

MODULE D4 HARD DISK FIRMWARE REPAIR UP GRADATION (PC3000 PCI, WDR, STR,)

- D4.1 Introduction to hard disk firmware
- D4.2 Introduction to hard disk firmware modules in service area
- D4.3 Problems when firmware is corrupted
- D4.4 Basic Introduction to Different firmware repair instrument/software list
- D4.5 PC-3000 pci Features:
- D4.6 Basic principle operation of pc3000 pci
- D4.7 Pc3000 pci using practice training
- D4.8 Pc3000 pci for Seagate models
- D4.9 Working of pc3000 pci for wd detail
- D4.10 Samsung pc 3000 training steps
- D4.11 Pc3000 support list of hitachi

After completion of course it will be finalized

Module D4 Firmware up gradation (pc3000 pci)

MODULE D4 HARD DISK FIRMWARE REPAIR TRAINING (PC3000 PCI)

D4. 1 Introduction to hard disk firmware

- Micro code of hard disk firmware
- Modules of hard disk firmware
- UBA Modules (Utility Block Addressing)
- Types of modules in hard disk firmware
- Data modules ,Management Modules ,Techno Modules
- How hard disk firmware damage
- Common symptoms of hard disk firmware failures
- Where firmware store in hard disk
- What is negative cylinder of hard disk
- What is service area
- What is inside hard drive System Area?

D4. 2 Introduction to hard disk firmware modules in service area

- Smart Data
- System Logs

- Serial Number
- Model Numbers
- Security Data Passwords for drive – possible encrypted info.
- Bad block table
- P-List (Primary Defects List – manufacture defect info that does not change)
- G-List (Grown Defects Lists – sector relocation table)
- Program Overlays – Firmware, Executable Code, or updates
- Zone Tables
- Servo Parameters
- Specific Tables like RRO – (recalibrate repeatable run-out and head offsets)
- Test Routines
- Factory Defaults Tables
- Recalibration Code Routines
- Translator Data:
 - a. Converts Logical and Physical Address to locations on the drive
 - b. Heads and Track Skewing Info

D4. 3 Problems when hard disk firmware is corrupted

- Hard disk not found in bios at all
- Model of hard disk shows wrong
- Head sticking voice (may be due to firmware if hardware ok)
- Shows up with wrong S/N
- Show up with wrong Model no
- Hard disk spinning but not shown in bios
- Hard disk asked for password
- Bad sector
- Hang up on particular sectors
- Identifies fine but fails to read any data or boot up operating system giving I/O Device errors
- Smart error
- Primary Master Hard Disk Fail
- No operating system found
- USB Device malfunctioned
- S.M.A.R.T. Capable But Command Failed
- Disk boot failure. Insert system disk and press enter
- Hard drive not recognized
- Drive Mount Failure or some other hard drive boot error.
- The hard disk will spin up when powered on, but be incorrectly recognized / not recognized at all by the computer
- The hard disk will spin up & be recognized correctly by the computer but the

system will then hang during the boot process

D4. 4 Basic Introduction to Different firmware repair instrument/software list detail

Ace lab original pc3000

- Ace portable usb
- Ace udma
- Ace

DFL Data Recovery Equipments

- (1) DFL - DDP USB3.0 (Data Dr. Pro Usb3.0)
- (2) DFL - URE USB3.0 (USB Recovery Express)
- (3) DFL - DE USB2.0
- (4) DFL - FRP - STII For Seagate
- (5) DFL - FRP - WDII For Western Digital
- (6) DFL – FRP – HT For Hitachi
- (7) High Speed USB Programmer Pro
- (8) DFL - Data Recovery Start-Up Suite
- (9) DFL - Data Recovery Grow-Up Suite

Salvation data product

- Data compass
- HD doctor for Seagate
- HD doctor for WD
- HD doctor for Maxtor
- HD doctor for Hitachi

