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General Introduction

IFC-BOX2600 User Manual

1.1 Introduction

The IFC-BOX2600 fanless Embedded Box Computer is an ideal, application-ready system platform solution. All electronics are protected in a compact, sealed, aluminum case for easy embedding in the customer's own housing, or as a stand-alone application where space is limited and the environment harsh.

The solid, sealed aluminum case offers vibration and dust resistance while also providing a passive cooling solution. The IFC-BOX2600 provides system integrators with a turn key **aold tiven** satile application development path without breaking the bank or missing time-to-market deadlines.

IFC-BOX2600 is designed as a palm-size fanless embedded system and occupies only 203 x 56.5 mm . The rugged, cast aluminum case not only provides great protection from EMI, shock/vibration, cold and heat, but also passive cooling for quiet, fanless operation. IFC-BOX2600 meets demands by offering up to 1 x VGA, 2 x Giga LAN, 4 x USB 2.0 ports, arCOM ports all packed into a compact rugged unit and powered by an Intel® Atom[™] N2600/ N2800 processor. IFC-BOX2600 also supports both 2.5" SATA HDD and C-FAST SSD

for storage. Besides, IFC-BOX2600 is a low-power-consumption system and it is powered by DC

9-36 V input. The IFC-BOX2600 provides for diversified application fields.

1.2 Features

Key features

Extremely compact, sealed construction with fanless operation, supports Intel® Atom[™] N2600 1.6 GHz / N2800 1.86 GHz CPU

Ultra slim palm-size system with 2.5" SATA HDD/C-FAST SSD support

Low power consumption system

Support VESA/desk/DIN-rail mountings

1.3 Specifications

1.3.1 General

CPU: Intel® Atom™ Dual Core Processor N2600 1.6 GHz/N2800 1.86 GHz

System Chipset: Intel® NM10 Express Chipset

BIOS: AMI 16 Mbit Flash BIOS

System Memory: On board 2GByte DDR3 1066GHz SDRAM

Watchdog Timer: 255-level interval timer, setup by software

Serial Ports:

- 2 RS-232/485 BIOS select, support RS-485 auto flow control and TI ISO7221C 4 kV isolation protection
- 6 RS232 port (ESD protection: air gap ±15 kV, contact ±8 kV), 4KV Surge protection(only TX/RX)

USB:

- 4 x USB 2.0 compliant Ports

Audio: High Definition Audio Codec - Realtek ALC662, with Line-in, Line-out

Expansion Interface: Support up to 1 x full size Mini-PCIe

Storage:

- Support C-FAST SSD device
- SATA: Support 1 x 2.5" SATAII HDD

1.3.2 Integrated Graphics Controller

- Contains Intel graphics processing GMA3600 core
- Directx 10.1 compliant Pixel Shader* V3.0 and OGL 3.0
- 400 MHz(N2600/N2650) graphic core frequency
- Video RAM shared with system memory
- Display ports: VGA output
 VGA: analog RGB display output up to resolution 1920 x 1200 @ 60Hz for N2000 serial
- The Intel® Atom[™] Processor N2000 series supports full MPEG2 (VLD/ iDCT/MC), WMV, Fast video Composing, HW decode/ acceleration for MPEG4 Part 10 (AVC/H.264) & VC-1; 720p60, 1080i60, 1080p@24 up to 20 Mps
- MPEG4 part2 does not utilize Next Generation Intel® Atom[™] Processor based (Desktop and Mobile) Platform H/W
- Hardware Decode assist for Flash Decode for Adobe 11.0 and newer versions

1.3.3 Ethernet

Chipset: Intel® 82583V

Speed: 10/100/1000 Mbps, support Wake on LAN

Interface: Up to 2 x RJ45

Standard: Compliant with IEEE 802.3, IEEE 802.3u, IEEE 802.3x, IEEE 8023y,IEEE 802.ab.

1.3.4 Electrical Specifications

- Power supply type: AT / ATX jumper select
- Power management: ACPI 3.0, APM
- Power requirement: +9V-36V DC Wide range voltage input. Support power input reverse direction protection, recoverable fuse.
- Input Voltage: DC 9-36V
- Power Adapter: AC to DC 12V/5A, 60W
- Power consumption:

Modo	Voltage	N2800(Fanless)		N2600(Fanless)	
Mode	Ū	Current	Power	Current	Power
Idle mode	+12V	0.94	10.92	0.74	8.88
Power on	+12V	1.21	14.52	1.09	13.08
Max load	+12V	1.23	14.76	0.88	10.56

Power consumption test conditions:

 Test conditions: Windows®XP Professional, Burntest ver5.3,RENICE X1 C-FAST 16G SSD

 Idle mode: Measure the current value when system is on windows mode and without running any program

 Power on - Boot: Measure the maximum current value between system power on and boot-up to OS

- Max load: Measure the maximum current value when system is under maximum load (CPU with top speed, RAM & Graphic with full loading)
- RTC battery: Lithium 3 .3V/210mAH CR2032 battery

1.4 OS Support

It supports Win7, Win XP(Not support 3D and Media Hardware Decode), Win CE 6.0, and Linux Ubuntu 10.04 UP

1.5 OTHER

- Deep sleep S4 mode
- Reset/Power bottom/Power LED/HDD LED/Com state LED
- 12-bit programmable GPIO (General Purpose Input/Output) with 3.3V tolerance
- Watchdog Timer: Output system reset, programmable counter from 1-255 min/sec
- Security data area: 64 bytes on EEPROM for customer saving sensitive data

1.6 Environmental Specifications

Operating temperature:

-20 ~ 60° C (With extended temperature SSD/C-Fast devices)

- 0 ~50° C (With N2600 CPU and standard temperature HDD/SSD/C-Fast devices)
- 0~45° C (With N2800 CPU and standard temperature HDD/SSD/C-Fast devices)

Relative humidity: 95% @ 40°C (non-condensing)

Storage temperature: -40 ~ 85°C (-40 ~ 185°F)

Vibration loading during operation:

- With SSD/C-FAST: 3 Grms, IEC 60068-2-64, random, 5 ~ 500 Hz, 1 hr/axis
- Shock during operation:
- With C-FAST SSD 30 G, IEC 60068-2-64, half sine, 11 ms duration

Safety: UL,CB,CCC

EMC: CE, FCC Class A

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1.7 Mechanical Specifications



Figure 1.7 IFC-BOX2600 mechanical dimension drawing



H/W Installation

This chapter explains the setup procedures of the IFC-BOX2600 hardware, including instructions on setting jumpers and connecting peripherals, switches and indicators. Be sure to read all safety precautions before you begin the installation procedure.

