

Appendix

A

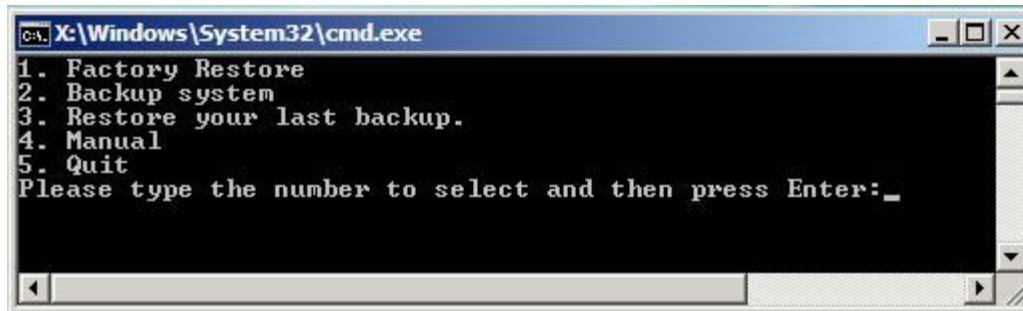
# One Key Recovery

---

## 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. The one key recovery provides quick and easy shortcuts for creating a backup and reverting to that backup or for reverting to the factory default settings.

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 Windows 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-up recovery partition (see **Section A.2.4**)
5. Create factory default image (see **Section A.2.5**)

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.4**.



### NOTE:

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

## One Key Recovery

### A.1.1 System Requirement



#### NOTE:

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.



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%

**NOTE:**

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
  - Windows XP (Service Pack 2 or 3 required)
  - Windows Vista
  - Windows 7
  - Windows CE 5.0
  - Windows CE 6.0
  - Windows XP Embedded
- Linux
  - Fedora Core 12 (Constantine)
  - Fedora Core 11 (Leonidas)
  - Fedora Core 10 (Cambridge)
  - Fedora Core 8 (Werewolf)
  - Fedora Core 7 (Moonshine)
  - RedHat RHEL-5.4
  - RedHat 9 (Ghirke)
  - Ubuntu 8.10 (Intrepid)
  - Ubuntu 7.10 (Gutsy)
  - Ubuntu 6.10 (Edgy)
  - Debian 5.0 (Lenny)
  - Debian 4.0 (Etch)
  - SuSe 11.2
  - SuSe 10.3

## One Key Recovery



### NOTE:

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

## 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-up recovery partition (see **Section A.2.4**)

**Step 5:** Create factory default image (see **Section A.2.5**)

The detailed descriptions are described in the following sections.



### NOTE:

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

### A.2.1 Hardware and BIOS Setup

**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 1<sup>st</sup> boot device. (**Boot → Boot Device Priority → 1<sup>st</sup> 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!

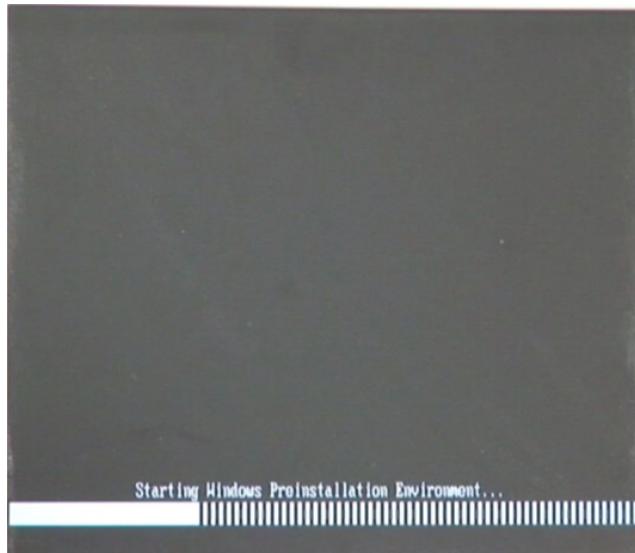


Figure A-2: Launching the Recovery Tool

## One Key Recovery

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

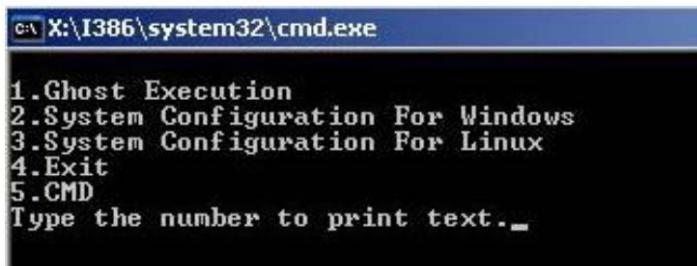


Figure A-3: Recovery Tool Setup Menu

**Step 4:** Press <5> then <Enter>.

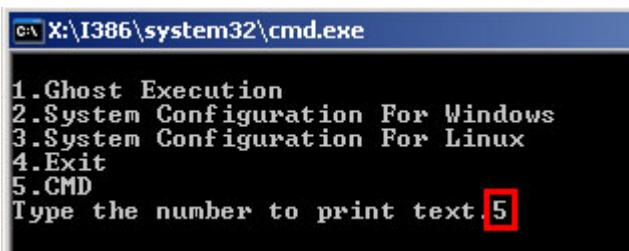


Figure A-4: Command Mode

**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>sel disk 0  
DISKPART>create part pri size= __  
DISKPART>assign letter=N  
DISKPART>create part pri size= __  
DISKPART>assign letter=F  
DISKPART>exit  
system32>format N: /fs:ntfs /q /y
```

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