Pc3000 pci 2.4/2.5 version

Atola

DflwdII

Firmware repair software without hard ware

- Wdr3, wdr5, wdr6
- Str 3000
- Mrt Maxtor repair
- Samsung repair software

D4 . 5 PC-3000 pci Features: 2.4 2.5v china crack



- What is pc3000 pci for windows
- Work of pc3000
- Models supported by pc3000 pci
- Support for 3.5" and 2.5" PATA/SATA HDDs
- User friendly Windows XP/2000 interface
- Database of Firmware modules and Loaders
- Ability to unlock password protected particular hard drives
- Uses vendor specific commands as opposed to standard ATA commands to switch HDD into factory mode to access firmware and perform read/write operations
- Allows full read/write access to the controller board's ROM and firmware modules on the disk system area (negative cylinders), such as Microcode Overlays, HDD Configuration
- Tables, Defects Tables, SMART Attributes, Security Subsystem, and Adaptive Ability to develop data recovery scripts to enhance the capabilities of the system
- Advanced System Area recovery utilities (module regeneration, read modules from factory copy, etc.)

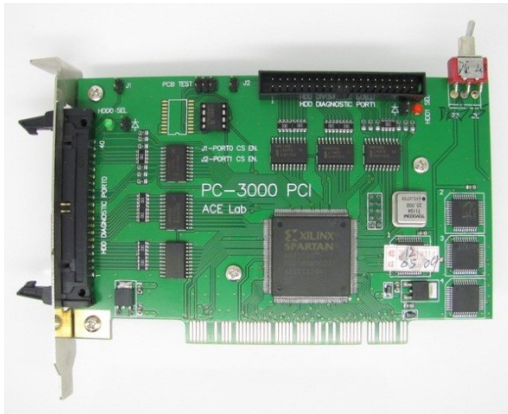
Data Extractor Software Features:

- Logical File recovery - has automated scripts for correcting file system structure corruptions
- Raw file recovery independent of disk Operating System (sector by sector search for header files)
- Ability to ignore ECC error codes and access data from "Bad Sectors" (Accomplished by working through the PC-3000 hardware.)

D4. 6Basic principle operation of pc3000 pci

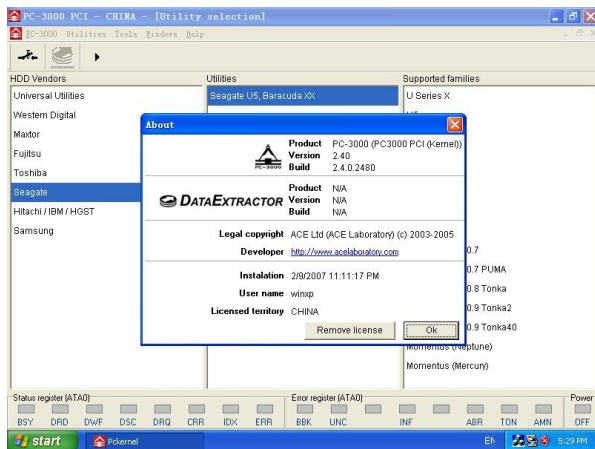
- HDD controller board & interface diagnostics;
- Flash memory / NV-RAM firmware review/reload;
- Disk system area (maintenance track) read/write test;
- Disk system area (maintenance track) firmware modules integrity test;
- Fixing/reloading damaged firmware modules (RAM or disk);
- G-List & P-List defects tables and S.M.A.R.T. attributes review/clear;

- Replacement of defective sectors or tracks by assign, reallocation or skipping defects;
- Restoration/editing of the disk ID module (disk logical parameters, model, S/N, etc.);
- Servo test and concealment of tracks with damaged servos;
- Translator regeneration (Physical Head/Cylinder/Sector into LBA translation recovery);
- HDD reconfiguration by skipping defective areas of disk surface or turning off defective heads;
- Low-level formatting;
- Media scan - search for defective sectors and their concealment by assign, reallocation or skipping defects. The concealment is achieved by using the drive's reserved area which is specifically assigned for this purpose.
- Security sub-system operations.
- Launch and monitoring of the HDD self-test procedure;
- and more.



