

WATCHDOG SYSTEM RECOVERY CARD



User Manual
WatchDog II for Windows 95/98
PCI VERSION
(WD-202P)

Distributed by



CHUAN YUNG INTERNATIONAL CO. LTD.

<http://www.cyic.com>
<http://www.watchdogcard.com>

Printed in Canada

Frequently Asked Questions

How come Windows always complain about Daylight saving time changed?

Microsoft Window stores its Daylight Saving modification as a flag in the WIN.INI file. Since WatchDog will recover any data changed in the protected logical C partition, this flag is reset every time WatchDog recovers. Since the nature of WatchDog is to protect computer from every change in logical C, set daylight savings to manual is the only bypass.

Windows 98 detects WatchDog as a PCI Ethernet Card. Where can the drivers be found?

We have found some motherboards encounter this problem. Normally, WatchDog should not be detected at all and there is no driver for it. Simply press <Finish> when no driver is found and let WatchDog to become an unknown device listed at the device manager. This does not cause any trouble for WatchDog functions. Our engineers are working on the problem and should have this fix by next version up.

How WatchDog functions when installed at a network workstation?

WatchDog functions in each machine as a stand-alone. It's like you need a video card for each machine to run properly. After you have set your machines to your satisfaction working with network, install WatchDog and it will recover to this stage. WatchDog does not care about your network settings and only prevent modifications to logical C. Please make sure the network is not setup in a way that conflicts the WatchDog function, i.e., to recover all hard drive data of logical C on every fix.

What happened when WatchDog Install disk fail to work?

In this new PCI version, the install disk also contains a hidden security key for Genuine WatchDog Validation. Thus, this diskette cannot be duplicated using normal methods. CYIC Ltd. will provide a program to REGISTERED OWNER of WatchDog if the install disk is missing or corrupted.

How do I get upgrade?

Upgrade is only available for registered users. For all registered users, you are on our mailing list and will be informed of available new products and versions. We will also send emails regarding downloadable links at our web site at <http://www.watchdogcard.com>.

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Section I: Introduction

Ever since the introduction of PC, there is the struggle between users and their systems. Of course, a personal computer increases the quality of life in many ways when it's working. However, it's also a nightmare to everyone who has to use one. With more and more popularity of Windows, operating system and its applications becomes larger in sizes and more difficult and time consuming to re-install every time.

WatchDog System Recovery Card delivers you a solution. With WatchDog System Recovery Card, you don't have to worry about someone who changes your CMOS data, formats your hard drives, tampering with your PCs. Even when you install some software and accidentally corrupted the computer's original settings. WatchDog will perform a recovery operation to reset your system settings back to what you had them originally. Perhaps viruses or other causes have corrupted your hard disk. No need to worry. Simply Reboot the machine with WatchDog Recovery Card and EVERYTHING* **RECOVERS!!!**

FEATURE OF WD-202 (WatchDog II P'N P for Windows 9x)

Now serving you better with PnP features for FAT 16 / FAT 32 files systems (i.e., DOS / Windows 95 / Windows 98), WatchDog II allows you to protect your hard drive without re-partition and re-format your hard drive during install.

WatchDog II only requires 200MB or 10% of your hard drive space whichever the greatest.

SYSTEM REQUIREMENTS

IBM 486 PC Compatible or above
640K memory
PCI slot
1 Hard Drive
VGA Monitor

Section II: Specification

Operating System Support	Windows 95/98
OS supported w/ PnP features	Windows 95/98
BIOS Support	BIOS virtually from all manufacturers
Expansion Slot Required	PCI
Memory Used	<5KB spaces needed
Hard Drive Interface Support	IDE / EIDE / UDMA-33 / UDMA-66
Hardware Requirements	IBM PC compatible 486 or above
CMOS backup / restore	Yes (Auto Analyze)
Reboot and Auto Restore	Yes
Upgrade from floppy disk	Yes
IRQ and I/O	Not required
ROM Address Select	Automatically picked by PnP BIOS
ROM Address Options	C800, CC00, D000, D400, D800, DC00
Physical Size	10 cm X 5 cm
Default Boot-up	Yes
Multiple Boot Partitions	Yes (Up to 15 WD protected partitions)
Public Area of Data Disk	Up to 3 per protected partition*
Auto Boot Menu Delay	0 to 99 seconds
Disable Boot partition(s)	Yes
Backup / Restore Boot partition(s)	Yes
User Password	Yes
Supervisor Password	Yes
S.M.A.R.T. Support	Yes
Hard Drive Copy	Yes
Preset Boot Partition Auto Restore	Yes (every boot/ day / week / month)
Preset Format Data Partition	Yes (every boot/ day / week / month)
Easy Installation	Available
Boot up Title String	Yes
FCC Certifications	Yes (EMI, Class B)
CE Certifications	Yes (EMI, Class B)