2.1 Jumpers

2.1.1 Jumper Description

Cards can be configured by setting jumpers. A jumper is a metal bridge used to close an electric circuit. It consists of two metal pins and a small metal clip (often protected by a plastic cover) that slides over the pins to connect them. To close a jumper, you connect the pins with the clip. To open a jumper, you remove the clip. Sometimes a jumper will have three pins, labeled 1, 2 and 3. In this case you would connect either pins 1 and 2, or 2 and 3.



The jumper settings are schematically depicted in this manual as follows.



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.

3

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

Warning! To avoid damaging the computer, always turn off the power supply before setting jumpers.



How to verify Pin1 of the jumper?

1. Please check the M/B carefully, where there is a mark of "1" or white thick line, there is Pin1.

2. Look into the pad on the back side of the M/B, generally the square side of the pad is Pin1.

2.1.2 Jumper Setting

JVDD1	LVDS LCD Working Voltage Select			
Part Number				
<u>Description</u>	PinHeader 2x2Pin 2.0mm DI	P & Jumper 2.0mm		
Setting	Function			
J				
(1-2)	+3.3V(Default)			

The operating voltage of LCD in the market are generally 3.3V and 5V, so please read the LCD Datasheet carefully before setting right operating voltage, otherwise the LCD panel may be burned or not work normally. Any damage result from this is NOT covered in free warranty range.

JVDD2	DI Working Voltage Select			
Part Number				
<u>Description</u>	Description PinHeader 2x2Pin 2.0mm DIP & Jumper 2.0mm			
Setting	Function			
(1-2)	+5V(Default)			
(3-4)	+12V			
Pin1 of DI conne	ctor working voltage select, max 1A			

JVDD3	DO Working Voltage Select	
Part Number		
<u>Description</u>	PinHeader 2x2Pin 2.0mm DIP	<u>& Jumper 2.0mm</u>
Setting	Function	
(1-2)	+5V(Default)	
(3-4)	+12V	
Pin1 of DO conne	ector working voltage select, max 1A	

JCMOS_AT1	CMOS Clear/AT & ATX Power Mode Select			
Part Number				
<u>Description</u>	PinH	leader 2x2Pin 2.0mm DIP & Ju	mper 2.0mm	
Setting	Funct			
	OFF	KEEP CMOS(Default)		
(3-4)	ON	CLEAR CMOS		
(1.2)	ON	ATX (Default)		
(1-2)	OFF	AT		

How to clear CMOS: (Must follow steps as below)

If any of these states happens: such as CMOS data corruption, administrator or password of the BIOS forgotten, not able to boot-up due to wrong setting of the CPU frequency in BIOS, or the CPU/Memory need to clear the CMOS setting, then you can use this jumper to clear CMOS, and BIOS will reset to default settings.

- Pin1 and Pin2 short circuit (default): Normal Condition;
- Pin2 and Pin3 short circuit: Clear CMOS setting;

Clear CMOS setting and load default settings:

1. Turn-off the system power;

2. Use jumper to make Pin2 and Pin3 short circuit, waiting for 3-5sec., then reset the jumper as Pin1 and Pin2 short circuit.

3. Turn-on the system power

4. If it is the wrong setting of CPU frequency in BIOS, then please press F2 to enter BIOS setting menu once the system reboot.

5. Set the CPU operating speed to default value or a reasonable value;

6. Save & Exit the BIOS menu.

Power Mode Select:

AT power mode: Boot-up automatically when power-on.

2.1.3 IFC-BOX2600 I/O Indication



Figure 2.1.3 IFC-BOX2600 I/O Indication

2.2 External I/O Connectors & Pin Assignments

Power Ir	put Connector	(PWR1)	
Part Num	nber		
Descripti	on	Terminal MB1.5/VF3.5	5/2-G 2Pin 3.5mm 90° Green DIP
		GND/DC	
Pin	Signal	Pin	Signal
1	GND	2	DC
IFC-BO	X2600 comes with	a 3.5mm Phoenix hea	ader that carries 9-36VDC external power
input, inappro	priate connection (inverted connection)	of the power will burn the M/B. The bracket
makes t	the power connecto	or very secure.	
DI (DI1)	abor	GPIO Pin-Header	
Part Nur			9 C 9Din 2 Emm 00° Croon DID
Descripti	on		8-G 8Pin 3.5mm 90° Green DIP
		VCC 12 14 16	
			□.
		I <mark>1</mark> I3 I5 (GND
Pin	Signal	Pin	Signal
1	VCC(5/12V Option	n) 2	GPI9
3	GPI10	4	GPI12
5	GPI13	6	GPI14
7	GPI22	8	GND
1. User	can refer to our exa	mple for GPI setting. WI	hen it is defined as "input", it can receive 3.3V

1. User can refer to our example for GPI setting. When it is defined as "input", it can receive 3.3V or 5V level signal.

2. User can select Pin1 5/12V@1A output by jumper JVDD2

DO (D01)

GPIO Pin-Header

Part Number

Description

VCC	02	04	0	6
C	01 (03	05	GND

Pin	Signal	Pin	Signal
1	VCC	2	GPO9
3	GPO10	4	GPO12
5	GPO13	6	GPO14
7	GPO22	8	GND

Terminal MB1.5/V3.5/8-G 8Pin 3.5mm 90° Green DIP

1. User r can refer to our example for GPO setting. When it is defined as "output", it can out out 5V@24mA level signa.

2. User can select Pin1 5/12V@1A output by jumper JVDD3

<u>VGA (VGA1)</u>	VGA Port with Back I/O Panel
Part Number	
<u>Description</u>	VGA Port D-Sub 15Pin Female DIP



Pin	Signal	Pin	Signal
1	RED	2	GREEN
3	BLUE	4	NC
5	GND	6	GND
7	GND	8	GND
9	NC	10	GND
11	NC	12	DATA
13	HSYNC	14	VSYNC
15	DCLK		

VGA: analog RGB display output up to resolution 1920 x 1200 @ 60Hz

<u>USB1,USB2</u>	USB2.0/1.1 Port with Back I/O panel
Part Number	
<u>Description</u>	Double USB Port AF90° 12Pin DIP



Pin	Signal	Pin	Signal
1	USB1_VCC	2	USB_DATA-
3	USB_DAT+	4	GND
5	USB1_VCC	6	USB_DATA-
7	USB_DAT+	8	GND
9	CHASSIS	10	CHASSIS
11	CHASSIS	12	CHASSIS

- 1. Provides four USB (Universal Serial Bus) 2.0 Ports Plug and Play . The USB interface complies with high speed USB specification Rev. 2.0 which supPorts 480 Mbps transfer rate, and are fuse protected.
- 2. The USB interface can be disabled in the system BIOS setup.
- 3. To better meet our clients' application, +5V doesn't do limited 500mA current protection, so every USB output can satisfy max. 1A current demand.