D4. 7 Pc3000 pci using practical training

Starting of pc3000 pci

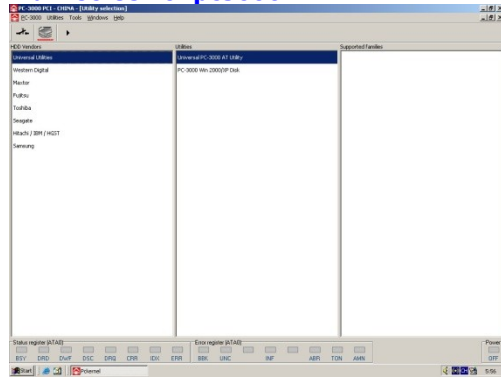


Hard disk status registers full form abbreviation (ATA0)

- BSY** : Drive Busy
- DRD**: Drive ready
- DWF**: Write Fault
- DSC**: Drive seek complete
- DRQ**: Data request
- CRR**: Corrected data
- IDX**: Index:

- ERR:** Error:
- BBK:** Bad Mark Block:
- UNC:** Uncorrectable data
- INF:** ID not found
- ABR:** Aborted command
- TON:** Track 0 not found
- AMN:** Data address mark not found

main screen of pc3000



Universal utilities

Working thru universal utilitisy

- *
- *

D4. 8Pc3000pci for Seagate models

Seagate models detail

- About seagate models
- How to identify seagate models
- Pc3000 pci supported list for Seagate

How to connect seagate harddisk with pc3000 pci

Seagate terminal commands

Utility status

Bound rate

Rom writing

Data buffer reading

Data buffer writing

Ram reading

Reading sa surface

Writing sa surface

Reading track groups

Writing track groups

Comparing sa tracks

Packet flow loading sldd

Defect list

Logical scanning

Seagate terminal commands

Swith HDD to ATA mode (Age=50)
Load CERT
Show zones distribution
Show Alt list (remap)
Show user track slip list (P-list)
Show reserved track slip list
Show ROM information
Show PC""B information
Show buffers map
Change HAD Serial number
Change PCBA serial number
Clear SMART, erase G-list
Clear Alt_list (remap)
Clear User track Slip list
Clear Reserved track slip list
Self scan start
Start test on current age

D4. 9Working of pc3000 pci for wd detail

Wd 2 models come caviar cyl32 and wdc marvel
Pc3000 pci wd hard disk supported models list
Utility status
Head mapping
Reading service track
Writing service track
Erase service area
Format service area
Translator regenerator
Read rom
Write rom
Read modules firmware
Write module firmware
Smart reset
Password reset
Head test
Test service area
Format scan hard disk
Service area format

Defect list report
Defect list editing
Erase glist
Glist to plist convert

D4. 10 Samsung pc 3000 training steps

Connection detail of Samsung hard disk in pc3000
Work of Pc3000 In Samsung Hard Disk
Samsung supported models hard disk in pc3000 pci
Working function of Samsung hard disk in Samsung
Utility status
Burn test result report
Write burn resources to hdd
Download file to hdd
Sa structure test
Reading modules
Writing modules
Reading service tracks
Writing service tracks
Logical scan parameters
Defect list report
Deveacts list edit
A list clearing
Remove a list to s-list

Test menu
Hdd resources backup
Work with rom
Work with burn
Work with service area
Security subsystems
View password information
Clearing password
Work with database

Tools
Module table chart
Burnt test

Hdd recalibration
Hdd soft reset
Hdd hard reset
Hdd standby
Hdd sub security subsystem
Open hdd
Cleart password
Password setting
Security erase

