

IEI Technology Corp.

m little City

MODEL: TANK-101B/BW

Fanless Embedded System with Intel® Atom™ D525/N455 CPU,
2.0 GB DDR3 Memory Preinstalled, Two Isolated CAN-bus Ports, One Isolated Serial Port, RoHS Compliant

User Manual



Rev. 1.00 - 14 March 2013



Revision

Date	Version	Changes
14 March 2013	1.00	Initial release



Copyright

Technology

Corp.

COPYRIGHT NOTICE

The information in this document is subject to change without prior notice in order to improve reliability, design and function and does not represent a commitment on the part of the manufacturer.

In no event will the manufacturer be liable for direct, indirect, special, incidental, or consequential damages arising out of the use or inability to use the product or documentation, even if advised of the possibility of such damages.

This document contains proprietary information protected by copyright. All rights are reserved. No part of this manual may be reproduced by any mechanical, electronic, or other means in any form without prior written permission of the manufacturer.

TRADEMARKS

All registered trademarks and product names mentioned herein are used for identification purposes only and may be trademarks and/or registered trademarks of their respective owners.





Table of Contents

1 INTRODUCTION	1
1.1 Overview	
1.2 Model Variations	2
1.3 Features	
1.4 TECHNICAL SPECIFICATIONS	
1.5 Connector Panel	5
1.5.1 Front Panel	
1.5.2 Rear Panel	
1.6 DIMENSIONS	7
2 UNPACKING	
2.1 ANTI-STATIC PRECAUTIONS	9
2.2 UNPACKING PRECAUTIONS	9
2.3 UNPACKING CHECKLIST	
3 INSTALLATION	
3.1 INSTALLATION PRECAUTIONS	
3.1.1 High Surface Temperature	
3.2 CF CARD INSTALLATION	
3.3 HARD DISK DRIVE (HDD) INSTALLATION	
3.4 MOUNTING THE SYSTEM WITH MOUNTING BRACKETS	
3.5 MOUNTING THE SYSTEM WITH WALL MOUNT KIT	
3.6 JUMPER SETTINGS	
3.6.1 Clear CMOS Jumper	
3.7 EXTERNAL PERIPHERAL INTERFACE CONNECTORS	
3.7.1 Audio Connector	
3.7.2 CAN-bus Connectors	
3.7.3 CompactFlash® Card Slot	
3.7.4 LAN Connectors	
3.7.5 3-pin Power Terminal Block	
3.7.6 RS-232 Serial Port Connectors	

Page iv

3.7.7 RS-422/485 Serial Port Connector	
3.7.8 USB Connectors	
3.7.9 VGA Connector	
4 BIOS	
4.1 Introduction	
4.1.1 Starting Setup	
4.1.2 Using Setup	
4.1.3 Getting Help	
4.1.4 Unable to Reboot After Configuration Changes	
4.1.5 BIOS Menu Bar	
4.2 Main	
4.3 Advanced	
4.3.1 ACPI Settings	
4.3.2 Trusted Computing	
4.3.3 CPU Configuration	
4.3.4 IDE Configuration	
4.3.5 USB Configuration	40
4.3.6 Super IO Configuration	
4.3.6.1 Serial Port n Configuration	
4.3.7 H/W Monitor	
4.3.8 Serial Port Console Redirection	
4.4 Chipset	49
4.4.1 Host Bridge Configuration	
4.4.1.1 OnChip VGA Configuration	
4.4.2 South Bridge Configuration	
4.4.3 Intel IGD SWSCI OpRegion	53
4.5 Воот	
4.6 Security	55
4.7 Exit	
A ONE KEY RECOVERY	59
A.1 ONE KEY RECOVERY INTRODUCTION	
A.1.1 System Requirement	
A.1.2 Supported Operating System	



2.

®Technology Corp.

A.2 SETUP PROCEDURE FOR WINDOWS	63
A.2.1 Hardware and BIOS Setup	64
A.2.2 Create Partitions	64
A.2.3 Install Operating System, Drivers and Applications	68
A.2.4 Build-up Recovery Partition	69
A.2.5 Create Factory Default Image	71
A.3 AUTO RECOVERY SETUP PROCEDURE	76
A.4 SETUP PROCEDURE FOR LINUX	80
A.5 RECOVERY TOOL FUNCTIONS	84
A.5.1 Factory Restore	85
A.5.2 Backup System	86
A.5.3 Restore Your Last Backup	87
A.5.4 Manual	88
A.6 RESTORE SYSTEMS FROM A LINUX SERVER THROUGH LAN	89
A.6.1 Configure DHCP Server Settings	90
A.6.2 Configure TFTP Settings	
A.6.3 Configure One Key Recovery Server Settings	
A.6.4 Start the DHCP, TFTP and HTTP	
A.6.5 Create Shared Directory	
A.6.6 Setup a Client System for Auto Recovery	
A.7 OTHER INFORMATION	
A.7.1 Using AHCI Mode or ALi M5283 / VIA VT6421A Controller	
A.7.2 System Memory Requirement	
B SAFETY PRECAUTIONS	100
B.1 SAFETY PRECAUTIONS	101
B.1.1 General Safety Precautions	101
B.1.2 Anti-static Precautions	102
B.1.3 Product Disposal	103
B.2 MAINTENANCE AND CLEANING PRECAUTIONS	103
B.2.1 Maintenance and Cleaning	103
B.2.2 Cleaning Tools	104
C HAZARDOUS MATERIALS DISCLOSURE	105

 $C.1 \ Hazardous \ Materials \ Disclosure \ Table \ for \ IPB \ Products \ Certified \ as$

Technology Corr







List of Figures

Figure 1-1: TANK-101B/BW2
Figure 1-2: TANK-101B/BW Front Panel5
Figure 1-3: TANK-101B/BW Rear Panel6
Figure 1-4: Physical Dimensions (millimeters)7
Figure 3-1: CF Card Slot14
Figure 3-2: CF Card Installation15
Figure 3-3: Bottom Panel Retention Screws15
Figure 3-4: HDD Installation16
Figure 3-5: Retention Screw Holes17
Figure 3-6: Wall-mounting Bracket18
Figure 3-7: Mount the Embedded System19
Figure 3-8: Audio Connector21
Figure 3-9: CAN-bus Connector Pinout Location22
Figure 3-10: LAN Connection23
Figure 3-11: RJ-45 Ethernet Connector24
Figure 3-12: 3-pin Terminal Block Pinout Location24
Figure 3-13: Serial Device Connector25
Figure 3-14: RS-232 Serial Port Pinout Location26
Figure 3-15: RS-422/485 Serial Port Pinout Location27
Figure 3-16: USB Device Connection28
Figure 3-17: VGA Connector29
Figure 3-18: VGA Connector29
Figure A-1: IEI One Key Recovery Tool Menu60
Figure A-2: Launching the Recovery Tool65
Figure A-3: Recovery Tool Setup Menu65
Figure A-4: Command Mode66
Figure A-5: Partition Creation Commands67
Figure A-6: Launching the Recovery Tool69
Figure A-7: System Configuration for Windows69
Figure A-8: Building the Recovery Partition70

Figure A-9: Press Any Key to Continue70
Figure A-10: Press F3 to Boot into Recovery Mode71
Figure A-11: Recovery Tool Menu71
Figure A-12: About Symantec Ghost Window72
Figure A-13: Symantec Ghost Path72
Figure A-14: Select a Local Source Drive73
Figure A-15: Select a Source Partition from Basic Drive73
Figure A-16: File Name to Copy Image to74
Figure A-17: Compress Image74
Figure A-18: Image Creation Confirmation75
Figure A-19: Image Creation Process75
Figure A-20: Image Creation Complete75
Figure A-21: Press Any Key to Continue76
Figure A-22: Auto Recovery Utility77
Figure A-23: Launching the Recovery Tool77
Figure A-24: Auto Recovery Environment for Windows77
Figure A-25: Building the Auto Recovery Partition78
Figure A-26: Factory Default Image Confirmation78
Figure A-27: Image Creation Complete79
Figure A-28: Press any key to continue79
Figure A-29: Partitions for Linux
Figure A-30: Manual Recovery Environment for Linux82
Figure A-31: Access menu.lst in Linux (Text Mode)83
Figure A-32: Recovery Tool Menu83
Figure A-33: Recovery Tool Main Menu84
Figure A-34: Restore Factory Default85
Figure A-35: Recovery Complete Window
Figure A-36: Backup System
Figure A-37: System Backup Complete Window87
Figure A-38: Restore Backup87
Figure A-39: Restore System Backup Complete Window88
Figure A-40: Symantec Ghost Window88

Page ix

2.

Technology Corp.



List of Tables

Table 1-1: TANK-101B/BW Model Variations	2
Table 1-2: Technical Specifications	4
Table 3-1: Clear CMOS Jumper Settings	20
Table 3-2: CAN-bus Connector Pinouts	22
Table 3-3: LAN Pinouts	23
Table 3-4: RJ-45 Ethernet Connector LEDs	24
Table 3-5: RS-232 Serial Port Pinouts	26
Table 3-6: RS-422/485 Serial Port Pinouts	27
Table 3-7: USB Port Pinouts	28
Table 3-8: VGA Connector Pinouts	30
Table 4-1: BIOS Navigation Keys	33





®Technology Corp.

Introduction





1.1 Overview



Figure 1-1: TANK-101B/BW

The TANK-101B/BW fanless embedded system is powered by the Intel® Atom[™] D525/N455 processor, uses the Intel® ICH8M chipset and has 2.0 GB of DDR3 memory preinstalled. With typical voltage at 12V DC, TANK-101B/BW can take wide range DC input from 9V to 36V as power source. It also has COM and CAN-bus ports with isolation protection, dual Gigabit LAN and 802.11b/g/n wireless module for high speed communication. TANK-101B/BW supports all these versatile functions in a compact enclosure yet support fanless operation.

1.2 Model Variations

The model variations of the TANK-101B/BW are listed below.

Model No.	СРИ	Wireless
TANK-101B-R10/D525/2GB	Intel® Atom™ D525 1.8 GHz dual core	No
TANK-101B-R10/N455/2GB	Intel® Atom™ N455 1.66 GHz	No
TANK-101BW-R10/D525/2GB	Intel® Atom™ D525 1.8 GHz dual core	Yes

Table 1-1: TANK-101B/BW Model Variations

Page 2

1.3 Features

The TANK-101B/BW features are listed below:

- Intel® AtomTM D525 1.8 GHz/N455 1.66 GHz processor
- 2.0 GB of DDR3 memory preinstalled
- Wide range 9V~36V DC power input
- Built-in 802.11b/g/n wireless module (for wireless model only)

Technology

Corp.

- Two CAN-bus ports with isolation protection
- Two Gigabit Ethernet ports
- Four USB 2.0 ports
- Three RS-232 serial ports
- One RS-422/485 serial ports with isolation
- One VGA port
- One Line-out and one Mic-in audio jacks
- One CompactFlash® socket
- RoHS compliant

1.4 Technical Specifications

The TANK-101B/BW technical specifications are listed in Table 1-2.

Specifications		
CPU	1.8 GHz Intel® Atom [™] D525 CPU with 1 MB L2 cache or	
	1.66 GHz Intel® Atom [™] N455 CPU with 512 KB L2 cache	
System Chipset	Intel® ICH8M	
System Memory	2.0 GB of DDR3 memory preinstalled	
	On board 1G memory	
	One 204-pin DDR3 SDRAM SO-DIMM slot (system max. 2.0 GB)	
Ethernet	Dual Realtek RTL8111E PCIe GbE controllers (LAN1 with ASF 2.0	
	support)	
	Built-in 802.11b/g/n wireless module for the wireless model	
Serial Port	3 x RS-232 serial port (COM4: With isolation)	
	1 x RS-422/485 serial port with isolation (Default: RS-422)	



Technology Corp

TANK-101B/BW Embedded System

Specifications		
USB	4 x USB 2.0 ports	
Display	1 x VGA port	
Resolution	Up to 2048x1536 @ 60 Hz (D525 model)	
	Up to 1400x1050 @ 60 Hz (N455 model)	
Audio	1 x Line-out port	
	1 x Mic-in port	
CAN-bus	2 x CAN-bus ports with isolation	
Expansions	One PCIe Mini card slot (reserved for wireless module)	
Storage	One 2.5" SATA HDD supported	
	One CompactFlash® socket	
Power Supply	9V~36V DC input	
Power Consumption	12 W @ 1.85A	
Mounting	Wall mount	
Operating Temperature	e -20°C~60°C (D525 model with CompactFlash®/SSD*)	
	-20°C~70°C (N455 model with CompactFlash®/SSD*)	
	-10°C~50°C (with Wi-Fi)	
	*Ambient air speed per IEC-68-2-2 standard	
Operating Shock	Half-sine wave shock 3G; 11ms; 3 shocks per axis	
Operating Vibration	MIL-STD-810F 514.5C-1 (HDD)	
	MIL-STD-810F 514.5C-2 (CF)	
Color	Cool Gray + Blue	
Chassis Construction	Aluminum alloy with heavy duty metal	
Weight (Net/Gross)	2.1 kg/3.9 kg	
Physical Dimensions	248 mm x 153 mm x 44 mm (W x D x H)	

Table 1-2: Technical Specifications

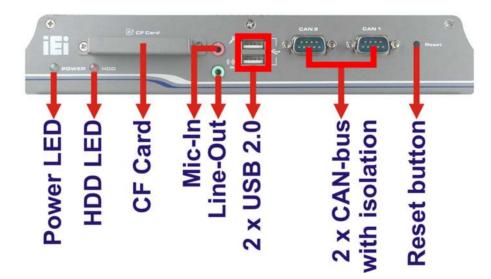
1.5 Connector Panel

1.5.1 Front Panel

The TANK-101B/BW front panel contains:

- 2 x CAN-bus ports with isolation
- 1 x CompactFlash® card socket
- 1 x HDD LED indicator
- 1 x Line-out port (green)
- 1 x Mic-in port (pink)
- 1 x Power LED indicator
- 1 x Reset button
- 2 x USB 2.0 port connectors

An overview of the front panel is shown in Figure 1-2 below.



Technology Corp.

Figure 1-2: TANK-101B/BW Front Panel





1.5.2 Rear Panel

Technology Corp

The TANK-101B/BW rear panel contains:

- 1 x VGA output
- 3 x RS-232 serial ports (COM4: With isolation)
- 1 x RS-422/485 serial port with isolation (Default: RS-422)
- 2 x USB port connectors
- 2 x Gigabit Ethernet ports (LAN1 with ASF 2.0 support)
- 1 x 12V DC power jack
- 1 x 3-pin power terminal block with wide range power input (9V~36V)
- 1 x Power switch
- 2 x Wireless antenna connectors (for wireless model only)

An overview of the rear panel is shown in **Figure 1-3** below.