```
system32>exit
```

The screenshot shows a Windows PE command prompt window titled 'CMD.EXE' running on an I386 system. The user is performing the following steps:

- Starts the Microsoft disk partitioning tool.**: The command `diskpart` is run.
- Show partition information**: The command `list vol` is run, displaying the current partitions:

Volume #	Ltr	Label	Fs	Type	Size	Status	Info
0	X	CD_ROM	CDFS	DUD-ROM	405 MB	Healthy	
1	D		FAT32	Removeable	3854 MB	Healthy	
- Select a disk**: The command `sel disk 0` is run, selecting Disk 0.
- Create partition 1 and assign a size. This partition is for OS installation.**: The command `create part pri size=2000` is run, creating a primary partition of 2000MB.
- Assign partition 1 a code name (N).**: The command `assign letter=N` is run, assigning drive letter N to the new partition.
- Create partition 2 and assign a size. This partition is for recovery images.**: The command `create part pri size=1800` is run, creating a primary partition of 1800MB.
- Assign partition 2 a code name (F).**: The command `assign letter=F` is run, assigning drive letter F to the new partition.
- Exit diskpart**: The command `exit` is run to exit the DiskPart utility.
- Format partition 1 (N) as NTFS format.**: The command `format n: /fs:ntfs /q /y` is run, formatting the N partition as NTFS.
- Format partition 2 (F) as NTFS format and name it as "Recovery".**: The command `format f: /fs:ntfs /q /v:Recovery /y` is run, formatting the F partition as NTFS and naming it 'Recovery'.
- Exit Windows PE**: The command `exit` is run to exit the Windows PE environment.

Figure A-5: Partition Creation Commands

## One Key Recovery



### NOTE:

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

```
X:\I386\SYSTEM32>diskpart
Microsoft DiskPart version 5.2.3790.1830
Copyright <C> 1999-2001 Microsoft Corporation.
On computer: MININT-JVC

DISKPART> sel disk 0
Disk 0 is now the selected disk.

DISKPART> list part
Partition ### Type ----- Size Offset
Partition 1 Primary 2000 MB 32 KB
Partition 2 Primary 1804 MB 2000 MB

