

CopyBox

SATA Harddisk Duplicator

User's Guide 1,6



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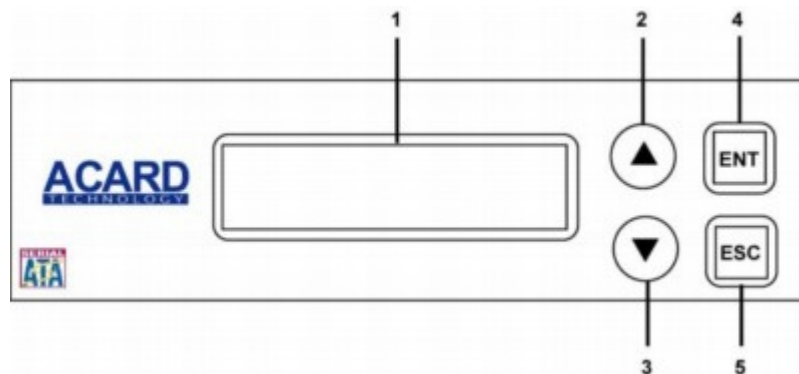
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Chapter 3 Basic Instructions

3.1 Buttons and LCD

There are four buttons and an LCD on the panel of SATA HDD Duplicator Controller.



1. It shows a function or a message.
2. It's used to scroll up function menus.
3. It's used to scroll down function menus.
4. It's used to execute a function.
5. It's used to cancel a function.

3.2 LCD Configuration Chart

Here we take ARS-5503H to demonstrate.



Figure 1 shows the firmware version of ARS-5503H.

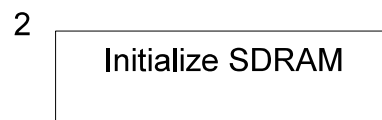


Figure 2 shows Initialize SDRAM's status.



Figure 3 shows Detect Drives's status.

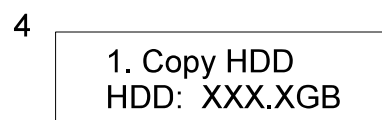
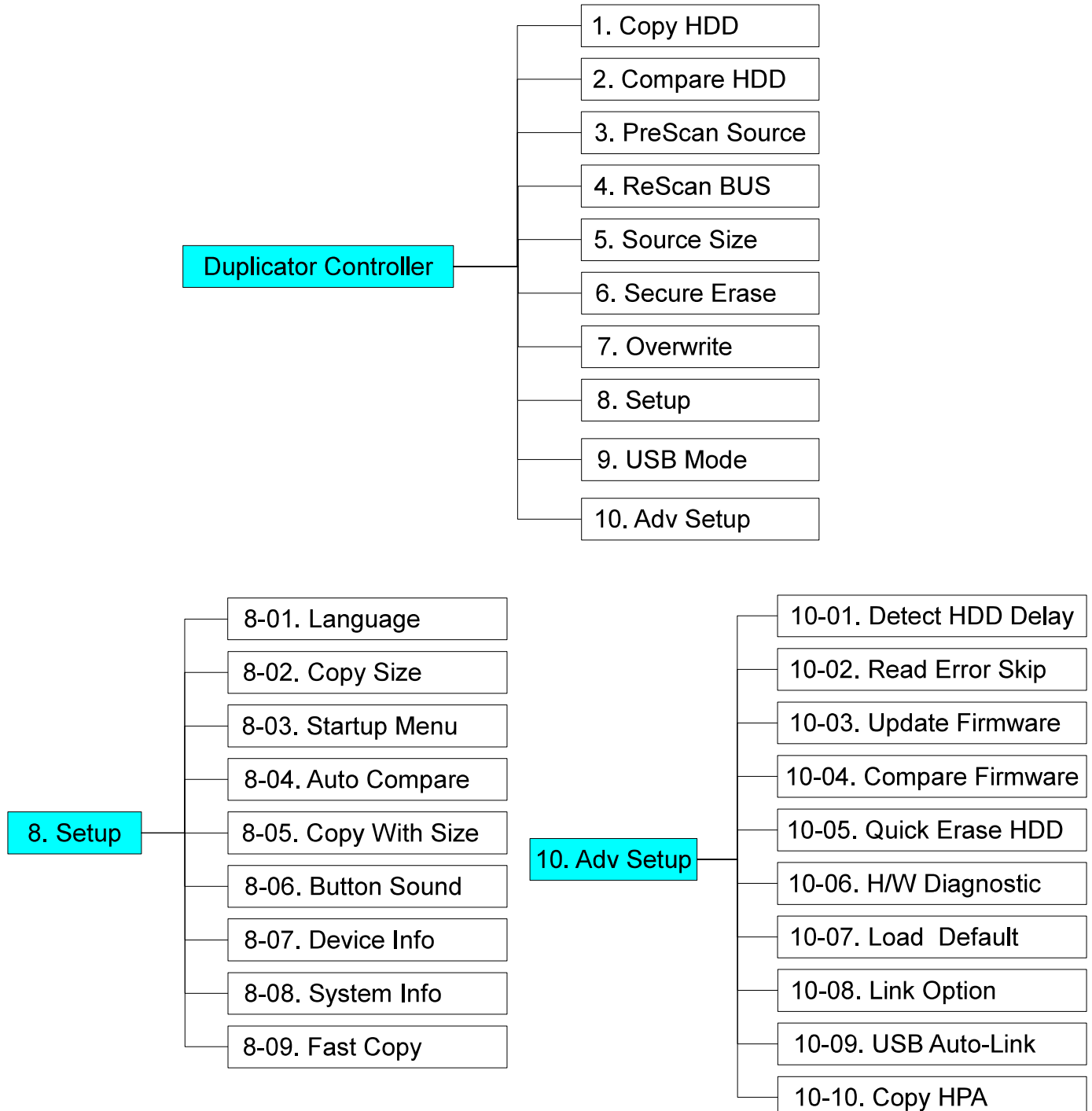