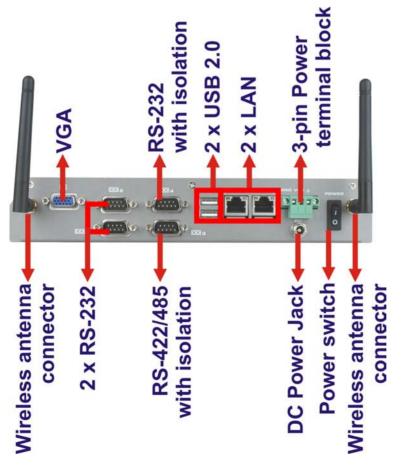
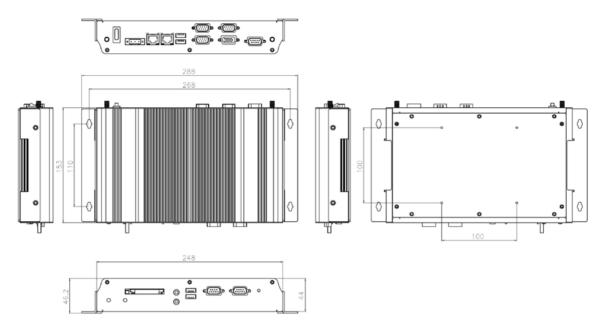


Figure 1-3: TANK-101B/BW Rear Panel

Page 6

1.6 Dimensions

The physical dimensions are shown below:

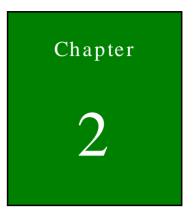


®Technology Corp.

Figure 1-4: Physical Dimensions (millimeters)







Unpacking



2.1 Anti-static Precautions



Failure to take ESD precautions during installation may result in permanent damage to the TANK-101B/BW and severe injury to the user.

Technology

Corp.

Electrostatic discharge (ESD) can cause serious damage to electronic components, including the TANK-101B/BW. Dry climates are especially susceptible to ESD. It is therefore critical that whenever the TANK-101B/BW or any other electrical component is handled, the following anti-static precautions are strictly adhered to.

- Wear an anti-static wristband: Wearing a simple anti-static wristband can help to prevent ESD from damaging the board.
- Self-grounding: Before handling the board touch any grounded conducting material. During the time the board is handled, frequently touch any conducting materials that are connected to the ground.
- Use an anti-static pad: When configuring the TANK-101B/BW, place it on an antic-static pad. This reduces the possibility of ESD damaging the TANK-101B/BW.

2.2 Unpacking Precautions

When the TANK-101B/BW is unpacked, please do the following:

- Follow the anti-static precautions outlined in **Section 2.1**.
- Make sure the packing box is facing upwards so the TANK-101B/BW does not fall out of the box.
- Make sure all the components shown in Section 2.3 are present.





2.3 Unpacking Checklist

Technology Co



If some of the components listed in the checklist below are missing, please do not proceed with the installation. Contact the IEI reseller or vendor you purchased the TANK-101B/BW from or contact an IEI sales representative directly. To contact an IEI sales representative, please send an email to sales@iei.com.tw.

The TANK-101B/BW is shipped with the following components:

Quantity	Item and Part Number	Image
Standard		
1	TANK-101B/BW Series	
1	Power adapter	
1	Power cord	
1	SATA and power cable	
2	Mounting bracket	

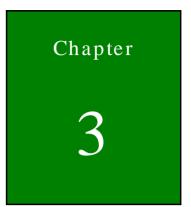
Page 10

Quantity	Item and Part Number	Image
Standard		
1	Screw set	
1	One Key Recovery CD	
1	User manual and driver CD	IEI .
2	Wireless antenna (wireless model only)	
1	VESA MIS-D 100 wall mount kit (optional)	

®Technology Corp.







Installation



3.1 Installation Precautions

During installation, be aware of the precautions below:

 Read the user manual: The user manual provides a complete description of the TANK-101B/BW, installation instructions and configuration options.

Technology

Corp.

- DANGER! Disconnect Power: Power to the TANK-101B/BW must be disconnected during the installation process, or before any attempt is made to access the rear panel. Electric shock and personal injury might occur if the rear panel of the TANK-101B/BW is opened while the power cord is still connected to an electrical outlet.
- Qualified Personnel: The TANK-101B/BW must be installed and operated only by trained and qualified personnel. Maintenance, upgrades, or repairs may only be carried out by qualified personnel who are familiar with the associated dangers.
- Air Circulation: Make sure there is sufficient air circulation when installing the TANK-101B/BW. The TANK-101B/BW's cooling vents must not be obstructed by any objects. Blocking the vents can cause overheating of the TANK-101B/BW. Leave at least 5 cm of clearance around the TANK-101B/BW to prevent overheating.
- Grounding: The TANK-101B/BW should be properly grounded. The voltage feeds must not be overloaded. Adjust the cabling and provide external overcharge protection per the electrical values indicated on the label attached to the back of the TANK-101B/BW.

3.1.1 High Surface Temperature



Some surfaces of the equipment may become hot during operation.

The surface temperature may be up to several tens of degrees hotter than the ambient temperature. Under these circumstances, the equipment needs to be protected against accidental contact.





The equipment is intended for installation in a RESTRICTED ACCESS LOCATION.

- Access can only be gained by SERVICE PERSONS or by USERS who have been instructed about the reasons for the restrictions applied to the location and about any precautions that shall be taken.
- Access is through the use of a TOOL or lock and key, or other means of security, and is controlled by the authority responsible for the location.

3.2 CF Card Installation

rechnology

To install the CF card, please follow the steps below:

- Step 1: Locate the CF card slot on the front panel of the TANK-101B/BW.
- Step 2: Remove the CF card slot cover by removing the two retention screws (**Figure 3-1**).





Page 14

Step 3: Insert the CF card into the slot (Figure 3-2).



Figure 3-2: CF Card Installation

3.3 Hard Disk Drive (HDD) Installation

To install the hard drive, please follow the steps below:

Step 1: Remove the bottom panel by removing the 10 retention screws from the bottom panel (**Figure 3-3**).

Technology

Corp.

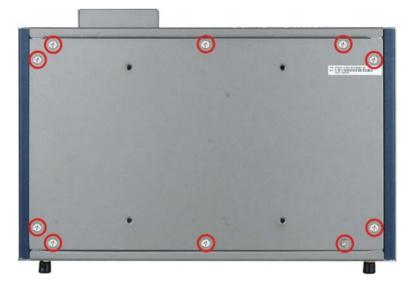
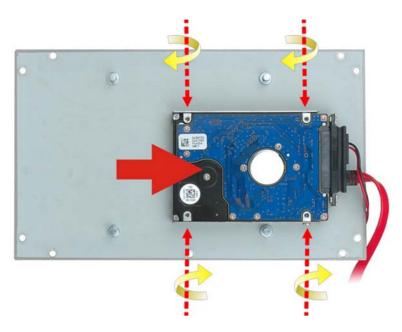


Figure 3-3: Bottom Panel Retention Screws

Step 2: Open the bottom panel, unplug the SATA signal and power cables connected to the TANK-101B/BW, and then put the bottom panel on a flat surface.



Step 3: Attach the HDD to the HDD bracket, and then slide the HDD to connect the HDD



to the SATA connector (Figure 3-4).

echnology C

Figure 3-4: HDD Installation

- Step 4: Secure the HDD with the HDD bracket by four retention screws (Figure 3-4).
- Step 5: Reconnect the SATA signal and power cables to the TANK-101B/BW.
- Step 6: Reinstall the bottom panel.

3.4 Mounting the System with Mounting Brackets

To mount the embedded system onto a wall or some other surface using the two mounting brackets, please follow the steps below.

Step 1: Turn the embedded system over.

Page 16

Step 2: Align the two retention screw holes in each bracket with the corresponding retention screw holes on the sides of the bottom surface.



Figure 3-5: Retention Screw Holes

Step 3: Secure the brackets to the system by inserting two retention screws into each bracket.

Technolog

Corp

- Step 4: Drill holes in the intended installation surface.
- Step 5: Align the mounting holes in the sides of the mounting brackets with the predrilled holes in the mounting surface.
- Step 6: Insert four retention screws, two in each bracket, to secure the system to the wall.

3.5 Mounting the System with Wall Mount Kit

To mount the embedded system onto a wall using the VESA MIS-D 100 wall mount kit, please follow the steps below.

- Step 1: Select the location on the wall for the wall-mounting bracket.
- Step 2: Carefully mark the locations of the four bracket screw holes on the wall.
- Step 3: Drill four pilot holes at the marked locations on the wall for the bracket retention screws.
- Step 4: Align the wall-mounting bracket screw holes with the pilot holes.



Step 5: Secure the mounting-bracket to the wall by inserting the retention screws into

the four pilot holes and tightening them (Figure 3-6).

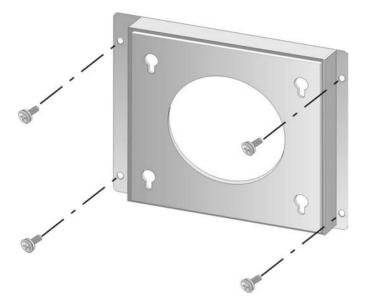


Figure 3-6: Wall-mounting Bracket

Technology Corp

- Step 6: Insert the four monitor mounting screws provided in the wall mounting kit into the four screw holes on the bottom panel of the system and tighten until the screw shank is secured against the bottom panel (Figure 3-7).
- Step 7: Align the mounting screws on the TANK-101B/BW bottom panel with the mounting holes on the bracket.
- Step 8: Carefully insert the screws through the holes and gently pull the monitor downwards until the TANK-101B/BW rests securely in the slotted holes (Figure 3-7). Ensure that all four of the mounting screws fit snuggly into their respective slotted holes.



Page 18

In the diagram below the bracket is already installed on the wall.

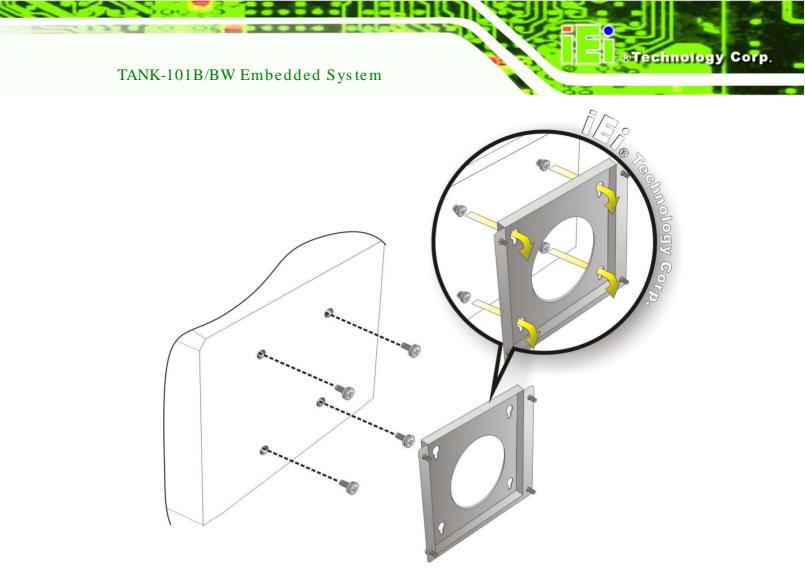


Figure 3-7: Mount the Embedded System

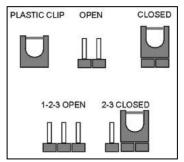


3.6 Jumper Settings

Technology Corp



A jumper is a metal bridge used to close an electrical circuit. It consists of two or three metal pins and a small metal clip (often protected by a plastic cover) that slides over the pins to connect them. To CLOSE/SHORT a jumper means connecting the pins of the jumper with



the plastic clip and to OPEN a jumper means removing the plastic clip from a jumper.

To access a jumper, please remove the bottom panel (refer to **Section 3.3**). The motherboard jumper is listed below.

Clear CMOS jumper

3.6.1 Clear CMOS Jumper

Jumper Label:	J_CMOS1
Jumper Type:	3-pin header
Jumper Settings:	See Table 3-1

To reset the BIOS, move the jumper to the "Clear CMOS" position for 3 seconds or more, and then move back to the default position.

Setting	Description
Short 1-2	Normal
Short 2-3	Clear CMOS

Table 3-1: Clear CMOS Jumper Settings

Page 20



3.7 External Peripheral Interface Connectors

The TANK-101B/BW has the following connectors. Detailed descriptions of the connectors can be found in the subsections below.

Technology

Corp.

- Audio
- CAN-bus
- CompactFlash® card
- Ethernet
- Power switch
- Power input
- Reset button
- RS-232
- RS-422/485
- USB
- VGA
- Wireless antenna (for wireless model only)
- 3.7.1 Audio Connector

CN Type:	Audio jack
CN Location:	See Figure 3-8

The audio jacks connect to external audio devices.

- Line Out port (Green): Connects to a headphone or a speaker. With multi-channel configurations, this port can also connect to front speakers.
- Microphone (Pink): Connects a microphone.



Figure 3-8: Audio Connector



3.7.2 CAN-bus Connectors

chnolog

CN Type:	DB-9 connector
CN Location:	See Figure 1-2
CN Pinouts:	See Table 3-2 and Figure 3-9

There are two CAN-bus connectors with isolation. The pinouts for the CAN-bus connector are listed in the table below.

Pin	Description	Pin	Description
1	NC	6	NC
2	CANL	7	CANH
3	GND	8	NC
4	NC	9	NC
5	NC		

Table 3-2: CAN-bus Connector Pinouts

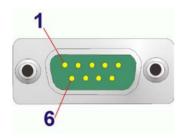


Figure 3-9: CAN-bus Connector Pinout Location

3.7.3 CompactFlash® Card Slot

The TANK-101B/BW has one CF card slot. To install the CF card, refer to Section 3.2.

3.7.4 LAN Connectors

CN Type:	RJ-45
CN Location:	See Figure 1-3
CN Pinouts:	See Table 3-3

The LAN connectors allow connection to an external network.

Page 22

- Step 1: Locate the RJ-45 connectors. The locations of the RJ-45 connectors are shown in Figure 1-3.
- Step 2: Align the connectors. Align the RJ-45 connector on the LAN cable with one of the RJ-45 connectors on the TANK-101B/BW. See Figure 3-10.

Corp.

Technology

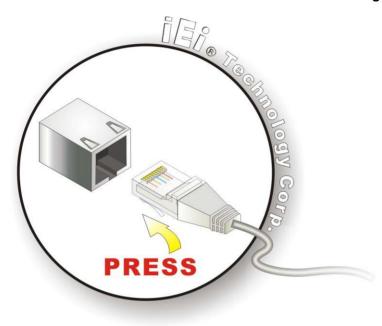


Figure 3-10: LAN Connection

Step 3: Insert the LAN cable RJ-45 connector. Once aligned, gently insert the LAN

Pin	Description	Pin	Description
1	TRD1P0	5	TRD1P2
2	TRD1N0	6	TRD1N2
3.	TRD1P1	7	TRD1P3
4.	TRD1N1	8	TRD1N3

cable RJ-45 connector into the on-board RJ-45 connector.









Technology C

Figure 3-11: RJ-45 Ethernet Connector

The RJ-45 Ethernet connector has two status LEDs, one green and one yellow. The green LED indicates activity on the port and the yellow LED indicates the port is linked. See **Table 3-4**.