DISKPART> exit
```

**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 as "Recovery" is for use by the system recovery tool and should not be used for installing the operating system or any applications.



### NOTE:

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!

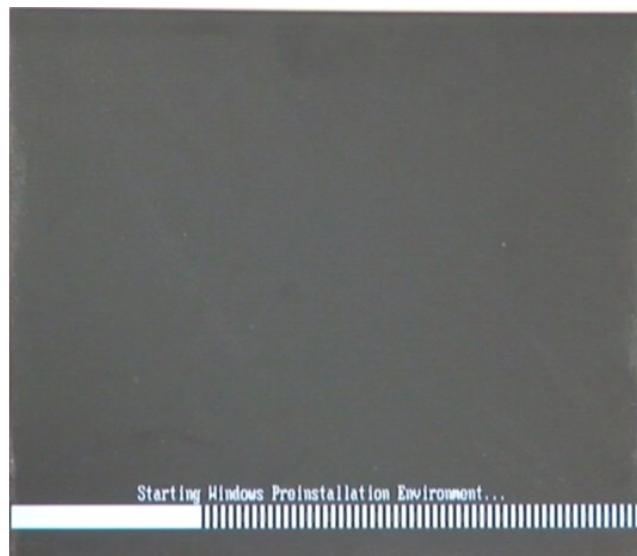


Figure A-6: Launching the Recovery Tool

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

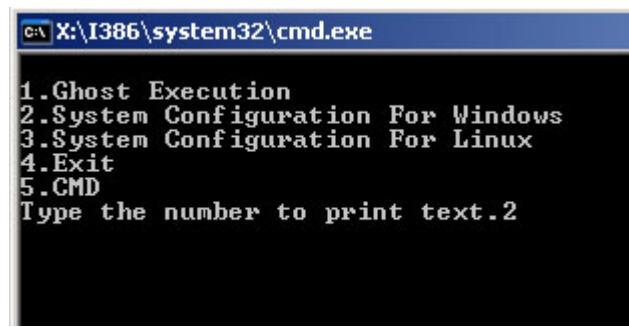


Figure A-7: System Configuration for Windows

**Step 5:** The Symantec Ghost window appears and starts configuring the system to build-up a recovery partition. In this process, the partition which is created for

## One Key Recovery

recovery files in **Section A.2.2** is hidden and the recovery tool is saved in this partition.

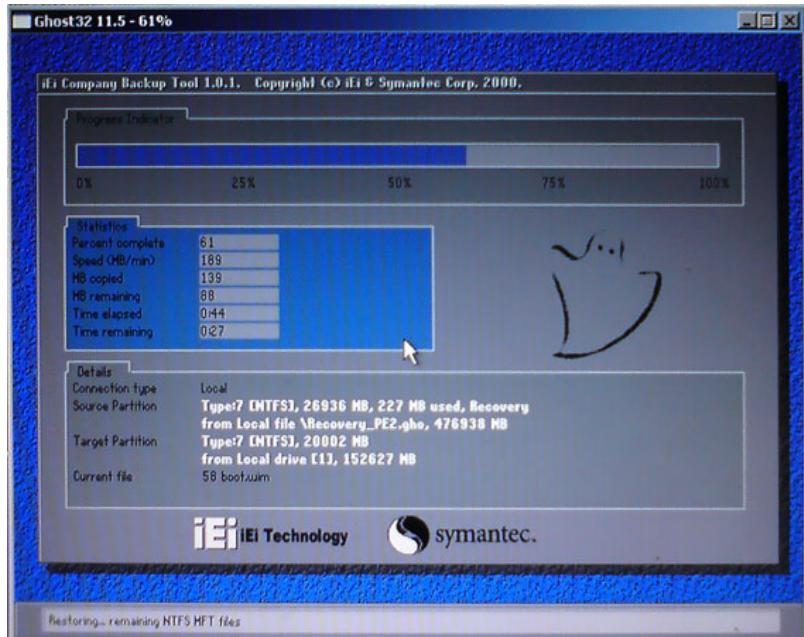


Figure A-8: Build-up Recovery Partition

**Step 6:** After completing the system configuration, press any key in the following window to reboot the system.

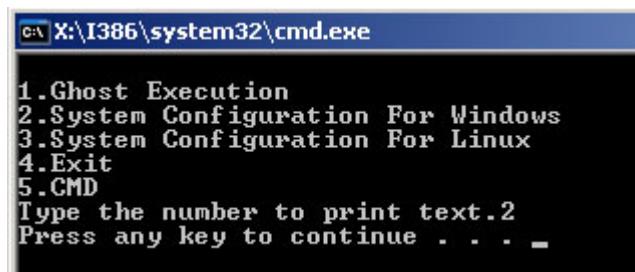


Figure A-9: Press any key to continue

**Step 7:** Eject the recovery CD.

### A.2.5 Create Factory Default Image

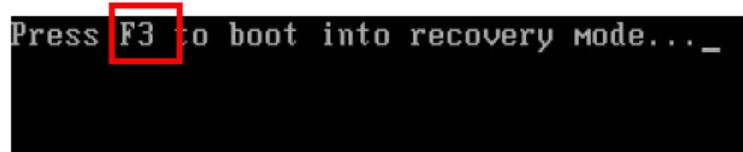


#### NOTE:

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

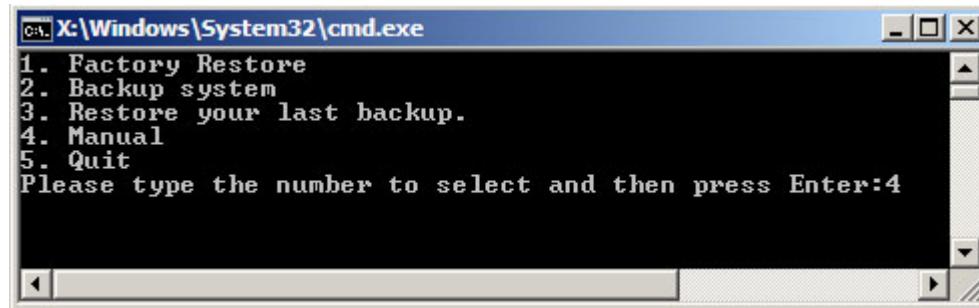