Figure 4 shows the first function Copy HDD. There are 8 functions. You can press ▼ to see other functions.

Chapter 5 Functions

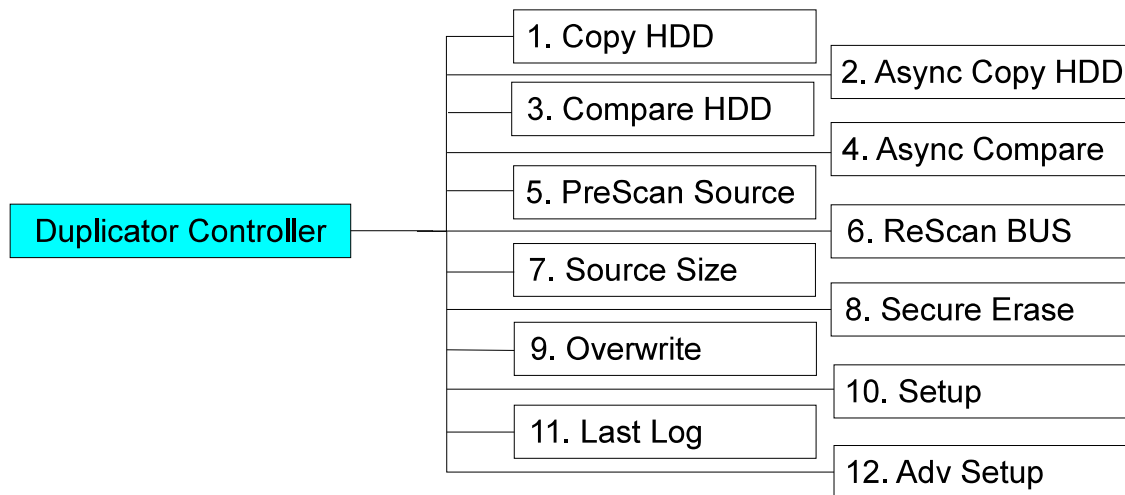
The copy controller has 9 functions in total, with the 10th (Adv Setup) being a hidden system function that only appears when the ESC key is pressed for 2 seconds until there is a beep. These are shown below.