SIM1		SIM Card Socket			
Part Nu	ımber				
<u>Description</u>		SIM Card Socket C	SIM Card Socket Clamshell-Type 2x3Pin SMD		
		C3 C2 C1	C7 C6 C5		
Pin	Signal	Pin	Signal		
1	SIM_PWR	2	SIM_RST#		
3	SIM_CLK	4	GND		
5	SIM_VPP	6	SIM_DATA		

Support 3G UIM card, Pop-up holder

LAN1,LAN2

RJ45 Port with Back I/O panel

Part Number Description

RJ45 Port with Active/link state LED



Pin	Signal	Pin	Signal
1	GND	2	LAN1_MDI0P
3	LAN1_MDI0N	4	LAN1_MDI1P
5	LAN1_MDI1N	6	LAN1_MDI2P
7	LAN1_MDI2N	8	LAN1_MDI3P
9	LAN1_MDI3N	10	CHASSIS
11	+3.3V_LAN1	12	LAN1_LINK#
13	LAN1_ACT#	14	+3.3V_LAN1
15	CHASSIS	16	CHASSIS
17	NC	18	NC
19	LAN1TCT(LAN21V9)	20	LAN1TCTG

IFC-BOX26000des one RJ45 LAN interface connector which is fully compliant with IEEE 802.3u 10/100/1000 Mbps CSMA/CD standards. It is equipped with 82583V and support Wake on LAN. The Ethernet port uses a standard RJ-45 jack connector with LED indicators on the front side to show Active/Link status and Speed status Intel 82583V PCI-E 10/100/1000 Mb/s Ethernet, suporting wake on LAN and PXE.

COM1 DB9 COM Port with Back I/O Panel

Part Number Description

COM Port D-Sub 9Pin Male DIP



Pin	Signal	Pin	Signal
1	NNDCD1#	2	NRX1
3	NTX1	4	NDTR1#
5	GND	6	NDSR1#
7	NRTS1#	8	NCTS1#
9	NNRI1#		

1. RS232 RX/TX signal support 4KV surge protection;

2. Max. traffic rate: 115200bps

COM3,COM4	DB9 COM Port with Back I/O Panel
Part Number	
Description	COM Port D-Sub 9Pin Male DIP



Pin	Signal	Pin	Signal
1	NNDCD1#_485#	2	NRX1_485
3	NTX1	4	NC
5	GND	6	NC
7	NC	8	NC
9	NC		

1. By BIOS setup RS232/485;

2. When select RS485, then Pin1 & Pin2 are RS485 output, support 4KV electromagnetic isolation and automatically data flow control.

3. Olny RX/TX/GND 3 line RS232 port

4. Olny RX/TX/GND 3 line RS232 signal support 4KV surge protection;

5. Max. traffic rate: 115200bps

COM2,COM5~COM8	DB9 COM Port with Back I/O Panel
Part Number	
Description	COM Port D-Sub 9Pin Male DIP



Pin	Signal	Pin	Signal
1	NC	2	NRX1
3	NTX1	4	NC
5	GND	6	NC
7	NC	8	NC
9	NC		

1. Olny RX/TX/GND 3 line RS232 port

2. RS232 RX/TX signal support 4KV surge protection;

3. Max. traffic rate: 115200bps

AUDIO	(AUDIO1)	AUDIO Connector	
Part Nu	mber		
Descript	tion	AUDIO Jack Green	<u>ı Vertical 5Pin DIP</u>
		Ω	
		\bigcirc	
Pin	Signal	Pin	Signal
IFC-BC	DX2600 offers	stereo audio ports by two	3.5 ear phone jack connectors of Line_out and
Line_ir	n. The audio chi	p controller is ALC892 which	ich is compliant with the Azalea standard.

MIC (M	IC1)	MIC Connector
Part Nu	mber	
Descrip	tion	MIC Jack Green Vertical 5Pin DIP
		\bigcirc
Pin	Signal	Pin Signal
IFC-BC	OX2600 off	rs stereo audio ports by two 3.5 ear phone jack connectors of Line_out and
Line_ir	n. The audi	chip controller is ALC662 which is compliant with the Azalea standard.

Com_LED	(LED1,LED2,LED3,LED4,LED5)
Part Number	
Description	LED Group 2Row Green DIP-4P
	C7 C5 C3 C1 PWR
	0000
	0000
	C8 C6 C4 C2 HDD
Pin Signal	Pin Signal

The LED is blinking when COM1-COM8 is transferring data; Vice versa.

Power ON/OFF Button	(PWR_SW1)
Part Number	
<u>Description</u>	Power Button LED PTCT-07-A 5P 7Pin DIP



IFC-BOX2000es with a Power On/Off button with LED indicators on the front side to show its On status (Green LED) and Off/Suspend status (Orange LED). Dual functions of Soft Power -On/Off (Instant off or Delay 4 Seconds), and Suspend are supported.

Reset Button	(SW2)
Part Number	
<u>Description</u>	Power Button DTSA-644 4Pin DIP
	RESET
	0
IFC-BOX266048 with	a RESET button.
CFAST (CFAST1)	CompactFlash TypeII Socket
Description	
<u> </u>	CFAST
Pin Signal	Pin Signal

Pin	Signal	Pin	Signal
1	GND	2	TX+
3	TX-	4	GND
5	RX+	6	RX-
7	GND	8	CDI
9	GND	10	TBD
11	TBD	12	TBD
13	TBD	14	GND
15	IO11	16	IO12
17	IO1	18	IO2
19	IO3	20	VCC33
21	VCC33	2 2	PGND
23	PGND	24	CDO
Stand	ard C-FAST SATAII socket		

19

MINI-PCIE1

Mini-PCle Connector

Part Number

Description Mini-PCIe Slot SD-8003-402 52Pin H6.7mm SMD



Pin	Signal	Pin	Signal
1	WAKE#	2	+3.3V_1
3	RSVD1	4	CND7
5	RSVD2	6	+1.5V_1
7	CLKREQ#	8	SIM_PWR
9	CND1	10	SIM_DATA
11	REFCLK-	12	SIM_CLK
13	REFCLK+	14	SIM_RST#
15	CND2	16	SIM_VPP
17	RSVD3	18	CND8
19	RSVD4	20	W_DISABLE#
21	CND3	22	PERST#
23	PER_N0	24	+3.3V_AUX
25	PER_P0	26	CND9
27	CND4	28	+1.5V_2
29	CND5	30	SMB_CLK
31	PET_N0	32	SMB_DATA
33	PET_P0	34	CND10
35	CND6	36	USB_D-
37	RSVD5	38	USB_D+
39	RSVD6	40	CND11
41	RSVD7	42	LED_WWAN#
43	RSVD8	44	LED_WLAN#
45	RSVD9	46	LED_WPAN#
47	RSVD10	48	+1.5V_3
49	RSVD11	50	CND12
51	RSVD12	52	+3.3V_2

Support PCI Express x1 bus Mini PCIE and USB device.