Activity/Link LED		Speed LED	
STATUS	DESCRIPTION	STATUS	DESCRIPTION
Off	No link	Off	10 Mbps connection
Yellow	Linked	Green	100 Mbps connection
Blinking	TX/RX activity	Orange	1 Gbps connection

Table 3-4: RJ-45 Ethernet Connector LEDs

3.7.5 3-pin Power Terminal Block

CN Type:	3-pin terminal block
CN Location:	See Figure 1-3
N Pinouts:	See Figure 3-12

Connect the leads of a 9V~36V DC power supply into the terminal block. Make sure that the power and ground wires are attached to the correct sockets of the connector.

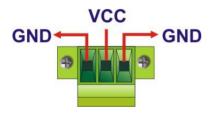


Figure 3-12: 3-pin Terminal Block Pinout Location

Page 24

3.7.6 RS-232 Serial Port Connectors

CN Label:	COM1, COM2 and COM4	
CN Type:	DB-9 connectors	
CN Location:	See Figure 1-3	
CN Pinouts:	See Table 3-5 and Figure 3-14	

RS-232 serial port devices can be attached to the DB-9 ports on the rear panel.

Step 1: Locate the DB-9 connector. The locations of the DB-9 connectors are shown in Figure 1-3.

Technology

Corp.

Step 2: Insert the serial connector. Insert the DB-9 connector of a serial device into the DB-9 connector on the external peripheral interface. See Figure 3-13.

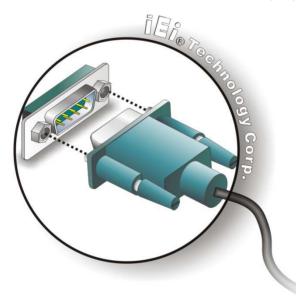


Figure 3-13: Serial Device Connector

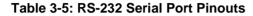
Step 3: Secure the connector. Secure the serial device connector to the external

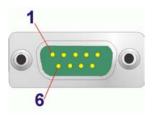
interface by tightening the two retention screws on either side of the connector.

Pin	Description	Pin	Description
1	DCD	6	DSR
2	RX	7	RTS



Pin	Description	Pin	Description
3	ТХ	8	CTS
4	DTR	9	RI
5	GND		





echnology



3.7.7 RS-422/485 Serial Port Connector

CN Label:	СОМЗ
CN Type:	DB-9 connector
CN Location:	See Figure 1-3
CN Pinouts:	See Error! Reference source not found. and Figure 3-15

The RS-422/485 serial port device can be attached to the DB-9 port on the rear panel.

- Step 1: Locate the DB-9 connector. The location of the DB-9 connector is shown in Figure 1-3.
- Step 2: **Insert the serial connector**. Insert the DB-9 connector of a serial device into the DB-9 connector on the external peripheral interface. See **Figure 3-13**.
- Step 3: Secure the connector. Secure the serial device connector to the external interface by tightening the two retention screws on either side of the connector.

Pin	Description (RS-422)	Description (RS-485)
1	RXD422 #	N/A
2	RXD422 +	N/A
3	TXD422 +	TXD485 +
4	TXD422 #	TXD485 #

5	GND	GND
6	N/A	N/A
7	N/A	N/A
8	N/A	N/A
9	N/A	N/A

Technology

Corp.

Table 3-6: RS-422/485 Serial Port Pinouts

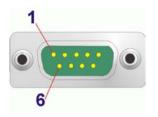


Figure 3-15: RS-422/485 Serial Port Pinout Location

3.7.8 USB Connectors

CN Type:	USB port
CN Location:	See Figure 1-2 and Figure 1-3
CN Pinouts:	See Table 3-7

The USB ports are for connecting USB peripheral devices to the system.

- Step 1: Locate the USB connectors. The locations of the USB connectors are shown in **Figure 1-2** and **Figure 1-3**.
- Step 2: Align the connectors. Align the USB device connector with one of the connectors. See Figure 3-16.





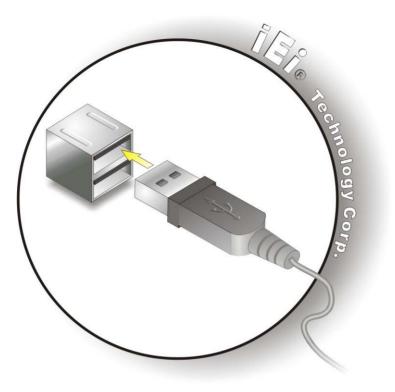


Figure 3-16: USB Device Connection

Step 3: Insert the device connector. Once aligned, gently insert the USB device

connector into the on-board connector.

Pin	Description	Pin	Description
1	VCC	5	VCC
2	DATA-	6	DATA-
3	DATA+	7	DATA+
4	GROUND	8	GROUND

Table 3-7: USB Port Pinouts

3.7.9 VGA Connector

CN Label:	VGA
CN Type:	15-pin Female
CN Location:	See Figure 1-2
CN Pinouts:	See Figure 3-18 and Table 3-8

Page 28

The VGA connector connects to a monitor that accepts VGA video input.

- Step 1: Locate the female DB-15 connector. The location of the female DB-15 connector is shown in Figure 1-2.
- Step 2: Align the VGA connector. Align the male DB-15 connector on the VGA screen cable with the female DB-15 connector on the external peripheral interface.

Technology

Corp.

Step 3: Insert the VGA connector Once the connectors are properly aligned with, insert the male connector from the VGA screen into the female connector on the TANK-101B/BW. See Figure 3-17.

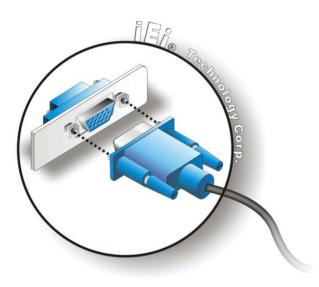


Figure 3-17: VGA Connector

Step 4: Secure the connector. Secure the DB-15 VGA connector from the VGA monitor to the external interface by tightening the two retention screws on either side of the connector.

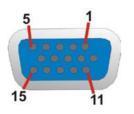


Figure 3-18: VGA Connector



Technology Corp.

TANK-101B/BW Embedded System

Pin	Description	Pin	Description
1	RED	2	GREEN
3	BLUE	4	NC
5	GND	6	GND
7	GND	8	GND
9	VCC / NC	10	GND
11	NC	12	DDC DAT
13	HSYNC	14	VSYNC
15	DDCCLK	\searrow	

Table 3-8: VGA Connector Pinouts







®Technology Corp.

BIOS



4.1 Introduction

echnology Cor

The BIOS is programmed onto the BIOS chip. The BIOS setup program allows changes to certain system settings. This chapter outlines the options that can be changed.

4.1.1 Starting Setup

The UEFI BIOS is activated when the computer is turned on. The setup program can be activated in one of two ways.

- 1. Press the DEL or F2 key as soon as the system is turned on or
- 2. Press the **DEL** or **F2** key when the "**Press DEL or F2 to enter SETUP**" message appears on the screen.

If the message disappears before the **DEL or F2** key is pressed, restart the computer and try again.

4.1.2 Using Setup

Use the arrow keys to highlight items, press **ENTER** to select, use the PageUp and PageDown keys to change entries, press **F1** for help and press **Esc** to quit. Navigation keys are shown in.

Кеу	Function
Up arrow	Move to previous item
Down arrow	Move to next item
Left arrow	Move to the item on the left hand side
Right arrow	Move to the item on the right hand side
+	Increase the numeric value or make changes
-	Decrease the numeric value or make changes
Page Up key	Increase the numeric value or make changes
Page Dn key	Decrease the numeric value or make changes

Кеу	Function
Esc key	Main Menu – Quit and not save changes into CMOS
	Status Page Setup Menu and Option Page Setup Menu
	Exit current page and return to Main Menu
F1	General help, only for Status Page Setup Menu and Option
	Page Setup Menu
F2	Previous values
F3	Load optimized defaults
F4	Save changes and Exit BIOS

Technology

Corp.

Table 4-1: BIOS Navigation Keys

4.1.3 Getting Help

When **F1** is pressed a small help window describing the appropriate keys to use and the possible selections for the highlighted item appears. To exit the Help Window press **Esc** or the **F1** key again.

4.1.4 Unable to Reboot after Configuration Changes

If the computer cannot boot after changes to the system configuration is made, CMOS defaults. Use the jumper described in Chapter 2.

4.1.5 BIOS Menu Bar

The menu bar on top of the BIOS screen has the following main items:

- Main Changes the basic system configuration.
- Advanced Changes the advanced system settings.
- Chipset Changes the chipset settings.
- Boot Changes the system boot configuration.
- Security Sets User and Supervisor Passwords.
- Save & Exit Selects exit options and loads default settings.

The following sections completely describe the configuration options found in the menu items at the top of the BIOS screen and listed above.





4.2 Main

The **Main** BIOS menu (**BIOS Menu 1**) appears when the **BIOS Setup** program is entered. The **Main** menu gives an overview of the basic system information.

Aptio Setup Utili Main Advanced Ch	ty – Copyright (C) 2010 America ipset Boot Security Save	
BIOS Information BIOS Vendor Core Version Compliency	American Megatrends 4.6.4.0 0.20 UEFI 2.0	Set the Date. Use Tab to switch between Data elements.
Project Version Build Date and Time	E329A11.ROM 01/28/2011 11:53:40	
System Date System Time	[Mon 06/20/2011] [15:10:27]	<pre>←→: Select Screen ↑↓: Select Item EnterSelect</pre>
Access Level	Administrator	<pre>+ - Change Opt. F1 General Help F2 Previous Values F3 Optimized Defaults F4 Save & Exit ESC Exit</pre>
Version 2.02.12	05. Copyright (C) 2010 American	Megatrends, Inc.

BIOS Menu 1: Main

➔ System Overview

The **BIOS Information** lists a brief summary of the BIOS. The fields in **BIOS Information** cannot be changed. The items shown in the system overview include:

- BIOS Vendor: Installed BIOS vendor
- Core Version: Current BIOS version
- Project Version: the board version
- Build Date and Time: Date and time the current BIOS version was made

The System Overview field also has two user configurable fields:

 \rightarrow System Date [xx/xx/xx]

Use the **System Date** option to set the system date. Manually enter the day, month and year.

→ System Time [xx:xx:xx]

Use the **System Time** option to set the system time. Manually enter the hours, minutes and seconds.

Technology

Corp.

4.3 Advanced

Use the **Advanced** menu (**BIOS Menu 2**) to configure the CPU and peripheral devices through the following sub-menus:



Setting the wrong values in the sections below may cause the system to malfunction. Make sure that the settings made are compatible with the hardware.

Aptio Setup Utility - Copyright (C) 2010 America Main <mark>Advanced</mark> Chipset Boot Security Save	
<pre>> ACPI Settings > Trusted Computing</pre>	System ACPI Parameters
<pre>> CPU Configuration > IDE Configuration > USB Configuration > Super IO Configuration</pre>	
<pre>> H/M Monitor > Serial Port Console Redirection</pre>	←→: Select Screen ↑↓: Select Item EnterSelect
	+ - Change Opt. F1 General Help F2 Previous Values
	F3 Optimized Defaults F4 Save & Exit ESC Exit
Version 2.02.1205. Copyright (C) 2010 American	Megatrends, Inc.

BIOS Menu 2: Advanced





4.3.1 ACPI Settings

The **ACPI Settings** menu (**BIOS Menu 3**) configures the Advanced Configuration and Power Interface (ACPI) options.

Aptio Setup Utility - Advanced	Copyright (C) 2010 America	n Megatrends, Inc.
ACPI Sleep State	[S1 (CPU Stop Clock)]	Select the highest ACPI sleep state the system will enter when the SUSPEND button is pressed.
		<pre>←→: Select Screen ↑↓: Select Item EnterSelect + - Change Opt. F1 General Help F2 Previous Values F3 Optimized Defaults F4 Save & Exit ESC Exit</pre>
Version 2.02.1205. (Copyright (C) 2010 American	Megatrends, Inc.

BIOS Menu 3: ACPI Configuration

→ ACPI Sleep State [S1 (CPU Stop Clock)]

Use the **ACPI Sleep State** option to specify the sleep state the system enters when it is not being used.

➔ Suspend Disabled

Page 36

S1 (CPU Stop DEFAULT The system enters S1(POS) sleep state. The system appears off. The CPU is stopped; RAM is refreshed; the system is running in a low power

mode.

 S3 (Suspend to RAM)
 The caches are flushed and the CPU is powered off. Power to the RAM is maintained. The computer returns slower to a working state, but

more power is saved.

4.3.2 Trusted Computing

Use the **Trusted Computing** menu (**BIOS Menu 4**) to configure settings related to the Trusted Computing Group (TCG) Trusted Platform Module (TPM).

Technology

Corp.

Aptio Setup Utility - Cop Advanced	yright (C)	2010 American	n Megatrends, Inc	•
TPM Configuration TPM SUPPORT Current TPM Status Information	[Disable]		Enables or Disab support. O.S. wi show TPM. Reset platform is requ	ll not of
TPM Hardware OFF				
			\leftrightarrow : Select Scre	-
			↑↓: Select Item	
			EnterSelect	
			+ - Change Opt. F1 General Hel	
			F1 General Her F2 Previous Va	-
			F3 Optimized De	
			F4 Save & Exit	
			ESC Exit	
Version 2.02.1205. Copyr	right (C) 2	010 American	Megatrends, Inc.	

BIOS Menu 4: TPM Configuration

→ TPM Support [Disable]

Use the **TPM Support** option to configure support for the TPM.

- → **Disable DEFAULT** TPM support is disabled.
- Enable
 TPM support is enabled.

4.3.3 CPU Configuration

Use the **CPU Configuration** menu (**BIOS Menu 5**) to view detailed CPU specifications and configure the CPU.



Technology Corp.

TANK-101B/BW Embedded System

Aptio Setup Utility Advanced	/ – Copyright (C) 2010 America	n Megatrends, Inc.
CPU Configuration		
Processor Type	Intel(R) Atom(TM) CPU D525 @ 1.80GHz	
EMT64	Supported	
Processor Speed	1800 MHz	
System Bus Speed	800 MHz	$\leftarrow \rightarrow$: Select Screen
Ratio Status	9	↑ ↓: Select Item
Actual Ratio	9	EnterSelect
Processor Stepping	106ca	+ - Change Opt.
Microcode Revision	263	F1 General Help
L1 Cache RAM	2x56 k	F2 Previous Values
L2 Cache RAM	2x512 k	F3 Optimized Defaults
Processor Core	Dual	F4 Save & Exit
Hyper-Threading	Supported	ESC Exit
Version 2.02.1205	. Copyright (C) 2010 American	Megatrends, Inc.

BIOS Menu 5: CPU Configuration

The CPU Configuration menu (BIOS Menu 5) lists the following CPU details:

- Processor Type: Lists the brand name of the CPU being used
- EMT64: Indicates if the EM64T is supported by the CPU.
- Processor Speed: Lists the CPU processing speed
- System Bus Speed: Lists the system bus
- Ratio Status: List the maximum FSB divisor
- Actual Ratio: Lists current FSB divisor
- Processor Stepping: Lists the CPU processing stepping
- Microcode Revision: Lists the microcode revision
- L1 Cache RAM: Lists the CPU L1 cache size
- L2 Cache RAM: Lists the CPU L2 cache size
- Processor Core: Lists the number of the processor core
- Hyper-Threading: Indicates if the Intel Hyper-Threading Technology is supported by the CPU.