Model ARS-2051F is as below.



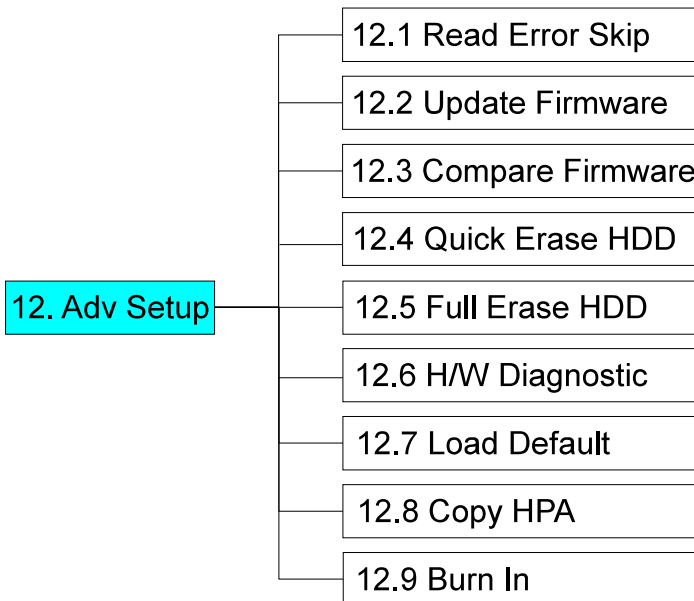
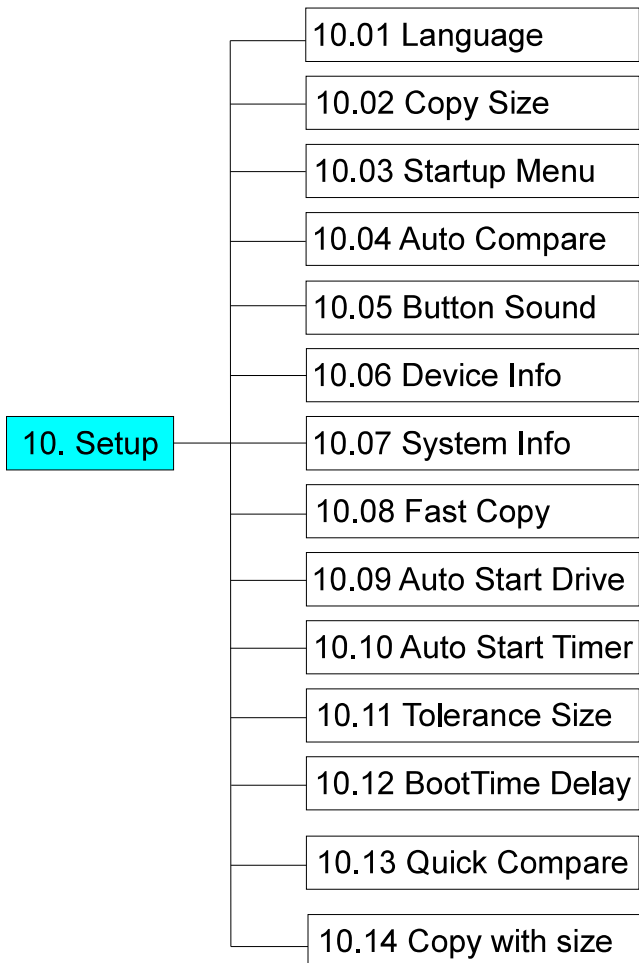
The copy controller has 11 functions in total, with the 12th (Adv Setup) being a hidden system function that only appears when the ESC key is pressed for 2 seconds until there is a beep. These are shown below.