To create a factory default image, please follow the steps below.

**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.

## One Key Recovery

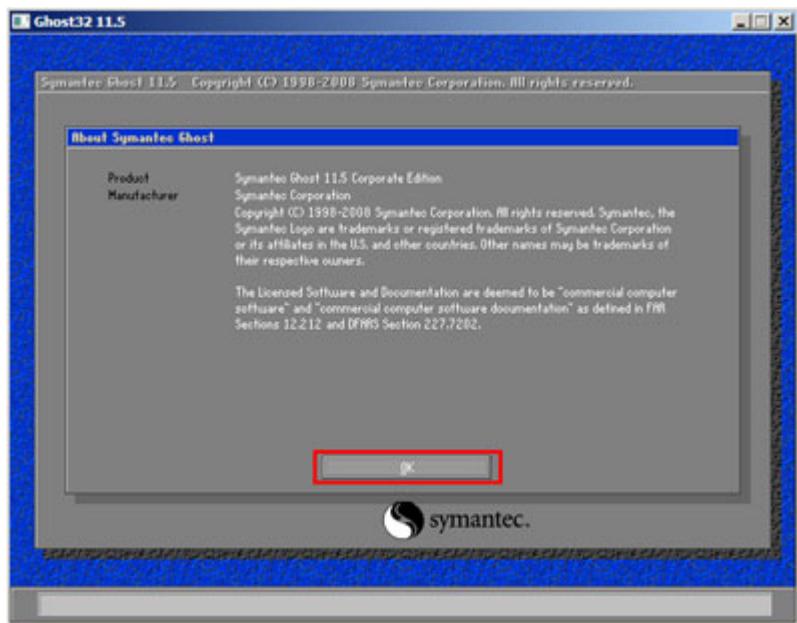


Figure A-12: About Symantec Ghost Window

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

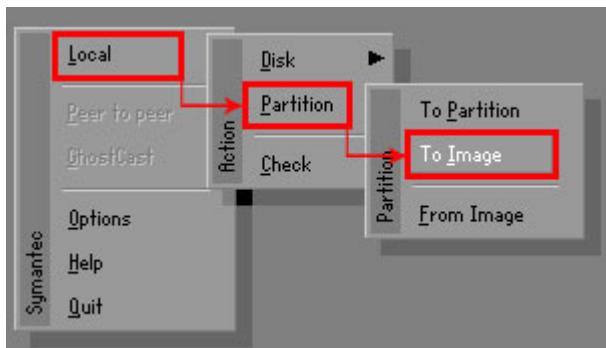


Figure A-13: Symantec Ghost Path

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

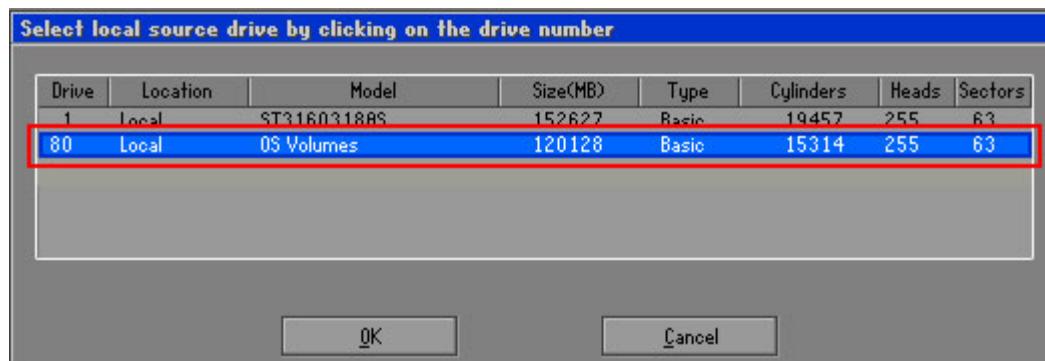


Figure A-14: Select a Local Source Drive

**Step 6:** Select a source partition from basic drive as shown in **Figure A-15**. Then click OK.

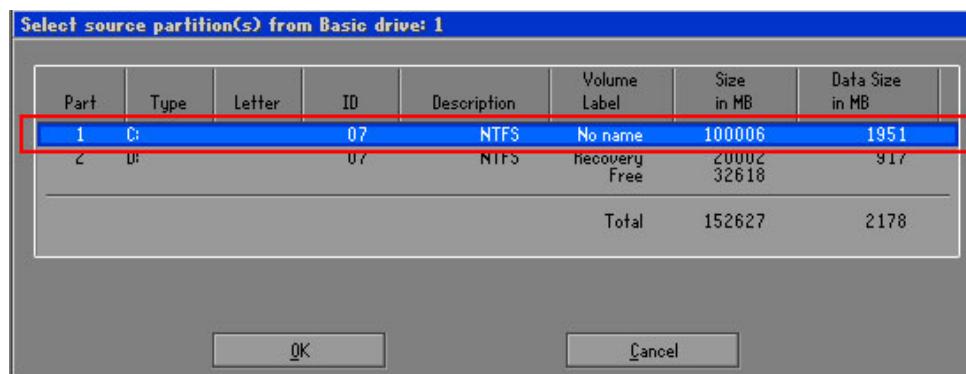


Figure A-15: Select a Source Partition from Basic Drive

**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**.



### WARNING:

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

## One Key Recovery

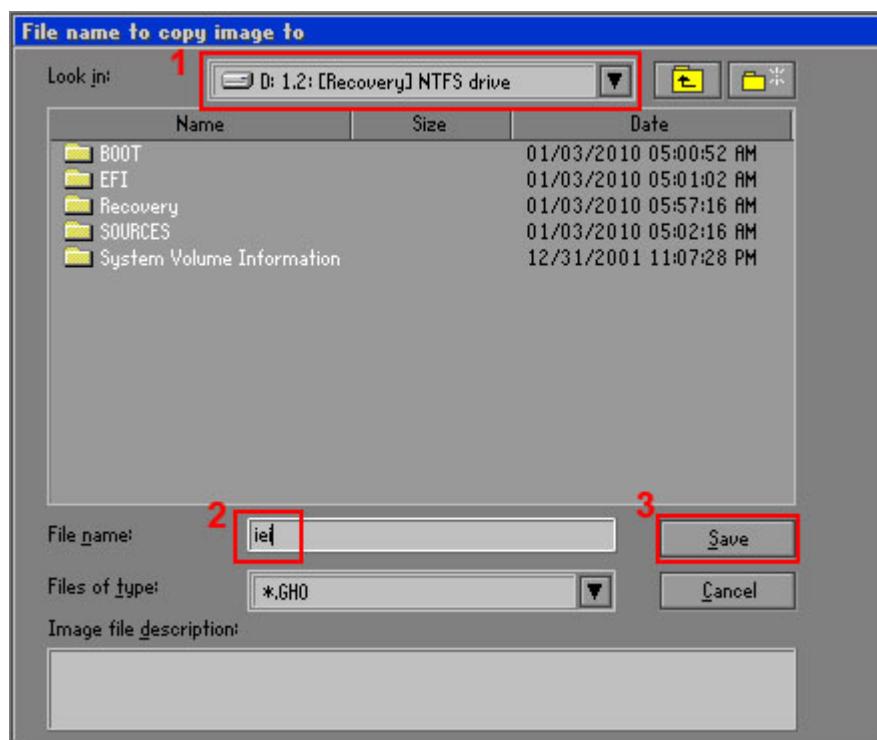


Figure A-16: File Name to Copy Image to

**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 continue.

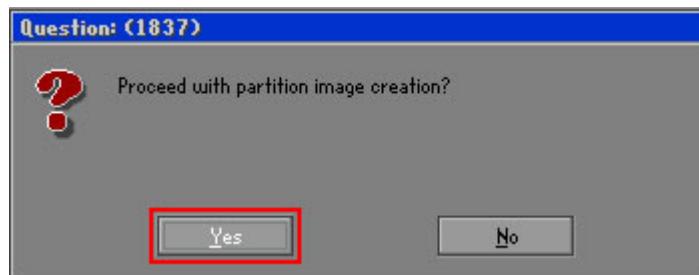


Figure A-18: Image Creation Confirmation

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

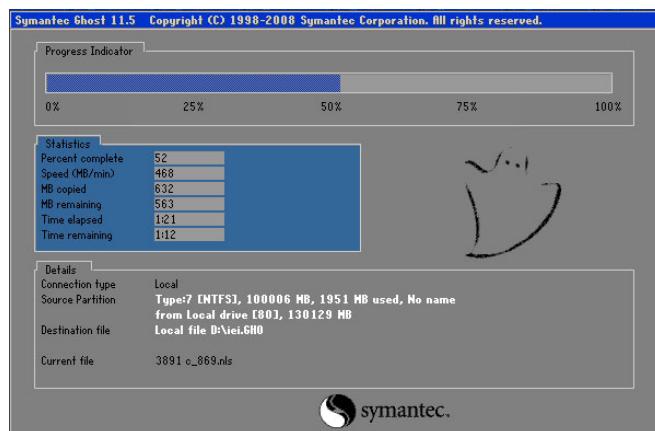


Figure A-19: Image Creation Complete

**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.

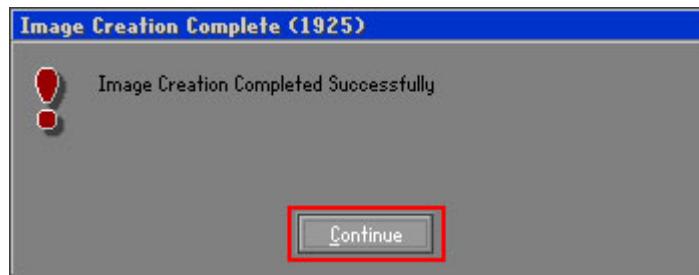