4.3.4 IDE Configuration

Use the **IDE Configuration** menu (**BIOS Menu 6**) to change and/or set the configuration of the SATA devices installed in the system.

Page 38

Aptio Setup Utility Advanced	- Copyright (C) 2010 Americ	an Megatrends, Inc.
PATA Master PATA Slave	Not Present Not Present	Select ATA or IDE Configuration.
SATA Port0 SATA Port1 SATA Port2	Not Present Not Present Not Present	
SATA Port3 ATA or IDE Configuration Configure SATA as	Not Present [Enhanced] [IDE]	<pre>←→: Select Screen ↑↓: Select Item EnterSelect + - Change Opt.</pre>
		F1 General HelpF2 Previous ValuesF3 Optimized DefaultsF4 Save & Exit
Version 2.02.1205.	Copyright (C) 2010 American	ESC Exit n Megatrends, Inc.

Technology Corp.

BIOS Menu 6: IDE Configuration

→ ATA or IDE Configuration [Enhanced]

Use the ATA or IDE Configuration option to configure the ATA/IDE controller.

→	Disabled	Disables the on-board ATA/IDE controller.	
→	Compatible	Configures the on-board ATA/IDE controller to be in	
		compatible mode. In this mode, a SATA channel will	
		replace one of the IDE channels. This mode supports	
		up to 4 storage devices.	
→	Enhanced	Configures the on-board ATA/IDE controller to be in	

Enhanced DEFAULT Configures the on-board ATA/IDE controller to be in Enhanced mode. In this mode, IDE channels and SATA channels are separated. This mode supports up to 6 storage devices. Some legacy OS do not support this mode.

→ Configure SATA as [IDE]

Use the **Configure SATA as** option to configure SATA devices as normal IDE devices.

- **IDE DEFAULT** Configures SATA devices as normal IDE device.
- → AHCI Configures SATA devices as AHCI device.





4.3.5 USB Configuration

Use the **USB Configuration** menu (**BIOS Menu 7**) to read USB configuration information and configure the USB settings.

Aptio Setup Utility - C Advanced	opyright (C) 2010 2	American	h Megatrends, Inc.
USB Configuration			Enables Legacy USB support. AUTO option
USB Devices: 1 Keyboard			disables legacy support if no USB devices are connected. DISABLE
Legacy USB Support	[Enabled]		option will keep USB devices available only for EFI applications.
			←→: Select Screen
			↑↓: Select Item
			EnterSelect + - Change Opt.
			F1 General Help
			F2 Previous Values
			F3 Optimized Defaults F4 Save & Exit
			ESC Exit
Version 2.02.1205. Cop	oyright (C) 2010 Am	nerican	Megatrends, Inc.

BIOS Menu 7: USB Configuration

→ USB Devices

Page 40

The USB Devices field lists the USB devices that are enabled on the system

→ Legacy USB Support [Enabled]

Use the **Legacy USB Support** BIOS option to enable USB mouse and USB keyboard support. Normally if this option is not enabled, any attached USB mouse or USB keyboard does not become available until a USB compatible operating system is fully booted with all USB drivers loaded. When this option is enabled, any attached USB mouse or USB keyboard can control the system even when there is no USB driver loaded onto the system.

Enabled DEFAULT Legacy USB support enabled

→ Disabled

Legacy USB support disabled

Technology Corp.

Auto Legacy USB support disabled if no USB devices are connected

4.3.6 Super IO Configuration

Use the **Super IO Configuration** menu (**BIOS Menu 8**) to set or change the configurations for the serial ports.

Aptio Setup Utility - Copyright (C) 2010 America Advanced	n Megatrends, Inc.
Super IO Configuration	Set Parameters of Serial Port 1 (COMA)
Super IO Chip Finteck F81865	
<pre>> Serial Port 1 Configuration > Serial Port 2 Configuration > Serial Port 3 Configuration > Serial Port 4 Configuration</pre>	<pre>←→: Select Screen ↑↓: Select Item EnterSelect + - Change Opt. F1 General Help F2 Previous Values F3 Optimized Defaults F4 Save & Exit ESC Exit</pre>
Version 2.02.1205. Copyright (C) 2010 American	Megatrends, Inc.

BIOS Menu 8: Super IO Configuration





4.3.6.1 Serial Port n Configuration

Use the Serial Port n Configuration menu (BIOS Menu 9) to configure the serial port n.

Aptio Setup Utility - Cop Advanced	yright (C) 2010 America	n Megatrends, Inc.
Serial Port n Configuration Serial Port Device Settings	[Enabled] IO=3F8h; IRQ=4	Enable or Disable Serial Port (COM)
Change Settings	[Auto]	<pre>←→: Select Screen ↑↓: Select Item EnterSelect + - Change Opt. F1 General Help F2 Previous Values F3 Optimized Defaults</pre>
Version 2.02.1205. Copyr	right (C) 2010 American	F4 Save & Exit ESC Exit Megatrends, Inc.

BIOS Menu 9: Serial Port n Configuration Menu

4.3.6.1.1 Serial Port 1 Configuration

→ Serial Port [Enabled]

Use the Serial Port option to enable or disable the serial port.

→	Disabled	Disable the serial port
---	----------	-------------------------

- Enabled DEFAULT Enable the serial port
- → Change Settings [Auto]

Use the **Change Settings** option to change the serial port IO port address and interrupt address.

→	Auto	DEFAULT	The serial port IO port address and interrupt address
			are automatically detected.
→	IO=3F8h;		Serial Port I/O port address is 3F8h and the interrupt
	IRQ=4		address is IRQ4

Page 42

→	IO=3F8h; IRQ=3, 4	Serial Port I/O port address is 3F8h and the interrupt address is IRQ3, 4
→	IO=2F8h; IRQ=3, 4	Serial Port I/O port address is 2F8h and the interrupt address is IRQ3, 4
→	IO=2C0h; IRQ=3, 4	Serial Port I/O port address is 2C0h and the interrupt address is IRQ3, 4
→	IO=2C8h; IRQ=3, 4	Serial Port I/O port address is 2C8h and the interrupt address is IRQ3, 4

Technology Corp.

4.3.6.1.2 Serial Port 2 Configuration

→ Serial Port [Enabled]

Use the Serial Port option to enable or disable the serial port.

→	Disabled		Disable the serial port
→	Enabled	DEFAULT	Enable the serial port

→ Change Settings [Auto]

Use the **Change Settings** option to change the serial port IO port address and interrupt address.

→	Auto	DEFAULT	The serial port IO port address and interrupt address are automatically detected.
→	IO=2F8h; IRQ=3		Serial Port I/O port address is 2F8h and the interrupt address is IRQ3
→	IO=3F8h; IRQ=3, 4		Serial Port I/O port address is 3F8h and the interrupt address is IRQ3, 4
→	IO=2F8h; IRQ=3, 4		Serial Port I/O port address is 2F8h and the interrupt address is IRQ3, 4
→	IO=2C0h; IRQ=3, 4		Serial Port I/O port address is 2C0h and the interrupt address is IRQ3, 4





➔ IO=2C8h; IRQ=3, 4

echnology C

Serial Port I/O port address is 2C8h and the interrupt address is IRQ3, 4

4.3.6.1.3 Serial Port 3 Configuration

➔ Serial Port [Enabled]

Use the Serial Port option to enable or disable the serial port.

→	Disabled		Disable the serial port
→	Enabled	DEFAULT	Enable the serial port

→ Change Settings [Auto]

Use the **Change Settings** option to change the serial port IO port address and interrupt address.

→	Auto	DEFAULT	The serial port IO port address and interrupt address are automatically detected.
→	IO=3E8h; IRQ=10		Serial Port I/O port address is 3E8h and the interrupt address is IRQ10
→	IO=3E8h; IRQ=10, 11		Serial Port I/O port address is 3E8h and the interrupt address is IRQ10, 11
→	IO=2E8h; IRQ=10, 11		Serial Port I/O port address is 2E8h and the interrupt address is IRQ10, 11
→	IO=2D0h; IRQ=10, 11		Serial Port I/O port address is 2D0h and the interrupt address is IRQ10, 11
→	IO=2D8h; IRQ=10, 11		Serial Port I/O port address is 2D8h and the interrupt address is IRQ10, 11

4.3.6.1.4 Serial Port 4 Configuration

→ Serial Port [Enabled]

Use the Serial Port option to enable or disable the serial port.

→	Disabled		Disable the serial port
→	Enabled	DEFAULT	Enable the serial port

→ Change Settings [Auto]

Use the **Change Settings** option to change the serial port IO port address and interrupt address.

Technology

Corp.

→	Auto	DEFAULT	The serial port IO port address and interrupt address are automatically detected.
→	IO=2E8h; IRQ=10		Serial Port I/O port address is 2E8h and the interrupt address is IRQ10
→	IO=3E8h; IRQ=10, 11		Serial Port I/O port address is 3E8h and the interrupt address is IRQ10, 11
→	IO=2E8h; IRQ=10, 11		Serial Port I/O port address is 2E8h and the interrupt address is IRQ10, 11
→	IO=2D0h; IRQ=10, 11		Serial Port I/O port address is 2D0h and the interrupt address is IRQ10, 11
→	IO=2D8h; IRQ=10, 11		Serial Port I/O port address is 2D8h and the interrupt address is IRQ10, 11





4.3.7 H/W Monitor

The **H/W Monitor** menu (**BIOS Menu 10**) shows the operating temperature, fan speeds and system voltages.

	- Copyright (C) 2010 Americ	an Megatrends, Inc.
Advanced		
PC Health Status		
CPU Temperature	:+45 C	
SYS Temperature	:+40 C	
CPU FAN Speed	:N/A	
VCC3V	:+3.312 V	
V_core	:+1.152 V	
Vcc	:+5.045 V	
Vcc12	:+12.056 V	$\leftarrow \rightarrow$: Select Screen
Vcc1_5VDDR	:+1.488 V	$\uparrow \downarrow$: Select Item
VSB3V	:+3.328 V	EnterSelect
VBAT	:+3.216 V	+ - Change Opt.
CPU Smart Fan control	[Auto Mode]	F1 General Help
Temperature Bound 1	60	F2 Previous Values
Temperature Bound 2	50	F3 Optimized Defaults
Temperature Bound 3	40	F4 Save & Exit
Temperature Bound 4	30	ESC Exit
Version 2.02.1205.	Copyright (C) 2010 American	h Megatrends, Inc.

BIOS Menu 10: H/W Monitor

→ PC Health Status

The following system parameters and values are shown. The system parameters that are monitored are:

- System Temperatures:
 - O CPU Temperature
 - O System Temperature
- Fan Speeds:
 - O CPU Fan Speed
- Voltages:
 - O VCC3V
 - O Vcore
 - O Vcc
 - O Vcc12

Page 46

- O Vcc1_5VDDR
- O VSB3V
- O VBAT
- → CPU Smart Fan control [Auto Mode]

Use the CPU Smart Fan control option to configure the CPU fan.

→	Auto Mode	DEFAULT	The fan adjusts its speed using these settings:
			Temperature Bound 1
			Temperature Bound 2
			Temperature Bound 3
			Temperature Bound 4
→	Manual Mode		The fan spins at the speed set in: Manual Duty Cycle Setting

Technology Corp.

→ Temperature Bound n

Use the + or - key to change the fan **Temperature Bound n** value. Enter a decimal number between 0 and 127.

4.3.8 Serial Port Console Redirection

The **Serial Port Console Redirection** menu (**BIOS Menu 11**) allows the console redirection options to be configured. Console redirection allows users to maintain a system remotely by re-directing keyboard input and text output through the serial port.



Aptio Setup Utility - Copy Advanced	yright (C) 2010 America	n Megatrends, Inc.
COM1 Console Redirection > Console Redirection Settings	[Disabled]	Console Redirection Enable or Disable
COM2 Console Redirection > Console Redirection Settings	[Disabled]	
COM3 Console Redirection > Console Redirection Settings	[Disabled]	
COM4 Console Redirection > Console Redirection Settings	[Disabled]	<pre>←→: Select Screen ↑↓: Select Item EnterSelect +/-: Change Opt. F1 General Help P2 Drevelers Values</pre>
Version 2.02.1205. Copyr	ight (C) 2010 American	F2 Previous Values F3 Optimized Defaults F4 Save & Exit ESC Exit Megatrends, Inc.

BIOS Menu 11: Serial Port Console Redirection

→ Console Redirection [Disabled]

Use **Console Redirection** option to enable or disable the console redirection function.

→	Disabled	DEFAULT	Disabled the console redirection function
→	Enabled		Enabled the console redirection function

→ Terminal Type [ANSI]

Use the **Terminal Type** option to specify the remote terminal type.

→	VT100		The target terminal type is VT100
→	VT100+		The target terminal type is VT100+
→	VT-UTF8		The target terminal type is VT-UTF8
→	ANSI	DEFAULT	The target terminal type is ANSI

echnology

→ Bits per second [115200]

Use the **Bits per second** option to specify the serial port transmission speed. The speed must match the other side. Long or noisy lines may require lower speeds.

Technology Corp.

→	9600		Sets the serial port transmission speed at 9600.
→	19200		Sets the serial port transmission speed at 19200.
→	38400		Sets the serial port transmission speed at 38400.
→	57600		Sets the serial port transmission speed at 57600.
→	115200	DEFAULT	Sets the serial port transmission speed at 115200.

4.4 Chipset

Use the **Chipset** menu (**BIOS Menu 12**) to access the Northbridge and Southbridge configuration menus.



Setting the wrong values for the Chipset BIOS selections in the Chipset BIOS menu may cause the system to malfunction.

Aptio Setup Utility - Copyright (C) 2010 America Main Advanced Chipset Boot Security Save	
> Host Bridge> South Bridge> Intel IGD SWSCI OpRegion	North Bridge Parameters
	<pre>←→: Select Screen ↑↓: Select Item EnterSelect + - Change Opt. F1 General Help F2 Previous Values F3 Optimized Defaults F4 Save & Exit ESC Exit</pre>
Version 2.02.1205. Copyright (C) 2010 American	Megatrends, Inc.

BIOS Menu 12: Chipset





4.4.1 Host Bridge Configuration

Use the **Host Bridge Configuration** menu (**BIOS Menu 13**) to configure the Northbridge chipset.

Aptio Setup Utility - Cop Chipset	yright (C) 2010 America	n Megatrends, Inc.
> OnChip VGA Configuration		Config On Chip VGA Settings.
****** Memory Information **** Memory Frequency		←→: Select Screen
Total Memory	2048 MB	<pre>↓ Select Item EnterSelect</pre>
DIMM#0 DIMM#1	1024 MB 1024 MB	 + - Change Opt. F1 General Help F2 Previous Values F3 Optimized Defaults F4 Save & Exit ESC Exit
Version 2.02.1205. Copyr	right (C) 2010 American	

→ Initiate Graphic Adapter [PCI/IGD]

Use the **Initiate Graphic Adapter** option to select the graphics controller used as the primary boot device. Select either an integrated graphics controller (IGD) or a combination of PCI graphics controller. Configuration options are listed below:

- IGD
- PCI/IGD DEFAULT



BIOS Menu 13: Host Bridge Chipset Configuration

4.4.1.1 On Chip VGA Configuration

Use the **OnChip VGA Configuration** menu (**BIOS Menu 14**) to configure the OnChip VGA.