ARS-5501F/5501H, ARS-5503M/5503H, ARS-2055PF, ARS-5505E/5505M/5505H, ARS-5509M, ARS-2061F are as below.



In Function#10 there are 14 sub-functions

In Function#12 there are 9 sub-functions



Here we take ARS-5503H to demonstrate.

5.1 Copy HDD

Copy HDD copies data directly from the source hard disk to the target hard disk. Please make sure that the capacity of the target hard disk is equal or larger than the source hard disk.

Choose option 1 from the menu:

```
1. Copy HDD
HDD:4  232.9GB
```

Press **ENT** to begin copy. The system will auto-detect the hard disks and show the following copying info on the LCD.

```
Copy-36MB/s  0%
232.9GB  00:00:00
```

The LCD will show the following info during the copying process: elapsed time, completed percentage. The copy speed, capacity and time will vary depending on the source hard disk. Once the copying process is complete the LCD will display the following results.

```
Copy HDD
OK: 3   Fail: 0
```

5.2 Async Copy HDD (ARS-2051F/5501F/5501H not support)

This option allows when the replication process can increase the extra hard disk devices.

Choose option 2 from the menu:

```
2. Async Copy HDD
HDD:4  232.9GB
```

Press **ENT**. Before the start of the reproduction, if the ARS-5503H to detect the 3rd hard drive capacity is less than source, then the LCD will show the corresponding channel number.

```
3
Space Not Enough
```

And then automatically copies. The LCD will display the following info.

```
Acpy-36MB/s  0%
232.9GB  00:00:00
```

If the replication process to continue to add additional hard disk device, LCD will only show the last completed percentage.

Once the copying process is complete the LCD will display the following results.

```
Async Copy HDD
OK: 3   Fail: 0
```

5.3 Compare HDD

Compare HDD is used to see if the data on a source hard disk is identical to the target hard disk after the Copy HD operation.

Choose option 3 from the menu:

```
3. Compare HDD
HDD: 4   232.9GB
```

Press **ENT** to begin the comparison. The LCD will display the following info.

```
Comp-23MB/s  0%
232.9GB  00:00:00
```

Once the comparison is complete the LCD will display the following info as well as the amount of data on the source hard disk.

```
Compare OK:3
Fail: 0   Diff: 0
```

Attention: This is Function 2 of ARS-2051F/5501F/5501H.

5.4 Async Compare (ARS-2051F/5501F/5501H not support)

This option allows the comparison process can increase the extra hard disk devices.

Choose option 4 from the menu:

```
4. Async Compare
HDD: 4   232.9GB
```

Press **ENT** to begin the async comparison. The LCD will display the following info.

```
ACmp-23MB/s  0%
232.9GB  00:00:00
```

If the comparison process to continue to add additional hard disk device, LCD will only show the last completed percentage.

Once the copying process is complete the LCD will display the following results.

```
Compare OK:3
Fail: 0   Diff: 0
```

5.5 PreScan Source

PreScan Source is used to check if the source hard disk can be accessed properly. It also tests the read speed.

Choose option 5 from the menu:

```
5. PreScan Source
HDD : 4  232.9GB
```

Press **ENT** to begin scan. The LCD will display the following info

```
Scan-90MB/s  1%
230.6GB  00:00:27
```

Once the scan is complete, the LCD will display the corresponding results

```
PreScan OK!
```

Attention: This is Function 3 of ARS-2051F/5501F/5501H.

5.6 ReScan BUS

ReScan BUS is used to re-scan all devices on the duplicator.

Choose option 6 from the menu:

6. ReScan BUS

Press **ENT** to re-scan hardware. The LCD will display the following info.

Re-Scan BUS NOW?
Yes

When the scan is complete the LCD will display the following info.

Bus re- scan OK!

Attention: This is Function 4 of ARS-2051F/5501F/5501H.

5.7 Source Size

Source Size is used to show the capacity message of the source hard disk.

Choose option 7 from the menu:

7. Source Size

Press **ENT** and the LCD will show the following info.