Section III: Installation

Step 1: Prepare the host system and the adapter

Run defrag so that all hard drive data are concentrated at the top. (Note: WatchDog requires the last sector of the hard drive to store some data for quick access.) Then, power down the host system. Referring to your host system owner's manual, remove the cover to gain access to the motherboard and expansion slots. The recovery card contains **sensitive electric components** that can be easily damaged by static electricity. Simply touch the power supply to discharge any static electricity prior to remove WatchDog from the anti-static bag.

Step 2: Install the adapter

To install the recovery card, simply plug it into an available PCI slot. Make sure the card is plug in all the way for all power and ground circuit are at the PCI slot. Failure to do so might result in damage to the Card. WatchDog System Recovery Card requires a ROM address for its function. In this new PCI version, the PnP BIOS will automatically select proper ROM address for WatchDog usage. Put back the cover to the system when done.



Figure 1: WatchDog System Recovery Card

Step 3: Power up the System

Once the adapter is installed, power up the system. As the system powers on, the BIOS perform a self-test.

System will show the following dialog box:

**<W.DOG II NT> Not Installed!!
Insert < W.DOG II NT> Install Disk
<<Press Any Key To Continue>>**

Figure 2: Genuine WatchDog Validation Screen

Follow the on screen instruction and insert the Setup Disk that comes with WatchDog II PCI. Please note that this Setup Disk is specially made that comes with a hidden security key. Without this key, WatchDog II PCI cannot be installed. (Note: Only original Setup Disk possesses the security key. Security Key can not be duplicate using normal copying method).

System will show the next screen if security key validates.

**W.DOG NOT INSTALL!
1, BOOT WITHOUT INSTALL
2, INSTALL W.DOG**

Figure 3: First Screen of WatchDog prior to Installation

Select "2" to install WatchDog System Recovery Card. Then,

**SELECT INSTALL MODE
1, EXPRESS
2, ADVANCED**

Figure 4: Select Installation Mode

Generally, we recommend Express Installation for most situations. Express Installation is good for System with a single operating system and existing data on it. For multi-boot machines or system desired for multi-protected partitions, we recommend Advanced Installation instead.

Step 4A: OPTION#1 EXPRESS INSTALL

After select Option #1, WatchDog will start to configure for your system, you will boot to WatchDog Startup Menu here after several reboots. System will stop at the WatchDog Startup Menu:



Figure 5: WatchDog Startup Menu

Press <Enter> to access Windows. Double check that the partition is in good order and then install WatchDog II 32-bit driver. Please note that the 32-bit driver is necessary for WatchDog PCI version to work properly and **must be installed**.

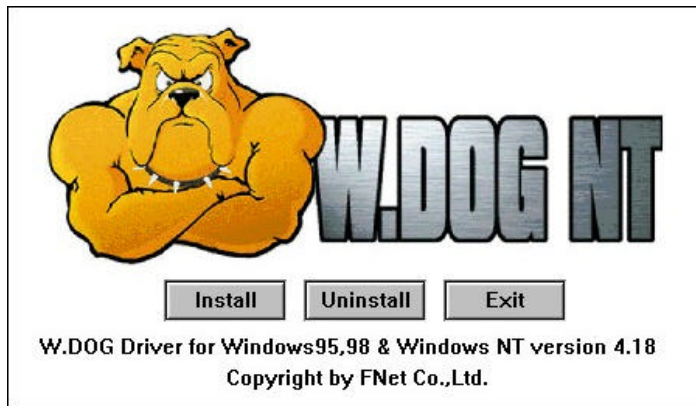


Figure 6: WatchDog 32-bit Driver Setup

We have noticed some motherboard after starting Windows will try to detect WatchDog as a PnP PCI Ethernet Card where it should not be detected at all. Although the detection does not affect the WatchDog performance, it is quite awkward. Please read #2 of FAQ section if you encounter such problem.