2.3 Peripheral Installation

2.3.1 HDD Installation (IFC-BOX2600 only)

1. Unscrew the bottom cover screws. (marked with "HDD")



BIOS Settings

IFC-BOX2600 User Manual

AMIBIOS has been integrated into many motherboards for over a decade. With the AMIBIOS Setup program, you can modify BIOS settings and control the various system features. Thi chapter describes the basic navigation of the IFC-BOX2600 BIOS setup screens.



Figure 3.1 Setup Program Initial Screen

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

3.1 Entering Setup

Turn on the computer and check for the "patch" code. If there is a number assigned to the patch code, it means that the BIOS supports your CPU. If there is no number assigned to the patch code, please contact an IFC application engineer to obtain an up-to-date patch code file. This will ensure that your CPU's system status is valid. After ensuring that you have a number assigned to the patch code, press and you will immediately be allowed to enter Setup.

3.2 Main Setup

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

Aptio Se Main	etup Utility – Copyrigh	: (C) 2011 Amer	rican Megatrends, Inc.	
Intel RC Version				
INTEL CEDHRVIEW INTEL MRC INTEL NM10 INTEL P-UINT	1.0.0-1 1.10 1.6.0-2 014			
INTEL IGFX VBIOS INTEL ACPI INTEL IFFS	1085 1.0.0-1 N/A			
			++: Select Screen ↑↓: Select Item Enter: Select	
			+/-: Change Opt. F1: General Help F2: Previous Values F3: Ontimized Defaults	
			F4: Save & Exit ESC: Exit	
Version	n 2.14.1219. Copyright	(C) 2011 Americ	can Megatrends, Inc.	

Figure 3.2 Main Setup Screen

The Main BIOS setup screen has two main frames. The left frame displays all the options that can be configured. Grayed-out options cannot be configured; options in blue can. 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.

3.2.1 System Time / System Date

Use this option to change the system time and date. Highlight System Time or System Date using the <Arrow> keys. Enter new values through the keyboard. Press the <Tab> key or the <Arrow> keys to move between fields. The date must be entered in MM/DD/YY format. The time must be entered in HH:MM:SS format.

3.3 Advanced BIOS Features Setup

Select the Advanced tab from the IFC-BOX2600 setup screen to enter the Advanced BIOS Setup screen. You can select any of the items in the left frame of the screen, such as CPU Configuration, to go to the sub menu for that item. You can display an Advanced BIOS Setup option by highlighting it using the <Arrow> keys. All Advanced BIOS Setup options are described in this section. The Advanced BIOS Setup screens is shown below. The sub menus are described on the following pages.



Figure 3.3 Advanced BIOS Features Setup Screen

3.3.1 PCI Subsystem Setting



Figure 3.3.1 PCI Subsystem Configuration Setting

3.3.2 ACPI Setting



Figure 3.3.2 ACPI Configuration Setting

3.3.3 CPU Configuration Setting



Figure 3.3.3 CPU Configuration Setting

- Max CPUID Value Limit
 - This item allows you to limit CPUID maximum value.

Execute-Disable Bit Capability

This item allows you to enable or disable the No-Execution page protection technology.

Hyper Threading Technology

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

3.3.4 SATA Configuration

natif navancea chipset	Utility – Copyright (C) 2011 American Boot Security Save & Exit	n Megatrends, Inc.
Legacy OpROM Support Launch PXE OpROM Launch Storage OpROM PCI Subsystem Settings ACPI Settings CPU Configuration USB Configuration SuperIO Configuration H/W Monitor Linux Debug PPM Configuration	[Disabled] [Disabled]	IDE Devices Configuration ++: Select Screen 14: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit
Version 2.	14.1219. Copyright (C) 2011 American	legatrends, Inc.
Aptio Setup Advanced	Utility – Copyright (C) 2011 American	n Megatrends, Inc.
SATA Port0 SATA Port1	Not Present Not Present	SATA Ports (0–3) Device Names if Present and Enabled.
SATA Controller(s)	[Enabled]	
Configure SATA as	[IDE]	
Misc Configuration for ha	rd disk	



SATA E Configuration

This item allows you to select Disabled / $\ensuremath{\mathsf{IDE}}$ / $\ensuremath{\mathsf{AHCI}}$

3.3.5 USB Configuration

Aptio Setup Utility – Main Advanced Chipset Boot Secu	Copyright (C) 2011 American nity Save & Exit	Megatrends, Inc.
Legacy OpROM Support Launch PXE OpROM Launch Storage OpROM PCI Subsystem Settings ACPI Settings CPU Configuration IDE Configuration USB Configuration SuperIO Configuration H/W Monitor Linux Debug PPM Configuration	[Disabled] [Disabled]	USB Configuration Parameters ++: Select Screen 14: Select Item Enter: Select +/-: Change Opt. F1: General Help
Version 2.14.1219. Co Aptio Setup Utility –	pyright (C) 2011 American M Copyright (C) 2011 American	F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit egatrends, Inc.
Advanced		
USB Configuration USB Devices: 1 Drive, 1 Keyboard		Enables Legacy USB support. AUTO option disables legacy support if no USB devices are connected. DISABLE option will
Legacy USB Support EHCI Hand-off	[Enabled] [Disabled]	only for EFI applications.
USB hardware delays and time-outs: USB transfer time-out Device reset time-out Device power-up delay	[20 sec] [20 sec] [Auto]	
Mass Storage Devices: KingstonDataTraveler 2.01.00	[Auto]	<pre>++: Select Screen 1↓: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit</pre>

Figure 3.3.5 USB Configuration

3.3.6 Super I/O Configuration

		Aptio Setup Utili	ty – Copyright (C) 2011 Ame	erican Megatrends, Inc.
	Main	Advanced <u>Chipset Boot</u>	Security Save & Exit	
	Legacy Launch Launch PCI Sul ACPI Se CPU Cor IDE Cor USB Cor SuperIO H/W Mor	OpROM Support PXE OpROM Storage OpROM osystem Settings ettings ofiguration ofiguration ofiguration of configuration bitor	[Disabled] [Disabled]	System SuperIO Chip Parameters.
•	· Linux I	Debug nfiguration		<pre>++: Select Screen 14: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit</pre>
		version 2.14.121	9. Copyright (C) 2011 Ameri	ican Megatrenos, inc.
		Aptio Setup Utili Advanced	ty – Copyright (C) 2011 Ame	erican Megatrends, Inc.
Γ	System	IO Configuration		#Kernel board SCH3114 COM1
Þ	Super SCH3110 SCH3110 SCH3110 SCH3110 SCH3110 SCH3110 Super SCH3110 SCH3110	IO Chip 4 COM1 Configure 4 COM2 Configure 4 COM3 Configure 4 COM3 Configure 4 COM4 Configure 4 COM4 Mode Selection IO Chip 4 COM5 Configure 4 COM6 Configure	SMSC SCH3114 [Enabled] [RS232] [Enabled] [RS232] SMSC SCH3114 [Enabled] [Enabled]	
	SCH311	4 COM7 Configure 4 COM8 Configure	[Enabled] [Enabled]	<pre>++: Select Screen fl: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit</pre>