HDD:Hitachi
Size:232.9GB

Then press **ENT** and the LCD will show the data's size info.

HDD:Hitachi
Data:200.9GB

Attention: This is Function 5 of ARS-2051F/5501F/5501H.

5.8 Secure Erase

Secure Erase is used to do data-erase operations to the hard drive by command order from HDD itself. This function will erase all HDD with 00 character in the tray (included Source tray), please be careful when use it.

Choose option 8 from the menu:

8. Secure Erase

Press **ENT** to access option. By default it is set to No. Use the Up and Down arrow keys to choose Yes.

Wipe all data.
Continue? No

Press **ENT** and the LCD will show the following info.

In Process
Elapsed 01:00

Attention: This is Function 6 of ARS-2051F/5501F/5501H.

5.9 Overwrite

Overwrite is used to do data-erase operations to the hard drive by command order from controller itself. There are 3 sub-options: One pass (all 00 character), 3 pass (00, ff, random character) and 7 pass 5220.22-M (f6,00, ff, random, 00,ff,random character). This function will erase all HDD in the tray (included Source tray), please be careful when use it.

Choose option 9 from the menu:

9. Overwrite

Press **ENT** to access option. By default it is One pass Use the Up and Down arrow keys to choose other options.

9-01. Overwrite
One pass

Press **ENT** to access option. By default it is set to No. Use the Up and Down arrow keys to choose Yes.

Wipe all data.
Continue? No

Press **ENT** and the LCD will show the following info.

In Process
Elapsed 01:00

Attention: This is Function 7 of ARS-2051F/5501F/5501H.

5.10 Setup

Setup allows various system settings to be changed. There are 13 sub-options: Language, Copy Size, Startup Menu, Auto Compare, Button Sound, Device Info, System Info, Fast Copy, Auto Start Drive, Auto Start Timer, Tolerance Size, BootTime Delay, Quick Compare and Copy with size.

Choose option 8 from the menu:

10. Setup

Attention: This is Function 8 of ARS-2051F/5501F/5501H.

5.10.1 Language

This option is used to select the system's language support. By default this is set to English. Press **ENT** to change the Language settings.

10-01. Setup
Language



Language
English

5.10.2 Copy Size

This option is used to specify the size of the source hard disk for simplifying further copying operations.

10-02. Setup
Copy Size

Press **ENT** and the LCD will display a detailed list of options as shown below

Copy Size
100%~1% (*MB)

Use the Up and Down arrow keys to choose different copy sizes. The system will offer their corresponding percentages so the user can specify the amount to copy from the source hard disk. Press **ENT** to confirm and save the changes.

5.10.3 Startup Menu

This option allows you to set an option other than "Setup" to be displayed as the first available option on the menu every time you start the system.

10-03. Setup
Startup Menu

Press **ENT** then use the Up and Down arrow keys to choose other options. By default the first menu option is Copy HDD.

Startup Menu
1. Copy HDD

5.10.4 Auto Compare

This option automatically compares the source hard disk with the target hard disk after a copy operation is completed.

10-04. Setup
Auto Compare

Press **ENT** to access option. By default it is set to Off. Use the Up and Down arrow keys to choose On.

Auto Compare
Off

5.10.5 Button Sound

This option is used to control the sound of a button when you press it.

10-05. Setup
Button Sound

Press **ENT** and the LCD will display the following info. Use the Up and Down arrow keys to choose whether button sound is on or off.

Button Sound
On

Attention: This is Function 8-06. of ARS-2051F.

5.10.6 Device Info

This option is used to display the details of all hard disks connected to the copy controller.

10-06. Setup
Device Info

Press **ENT** and the LCD will display each hard disk' information in order as shown below.

0 Source CH: 0
Hitachi 232.9GB

Attention: This is Function 8-07. of ARS-2051F.

5.10.7 System Info

This option displays system information.

10-07. Setup
System Info

Attention: This is Function 8-08. of ARS-2051F.