Step 5: Fine Tuning WatchDog II

After installation of the 32-bit driver, system will boot to WatchDog Startup Menu as shown in Figure 5. Press <F10> and access the WatchDog Setup Menu as shown in Figure 7.



Figure 7: WatchDog Setup Menu

Select Update H. D. Data to make sure all protected data are current. Then, select “Change System Configurations” to access the WatchDog Partition Setup



Figure 8: WatchDog Partition Setup Menu

- Define Data Area if there are any local logical partitions wish to be accessed by the protected WatchDog partition. Please note that Data Area must exist prior to the installation of WatchDog system.
- Toggle Access Speed using <PgDn> to DRIVER
- Modify Swap Area to 200MB or 10% of hard drive capacity.
- Press <F10> to save and exit to WatchDog Setup Menu.
- Modify W. D. Mode to AUTOFIX or MANUAL to toggle on the protection. Select frequent of recovery or leave it as default to recovery on every boot.
- Press <F10> again to save and exit.

Details descriptions for these options are available at Section IV.

Step 4B: OPTION #2 ADVANCE INSTALL

In order to have your data protected, data must be resided in a WatchDog partition. We recommended using Advance Installation for systems require multi-boot. Since existing methods of multi-boot either involve with a system console that creates non-MS based File Allocation Table that is not recognized by WatchDog or using NT to multi-boot which makes other partitions can only be accessed as data partition thus other partitions cannot be protected by WatchDog. Create a WatchDog partition from the WatchDog tools under the setup menu. Up to 15 WatchDog partitions could be installed simultaneously. Select Advance Installation at Figure 4.



Figure 9: Making PnP Partition for WatchDog 204

Note: Selecting “Y” will result in EXPRESS INSTALLATION which is covered in Step 4A.

Warning: Select “N” will result in allowing WatchDog to create partitions. All data will be destroyed. This action is similar to that of FDISK.

After confirm of action (Select “N” for we want Advance Installation), WatchDog will come to the partition setup menu as shown in Figure 7. Then, user can define WatchDog partition as desired manually.

(Note: All existing data will be lost if user want to self-define WatchDog Partitions.) System will then come to Figure 8.

Select how many partitions are wished to be installed including data partition is there are any. Partitions will be created at even capacity. Label each partition and modify their capacity as desired. Set configurations <File System> for each partition. (Other parameters are to be set at Step 5: Fine Tuning WatchDog II). Press <F10> to save and exit to the WatchDog Setup Menu. Then Press <F10> again to save and exit.

System will restart on its own for several times to examine CMOS data and partitions information. It will then come to a stop at WatchDog Startup Menu as shown in Figure

5. Select partition and press <Enter> to access them in order to install Operating Systems and Applications as desired. After all software have been installed to satisfaction, install the 32-bit driver to the protected Windows Partitions.



Upon completion of all partitions installations, refer to Step 5 for Fine Tuning WatchDog II on the previous pages.

Now, WatchDog System Recovery card is protecting your system.

Section IV: Configuration

1. WATCHDOG MODE SETUP

CMOS AUTO RESTORE[]

If you choose [Y], every time system boots, it will check the BIOS. If there is any changes, it will be returned to original state without prompt. If the choice is [N], you will be notified on screen. You will be given options <R> to recover original state, to save new BIOS setup, and <I> to ignore.

H. D. I/O PROTECT.....[]

Provide higher protection to the hard drive. Default is set as [N]. When WatchDog discovers certain program is trying to low level format the drive or

other instruction that might destroy the WatchDog protection, it will freeze the system and blink the screen in RED with an audible PC speaker siren.

OPTION	LEVEL	DESCRIPTION
N	NORMAL	Equipped with Normal WatchDog protect function but do not include any direct I/O disrupt protection
1	1	Protect HD data from ordinary I/O disruption
2	2	Protect HD data from disruption using Int13h. It also protects HD from Low Level Format
3	3	Monitor HD for any low-level corruption.
4-9	4-9	More protection and monitor. Please note that higher the level of protection, there is a higher possibility to have conflict with some software compiler that uses low level instructions.