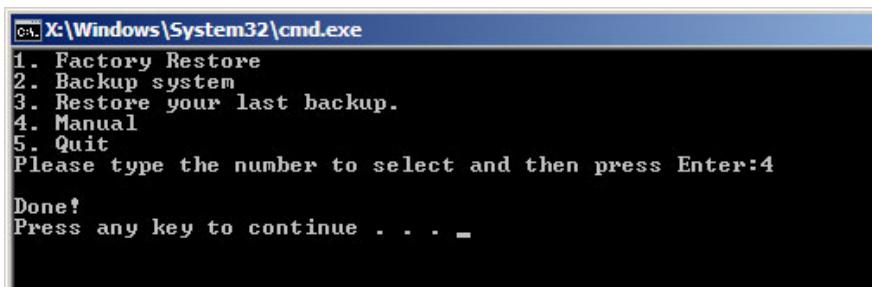


Figure A-20: Image Creation Complete

## One Key Recovery

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



The screenshot shows a Windows command prompt window titled 'X:\Windows\System32\cmd.exe'. The window contains the following text:  
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:4  
Done!  
Press any key to continue . . . -

Figure A-21: Press Any Key to Continue

### A.3 Setup Procedure for Linux

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



#### NOTE:

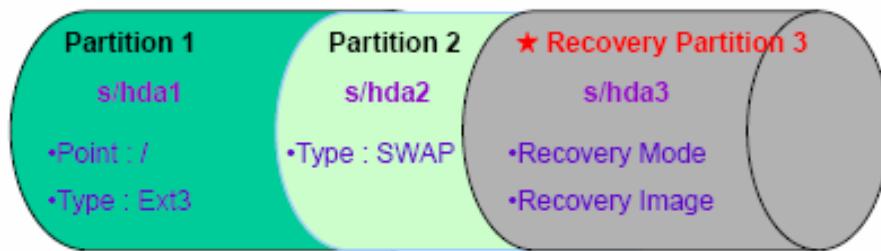
If the Linux OS is not installed with GRUB (v0.97 or earlier) and Ext3, the Symantec Ghost may not function properly.

While installing Linux OS, please create two partitions:

- Partition 1: /
- Partition 2: SWAP

**NOTE:**

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



**Figure A-22: 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-23**). 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.

## One Key Recovery

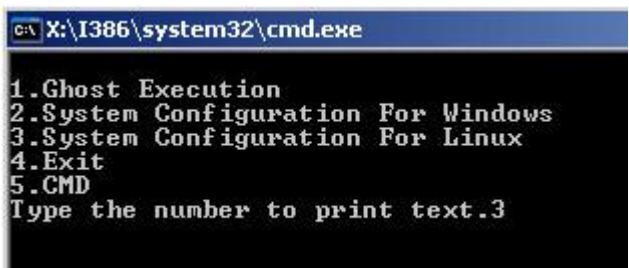


Figure A-23: System Configuration for Linux

**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**

A screenshot of a Linux terminal window. The terminal shows the following text:

