ge ge					North Bridge Parameters
						<pre>++: Select Screen f↓: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F9: Optimized Defaults F10: Save & Exit ESC: Exit</pre>
	Version 2.	16.1242. Co	pyright (C)	2013 Ame	erican Me	egatrends, Inc.

North Bridge

Aptio Setup Utility - Chipset	Copyright (C) 2013 American	n Megatrends, Inc.
LCD Control Primary IGFX Boot Display Active LFP LCD Panel Type Backlight Control LVDS Channel Select LVDS Mode Brightness Mode Setting Panel Color Depth	[VBIOS Default] [LVDS] [1024x768] [PWM Normal] [Singe Channel] [VESA] [External] [24 Bit]	Select the Video Device which will be activated during POST. This has no effect if external graphics present. Secondary boot display selection will appear based on your selection. VGA modes will be supported only on primary display
		<pre>++: Select Screen 1↓: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F9: Optimized Defaults F10: Save & Exit ESC: Exit</pre>
Version 2.16.1242. C	opyright (C) 2013American M	Megatrends, Inc.
South Bridge Aptio Setup Utility -	Copyright (C) 2013 America	n Megatrends, Inc.
Chipset		
 USB Configuration PCI Express Configuration 		USB Configuration Settings
		<pre>++: Select Screen fl: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F9: Optimized Defaults F10: Save & Exit ESC: Exit</pre>
Version 2.16.1242. C	opyright (C) 2013 American M	Megatrends, Inc.

USB Configuration

Aptio Setup Utility - Chipset	Copyright (C) 2013 American	Megatrends, Inc.
Aptio Setup Utility - Chipset	Copyright (C) 2013 American [Disabled] [On] [Auto] [Enabled] [Enabled] [Enabled] [Enabled] [Enabled] [Enabled] [Enabled]	<pre>Megatrends, Inc. Enable/Disable USB OTG Support ++: Select Screen 14: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F9: Optimized Defaults</pre>
		F10: Save & Exit ESC: Exit

Version 2.16.1242. Copyright (C) 2013 American Megatrends, Inc.

PCI Express Configuration

Aptio Setup Utility Chipset	y – Copyright (C) 2013	3 American Megatrends, Inc.
PCI Express Configuration PCI Express Port 0 Hot Plug Speed Extra Bus Reserved Reseved Memory Reseved Memory Alignment Prefetchable Memory Prefetchable Memory Alignment Reserved I/0	[Enabled] [Enabled] [Auto] 1 10 1 10 1 10 1	▲ Enable or Disable the PCI Express Port 0 in the Chipset.
PCI Express Port 1 Hot Plug Speed Extra Bus Reserved Reseved Memory Reseved Memory Alignment Prefetchable Memory Prefetchable Memory Alignment Reserved I/O PCI Express Port 2	[Enabled] [Enabled] [Auto] 0 10 10 1 1 4 [Enabled]	<pre>++: Select Screen fl: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F9: Optimized Defaults F10: Save & Exit ESC: Exit</pre>
Hot Plug Speed Extra Bus Reserved	[Enabled] [Gen 1] O	
version 2.16.1242.	. Copyright (C) 2013 R	HMerican Megatrenus, Inc.

4.3.3 BOOT

Aptio Setup Utility	– Copyright (C) 2013 American Boot	Megatrends, Inc.
Boot Option #1 Boot Option #2	[PO: kimtigo SSD 128] [Generic Flash Disk]	Sets the system boot order ++: Select Screen 1: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F9: Optimized Defaults F10: Save & Exit ESC: Exit
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Save Changes and Reset

This is used to save the changes and restart (F10).

Discard Changes and Reset

This is used to discard the changes and restart.