Version 2.14.1219. Copyright (C) 2011 American Megatrends, Inc



++: Select Screen †4: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit

Version 2.14.1219. Copyright (C) 2011 American Megatrends, Inc



Figure 3.3.6 Super I/O Configuration

- Serial Port1- Port8 address
 This item allows you to select serial port1 ~ port8 of base addresses.

 Serial Port1- Port8 IRQ
 - This item allows you to select serial port1 ~ port8 of IRQ.
- Com3-Com4 RS232/RS485 Select
 This item allows you to select Com3-Com4 RS232/RS485 model

3.3.7 PC Health Status

	Boot Security Save & Exit	ican Megatrends, Inc.
Legacy OpROM Support Launch PXE OpROM Launch Storage OpROM PCI Subsystem Settings ACPI Settings CPU Configuration IDE Configuration SuperIO Configuration H/W Monitor Linux Debug PPM Configuration	[Disabled] [Disabled]	Monitor hardware status **: Select Screen fl: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit
	4.1219. Copyright (C) 2011 Americ	an Megatrends. Inc.
version 2.:		
Version 2.: Aptio Setup Advanced	Utility – Copyright (C) 2011 Amer	rican Megatrends, Inc.
Aptio Setup Advanced Pc Health Status CPU Temperature System Temperature SYS FAN Speed CPU FANO Speed VCC +5.0V +12V VTR Smart Fan	Utility - Copyright (C) 2011 Amer : +29 C : N/A : N/A : N/A : +3.26 V : +0.6 : +3.26 V [Enabled]	Enable or Disable smart fan control

Figure 3.3.7 PC Health status





3.3.8 PPM Configuration

Aptio Setup Main Advanced Chipset	Utility – Copyright (C) 2011 America Boot Security Save & Exit	n Megatrends, Inc.
Legacy OpROM Support Launch PXE OpROM Launch Storage OpROM PCI Subsystem Settings ACPI Settings CPU Configuration USB Configuration SuperIO Configuration H/W Monitor Linux Debug PPM Configuration	[Disabled] [Disabled]	PPM Configuration Parameters ★: Select Screen ↓: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit
Uppedan 0.	14 4040 - Danum Jakt (D) - 0044 - Amerikaan J	teretrende. Tre
Version 2.1	(4.1219. copyright (c) zoll Himerican (negatrenus, inc.
Aptio Setup Advanced	Utility – Copyright (C) 2011 America	n Megatrends, Inc.
Aptio Setup Advanced PPM Configuration	Utility – Copyright (C) 2011 America	Enable/Disable Intel SpeedStep
Aptio Setup Advanced PPM Configuration EIST CPU C state Report	Utility – Copyright (C) 2011 American [Enabled] [Disabled]	<pre>h Megatrends, Inc. Enable/Disable Intel SpeedStep ++: Select Screen 14: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit</pre>
Aptio Setup Advanced PPM Configuration EIST CPU C state Report	Utility - Copyright (C) 2011 American [Enabled] [Disabled]	<pre>h Megatrends, Inc. 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</pre>

Figure 3.3.8 PPM Configuration

EIST

When configuration is "Enabled", the M/B will auto-adjust operation frequency according to current CPU operation status, for power saving consideration.

This selection item also support the configuration of CPU sleep state, support max. Intel C6 mode.

3.4 Chipset Settings/HOST Bridge

Advanced	φ Utility – Copyright (C) 2011 Am	erican Megatrends, Inc.
PPM Configuration		Enable/Disable Intel SpeedStep
EIST CPU C state Report	[Enabled] [Disabled]	
Version 2	14 1219 Conucidat (C) 2011 Amer	++: Select Screen fJ: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit

Figure 3.4 Advanced Chipset Settings

3.4.1 Intel IGD Configuration



Figure 3.4.1 PPM Configuration

- This selection item mainly for display application configuration.
- IGFX--Boot Type is for configuration of boot-up main display:VGA/LVDS/VBIOS Default.

During POST process and DOS mode, only one display device can be chosen for display, otherwise, it won't work; And only after entering to Windows or Linux OS, it can support dual display (simultaneously or asynchronous display).

3.5 Chipset Settings/SOUTH Bridge

Main	Apt Advanced	io Setup Chipset	Utility – Boot Sec	Copyri writy	ght (C Save &) 2011 Exit	American	Megatrends, Inc.
Host Br South B	idge ridge							South Bridge Parameters ++: Select Screen 11: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit
	Ve	ersion 2.1	4.1219. 0	opyrigh	nt (C) ;	2011 A	merican M	egatrends, Inc.

Figure 3.5 Advanced Chipset Settings

3.5.1 NM10 Chip Configuration



Figure 3.5.1 NM10 Chip Settings

This selection item is for Audio/NM10 Chip integrated network card /SMBus configuration.

LAN controller

IFC-BOX2600 does Not apply Intel NM10 chipset built-in **Intel 82567V LAN controller**, **defthult** setting is "Disabled".

SMBUS Controller

Enables or disables the SMBUS controller.

3.5.2 PCI Expresss Port 0-Port 4 Configuration

Aptio Setup Utility - C Chipset	opyright (C) 2011 American	Megatrends, Inc.
NM10 Chip Setup PCI Express Root Port 0 PCI Express Root Port 1 PCI Express Root Port 2 PCI Express Root Port 3		PCI Express Root Port O Settings
DMI Link ASPM Control PCI-Exp. High Priority Port	[Enabled] [Disabled]	
High Precision Event Timer Configurat High Precision Timer	ion [Enabled]	
SLP_S4 Assertion Width Restore AC Power Loss	[1-2 Seconds] [Power Off]	<pre>++: Select Screen f1: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit</pre>
Version 2 14 1219 Cor	unight (C) 2011 American Me	egatrends Inc

Aptio Setu Chipset	o Utility – Copyright (C) 2011 America	n Megatrends, Inc.
PCI Express Port 0 Port 0 IDxAPIC Automatic ASPM URR FER NFER CER CTO SEFE SENFE SECE PME SCI Hot Plug Extra Bus Reserved Reseved Memory Reserved I/0	[Enabled] [Disabled] [Auto] [Disabled] [Disabled] [Disabled] [Disabled] [Disabled] [Disabled] [Disabled] [Disabled] [Enabled] [Disabled] [Disabled] 4	Enable / Disable PCI Express Root Port 0. +*: Select Screen 11: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit
Version 2	.14.1219. Copyright (C) 2011 American	Megatrends, Inc.