SECOND UNTIL TIMEOUT.....[]

Startup delays that WatchDog provides at boot. The system will stay at the WatchDog Startup Menu for 0~99 seconds.

AUTO BOOTING SEQUENCE[]

You can choose which operation system you decide to boot automatically from when you power on your computer. If you choose [MANUAL], WatchDog will show all operation systems available for you to select at the WatchDog Startup Menu (Figure 5).

W.DOG H. D. MODE[]

[AUTO FIX] -- Every time computer is power up, hard drive will return to the original state with no prompt.

[MANUAL] -- WatchDog will keep last hard drive condition when boot up. Press <F3> to update hard drive data at setup menu. Press <F4> to recover to original state.

[SUPERVISOR] -- Software will be installed to hard drive with no way to recover. Previous state will not be recovered. Note: You cannot overwrite boot sector at this mode with cloning software such as Ghost, Drive Copy, etc

[DISABLE] – Similar to SUPERVISOR mode except it allows cloning software to perform their tasks.

BOOT H. D. RESTORE.....[] []

Enable at AUTOFIX mode only. Preset the time for Recovery process to be done. If recovery scheduled time is due but the system is either off or being used, the recovery process will take place during the next boot.

First Bracket	Second Bracket	Description
NONE		Does not recover
EACH		Recover every time the machine is boot
DAY	0 – 23	Recover during the first boot after the selected hour of the day
WEEK	MON / TUE / ... / SUN	Recover during the first boot after midnight of the selected week day
MONS	1 – 28	Recover during the first boot after midnight of the selected date of the month

DATA H. D. CLEAR.....[] []

Public Data Partition can be set to be reformatted at a scheduled basis. It is similar to that of the above function, BOOT H. D. Restore.

First Bracket	Second Bracket	Description
NONE		Does not recover
EACH		Recover every time the machine is boot
DAY	0 – 23	Recover during the first boot after the selected hour of the day
WEEK	MON / TUE / ... / SUN	Recover during the first boot after midnight of the selected week day
MONS	1 – 28	Recover during the first boot after midnight of the selected date of the month

USER PASSWORD[]

Computer will prompt for user password at boot. Security features of computer use for designated users only.

SUPERVISOR PASSWORD[]

This password intends to prevent others to change WatchDog setup. Hold down the <PgDn> key when booting. The computer will prompt you a password for accessing the setup menu. When the supervisor password menu is entered at the Startup Menu, WatchDog will switch to [SUPERVISOR] mode temporarily.

DISPLAY FUNCTION KEY.....[]

Options	Description
Y	Display Function key at WatchDog Startup Menu (Figure 5)
N	Hidden Function key at WatchDog Startup Menu

DISPLAY S. M. A. R. T.[]

S. M. A. R. T. stands for Self-Monitoring, Analysis and Reporting Technology. It analysis hard drive access speed, rpm, and possible life span left on the hard drive. When displayed, 9 devices are shown. Because hard drive manufacturers have not standardize which device is which, the Device number will represent different portion of the hard drive depending on which make of the hard drive. The green portion represents the healthy status of the hard drive components. When the green portion is less than the 50% of the red portion, it means the particular component of the hard drive is dying. Because WatchDog only recovers data but not physical damages, this SMART display indicates when would be a nice time to get a backup of the drive.

DISPLAY TITLE []

A title string up to 50 characters can be displayed at the WatchDog Startup Menu during boot. For example: THIS SYSTEM IS PROTECTED BY WATCHDOG II

2. WATCHDOG TOOL BOX

MAKE WATCHDOG PARTITION

In order to protect your data using Watchdog Recovery Card, data have to be installed at a watchdog partition. Because Watchdog uses its own hard drive format to achieve data recovery and multi-booting function, all original hard drive data will be destroyed as if you do a <fdisk> command in DOS. However, in model WD-202, Operating Systems using FAT 16 / FAT 32 are supported with PnP features. Users can install Watchdog on

hard drive with existing OS and data. Up to 15 partitions (including data partitions) could be installed at one time.

For non-FAT file system or Multi-Boot systems, please select “N” to erase existing partition and “Y” to confirm action. Simply specify partition name and capacity and watchdog partition will be made upon <F10> Save & Exit. Install operation system as before using [SYSTEM SET] mode. Please see Section III Step 4B for Advance Installation information.