Technology

Corp.

Aptio Setup Utility Chipse		2010 American	n Megatrends, Inc.
OnChip VGA Configuration			Select Share Memory Size.
Share Memory Size	[8 MB]		
			<pre>←→: Select Screen ↑↓: Select Item EnterSelect</pre>
			+ - Change Opt.
			F1 General Help F2 Previous Values
			F3 Optimized Defaults
			F4 Save & Exit ESC Exit
Version 2.02.1205.	Copyright (C) 2	010 American	Megatrends, Inc.

BIOS Menu 14: OnChip VGA Configuration

→ Share Memory Size [8 MB]

Use the **Share Memory Size** option to set the amount of system memory allocated to the integrated graphics processor when the system boots. The system memory allocated can then only be used as graphics memory, and is no longer available to applications or the operating system. Configuration options are listed below:

- Disabled
- 8 MB Default

4.4.2 South Bridge Configuration

Use the **South Bridge Configuration** menu (**BIOS Menu 15**) to configure the Southbridge chipset.





Aptio Setup Utility - Co Chipset	pyright (C) 2010 Ameria	can Megatrends, Inc.
Auto Power Button Function HD Audio Controller USB Function USB 2.0(EHCI) Support Set Spread Spectrum function	[Enabled] [Enabled] [Enabled] [Disabled]	<pre>High Definition Audio Controller</pre>
Version 2.02.1205. Copy	yright (C) 2010 America	

BIOS Menu 15: South Bridge Chipset Configuration

→ Restore AC Power Loss [Last State]

Use the **Restore AC Power Loss** BIOS option to specify what state the system returns to if there is a sudden loss of power to the system.

→	Power Off		The system remains turned off
→	Power On		The system turns on
→	Last State	DEFAULT	The system returns to its previous state. If it was on, it
			turns itself on. If it was off, it remains off.

→ HD Audio Controller [Enabled]

Use the **HD** Audio Controller option to enable or disable the High Definition Audio controller.

→	Enabled	DEFAULT	The	onboard	High	Definition	Audio	controller
			auton	natically def	ected a	nd enabled		
→	Disabled		The c	onboard Hig	h Defini	tion Audio co	ontroller i	s disabled

→ USB Function [Enabled]

Use the USB Function BIOS option to enable or disable USB function support.



Disabled

→

	→	Enabled	DEFAULT	USB function support enabled
→	USB	2.0 (EHCI)	Support [Ena	bled]
	Use th	ne USB 2.0 (EHCI) Suppor	rt BIOS option to enable or disable USB 2.0 support.
	→		_	
	7	Enabled	DEFAULT	USB 2.0 (EHCI) support enabled
	→	Disabled		USB 2.0 (EHCI) support disabled
→	Set S	Spread Spec	etrum Functio	on [Disabled]
	The S	et Spread S	pectrum Fund	ction option can help to improve CPU EMI issues.
	→	Disabled	DEFAULT	The spread spectrum mode is disabled
	→	Enabled		The spread spectrum mode is enabled

USB function support disabled

Corp.

Technology

4.4.3 Intel IGD SWSCI OpRegion

Use the Intel IGD SWSCI OpRegion menu (BIOS Menu 16) to configure the video device connected to the system.

Aptio Setup Utility - Copy Chipset	right (C) 2010 America	n Megatrends, Inc.
Intel IGD SWSCI OpRegion Configu DVMT Mode Select DVMT/Fixed Memory	ration [DVMT Mode] [Maximum]	Select DVMT Mode/Fixed Mode
		<pre></pre>
Version 2.02.1205. Copyra	ight (C) 2010 American	Megatrends, Inc.

BIOS Menu 16: Intel IGD SWSCI OpRegion Configuration





➔ DVMT Mode Select [DVMT Mode]

echnology Corp

Use the **DVMT Mode Select** option to select the Intel Dynamic Video Memory Technology (DVMT) operating mode.

- ➔ Fixed Mode A fixed portion of graphics memory is reserved as graphics memory.
- DVMT Mode DEFAULT Graphics memory is dynamically allocated according to the system and graphics needs.

→ DVMT/FIXED Memory [Maximum]

Use the **DVMT/FIXED Memory** option to specify the maximum amount of memory that can be allocated as graphics memory. Configuration options are listed below.

- 128 MB
- 256 MB
- Maximum **Default**

4.5 Boot

Use the Boot menu (BIOS Menu 17) to configure system boot options.

Aptio Setup Utility - Main Advanced Chipset	Copyright (C) 2010 Ameri Boot Security Sa	_
Boot Configuration Boot NumLock State	[On]	Select the keyboard NumLock state
Quiet Boot Launch PXE OpROM	[Enabled] [Disabled]	←→: Select Screen
Boot Option Priorities		<pre>↑↓: Select Jorden ↑↓: Select Item EnterSelect + - Change Opt. F1 General Help F2 Previous Values F3 Optimized Defaults F4 Save & Exit ESC Exit</pre>
Version 2.02.1205. C	opyright (C) 2010 America	n Megatrends, Inc.

BIOS Menu 17: Boot

Page 54

→ Bootup NumLock State [On]

Use the **Bootup NumLock State** BIOS option to specify if the number lock setting must be modified during boot up.

Technology

Corp.

- → On DEFAULT Allows the Number Lock on the keyboard to be enabled automatically when the computer system boots up. This allows the immediate use of the 10-key numeric keypad located on the right side of the keyboard. To confirm this, the Number Lock LED light on the keyboard is lit.
- → Off Does not enable the keyboard Number Lock automatically. To use the 10-keys on the keyboard, press the Number Lock key located on the upper left-hand corner of the 10-key pad. The Number Lock LED on the keyboard lights up when the Number Lock is engaged.

→ Quiet Boot [Enabled]

Use the Quiet Boot BIOS option to select the screen display when the system boots.

→	Disabled		Normal POST messages displayed
→	Enabled	DEFAULT	OEM Logo displayed instead of POST messages

→ Launch PXE OpROM [Disabled]

Use the **Launch PXE OpROM** option to enable or disable boot option for legacy network devices.

→	Disabled	DEFAULT	Ignore all PXE Option ROMs
→	Enabled		Load PXE Option ROMs.

4.6 Security

Use the Security menu (BIOS Menu 18) to set system and user passwords.



Aptio Setup Utility - Copyright (C) 2010 America	n Megatrends, Inc.
Main Advanced Chipset Boot <mark>Security</mark> Save	& Exit
Password Description	Set Setup Administrator
If ONLY the Administrator's password is set,	Password
then this only limits access to Setup and is only asked for when entering Setup. If ONLY the User's password is set, then this is a power on password and must be entered to boot or enter Setup. In Setup the User will have Administrator rights. The password must be 3 to 20 characters long.	<pre>←→: Select Screen ↑↓: Select Item EnterSelect + - Change Opt. F1 General Help</pre>
Administrator Password User Password Version 2.02.1205. Copyright (C) 2010 American	F2 Previous Values F3 Optimized Defaults F4 Save & Exit ESC Exit

BIOS Menu 18: Security

→ Administrator Password

Use the Administrator Password to set or change a administrator password.

→ User Password

rechnology Co

Use the **User Password** to set or change a user password.

4.7 Exit

Use the **Exit** menu (**BIOS Menu 19**) to load default BIOS values, optimal failsafe values and to save configuration changes.

Technology

Corp.

Aptio Setup Utility -	Copyright	(C) 2010 Ar	mericar	n Megatrends, Inc.
Main Advanced Chipset	Boot	Security	Save	& Exit
Save Changes and Reset Discard Changes and Reset				Exit the system after saving the changes.
Restore Defaults Save as User Defaults Restore User Defaults				
				<pre></pre>
Version 2.02.1205. C	opyright (C) 2010 Ame	rican	Megatrends, Inc.

BIOS Menu 19:Exit

→ Save Changes and Reset

Use the **Save Changes and Reset** option to save the changes made to the BIOS options and to exit the BIOS configuration setup program.

→ Discard Changes and Reset

Use the **Discard Changes and Reset** option to exit the system without saving the changes made to the BIOS configuration setup program.

→ Restore Defaults

Use the **Restore Defaults** option to load the optimal default values for each of the parameters on the Setup menus. **F3 key can be used for this operation.**





→ Save as User Defaults

Use the **Save as User Defaults** option to save the changes done so far as user defaults.

→ Restore User Defaults

Use the **Restore User Defaults** option to restore the user defaults to all the setup options.







One Key Recovery





A.1 One Key Recovery Introduction

The IEI one key recovery is an easy-to-use front end for the Norton Ghost system backup and recovery tool. This tool provides quick and easy shortcuts for creating a backup and reverting to that backup or reverting to the factory default settings.



echnology Cor

The latest One Key Recovery software provides an auto recovery function that allows a system running Microsoft Windows OS to automatically restore from the factory default image after encountering a Blue Screen of Death (BSoD) or a hang for around 10 minutes. Please refer to Section A.3 for the detailed setup procedure.

The IEI One Key Recovery tool menu is shown below.

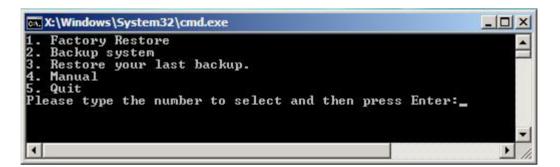


Figure A-1: IEI One Key Recovery Tool Menu

Prior to using the IEI One Key Recovery tool (as shown in **Figure A-1**) to backup or restore <u>Windows</u> system, five setup procedures are required.

- 1. Hardware and BIOS setup (see Section A.2.1)
- 2. Create partitions (see Section A.2.2)
- 3. Install operating system, drivers and system applications (see Section A.2.3)
- 4. Build the recovery partition (see Section A.2.4)
- 5. Create factory default image (see Section A.2.5)

Page 60

After completing the five initial setup procedures as described above, users can access the recovery tool by pressing **<F3>** while booting up the system. The detailed information of each function is described in **Section A.5**.

Technolog

Corp.



The initial setup procedures for Linux system are described in **Section A.3**.

A.1.1 System Requirement



The recovery CD can only be used with IEI products. The software will fail to run and a warning message will appear when used on non-IEI hardware.

en X:\1386\system32\cmd.exe - startnet.cmd X:\1386\system32>call start.exe	<u> </u>
Project1 This software	only runs on IEI hardware!

To create the system backup, the main storage device must be split into two partitions (three partitions for Linux). The first partition will be for the operating system, while the second partition will be invisible to the operating system and contain the backup made by the one key recovery software.

The partition created for recovery images must be big enough to contain both the factory default image and the user backup image. The size must be calculated before creating the





partitions. Please take the following table as a reference when calculating the size of the partition.

	os	OS Image after Ghost	Compression Ratio
Windows® 7	7 GB	5 GB	70%
Windows® XPE	776 MB	560 MB	70%
Windows® CE 6.0	36 MB	28 MB	77%



rechnology C

Specialized tools are required to change the partition size if the operating system is already installed.

A.1.2 Supported Operating System

The recovery CD is compatible with both Microsoft Windows and Linux operating system (OS). The supported OS versions are listed below.

- Microsoft Windows
 - O Windows XP (Service Pack 2 or 3 required)
 - O Windows Vista
 - O Windows 7
 - O Windows CE 5.0
 - O Windows CE 6.0
 - O Windows XP Embedded
- Linux

Page 62

- O Fedora Core 12 (Constantine)
- O Fedora Core 11 (Leonidas)
- O Fedora Core 10 (Cambridge)
- O Fedora Core 8 (Werewolf)
- O Fedora Core 7 (Moonshine)
- O RedHat RHEL-5.4
- O RedHat 9 (Ghirke)

- O Ubuntu 8.10 (Intrepid)
- O Ubuntu 7.10 (Gutsy)
- O Ubuntu 6.10 (Edgy)
- O Debian 5.0 (Lenny)
- O Debian 4.0 (Etch)
- O SuSe 11.2
- O SuSe 10.3



Installing unsupported OS versions may cause the recovery tool to fail.

Technology

Corp.

A.2 Setup Procedure for Windows

Prior to using the recovery tool to backup or restore Windows system, a few setup procedures are required.

- Step 1: Hardware and BIOS setup (see Section A.2.1)
- Step 2: Create partitions (see Section A.2.2)
- Step 3: Install operating system, drivers and system applications (see Section A.2.3)
- Step 4: Build the recovery partition (see Section A.2.4) or build the auto recovery partition (see Section A.3)
- Step 5: Create factory default image (see Section A.2.5)

The detailed descriptions are described in the following sections.



The setup procedures described below are for Microsoft Windows operating system users. For Linux, most of the setup procedures are the same except for several steps described in **Section A.3**.





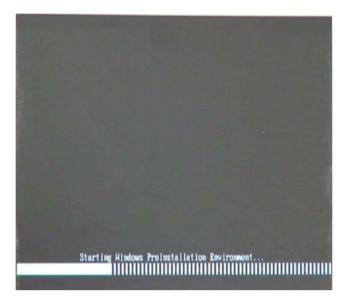
A.2.1 Hardware and BIOS Setup

echnology

- Step 1: Make sure the system is powered off and unplugged.
- Step 2: Install a hard drive or SSD in the system. An unformatted and unpartitioned disk is recommended.
- Step 3: Connect an optical disk drive to the system and insert the recovery CD.
- Step 4: Turn on the system.
- Step 5: Press the **<DELETE>** key as soon as the system is turned on to enter the BIOS.
- Step 6: Select the connected optical disk drive as the 1st boot device. (**Boot** \rightarrow **Boot Device Priority** \rightarrow 1st **Boot Device**).
- Step 7: Save changes and restart the computer. Continue to the next section for instructions on partitioning the internal storage.
- A.2.2 Create Partitions

To create the system backup, the main storage device must be split into two partitions (three partitions for Linux). The first partition will be for the operating system, while the second partition will be invisible to the operating system and contain the backup made by the one key recovery software.

- Step 1: Put the recovery CD in the optical drive of the system.
- Step 2: Boot the system from recovery CD. When prompted, press any key to boot from the recovery CD. It will take a while to launch the recovery tool. Please be patient!



Technology Corp.

Figure A-2: Launching the Recovery Tool

Step 3: The recovery tool setup menu is shown as below.

1.Execute	Ghost			
		environmen	t For	Windows
		environmen		
		vironment		
5.Exit				
6.Command	Prompt			
		print tex	t.	

Figure A-3: Recovery Tool Setup Menu

Step 4: Press <6> then <Enter>.