Aptio Setup Chipset	Utility – Copyright (C) 2011 Americ	an Megatrends, Inc.
PCI Express Port 1 Port 0 IOxAPIC Automatic ASPM URR FER NFER CER CTO SEFE SENFE SECE PME SCI Hot Plug	[Auto] [Disabled] [Auto] [Disabled] [Disabled] [Disabled] [Disabled] [Disabled] [Disabled] [Disabled] [Disabled] [Enabled] [Disabled]	Enable / Disable PCI Express Root Port 1.
Extra Bus Reserved Reseved Memory Reserved I/O	0 10 4	<pre>++: Select Screen fl: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit</pre>



Aptio Setup Chipset	Utility – Copyright (C) 2011 Americ	an Megatrends, Inc.
PCI Express Port 2 Port 0 IOxAPIC Automatic ASPM URR FER NFER CER CTO SEFE SENFE SECE PME SCI Hot Plug	[Auto] [Disabled] [Auto] [Disabled] [Disabled] [Disabled] [Disabled] [Disabled] [Disabled] [Disabled] [Disabled] [Disabled] [Enabled] [Disabled]	Enable / Disable PCI Express Root Port 2.
Extra Bus Reserved Reseved Memory Reserved I/O	0 10 4	<pre>++: Select Screen 14: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit</pre>



Aptio Setup Uti Chipset	ility – Copyright (C) 2011 A	American Megatrends, Inc.
PCI Express Port 3 Port O IDxAPIC Automatic ASPM URR FER NFER CER CTO SEFE SENFE SECE PME SCI	[Auto] [Disabled] [Auto] [Disabled] [Disabled] [Disabled] [Disabled] [Disabled] [Disabled] [Disabled] [Disabled] [Disabled]	Enable / Disable PCI Express Root Port 3.
Hot Plug Extra Bus Reserved Reseved Memory Reserved I/O	[Disabled] 0 10 4	<pre>++: Select Screen 11: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit</pre>
Version 2.14.1	1219. Copyright (C) 2011 Ame	erican Megatrends, Inc.

Figure 3.5.2 PCI Expresss Port Settings

- SB PCIE Ports Configuration
- Intel NM10 chipset support 4 PCI Express x 1 bus, in which PCIE Port 1和PCIE Port 2 are allocated to onboard LAN1 and LAN2

3.5.3 Restore AC Power LOSS Configuration

Aptio Setup Utility – Copyright (C) 2011 American Megatrends, Inc. Chipset				
 NM10 Chip Setup PCI Express Root Port 0 PCI Express Root Port 1 PCI Express Root Port 2 PCI Express Root Port 3 DMI Lipk ASPM Centrol 	Select AC power state when power is re-applied after a power failure.			
PCI-Exp. High Priorit High Precision Event High Precision Timer	Select Screen Select Item			
SLP_S4 Assertion Widt [1-2 Seconds] Restore AC Power Loss [Power Off]	Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit			
Version 2.14.1219. Copyright (C) 2011 Am	erican Megatrends, Inc. AB			

Figure 3.5.3 Restore AC Power LOSS Settings

Power OFF: After accidental power-off, the device won't automatically boot-up when powe r-on again.

Power ON: After accidental power-off, the device will automatically boot-up when power-o n again.

Last State: After accidental power-off, the device will recover to the state of the former stat e before power-off. i.e.: If the former state is "Power On", then the device will automatically boot-up when power-on again; if the former state is "Power off", then the device will remai n power-off when the power- on again.

3.5.4 BOOT Configuration



Figure 3.5.4 BOOT Configuration

3.6 Exit Option



Figure 3.6 Exit Option

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Save Changes and Exit

When you have completed system configuration, select this option to save your changes, exit BIOS setup and reboot the computer so the new system configuration parameters can take effect.

1. Select Exit Saving Changes from the Exit menu and press <Enter>. The following message appears: Save Configuration Changes and Exit Now? [Ok] [Cancel]

2. Select Ok or cancel.

3.6.1. Discard Changes and Exit

Select this option to quit Setup without making any permanent changes to the system configuration.

1. Select Exit Discarding Changes from the Exit menu and press <Enter>. The following message appears: Discard Changes and Exit Setup Now? [Ok] [Cancel]

- 1. Select Ok to discard changes and exit. Discard Changes
- 2. Select Discard Changes from the Exit menu and press < Enter>.

3.6.2. Load Optimal Defaults

The IFC-BOX2600 automatically configures all setup items to optimal settings when you select this option. Optimal Defaults are designed for maximum system performance, but may not work best for all computer applications. In particular, do not use the Optimal Defaults if your computer is experiencing system configuration problems. Select Load Optimal Defaults from the Exit menu and press <Enter>.

3.6.3. Load Fail-Safe Defaults

The IFC-BOX2600 automatically configures all setup options to fail-safe settings when you select this option. Fail-Safe Defaults are designed for maximum system stability, but not maximum performance. Select Fail-Safe Defaults if your computer is experiencing system configuration problems.

1. Select Load Fail-Safe Defaults from the Exit menu and press <Enter>. The following message appears: Load Fail-Safe Defaults? [OK] [Cancel]

2. Select OK to load Fail-Safe defaults.



S/W Introduction & Installation

IFC-BOX2600 User Manual

4.1 S/W Introduction

Szics provides all the drivers and services as bellow to ensure fast and smooth accomplishment of clients' project:

- Drivers for Windows®XP Professional, Windows7, Linux
- Windows®XP Embedded tailor service;
- Watchdog program example
- GPIO program example
- BIOS upgrade burning and curing service

4.2 Driver Install

There is a driver CD with the IFC-BOX2600 accessory, and all the driver programs are in it, please install the drivers and application programs after the OS installation to ensure the M/B can fully play the great performance. If you are using the upgraded version, we suggest to remove all the drivers and application programs of the old version before installing the new version. For more detailed information, please consult the H/W supplier.