Although Watchdog can recover your data, software installed in [SUPERVISOR] mode has no protection at all. Please make sure program disks have no virus prior to installation. After finish installing software, remember to change to [AUTOFIX] or [MANUAL] mode.

Watchdog creates a mirror partition for backup purposes in [BACKUP FIX] mode. It will be the same sizes as the watchdog partition you want to create. BACKUP FIX mode is required for all non-Microsoft operating systems. Please ensure to plan your partition sizes carefully at this mode.

WatchDog Partition Setup Menu

- 1) How many partitions do you want – WatchDog can have up to 15 partitions provided there is enough space at the hard drive. WatchDog will automatically divided the hard drive space evenly when you put in the number of partitions you desired. In PnP mode, partition area is filled in for you after WatchDog has analyzed your hard drive.
- 2) NO. – This is an automated number that assigned on the order of partition being created.
- 3) Volume Label – The name of the partition that you want to label it as.
- 4) Size – Although WatchDog has already divided the partitions evenly, the capacity of each partition can be altered until it has been saved.
- 5) Free – Hard drive capacity remains in the hard drive from the last sector of the partition to the last written sector of the partition.
- 6) Show In Menu – To have the selected partition show up in WatchDog Startup Menu.

- 7) File System – Depending on the operating system you are going to install into the machine, select the suitable file system from the below options:

File System	Description
FAT16	Microsoft File system for partition capacity under 540MB
BIGDOS	File system for partition capacity under 2.1GB
FAT32	File system for Win 9x and capable of configuring partition greater than 2.1GB
NTFS	File system for Win NT and OS/2 (HTFS) for long filename types
OTHERS	DOS-12, Split, BtMgr, DM, GB, 386/ix, PCIX, Speed, BBT, CP/M, UNIX...

- 8) H. D. Mode – Each partition created by WatchDog can be configured with different methods of recovery. Options available are shown as below:

Recovery Mode	Description
SYSTEM SET	Depend on overall WatchDog Mode setup. It can be modified at the Mode Setup Section of the Main setup screen or the WatchDog startup menu
AUTOFIX	Scheduled recovery on boot every time, day, week, or month
MANUAL	Keep changes until users press function key at boot. <F3> to backup and <F4> to recover
BACKUP FIX	Use for operating system other than MS DOS/Windows 9x/ Win NT. BACKUP FIX is not designed for PnP.
SUPERVISOR	Allow user to READ/WRITE to hard drive as if WatchDog does not exist. Use during software installation
DISABLE	Does not use WatchDog function at all

- 9) Access Speed – Toggle of F-CACHE feature. Leave this at “HIGH” during the first run and will change it to “DRIVER” after the installation of the 32-bit driver. Options are described as below:

Access Speed	Description
High	Toggle ON F-CACHE technology, thus enable faster access for WatchDog Recovery
Normal	Toggle OFF F-CACHE technology. This is set if there is any conflict between WatchDog F-CACHE function and system
Driver	For Windows 95/98 and Windows NT Only. With the install of the device driver after installation of operating system. This enable true 32-bit access for WatchDog

- 10) DATA AREA 1, 2, 3 -- Partitions existed in the hard drive to be used as data partitions. Please note that data partitions have to be created prior to these specifications for PnP mode. Users install WatchDog using PnP features can only use existing logical drives as data partitions.

- 11) Password -- Password to accessed to this particular partition

- 12) Swap Area Size -- Only available when using [AUTOFIX] or [MANUAL] mode. Hard disk space use for F-CACHE. Although FAT based system no longer require same capacity of hard drive space for mirror purposes due to the new HD-SAVE technology. It is very slow to operate. In order to solve that, F-CACHE technology is developed. It enhanced hard drive access time when WatchDog is being used. Recommended value is 200 MB or 10% of hard drive capacity for a standard Win 9x partition. This Swap Area is overlapping one another for multi-boot system. Swap area could reside in the main partition or any of the data area 1, 2, or 3.

UNINSTALLATION

Please refer to Section V for details.

CHANGE SYSTEM CONFIGURATIONS

After installing of WatchDog, you could modify system name and other parameters using this function. All instructions are the same as the Installations. Please refer to Section III for details.