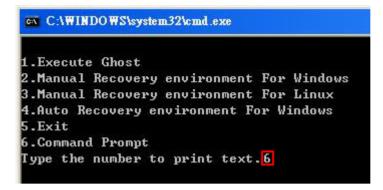


Figure A-4: Command Mode

Technology Corp

 Step 5:
 The command prompt window appears. Type the following commands (marked in red) to create two partitions. One is for the OS installation; the other is for saving recovery files and images which will be an invisible partition.

 (Press <Enter> after entering each line below)

 system32>diskpart

 DISKPART>list vol

 DISKPART>create part pri size= ___

 System32>format N: /fs:ntfs /q /y

 system32>format F: /fs:ntfs /q /v:Recovery /y

 system32>exit

Page 66

	noz (ci	1D.EXE					_ & ×
{:\I386\SYSTE	M32>d	liskpart	Starts th	e Microsoft dis	k partitioni	ng tool.	
licrosoft Dis Copyright (C) On computer:	kPart 1999	version 5. -2001 Micro	2.3790.18	30			
DISKPART> lis	t vol	→ Show	partition in	formation			
Volume ###	Ltr	Label	Fs	Туре	Size	Status	Info
Volume Ø Volume 1	X D	CD_ROM	CDFS FAT32				Boot
DISKPART> sel	. disk	: 0	ect a disk				
Disk Ø is now	the	selected di	sk.				
DISKPART> cre	ate p	art pri siz	e=2000	Create pa This parti	rtition 1 an	d assign a s	ize.
				cified parti		55 mstanati	201.
DISKPART> ass	ign l	letter=N	Assign p	partition 1 a co	de name (N		
1000 milemetrik - 1 milemetrik (* 1000				ive letter or			
DISKPART> cre	ate p	art pri siz	e= <mark>1800</mark>	Create partition This partition	rtition 2 and	d assign a si	ze.
Second and the second se	_	No. of the local division of the local divis		This partitec if ied partitec if ied partitec if ied part i		ecovery inta	yes.
DISKPART> ass	ign l	letter=F	► Assign	partition 2 a co	de name (F	·).	
and maximum and the second		10.00747		ive letter or			
DISKPART> exi	t	➤ Exit diskpa	irt				
K:\1386\SYSTE The type of t The new file QuickFormatti Creating file Format comple 2048254 KE	M32)f he fi syste ng 20 syst te. tota	format n: /f le system l m is NTFS. 000M	s:ntfs /o s кнw. es.	r ∕y → Forn	mat partitic	on 1 (N) as N	TFS format.
The type of t The new file QuickFormatti Creating file Format comple 1847474 KE	he fi syste ng 18 syst te. tota	ie system i em is NTFS. 104M	s лнw. es.	r ∕v:Recovery Formate par name it as "		as NTFS for	mate and

Technology Corp.

Figure A-5: Partition Creation Commands







Use the following commands to check if the partitions were created successfully.

Microsoft DiskPa Copyright (C) 19 On computer: MIN			on.
DISKPART> sel di	.sk Ø		
Disk Ø is now tł	e selected disl	<.	
DISKPART> list p	art		
Partition ###	Туре	Size	Offset
			With the second states

Step 6: Press any key to exit the recovery tool and automatically reboot the system. Please continue to the following procedure: Build-up Recovery Partition.

A.2.3 Install Operating System, Drivers and Applications

Install the operating system onto the unlabelled partition. The partition labeled "Recovery" is for use by the system recovery tool and should not be used for installing the operating system or any applications.



The operating system installation program may offer to reformat the chosen partition. DO NOT format the partition again. The partition has already been formatted and is ready for installing the new operating system.

To install the operating system, insert the operating system installation CD into the optical drive. Restart the computer and follow the installation instructions.

A.2.4 Build-up Recovery Partition

- Step 1: Put the recover CD in the optical drive.
- Step 2: Start the system.
- Step 3: Boot the system from recovery CD. When prompted, press any key to boot from the recovery CD. It will take a while to launch the recovery tool. Please be patient!

Technology

Corp.

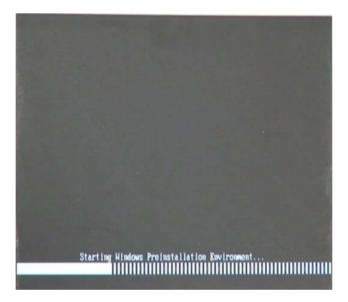


Figure A-6: Launching the Recovery Tool

Step 4: When the recovery tool setup menu appears, press <2> then <Enter>.

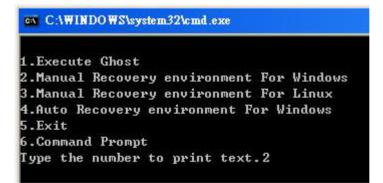
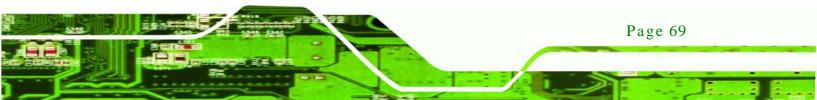


Figure A-7: System Configuration for Windows



Step 5: The Symantec Ghost window appears and starts configuring the system to build a recovery partition. In this process the partition created for recovery files in
 Section A.2.2 is hidden and the recovery tool is saved in this partition.

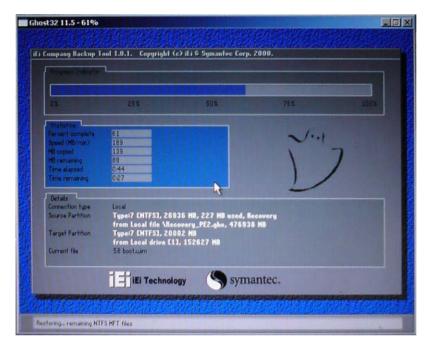


Figure A-8: Building the Recovery Partition

Step 6: After completing the system configuration, press any key in the following window

to reboot the system.

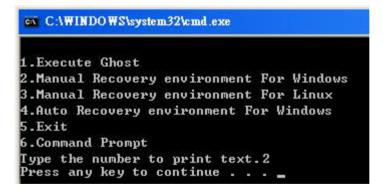


Figure A-9: Press Any Key to Continue

Step 7: Eject the recovery CD.

Page 70

Technology Corp

A.2.5 Create Factory Default Image



Before creating the factory default image, please configure the system to a factory default environment, including driver and application installations.

Technolog

Corp

To create a factory default image, please follow the steps below.

Step 1: Turn on the system. When the following screen displays (Figure A-10), press the <F3> key to access the recovery tool. The message will display for 10 seconds, please press F3 before the system boots into the operating system.

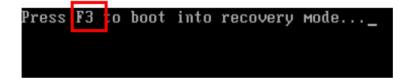


Figure A-10: Press F3 to Boot into Recovery Mode

Step 2: The recovery tool menu appears. Type <4> and press <Enter>. (Figure A-11)



Figure A-11: Recovery Tool Menu

Step 3: The About Symantec Ghost window appears. Click **OK** button to continue.



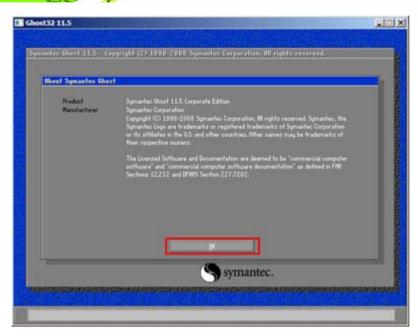


Figure A-12: About Symantec Ghost Window

Technology Corp

Step 4: Use mouse to navigate to the option shown below (Figure A-13).

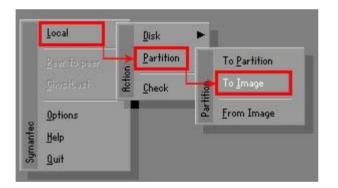


Figure A-13: Symantec Ghost Path

Step 5: Select the local source drive (Drive 1) as shown in **Figure A-14**. Then click OK.



ve Locat	Location Model	Size(MB)	Туре	Cylinders	Heads	Sector
Local	ocal ST3160318AS	152627	Balsic	19457	255	63
Local	ocal US Volumes	120128	Basic	15314	255	63

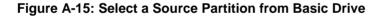
Technology Corp.

Figure A-14: Select a Local Source Drive

Step 6: Select a source partition (Part 1) from basic drive as shown in **Figure A-15**.

Then click OK.

Part	Туре	Letter	ID	Description	Volume Label	Size in MB	Data Size in MB
1	0		07	NTFS	No name	100006	1951
2	U:		07	NIFS	Recovery Free	20002 32618	917
					Total	152627	2178



Step 7: Select 1.2: [Recovery] NTFS drive and enter a file name called iei

(Figure A-16). Click Save. The factory default image will then be saved in the selected recovery drive and named IEI.GHO.



The file name of the factory default image must be iei.GHO.



® Technology Corp

TANK-101B/BW Embedded System

File name to copy image to			
Look in: 1 🗔 D: 1.2: [Rec	overy] NTFS drive	e 🔽 🖿	
Name	Size	Date	
👝 BOOT		01/03/2010 05:00:52 AM	
EFI EFI		01/03/2010 05:01:02 AM	
📄 Recovery		01/03/2010 05:57:16 AM	
SOURCES		01/03/2010 05:02:16 AM	
🚞 System Volume Information		12/31/2001 11:07:28 PM	
File <u>n</u> ame:		3 <u>Save</u>	
Files of type: *,GHO		▼ <u>C</u> ancel	
Image file <u>d</u> escription:			

Figure A-16: File Name to Copy Image to

Step 8: When the Compress Image screen in Figure A-17 prompts, click High to make

the image file smaller.

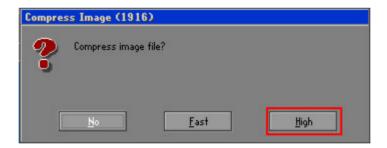


Figure A-17: Compress Image



Step 9: The Proceed with partition image creation window appears, click Yes to

Corp.

echnolog

continue.

Questio	n: (1837)
?	Proceed with partition image creation?
	<u>Y</u> es <u>N</u> o

Figure A-18: Image Creation Confirmation

Step 10: The Symantec Ghost starts to create the factory default image (Figure A-19)	Step 10:	The Symantec	Ghost starts to	create the factory	default image	(Figure A-19).
--	----------	--------------	-----------------	--------------------	---------------	----------------

Progress Indicator				
0%	25%	50%	75%	100%
Statistics				
Percent complete	52		~ 1.1	
Speed (MB/min)	468			
MB copied	632		1	17 A 1
MB remaining	563		1	1
Time elapsed	1:21		1	/
Time remaining	1:12		1/	
Details				
Connection type	Local			
Source Partition	Type:7 ENTFS3, 10	0006 MB, 1951 MB used	, No name	
	from Local drive E	BOJ, 130129 MB		
Destination file	Local file D:\iei.GHC			
Current file	3891 o_869.nls			

Figure A-19: Image Creation Process

Step 11: When the image creation completes, a screen prompts as shown in Figure A-20.

Click **Continue** and close the Ghost window to exit the program.

Image	Creation Complete (1925)
8	Image Creation Completed Successfully
	Continue

Figure A-20: Image Creation Complete





Step 12: The recovery tool main menu window is shown as below. Press any key to

reboot the system.

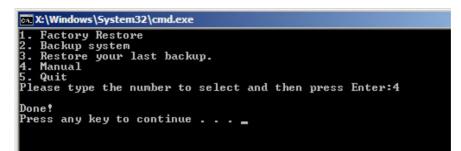


Figure A-21: Press Any Key to Continue

A.3 Auto Recovery Setup Procedure

The auto recovery function allows a system to automatically restore from the factory default image after encountering a Blue Screen of Death (BSoD) or a hang for around 10 minutes. To use the auto recovery function, follow the steps described in the following sections.



Page 76

The setup procedure may include a step to create a factory default image. It is suggested to configure the system to a factory default environment before the configuration, including driver and application installations.

- Step 1: Follow the steps described in **Section A.2.1 ~ Section A.2.3** to setup BIOS, create partitions and install operating system.
- Step 2: Install the auto recovery utility into the system by double clicking the Utility/AUTORECOVERY-SETUP.exe in the One Key Recovery CD. This utility MUST be installed in the system, otherwise, the system will automatically restore from the factory default image every ten (10) minutes.



Figure A-22: Auto Recovery Utility

Step 3: Reboot the system from the recovery CD. When prompted, press any key to boot from the recovery CD. It will take a while to launch the recovery tool. Please be patient!

Technology Corp.



Figure A-23: Launching the Recovery Tool

Step 4: When the recovery tool setup menu appears, press <4> then <Enter>.

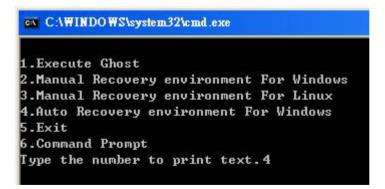


Figure A-24: Auto Recovery Environment for Windows



Step 5: The Symantec Ghost window appears and starts configuring the system to build an auto recovery partition. In this process the partition created for recovery files in **Section A.2.2** is hidden and the auto recovery tool is saved in this partition.

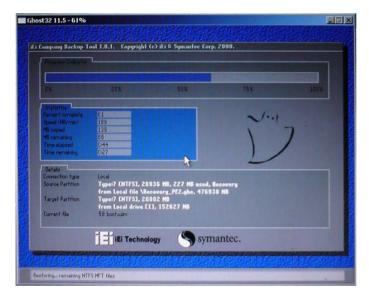


Figure A-25: Building the Auto Recovery Partition

Step 6: After completing the system configuration, the following message prompts to confirm whether to create a factory default image. Type Y to have the system create a factory default image automatically. Type N within 6 seconds to skip this process (The default option is YES). It is suggested to choose YES for this option.



Figure A-26: Factory Default Image Confirmation



Technology Corp

Step 7: The Symantec Ghost starts to create the factory default image (Figure A-27).

echnology

Corp.

Progress Indicator				
0%	25%	50%	75%	100%
Statistics				
Percent complete	52		- 1.1	
Speed (MB/min)	468		· · · ·	
MB copied	632		¥	
MB remaining	563		\mathbf{A}	1
Time elapsed	1:21			/
Time remaining	1:12			r
Details		t;		
Connection type	Local			
Source Partition	Tune:7 [NTES], 10	0006 MB, 1951 MB used	No name	
	from Local drive E			
Destination file	Local file D:\iei.GH			
Current file	3891 o_869.nls			
		(
		syma	antec.	

Figure A-27: Image Creation Complete

Step 8: After completing the system configuration, press any key in the following window

to restart the system.

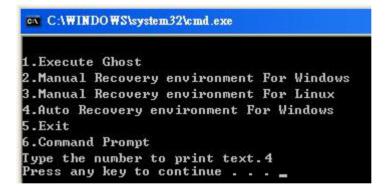


Figure A-28: Press any key to continue

Step 9: Eject the One Key Recovery CD and restart the system.

- Step 10: Press the **<DELETE>** key as soon as the system is turned on to enter the BIOS.
- Step 11: Enable the Auto Recovery Function option (Advanced \rightarrow iEi Feature \rightarrow Auto

Recovery Function).