4.2.1 Windows®XP Professional Driver Install

- Step1: Install Chipset driver, open Intel_Chipset_WinXP_infinst_autol folder, double click Setup to install
- Step2: Install Graphics driver, double click EMGD_CDV_1_15_1_GC_3278.exe to install
- Step3: Install audio driver, open Realtek_WDM_R270_WinX folder, double click Setup to install
- Step4: Install LAN driver, double click Intel 82583v_PRO2K3XP_32.exe to install

REMARK:

The display driver for Windows®XP Professional is tailored by using the software tool of Intel EMGD, and this driver program does NOT support 3D and media acceleration function.

4.2.2 Windows® 7 Driver Install

Step1: Install Chipset driver, open Intel_Chipset_Win7_infinst_autol folder, double click Setup
Step2: Install Graphics driver, double click Intel GMA3600_Win7_32_8.14.8.1083_PV.exe
Step3: Install audio driver, double click Vista_Win7_Win8_R270.zip
Step4: Install LAN driver, double click Intel 82583v_PRO2K3XP_32.exe to install

4.2.3 Windows Driver Upgrade

Chip manufacturers association regularly to upgrade its corresponding product drive, the user can access through the following links attention or update drive.

Intel Chipset driver upgrade:

http://downloadcenter.intel.com/Detail_Desc.aspx?agr=Y&DwnldID=20775&lang=eng&wa pkw=nm10

Intel Graphics driver upgrade:

http://downloadcenter.intel.com/Detail_Desc.aspx?agr=Y&DwnldID=21690&lang=eng&OS Version=Windows%207%20(32-bit)*&DownloadType=Drivers

Reltek HD audio driver upgrade:

http://www.realtek.com.tw/downloads/downloadsView.aspx?Langid=3&PNid=24&PFid=24 &Level=4&Conn=3&DownTypeID=3&GetDown=false

Intel 82583V LAN driver upgrade:

 $\label{eq:http://downloadcenter.intel.com/SearchResult.aspx?lang=ZHO&ProductFamily=%e4%bb} \end{tabular} \label{eq:http://downloadcenter.intel.com/SearchResult.aspx?lang=ZHO&ProductFamily=%e4%bb} \end{tabular} \label{eq:http://downloadcenter.intel.com/SearchResult.aspx?lang=ZHO&ProductFamily=%e4%bb} \end{tabular} \label{eq:http://downloadcenter.intel.com/SearchResult.aspx?lang=ZHO&ProductFamily=%e4%bb} \end{tabular} \end{tabular}$

4.2.4 Linux Driver Install

IFC-BOX2600 provides 2line onboard Intel82583 Giga LAN, since the kernel of Linux OS has not loaded Intel82583 Driver, so when we run Linux OS, we need set PCIE Port 0 and PCIE Port 1 as Disabled, and enter Linux OS to install Intel82583 Driver, then restart OS and set PCIE Port 0 and PCIE Port 1 as Enabled, only after that the LAN can work normally.(Refer to part 3.5.2 for PCI Express Configuration)

4.2.5 Linux Driver Upgrade

Chip manufacturers association regularly to upgrade its corresponding product drive, the user can access through the following links attention or update drive.

Intel Graphics driver upgrade:

https://01.org/linuxgraphics/downloads

Reltek HD audio driver upgrade:

http://www.realtek.com.tw/downloads/downloadsView.aspx?Langid=3&PNid=24&PFid=24 &Level=4&Conn =3&DownTypeID=3&GetDown=false

4.3 Windows®XP Embedded Service

IFC provides free service of Windows®XP Embedded tailor service.

4.4 Watchdog program example

A watchdog timer (abbreviated as WDT) is a hardware device which triggers an action, e.g. rebooting the system, if the system does not reset the timer within a specific period of time. The WDT program example provides developers with functions such as starting the timer, resetting the timer, and setting the timeout value if the hardware requires customized timeout values.

Please contact our service personnel for program example source code and packaging EXE executable file.

4.4.1 WDT Programming Model

WDT related registers, generally there are two frequently-used registers named as "WDT_TIME_OUT" and "WDT_VAL", detailed descriptions refer to bellow:

WDT_TME_OUT	Bit7: WDT countdown mode selection:				
	0: to countdown with minute;				
(I/O address 0x665 ,	1: to countdown with second;				
Default 0x00)	Bit [6:0]: Reserved bit, keep it as default value.				
	Bit [7:0] — 0x00: Stop countdown;				
	0x01: time-out value 1min./sec.;				
WDT VAL	0x02: time-out value 2min./sec.;				
_	0x03: time-out value 3min./sec.;				
(I/O address 0x666 ,					
Default 0x00)	0xFF: time-out value 255min./sec.;				
	This register is used for WDT time-out-value setting, write in a nonzero value, then WDT begins to countdown from this value.				

```
#include <stdio.h>
#include <dos.h>
void main()
{
    int value=0; int unit=0;
    printf("please input value (1~255) : ");
    scanf("%d",&value);
    printf("please input unit 0/1(0=seconds,1=minutes) : ");
    scanf("%d",&unit);
    outportb(0x647,0x0c);
    if(unit==0)
    {outportb(0x665,0x80);}
    else
    {outportb(0x665,0x00);}
    outportb(0x666,value);
```

4.5 GPIO program example

General Purpose Input/Output is a flexible parallel interface that allows a variety of custom connections. It allows users to monitor the level of signal input or set the output status to switch on/off a device. Our program example also provides Programmable GPIO, which allows developers to dynamically set the GPIO input or output status. Please contact our service personnel for program example source code and packaging EXE executable file.

4.5.1 Overview

This instruction is only applied to the CMS-B802 Motherboard with NM10 chipset. Altogether there are 12 sets GPIO on this M/B.

The level of input/output of all those 12 sets GPIO(GP9、GP10、GP12、GP13、GP14、GP22、GP28、GP33、GP34、GP36、GP38、GP39)are designed as 5VTTL.

}

Correspondence between GPIO interface and actual GPIO signal:

Output Type						
Interface S/N	1	2	3	4	5	6
GPIO Signal	GP28	GP33	GP34	GP36	GP38	GP39
Iutput Type						
Interface S/N	1	2	3	4	5	6
GPIO Signal	GP9	GP10	GP12	GP13	GP14	GP22

We don't recommend using those GPIO to directly drive devices which require comparatively large current (eg. Relay, Optocoupler etc..)

Besides, it also provides a 255sec./min. countdown WDT (Watch Dog Timer).

4.5.2 GPIO programming model

- A. Configure GPIO Output: Running application "GPIOOUT.EXE" to set these 12 GPIO as output. Please refer to "GPIOOUT.CPP" for reference code.
 - B. Configure GPIO as "High": Running application "HIGHGPIO.EXE" to set these 12 GPIO output as "High". Please refer to "HIGHGPIO.CPP" for reference code.
 - C. Configure GPIO as "Low": Running application "LOWGPIO.EXE" to set these 12 GPIO output as "Low". Please refer to "LOWGPIO.CPP" for reference code.