```
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 _
```

Figure A-24: Access menu.lst in Linux (Text Mode)

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

```
#boot=/dev/sda
default=0
timeout=10 ← Modify timeout=10
splashimage=(hd0,0)/grub/splash.xpm.gz
hiddenmenu
title Fedora (2.6.25-14.fc9.i686)
    root (hd0,0)
    kernel /vmlinuz-2.6.25-14.fc9.i686 ro root=UUID=10f1acd
ac38b5c78910 rhgb quiet
    initrd /initrd-2.6.25-14.fc9.i686.img

title Recovery Partition ← Type command
root (hd0,2)
makeactive
chainloader +1
```

- Type command:  
title Recovery Partition  
root (hd0,2)  
makeactive  
chainloader +1

**Step 7:** The recovery tool menu appears. (**Figure A-25**)

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-25: 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.4 Recovery Tool Functions

After completing the initial setup procedures as described above, users can access the recovery tool by pressing <F3> while booting up the system. The main menu of the recovery tool is shown below.

## One Key Recovery



Figure A-26: Recovery Tool Main Menu

The recovery tool has several functions including:

6. **Factory Restore:** Restore the factory default image (iei.GHO) created in [Section A.2.5](#).
7. **Backup system:** Create a system backup image (iei\_user.GHO) which will be saved in the hidden partition.