BIOS SETUP UTILITY	
Main Advanced PCIPNP Boot Security Chipset D	Exit
iEi Feature	
Auto Recovery Function [Enabled]	
•	
Recover from PXE [Disabled]	
←→ Sele	eat Sareen
↑↓ Sele	ect Item
Enter Go t	to SubScreen
F1 Gene	eral Help
	e and Exit
ESC Exit	t
v02.61 ©Copyright 1985-2006, American Megatrends,	Inc.

BIOS Menu 20: IEI Feature

Technology C

Step 12: Save changes and restart the system. If the system encounters a Blue Screen of Death (BSoD) or a hang for around 10 minutes, it will automatically restore from the factory default image.

The auto recovery function can only apply on a Microsoft Windows system running the following OS versions:

- Windows XP
- Windows Vista
- Windows 7

A.4 Setup Procedure for Linux

Page 80

The initial setup procedures for a Linux system are mostly the same with the procedure for Microsoft Windows. Please follow the steps below to setup the recovery tool for Linux OS.

Step 1: Hardware and BIOS setup. Refer to Section A.2.1.

Step 2: Install Linux operating system. Make sure to install GRUB (v0.97 or earlier) MBR type and Ext3 partition type. Leave enough space on the hard drive to create the recover partition later.

Technology

Corp.



If the Linux OS is not installed with GRUB (v0.97 or earlier) and Ext3, the Symantec Ghost may not function properly.

While installing Linux OS, please create two partitions:

- Partition 1: I
- Partition 2: SWAP



Please reserve enough space for partition 3 for saving recovery images.

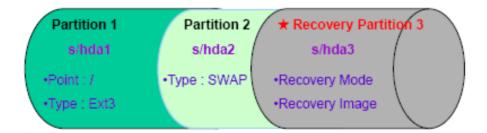


Figure A-29: Partitions for Linux

Step 3: Create a recovery partition. Insert the recovery CD into the optical disk drive.

Follow Step 1 ~ Step 3 described in Section A.2.2. Then type the following

commands (marked in red) to create a partition for recovery images.

system32>diskpart

DISKPART>list vol

DISKPART>sel disk 0



DISKPART>create part pri size= ____ DISKPART>assign letter=N DISKPART>exit system32>format N: /fs:ntfs /q /v:Recovery /y system32>exit

Step 4: Build-up recovery partition. Press any key to boot from the recovery CD. It will take a while to launch the recovery tool. Please be patient. When the recovery tool setup menu appears, type <3> and press <Enter> (Figure A-30). The Symantec Ghost window appears and starts configuring the system to build-up a recovery partition. After completing the system configuration, press any key to reboot the system. Eject the recovery CD.

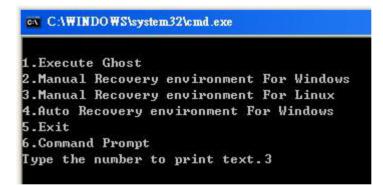


Figure A-30: Manual Recovery Environment for Linux

Step 5: Access the recovery tool main menu by modifying the "menu.lst". To first access the recovery tool main menu, the menu.lst must be modified. In Linux system, enter Administrator (root). When prompt appears, type:

cd /boot/grub

vi menu.lst



Technology Corp

Fedora release 9 (Sulphur) Kernel 2.6.25-14.fc9.i686 on an i686 (tty2) localhost login: root Password: [root@localhost ~]# cd /boot/grub/ [root@localhost grub]# vi menu.lst _ **®Technology** Corp.

Figure A-31: Access menu.lst in Linux (Text Mode)

Step 6: Modify the menu.lst as shown below.



Step 7: The recovery tool menu appears. (Figure A-32)

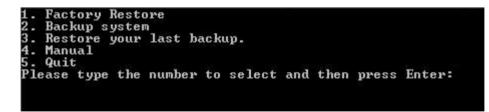
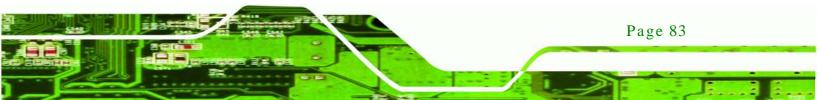


Figure A-32: Recovery Tool Menu

Step 8: Create a factory default image. Follow Step 2 ~ Step 12 described in

Section A.2.5 to create a factory default image.



A.5 Recovery Tool Functions

echnology Corr

After completing the initial setup procedures as described above, users can access the recovery tool by pressing $\langle F3 \rangle$ while booting up the system. However, if the setup procedure in Section A.3 has been completed and the auto recovery function is enabled, the system will automatically restore from the factory default image without pressing the F3 key. The recovery tool main menu is shown below.

💽 X:\Windows\System32\cmd.exe	_ 🗆 ×
1. Factory Restore 2. Backup system 3. Restore your last backup. 4. Manual 5. Quit Please type the number to select and then press Enter:_	
	•

Figure A-33: Recovery Tool Main Menu

The recovery tool has several functions including:

- Factory Restore: Restore the factory default image (iei.GHO) created in Section A.2.5.
- 2. **Backup system**: Create a system backup image (iei_user.GHO) which will be saved in the hidden partition.
- 3. Restore your last backup: Restore the last system backup image
- 4. Manual: Enter the Symantec Ghost window to configure manually.
- 5. Quit: Exit the recovery tool and restart the system.



Please do not turn off the system power during the process of system recovery or backup.





All data in the system will be deleted during the system recovery. Please backup the system files before restoring the system (either Factory Restore or Restore Backup).

Technology

Corp.

A.5.1 Factory Restore

To restore the factory default image, please follow the steps below.

- Step 1: Type <1> and press <**Enter**> in the main menu.
- Step 2: The Symantec Ghost window appears and starts to restore the factory default. A factory default image called **iei.GHO** is created in the hidden Recovery partition.

0%	25%	50%	75%	100%
Statistics				
Percent complete	45		- 1.1	
Speed (MB/min)	1125			
MB copied	544			
MB remaining	651		1	1
Time elapsed	0:29		1	1
Time remaining	0:34			^
Details				
Connection type	Local			
Source Partition	Type:7 [NTFS], 10	0006 MB, 1951 MB used	, No name	
	from Local file D:\i	iei.gho, 130129 MB		
Target Partition	Type:7 [NTFS], 10	0006 MB		
	from Local drive []	13, 152627 MB		
Current file	3279 xpob2res.dll			

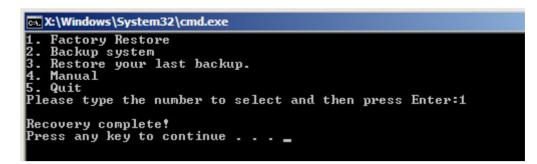
Figure A-34: Restore Factory Default

Step 3: The screen is shown as in Figure A-35 when completed. Press any key to

reboot the system.









A.5.2 Backup System

Technology Corp

To backup the system, please follow the steps below.

- Step 1: Type <**2**> and press <**Enter**> in the main menu.
- Step 2: The Symantec Ghost window appears and starts to backup the system. A

backup image called iei_user.GHO is created in the hidden Recovery partition.

Progress Indicator				
0%	25%	50%	75%	100%
Statistics				
Percent complete	45		- 1.1	
Speed (MB/min)	212		· · · · · · · · · · · · · · · · · · ·	
MB copied	548		A	
MB remaining	647			1
Time elapsed	2:35		1	/
Time remaining	3:03			·
Details				
Connection type	Local			
Source Partition	Type:7 [NTFS], 10	0006 MB, 1951 MB used	, No name	
	from Local drive []	L], 152627 MB		
Destination file	Local file D:\iei_us	er.gho		
Current file	3288 xpob2res.dll			

Figure A-36: Backup System

Step 3: The screen is shown as in Figure A-37 when system backup is completed.

Press any key to reboot the system.



🛤 X:\Windows\System32\cmd.exe	
1. Factory Restore 2. Backup system 3. Restore your last backup. 4. Manual 5. Quit Please type the number to select and then press Enter:2 System backup complete! Press any key to continue	
	Þ

Technology

Corp.



A.5.3 Restore Your Last Backup

To restore the last system backup, please follow the steps below.

- Step 1: Type <3> and press <Enter> in the main menu.
- Step 2: The Symantec Ghost window appears and starts to restore the last backup

image (iei_user.GHO).

0%	25%	50%	75%	100%
Statistics				
Percent complete	45		- 1.1	
Speed (MB/min)	212			
MB copied	548		1	-
MB remaining	647		I	1
Time elapsed	2:35		1	/
Time remaining	3:03			
Details				
Connection type	Local			
Source Partition	Type:7 [NTFS], 10	0006 MB, 1951 MB used	, No name	
	from Local drive []	L], 152627 MB		
Destination file	Local file D:\iei_us	er.gho		
Current file	3288 xpob2res.dll			

Figure A-38: Restore Backup

Step 3: The screen is shown as in Figure A-39 when backup recovery is completed.

Press any key to reboot the system.





🖦 X:\Windows\System32\cmd.exe	
1. Factory Restore 2. Backup system 3. Restore your last backup. 4. Manual 5. Quit Please type the number to select and then press Enter:3	
Recovery complete! Press any key to continue	

Figure A-39: Restore System Backup Complete Window

A.5.4 Manual

To restore the last system backup, please follow the steps below.

- Step 1: Type <4> and press <Enter> in the main menu.
- Step 2: The Symantec Ghost window appears. Use the Ghost program to backup or recover the system manually.

Sym	antes Grost I	1.5	Copyright (C) 1998-2008 Symantee Corporation, All rights reserved,
-			
			f
	Peer to peer		
	<u>§</u> hostCast		
U.	Options		
Symantee	fleip		
ĥç	Lut		
			Symantec.

Figure A-40: Symantec Ghost Window

Step 3: When backup or recovery is completed, press any key to reboot the system.

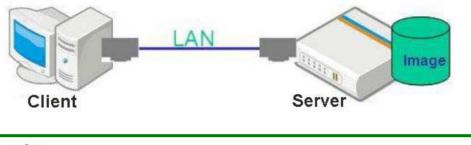


A.6 Restore Systems from a Linux Server through LAN

The One Key Recovery allows a client system to automatically restore to a factory default image saved in a Linux system (the server) through LAN connectivity after encountering a Blue Screen of Death (BSoD) or a hang for around 10 minutes. To be able to use this function, the client system and the Linux system MUST reside in the same domain.

Technology

Corp.





The supported client OS includes:

- Windows 2000
 Windows 7
 - Windows XP

 Windows CE
- Windows Vista Windows XP Embedded

Prior to restoring client systems from a Linux server, a few setup procedures are required.

- Step 1: Configure DHCP server settings
- Step 2: Configure TFTP settings
- Step 3: Configure One Key Recovery server settings
- Step 4: Start DHCP, TFTP and HTTP
- Step 5: Create a shared directory
- Step 6: Setup a client system for auto recovery

The detailed descriptions are described in the following sections. In this document, two types of Linux OS are used as examples to explain the configuration process – CentOS 5.5 (Kernel 2.6.18) and Debian 5.0.7 (Kernel 2.6.26).





A.6.1 Configure DHCP Server Settings

Step 1: Install the DHCP

#yum install dhcp (CentOS, commands marked in red)

#apt-get install dhcp3-server (Debian, commands marked in blue)

Step 2: Confirm the operating system default settings: dhcpd.conf.

CentOS

Use the following command to show the DHCP server sample location:

#vi /etc/dhcpd.conf

The DHCP server sample location is shown as below:



Use the following command to copy the DHCP server sample to etc/dhcpd.conf:

#cp /usr/share/doc/dhcp-3.0.5/dhcpd.conf.sample /etc/dhcpd.conf

#vi /etc/dhcpd.conf

ddns-update-style interim; ignore client-updates;	
subnet 192.168.0.0 netmask 255.255.25	5.0 (
# default gateway option routers option subnet-mask	192.168.0.2; 255.255.255.0;
option nis-domain option domain-name option domain-name-servers	"domain.org"; "domain.org"; 192.168.0.1;
next-server 192.168.0.6; filename "pxelinux.0";	
option time-offset ∮ option ntp-servers	-18000; # Eastern Standard lime 192.168.1.1;

<u>Debian</u>

#vi /etc/dhcpd.conf

Edit "/etc/dhcpd.conf" for your environment. For example, add

next-server PXE server IP address;

Page 90

filename "pxelinux.0";

	update-style interim; e client-updates;	
subnet	t 192.168.0.0 netmask 255.255.25	5.0 (
#	default gateway option routers option subnet-mask	192.168.0.2; 255.255.255.0;
	option nis-domain option domain-name option domain-name-servers	"domain.org"; "domain.org"; 192.168.0.1;
	next-server 192.168.0.6; filename "pxelinux.0"; option time-offset	-18000; # Eastern Standard lime
#	option ntp-servers	192.168.1.1;

Technology Corp.

A.6.2 Configure TFTP Settings

Step 1: Install the tftp, httpd and syslinux.

#yum install tftp-server httpd syslinux (CentOS)

#apt-get install tftpd-hpa xinetd syslinux (Debian)

Step 2: Enable the TFTP server by editing the "/etc/xinetd.d/tftp" file and make it use the remap file. The "-vvv" is optional but it could definitely help on getting more information while running the remap file. For example:

CentOS

#vi /etc/xinetd.d/tftp

Modify:

disable = no

server_args = -s /tftpboot -m /tftpboot/tftpd.remap -vvv_

(socket_type	= dgram
	protocol	= udp
	wait	= yes
	user	= root
	server	= /usr/sbin/in.tftpd
	server_args	= -s /titpboot -m /titpboot/titpd.remap -vvv
	disable	= no
	per_source	
	cps	= 100 2
	flags	= IPv4





<u>Debian</u>

Replace the TFTP settings from "inetd" to "xinetd" and annotate the "inetd" by

adding "#".

#vi /etc/inetd.conf

Modify: #tftp dgram udp wait root /usr/sbin...... (as shown below)

						r booting. Most sit boot servers."	lės	
∉tftp /var/l	ib/tftpb	dgram oot	udp	wait	root	/usr/sbin/in.tftpd	/usr/sbin/in.	tftpd -s

#vi /etc/xinetd.d/tftp

0	Concernant and the second second second	
	socket_type	= dgram
	protocol	= udp
	wait	= yes
	user	= root
	server	= /usr/sbin/in.tftpd
	server_args	= -s /titpboot -m /titpboot/titpd.remap -vvv
	disable	= no
	per_source	= 11
	cps	= 100 2
	flags	= IPv4

A.6.3 Configure One Key Recovery Server Settings

Step 1: Copy the Utility/RECOVERYR10.TAR.BZ2 package from the One Key

Recovery CD to the system (server side).



Step 2: Extract the recovery package to /.

#cp RecoveryR10.tar.bz2 /

#cd /

#tar -xvjf RecoveryR10.tar.bz2

Step 3: Copy "pxelinux.0" from "syslinux" and install to "/tftboot".

#cp /usr/lib/syslinux/pxelinux.0 /tftpboot/

Page 92

A.6.4 Start the DHCP, TFTP and HTTP

Start the DHCP, TFTP and HTTP. For example:

Technology

Corp.