Set max lba

12 Pc3000pci other models support list

Hitachi pc3000 pci f steps

Hitachi 2.5 inch drive
Head test
Test all head with every cylinder and give report error no 0
Test reading LBA from to
Zone allocation table
Sa structure test report
Reading modules
Writing modules
Select modules that to be write
Reading service tracks
Reading service track error shown
Read hdd microcode
Clear smart
Clear smart log
Clear g list
Read ram
Write ram
HARD DISK PASSWORD RESET
Recalibration

Other models model

Identification of Maxtor hd model number
Pc 3000 pci Maxtor models supported
Maxtor pc 3000 pci use guide
Toshiba
Pc3000 pci data extractor

Function of data extractor
How to copy from one hard disk to other
Lba to lba ,
Particular files recover

DIFFERENT HARD DISK MODELS DETAIL

1.8" disk

- **HITACHI (orig)** C4K40, C4K60, C4K60 Slim
- **TOSHIBA** 04GAL, 04GAH, 08GAL, 08GAH, 10GAH, 11GAH, 25GAL, 31GAL, 29GSG

2.5" disk

- **FUJITSU** MHD, MHK, MHM, MHN, MHR, MHS, MHT, MHV, MHW, MHX, MHY
- **HITACHI (IBM)** DARA, DJSA, ATDA, ATCS, ATMR, HTS548, HTS726, HTS424, HTS721, HTS5410G9, HTS5412H9, HTS5416J9, HTS5425K9
- **HITACHI (orig)** DK23AA, DK23BA, DK23CA, DK23DA, DK23EA, DK23FA (4K80), DK23FB (5K60)
- **SAMSUNG** MAGMA MAGNUM MANGO

3.5" disk

- **SEAGATE** Momentous
- **TOSHIBA** GAP, GAX,GAS, GAY, GSX, GSS, GSX, 46GSX, 52GSX, 63GSX
- **WESTERN DIGITAL**WD Scorpio: WD Scorpio Blue:WD Scorpio Black:
- **FUJITSU** :- MPA, MPB, MPC, MPD, MPE, MPF, MPG
- **HITACHI (IBM)** :- DJNA, DPTA, DTLA, AVER, AVVA, AVVN, AVV2, VLAT, PLAT, DLAT, KLAT, GLxx, HDx7210SL
- **MAXTOR**:- Diamond Max VL40, Diamond Max Plus 60, D531X, D541X, D540-4D, 536DX, Fireball 3, Diamond Max 16, Diamond Max Plus 8, Diamond Max Plus 9, MaXLine Plus II, Diamond Max 10, MaXLine III, Diamond Max 11, Diamond Max 17
- **SAMSUNG** :- VOYAGER , VICTOR, PUMA, VICTORPLUS, VERNA, VANGO, VANGOPLUS, PANGO, VELOCE, PALO, RUBICON, POSEIDON, DELPHI, CAESAR, TRIDENT, STORM PARAGON
- **SEAGATE**:- U5, Barracuda ATA I, Barracuda ATA II, Barracuda ATA III, Barracuda ATA IV, Barracuda ATA V, U Series X, U Series 7, Barracuda 5400.1, Barracuda 7200.7, Barracuda 7200.8, Barracuda 7200.9, Barracuda 7200.10, Barracuda 7200.11, Barracuda ES.2, Barracuda 7200.11 SATA, Barracuda 7200.12 SATA
- **WESTERN DIGITAL IDE**: WDxxxEB, WDxxxBB, WDxxxJB, WDxxxLB, WDxxxPB, WDxxxJD, WDxxxKD, WDxxxJS, WDxxxxAAJB, WDxxxxAAJS, WDxxxxAAKB;Caviar Blue: WDxxxxAAKS, WDxxxxEALS, WDxxxxAAKX;
- **Caviar Green**: WDxxxxAACS, WDxxxxEACS, WDxxxxAADS, WDxxxxEADS, WDxxxxEARS, WDxxxxEZRS;
- **Caviar Black**: WDxxxxAALS, WDxxxxFALS

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- a. Broken power/data connectors (requires fine soldering).
 - b. Spindle/arm driver chip failure (requires replacement of either a logic board, or a chip; additional