8. **Restore your last backup:** Restore the last system backup image
9. **Manual:** Enter the Symantec Ghost window to configure manually.
10. **Quit:** Exit the recovery tool and restart the system.



### WARNING:

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



### WARNING:

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).

#### A.4.1 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.

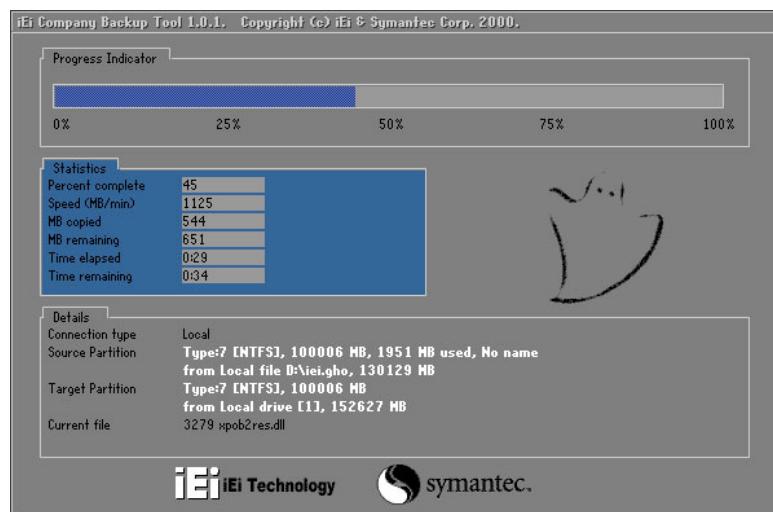


Figure A-27: Restore Factory Default

**Step 3:** The screen is shown as in **Figure A-28** when completed. Press any key to reboot the system.

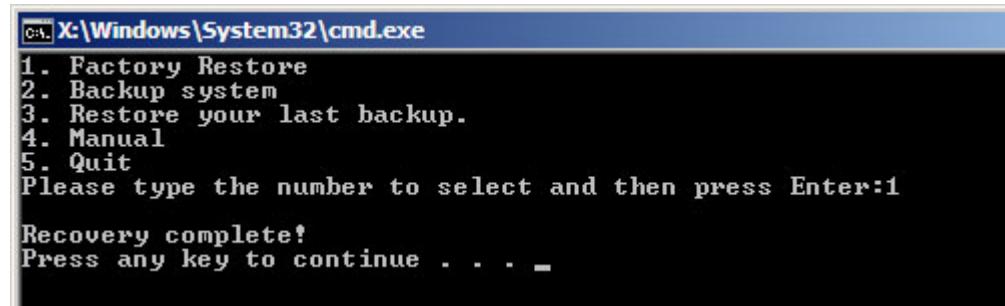


Figure A-28: Recovery Complete Window

## One Key Recovery

### A.4.2 Backup System

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.

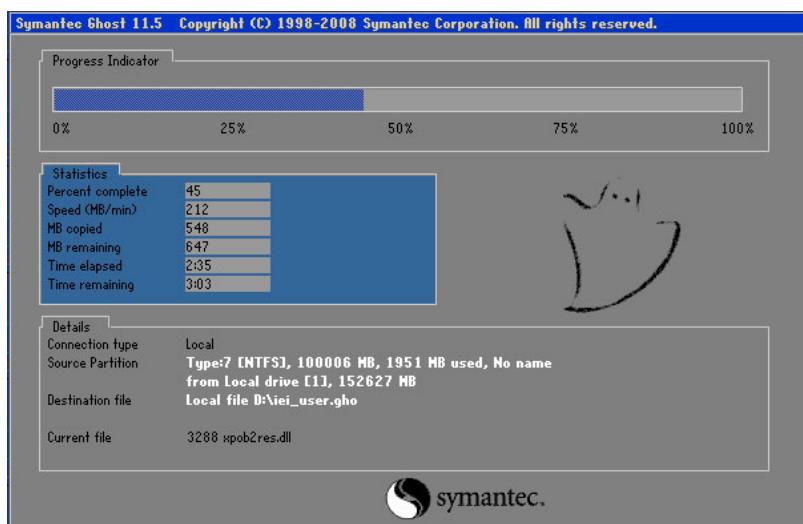


Figure A-29: Backup System

**Step 3:** The screen is shown as in **Figure A-30** when system backup is completed.

Press any key to reboot the system.

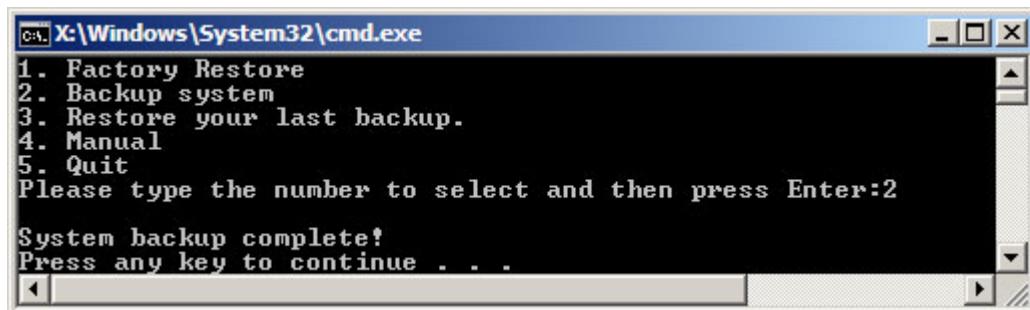


Figure A-30: System Backup Complete Window

### A.4.3 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).

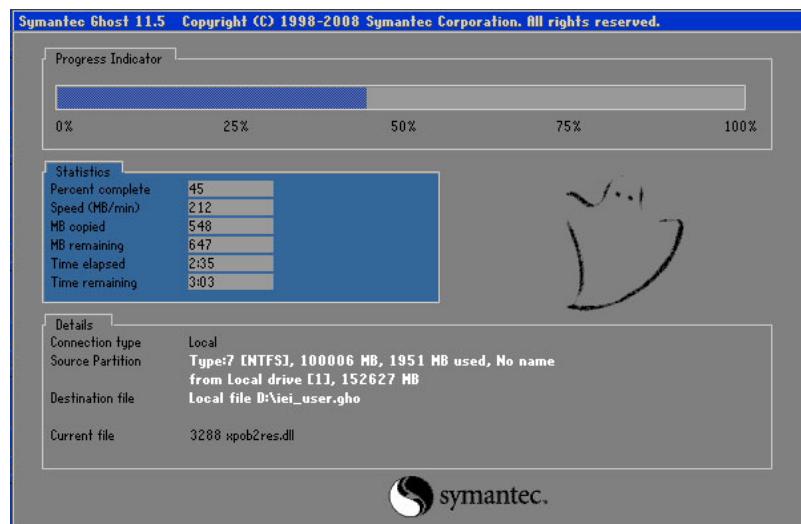


Figure A-31: Restore Backup