CentOS

#service xinetd restart

#service httpd restart

#service dhcpd restart

<u>Debian</u>

#/etc/init.d/xinetd reload

#/etc/init.d/xinetd restart

#/etc/init.d/dhcp3-server restart

A.6.5 Create Shared Directory

Step 1: Install the samba.

#yum install samba

Step 2: Create a shared directory for the factory default image.

#mkdir /share

#cd /share

#mkdir /image

#cp iei.gho /image



The file name of the factory default image must be iei.gho.

Step 3: Confirm the operating system default settings: smb.conf.

#vi /etc/samba/smb.conf





Modify:

[image]

comment = One Key Recovery

path = /share/image

browseable = yes

writable = yes

public = yes

create mask = 0644

directory mask = 0755

Step 4: Edit "/etc/samba/smb.conf" for your environment. For example:

# "security = user" is always a good idea. This will require a Unix account # in this server for every user accessing the server. See # /usr/share/doc/samba-doc/htmldocs/Samba3-HOWTO/ServerType.html # in the samba-doc package for details. security = share	
<pre>[image] comment = One Key Recovery path = /share/image browseable = yes writable = yes public = yes create mask = 0644 directory mask = 0755</pre>	

Step 5: Modify the hostname

#vi /etc/hostname

Modify: RecoveryServer

RecoveryServer

A.6.6 Setup a Client System for Auto Recovery

Step 1: Configure the following BIOS options of the client system.

Advanced \rightarrow iEi Feature \rightarrow Auto Recovery Function \rightarrow Enabled Advanced \rightarrow iEi Feature \rightarrow Recover from PXE \rightarrow Enabled Boot \rightarrow Launch PXE OpROM \rightarrow Enabled



Step 2: Continue to configure the **Boot Option Priorities** BIOS option of the client system:

Boot Option #1 \rightarrow remain the default setting to boot from the original OS. Boot Option #2 \rightarrow select the boot from LAN option.

Step 3: Save changes and exit BIOS menu.

Exit → Save Changes and Exit

Step 4: Install the auto recovery utility into the system by double clicking the Utility/AUTORECOVERY-SETUP.exe in the One Key Recovery CD. This utility

MUST be installed in the system, otherwise, the system will automatically restore from the factory default image every ten (10) minutes.



Step 5: Restart the client system from LAN. If the system encounters a Blue Screen of Death (BSoD) or a hang for around 10 minutes, it will automatically restore from the factory default image. The following screens will show when the system starts auto recovering.

Realtek PCIe GBE Family Controller Series v2.35 (06/14/10)

CLIENT MAC ADDR: 00 18 7D 13 E6 89 GUID: 00020003-0004-0005-0006-000700080 DHCP..∠



Page 95

Technology

Corp.

My IP address seems to be COA80009 192.168.0.9
ip=192.168.0.9:192.168.0.8:192.168.0.2:255.255.255.0
TFTP prefix:
Trying to load: pxelinux.cfg/00020003-0004-0005-0006-000700080009
Trying to load: pxelinux.cfg/01-00-18-7d-13-e6-89
Trying to load: pxelinux.cfg/COA80009
Trying to load: pxelinux.cfg/COA8000
Trying to load: pxelinux.cfg/COA800
Trying to load: pxelinux.cfg/COA80
Trying to load: pxelinux.cfg/COA8
Trying to load: pxelinux.cfg/COA
Trying to load: pxelinux.cfg/C0
Trying to load: pxelinux.cfg/C
Trying to load: pxelinux.cfg/default
boot:

Windows is loading files...

IP: 192.168.0.8, File: \Boot\WinPE.wim

antec Ghost 11.5	Copyright (C) 1998-	2008 Symantec Corpora	ation. All rights reserved	
Progress Indicator				
0%	25%	50%	75%	100%
Statistics				
Percent complete	52		~ 1.1	
Speed (MB/min)	468			
MB copied	632		1.	7
MB remaining	563		A	1
Time elapsed	1:21		1	/
Time remaining	1:12			
Details				
Connection type	Local			
Source Partition	Tupe:7 [NTFS], 100)006 MB, 1951 MB used	. No name	
	from Local drive [8			
Destination file	Local file D:\iei.GHO			
Current file	3891 c_869.nls			
Current file	3891 c_869.nls	(S arm)	antec.	

Page 96

Technology Corp

A firewall or a SELinux is not in use in the whole setup process. If there is a firewall or a SELinux protecting the system, modify the configuration information to accommodate them.

A.7 Other Information

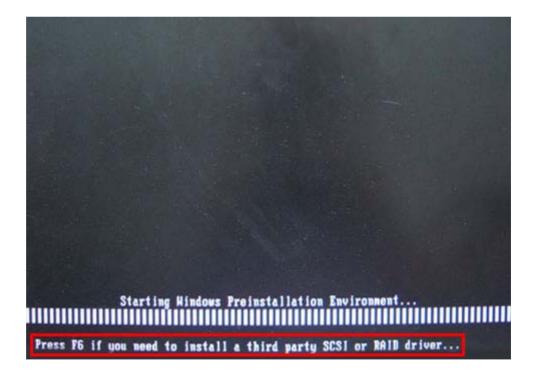
A.7.1 Using AHCI Mode or ALi M5283 / VIA VT6421A Controller

When the system uses AHCI mode or some specific SATA controllers such as ALi M5283 or VIA VT6421A, the SATA RAID/AHCI driver must be installed before using one key recovery. Please follow the steps below to install the SATA RAID/AHCI driver.

Technology

Corp.

- Step 1: Copy the SATA RAID/AHCI driver to a floppy disk and insert the floppy disk into a USB floppy disk drive. The SATA RAID/AHCI driver must be especially designed for the on-board SATA controller.
- Step 2: Connect the USB floppy disk drive to the system.
- Step 3: Insert the One Key Recovery CD into the system and boot the system from the CD.
- Step 4: When launching the recovery tool, press <**F6**>.







Step 5: When the following window appears, press **<S>** to select "Specify Additional

Device".

Setup could not determine the type of one or more mass storage devices installed in your system, or you have chosen to manually specify an adapter. Currently, Setup will load support for the following mass storage devices(s):

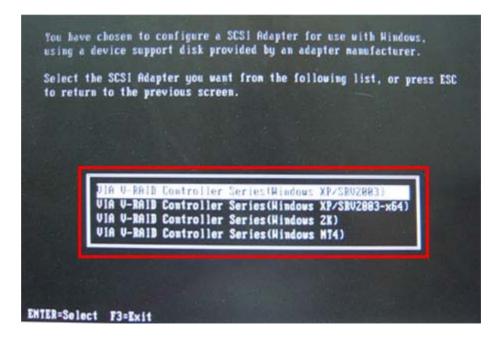
(none)

- To specify additional SCS1 adapters, CD-ROM drives, or special disk controllers for use with Windows, including those for which you have a device support disk from a mass storage device manufacturer, press S.
- If you do not have any device support disks from a mass storage device manufacturer, or do not want to specify additional mass storage devices for use with Windows, press ENTER.

S=Specify Additional Device ENTER=Continue F3=Exit

Step 6: In the following window, select a SATA controller mode used in the system. Then

press < Enter>. The user can now start using the SATA HDD.



Page 98

Step 7: After pressing <Enter>, the system will get into the recovery tool setup menu.
 Continue to follow the setup procedure from Step 4 in Section A.2.2 Create
 Partitions to finish the whole setup process.

Technology

Corp.

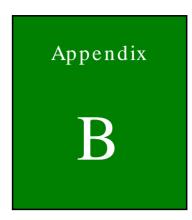
A.7.2 System Memory Requirement

To be able to access the recovery tool by pressing **<F3>** while booting up the system, please make sure to have enough system memory. The minimum memory requirement is listed below.

- Using Award BIOS: 128 MB system memory
- Using AMI BIOS: 512 MB system memory.







Safety Precautions



B.1 Safety Precautions



The precautions outlined in this appendix should be strictly followed. Failure to follow these precautions may result in permanent damage to the TANK-101B/BW.

Technology

Page 101

Corp.

Please follow the safety precautions outlined in the sections that follow:

B.1.1 General Safety Precautions

Please ensure the following safety precautions are adhered to at all times.

- Make sure the power is turned off and the power cord is disconnected when moving, installing or modifying the system.
- Do not apply voltage levels that exceed the specified voltage range.
 Doing so may cause fire and/or an electrical shock.
- Electric shocks can occur if opened while still powered on.
- **Do not drop or insert any objects** into the ventilation openings.
- If considerable amounts of dust, water, or fluids enter the system, turn off the power supply immediately, unplug the power cord, and contact the system vendor.
- DO NOT:
 - O Drop the system against a hard surface.
 - O Strike or exert excessive force onto the LCD panel.
 - O Touch any of the LCD panels with a sharp object
 - O Use in a site where the ambient temperature exceeds the rated temperature

B.1.2 Anti-static Precautions

echnology Corp



Failure to take ESD precautions during the installation of the TANK-101B/BW may result in permanent damage to the TANK-101B/BW and severe injury to the user.

Electrostatic discharge (ESD) can cause serious damage to electronic components, including the TANK-101B/BW. Dry climates are especially susceptible to ESD. It is therefore critical that whenever the TANK-101B/BW is opened and any of the electrical components are handled, the following anti-static precautions are strictly adhered to.

- Wear an anti-static wristband: Wearing a simple anti-static wristband can help to prevent ESD from damaging any electrical component.
- Self-grounding: Before handling any electrical component, touch any grounded conducting material. During the time the electrical component is handled, frequently touch any conducting materials that are connected to the ground.
- Use an anti-static pad: When configuring or working with an electrical component, place it on an antic-static pad. This reduces the possibility of ESD damage.
- Only handle the edges of the electrical component: When handling the electrical component, hold the electrical component by its edges.



B.1.3 Product Disposal



Risk of explosion if battery is replaced by an incorrect type. Only certified engineers should replace the on-board battery.

Technology

Corp.

Dispose of used batteries according to instructions and local regulations.

- Outside the European Union If you wish to dispose of used electrical and electronic products outside the European Union, please contact your local authority so as to comply with the correct disposal method.
- Within the European Union:



EU-wide legislation, as implemented in each Member State, requires that waste electrical and electronic products carrying the mark (left) must be disposed of separately from normal household waste. This includes monitors and electrical accessories, such as signal cables or power cords. When you need to dispose of your display products, please follow the

guidance of your local authority, or ask the shop where you purchased the product. The mark on electrical and electronic products only applies to the current European Union Member States.

Please follow the national guidelines for electrical and electronic product disposal.

B.2 Maintenance and Cleaning Precautions

When maintaining or cleaning the TANK-101B/BW, please follow the guidelines below.

B.2.1 Maintenance and Cleaning

Prior to cleaning any part or component of the TANK-101B/BW, please read the details below.



- The interior of the TANK-101B/BW does not require cleaning. Keep fluids away from the TANK-101B/BW interior.
- Be cautious of all small removable components when vacuuming the TANK-101B/BW.
- Turn the TANK-101B/BW off before cleaning the TANK-101B/BW.
- Never drop any objects or liquids through the openings of the TANK-101B/BW.
- Be cautious of any possible allergic reactions to solvents or chemicals used when cleaning the TANK-101B/BW.
- Avoid eating, drinking and smoking within vicinity of the TANK-101B/BW.

B.2.2 Cleaning Tools

rechnology

Some components in the TANK-101B/BW may only be cleaned using a product specifically designed for the purpose. In such case, the product will be explicitly mentioned in the cleaning tips. Below is a list of items to use when cleaning the TANK-101B/BW.

- *Cloth* Although paper towels or tissues can be used, a soft, clean piece of cloth is recommended when cleaning the TANK-101B/BW.
- Water or rubbing alcohol A cloth moistened with water or rubbing alcohol can be used to clean the TANK-101B/BW.
- Using solvents The use of solvents is not recommended when cleaning the TANK-101B/BW as they may damage the plastic parts.
- Vacuum cleaner Using a vacuum specifically designed for computers is one of the best methods of cleaning the TANK-101B/BW. Dust and dirt can restrict the airflow in the TANK-101B/BW and cause its circuitry to corrode.
- Cotton swabs Cotton swaps moistened with rubbing alcohol or water are excellent tools for wiping hard to reach areas.
- *Foam swabs* Whenever possible, it is best to use lint free swabs such as foam swabs for cleaning.



Technology Corp.

Hazardous Materials Disclosure



C.1 Hazardous Materials Disclosure Table for IPB Products Certified as RoHS Compliant Under 2002/95/EC Without Mercury

The details provided in this appendix are to ensure that the product is compliant with the Peoples Republic of China (China) RoHS standards. The table below acknowledges the presences of small quantities of certain materials in the product, and is applicable to China RoHS only.

A label will be placed on each product to indicate the estimated "Environmentally Friendly Use Period" (EFUP). This is an estimate of the number of years that these substances would "not leak out or undergo abrupt change." This product may contain replaceable sub-assemblies/components which have a shorter EFUP such as batteries and lamps. These components will be separately marked.

Please refer to the table on the next page.

Technology Corr

Part Name	Toxic or Hazardous Substances and Elements					
	Lead (Pb)	Mercury (Hg)	Cadmium (Cd)	Hexavalent Chromium (CR(VI))	Polybrominated Biphenyls (PBB)	Polybrominated Diphenyl Ethers (PBDE)
Housing	х	0	0	0	0	Х
Display	х	0	0	0	0	х
Printed Circuit Board	х	0	0	0	0	Х
Metal Fasteners	х	0	0	0	0	0
Cable Assembly	х	0	0	0	0	Х
Fan Assembly	х	0	0	0	0	Х
Power Supply Assemblies	х	0	0	0	0	Х
Battery	0	0	0	0	0	0
 O: This toxic or hazardous substance is contained in all of the homogeneous materials for the part is below the limit requirement in SJ/T11363-2006 X: This toxic or hazardous substance is contained in at least one of the homogeneous materials for 						

Technology Corp.

this part is above the limit requirement in SJ/T11363-2006



此附件旨在确保本产品符合中国 RoHS 标准。以下表格标示此产品中某有毒物质的含量符 合中国 RoHS 标准规定的限量要求。

本产品上会附有"环境友好使用期限"的标签,此期限是估算这些物质"不会有泄漏或突变"的 年限。本产品可能包含有较短的环境友好使用期限的可替换元件,像是电池或灯管,这些元 件将会单独标示出来。

部件名称	有毒有害物质或元素					
	铅	汞	镉	六价铬	多溴联苯	多溴二苯
	(Pb)	(Hg)	(Cd)	(CR(VI))	(PBB)	醚
						(PBDE)
壳体	х	0	0	0	0	х
显示	х	0	0	0	0	х
印刷电路板	х	0	0	0	0	х
金属螺帽	х	0	0	0	0	0
电缆组装	х	0	0	0	0	х
风扇组装	х	0	0	0	0	х
电力供应组装	х	0	0	0	0	х
电池	0	0	0	0	0	0
O:表示该有毒有害物质在该部件所有物质材料中的含量均在 SJ/T11363-2006 标准规定的限量要求以下。						
X:表示该有毒有害物质至少在该部件的某一均质材料中的含量超出 SJ/T11363-2006 标准规定的限量要求。						

Technology Corr