H. D. COPY

Hard drive could be copied from one to another using this function. Hard drive data could be copied from either <C> to <D> or vice versa. This function is available only at WD003 version and above.

UPDATE H. D. DATA

For [AUTOFIX] mode user, you can only updates the current hard drive data at the setup Menu. This function is also available in [MANUAL] mode at WatchDog Startup Menu as shown in Figure 5 using <F3> to backup.

RESTORE H. D. DATA

This function is made available to users who want to recover the hard data anytime if they have supervisor password to access the WatchDog Setup Menu. This function is also available at MANUAL mode using <F4> to FIX (recover) or <Esc> during boot sequence.

SOFT UPDATE

For PCI Version, upgrades are done through this option. Registered users will be informed of available new version when released. Using the upgrade disk and the SOFT UPDATE function, users can easily upgrade to next available version.

Section V: Uninstallation

For PnP mode, when Watchdog System Recovery Card is being removed from the system, there is no need for software installation again. If you decide to discontinue your use of Watchdog System Recovery Card, please follow the instruction as below:

1. Restart computer and access WatchDog Setup Menu using <PgDn> during boot.
2. Update H. D. Data (Do this to ensure your present settings of hard drive is available. Failure to do so will become hard drive containing only last updated information after uninstallation.)
3. Change WD H. D. Mode to "SUPERVISOR"
4. Press <F10> to save and exit.
5. Boot to Windows; Run WatchDog 32-bit driver setup program.
6. Select Uninstall and reboot system when prompt.
7. Access WatchDog Setup Menu again during boot.
8. Select Uninstall Option from W.DOG TOOLS
9. Press "Y" and confirm Uninstall Action
10. Restart Machine and run MS Scandisk to check for disk integrity.

Section VI: Y2K Compliance Statement

WatchDog System Recovery Card does not use any date-specific function or perform any analysis on stored data. Therefore, all WatchDog System Recovery Card series are Year 2000 compliant.

Appendix:

FCC Compliance Statement

This equipment has been tested and found to comply with limits for a Class B digital device, pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference in residential installations. This equipment generates, uses, and can radiate radio frequency energy, and if not installed and used in accordance with the instruction, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause interference to radio or television equipment reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna
- Move the equipment away from the receiver
- Plug the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio or television technician for additional suggestions

You are cautioned that any change or modifications to the equipment not expressly approve by the party responsible for compliance could void your authority to operate such equipment.

This device complies with Part 15 of the FCC Rules. Operation is subjected to the following two conditions:

- 1) This device may not cause harmful interference and
- 2) This device must accept any interference received, including interference that may cause undesired operation.

WATCHDOG SYSTEM RECOVERY CARD WIN9x/NT Express Installation Instructions

1. Boot system with Watchdog mounted onto an available slot in PC. WatchDog will reboot system several times.
2. Insert original setup disk to validate WatchDog.
3. Select option#2 to setup Watchdog
4. Select option#1 for Express Installation.
5. Let WatchDog reboot several times.
6. Boot into Windows desktop.
7. Run WatchDog 32-bit driver setup program and follow on-screen instructions. After installation finished, reboot computer as prompted.
8. Press <F10> to access WatchDog Setup Menu. (Use F2 to change language if required)
9. Update H. D. Data
10. Select Change System Configurations.
11. Modify Access Speed from "HIGH" to "DRIVER"
12. Specify Data Area as required.
13. Set User Password if necessary for each protected partition.
14. Adjust Swap Area Size using <PgUp> / <PgDn>. 200 MB or 10% of hard drive capacity is recommended for each protected partition whichever the greatest.
15. Press <F10> to save and exit.
16. Select Boot From to the desired partition.
17. Select W.DOG H. D. Mode to be "Auto Fix" or "Manual" mode
18. Preset Restore frequents of Protected Partition if selected "Auto Fix" mode.
19. <F10> to Save and Exit. Restart Computer.



Now, Watchdog protects your hard drive. If any data loss or crash to your hard drive, simply reboot the system and press <F4> to restore data from Watchdog backup partition. Press <F3> to Backup partition when other application has been installed. When in auto-boot mode, use <Esc> in order to recover hard drive image manually.

If H. D. Mode is set to Auto Fix, simply reboot the PC and enjoy instant data recovery.