**Step 3:** The screen is shown as in **Figure A-32** when backup recovery is completed.

Press any key to reboot the system.

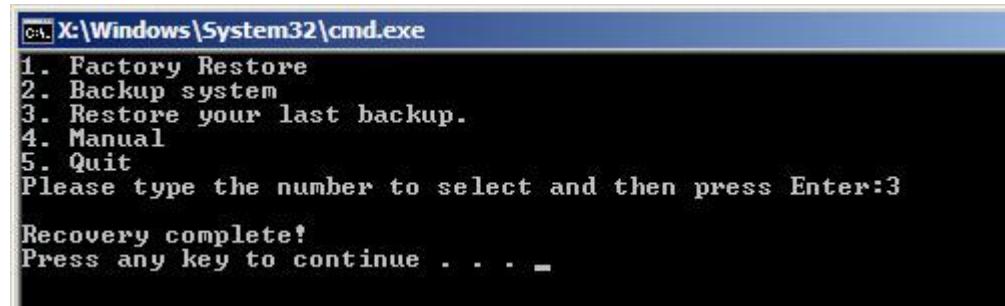


Figure A-32: Restore System Backup Complete Window

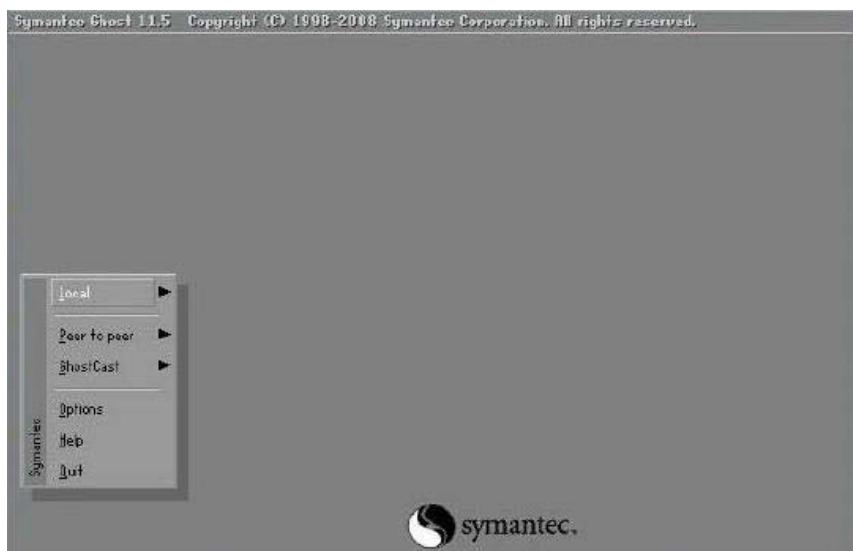
## One Key Recovery

### A.4.4 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.



**Figure A-33: Symantec Ghost Window**

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

## A.5 Other Information

### A.5.1 Using AHCI Mode or ALi M5283 / VIA VT6421A Controller

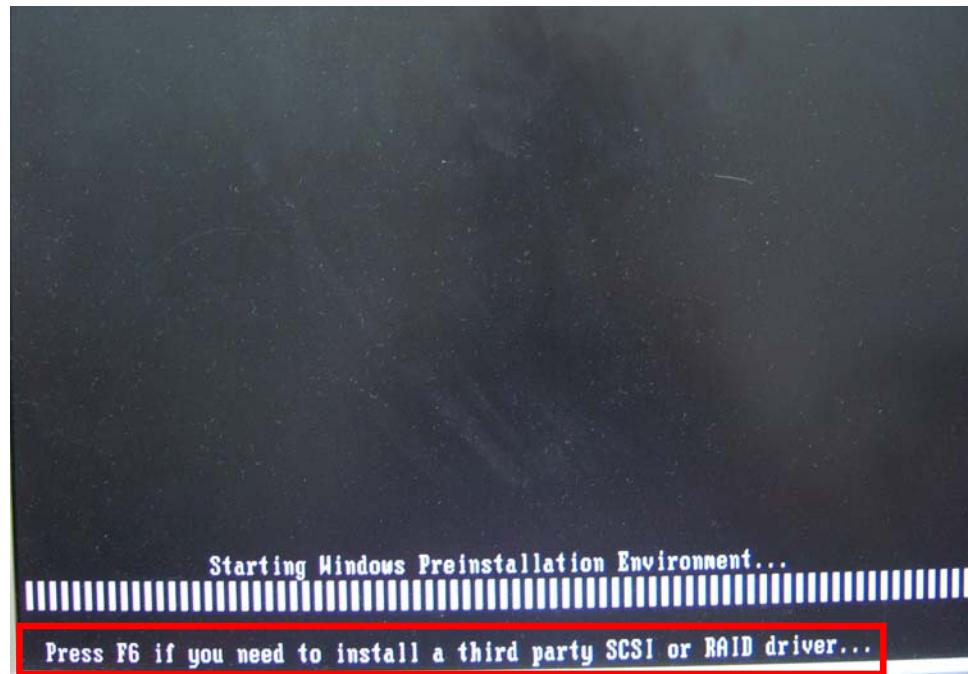
When the system uses AHCI mode or some specific SATA controllers such as ALi M5283 or VIA VT6421A, the SATA RAID/AHCI driver must be installed before using one key recovery. Please follow the steps below to install the SATA RAID/AHCI driver.

**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.

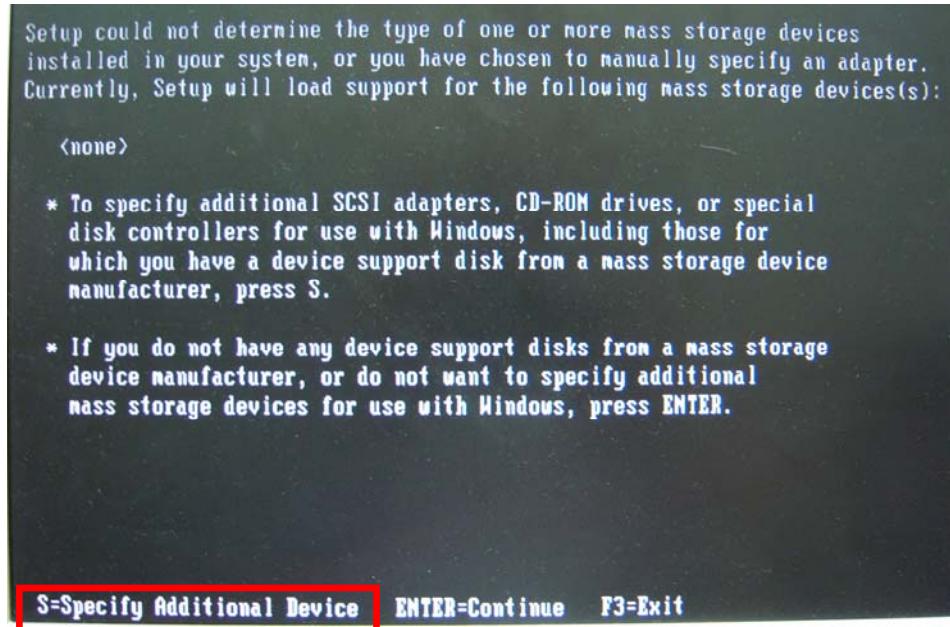
**Step 3:** Insert the One Key Recovery CD into the system and boot the system from the CD.

**Step 4:** When launching the recovery tool, press <F6>.

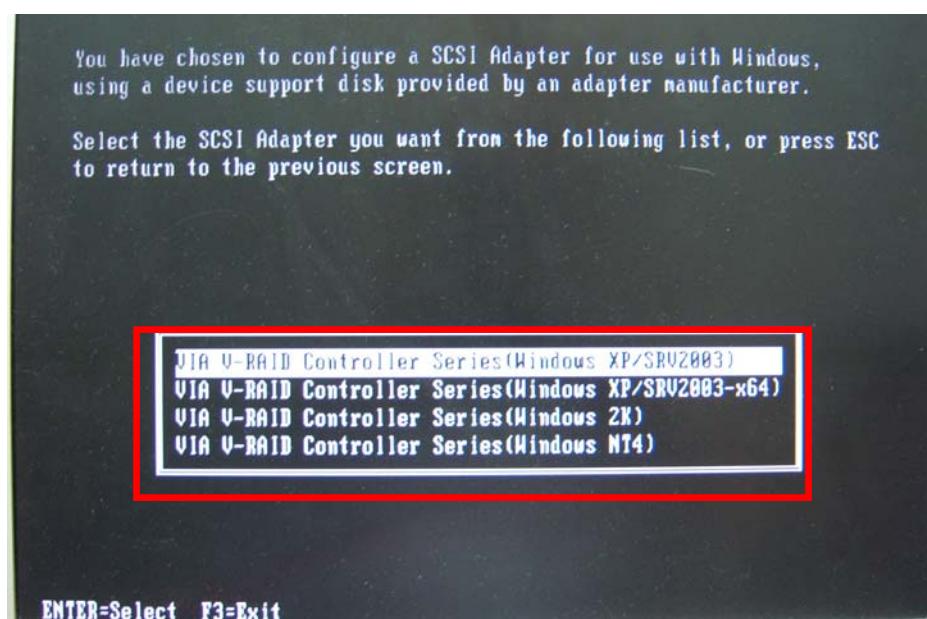


## One Key Recovery

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



**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.



**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.

### A.5.2 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.