Remark:

During the configuration process of setting "Output High/Low", we can use multimeter or indicator to testify, or we can also check the status by running GETIO.

Configure GPIO Input: Running application "GPIOIN.EXE" to set these 12 GPIO as "Input". Please refer to "GPIOIN.CPP" for reference code.

Remark:

During the configuration process of setting "Input High/Low", we can check the status by running GETIO.

4.6 BIOS Service

The BIOS Flash utility allows customers to update the flash ROM BIOS version, or use it to back up current BIOS by copying it from the flash chip to a file on customers' disk. The BIOS Flash utility also provides a command line version for fast implementation into customized applications.

SZICS also provides BIOS curing service for clients.

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4.6.1 BIOS Upgrade Tool Instruction

- The burner can be only applied to DOS environment, the user should prepare a boot disk with DOS system before BIOS burning process;
- Copy burner "EFIDOS.EXE" and the BIOS file to the root directory of the DOS boot disk;
- Connect the DOS boot disk to the M/B, startup and press "DEL" to enter CMOS setting interface, and set the DOS boot disk as the first boot device in "boot"→BIOS;
- Press F10 to save the new setting and reset the system;
- When the M/B enter DOS system, and display the drive letter of DOS system, please input the command character as bellow, and then press "Enter" (Assume the BIOS file named "BIOS.ROM"):
- EFIDOS /IBIOS.ROM /pbnc /n
- After "Enter", BIOS start to refresh, the M/B is not allowed to be turned-off, reset or power-off etc. during the whole refresh process, otherwise the M/B will not be able to start up again. When the BIOS burning process is finished, the user can reset the system.

4.6.2 BIOS LOGO Replacement Tool Instruction

- Logo change can be directed as following steps
- Save the primary"Splash Logo" of BIOS
- Save the primary "Small Logo" of BIOS
- Replace the primary "Splash Logo" of BIOS
- Replace the primary "Small Logo" of BIOS
- 1. User interface of "ChangeLogo.exe" :

🕎 Change Logo		
Aptio Image		Load Image)
Available Images Select Logo File		Save Logo Browse
<u>R</u> eplace Logo	Save Image <u>A</u> s	E <u>x</u> it

2. Click "Load Image" to load the primary BIOS file.

🕎 Change Logo	
Aptio Image G:\Test\121TP109.rom	(Load Image)
Available Images Splash Logo	Save Logo
Select BMP file	Browse
Replace Logo Save Image ,	<u>As</u> <u>Ex</u> it

3. Select the logo which will be saved from the drop-down box of "Splash Logo", then click "save logo" to save the logo under a specified directory.

🕎 Change Logo		
Aptio Image G:\EFIBIOS\AMIBCP\121TP109.rom		Load Image
Available Images Splash Logo Splash Logo Small Logo		<u>S</u> ave Logo <u>B</u> rowse
Replace Logo	Save Image <u>A</u> s	Exit

4. During the Logo replacement operation, please click "Browse" to select Logo which is to be adopted in the BIOS, and the image size must be 800x600 or 640x480 with BMP format:

🖳 Cha	打开 ?区	
Aptio G:\EF Avails Small Select	查找范围(I): ChangeLogo ↓ CogoNDJ. bmp smlogo. bmp splash. bm 犬型: BMP 图像 大小: 1.37 MB	image Logo 'se
<u>R</u> epla	文件名 (M): 打开 (D) 文件类型 (T): BMP Files (*. bmp) ▼ 取消	t

5. After selecting the right Logo, click "Replace Logo", then the Logo replacement is done:

🕎 Change Logo	
Aptio Image G:\EFIBIOS\AMIBCP\121TP109.rom	Load Image
Available Images Splash Logo Select BMP file	<u>S</u> ave Logo <u>B</u> rowse
g:\efibios\changelogo\logondj.bmp Replace Logo New logo is created	Image <u>A</u> s <u>Ex</u> it

- 6. After clicking "Replace Logo", there will be a message shows up:" New logo is created", which means the new Logo is replaced successfully. If you replace"Splash Logo", then the new BIOS Logo will be displayed with full screen after the system reboot; if you replace"Small Logo", then the new BIOS Logo will be displayed on the up-left corner of the screen after the system reboot.
- 7. Click "Save Image AS", to save the new BIOS under a specified directory.
- If it doesn't display the new BIOS Logo after system reboot, please check if the setting as bellow is Enable: Boot-->Quiet Boot-->Enable



Appendix: A

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A.1 System I/O Ports

Addr.	Range
000-01F	DMA
020-021	Interrupt
040-043	Timer/Counter
060-06F	8042
070-07F	Real-time
080-09F	DMA
0A0-0BF	Interrupt
0C0-0DF	DMA
274-279	ISAPNP read data port
280-287	COM6
288-28F	COM5
290-297	COM7
298-29F	COM8
2E8-2EF	COM4
2F8-2FF	COM2
3B0-3DF	VgaSave
3E8-3EF	COM3
3F8-3FF	COM1
400-4D1	Interrupt
500-77F	Motherboard
A79-A79	ISAPNP read data port
B78-B7F	Motherboard

Table 5.1 System I/O Ports

A.2 1st MB Memory Map

Addr. Range (Hex)	Device
00000000h - 00003FFFh	Motherboard resources
000A0000h - FEBFFFFFh	PCI bus
FEC00000h - FEC00FFFh	Motherboard resources
FED00000h - FED003FFh	High precision event timer
FED14000h - FED19FFFh	System board
FED1C000h - FEE00FFFh	Motherboard resources
FF000000h - FFFFFFFh	Intel 82802 firmware Hub Device

Table 5.2 1st MB Memory Map

	Channel	Function
0		Available
1		Available
2		Available
3		Available
4		Direct memory access controller
5		Available
6		Available
7		Available

A.3 DMA Channel Assignments

Table 5.3 DMA Channel Assignments

A.4 Interrupt Assignments

Interrupt#	Interrupt source
IRQ0	System timer
IRQ1	Standard 101/102-Key or Microsoft Natural PS/2 Keyboard
IRQ3	COM2
IRQ4	COM1
IRQ5	COM6
IRQ7	COM5 /SMBus Controller
IRQ8	System CMOS/real time clock
IRQ9	Microsoft ACPI-Compliant System
IRQ10	COM7 /COM8
IRQ11	COM3/COM4
IRQ12	PS/2 compatible mouse
IRQ13	Numeric data processor
IRQ16	Network /USB
IRQ17	Network
IRQ18	USB
IRQ19	SATA
IRQ22	HDA
IRQ23	USB

Table 5.4 Interrupt Assignments