5.10.8 Fast Copy

This option displays Fast Copy.

10-08. Setup
Fast Copy

Press **ENT** and the LCD will display the following info. Use the Up and Down arrow keys to choose whether fast copy is on or off. (This function currently only effective in FAT, FAT32, NTFS, HFS+, Ext2 and Ext3 partitions.)

Fast Copy
On

Attention: This is Function 8-09. of ARS-2051F, and it does not support HFS+.

5.10.9 Auto Start Drive

This option is used to display to copy automatically once you insert HDD on target port.

10-09. Setup
Auto Start Drive

Press **ENT** to enter the following figure. The default is Off. Use the Up and Down arrow keys to choose 1-11.

Auto Start Drive
Off

5.10.10 Auto Start Timer

This option is used to display to copy automatically once you insert HDD on target port.

10-10. Setup
Auto Start Timer

Press **ENT** to enter the following figure. The default is Off. Use the Up and Down arrow keys to choose 5 Sec-50 Sec.

Auto Start Timer
Off

5.10.11 Tolerance Size

This option is used to do to ensure that when the target is smaller than the source can not be performed when the copy.

10-11. Setup
Tolerance Size

Press **ENT** to enter the following figure. The default is Off. Use the Up and Down arrow keys to choose 1MB~100MB of source.

Tolerance Size
1MB

5.10.12 BootTime Delay

This option is used to to set boot delay time.

10-12. Setup
BootTime Delay

Press **ENT** to enter the following figure. The default is 5 sec. Use the Up and Down arrow keys to choose 0~99 sec.

BootTime Delay
5 sec

5.10.13 Quick Compare

This option is used to set the size of each comparison unit.

10-13. Setup
Quick Compare

Press **ENT** to enter the following figure. The default is Off. Use the Up and Down arrow keys to choose 1 Byte/1K/10K/100K/1MB/10MB/100 Mbytes. (In order to improve the accuracy of pure data can maintain the default settings.)

Quick Compare
Off

5.10.14 Copy with size (ARS-5501F not support)

This option is used to set the source hard disk with the target hard disk the same capacity after a copy operation.

10-14. Setup
Copy with size

Press **ENT** to enter the following figure. The default is Off. Use the Up and Down arrow keys to choose On.

Copy with Size
Off

Attention: This is Function 8-05. of ARS-2051F.

5.11 Last Log (ARS-2051F/2055PF/2061F not support)

This function is used to view related messages after the copying function has completed.

While the copying function is executing or when it has ended, the LCD will display the following screen, "this is currently recording the copying results".

Recording Log
Please Wait.....

You can press ▲▼ to select Function#11.

11. Last Log

When you enter Function#10, you can see information about the last copying result.

Source HDD #0
Identical

After you have finished viewing the information, you may press any button to exit that screen.

D1: OK D2: OK
D3: OK

5.12 Adv Setup

Adv Setup offers expert users access to more advanced system settings. It has 9 sub-options: Read Error Skip, Update Firmware, Compare Firmware, Quick Erase HDD, Full Erase HDD, H/W Diagnostic, Load Default, Copy HPA and Burn In. To access this option, hold down the **ESC** key for two seconds until it appears.

12. Adv Setup

Attention: This is Function 10 of ARS-2051F, Function 9 of ARS-5501F.

5.12.01 Read Error Skip

This function sets the system to ignore any errors during the copying process. Normally if there is an error during copying a warning is displayed on the LCD. By using this function, users can also copy a HDD with errors.

12-01. Adv Setup
Read Error Skip

Press **ENT** to enter the following screen. By default this option is set to OFF. Use the up and down buttons to enable or disable this option.

Read Error Skip
Off

Attention: This is Function 10-02. of ARS-2051F.

5.12.02 Update Firmware

This function is used to update the system's firmware. Download the latest version of the firmware from the Internet at www.acard.com then write it on to a blank CD/DVD/HDD/USB.

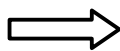
12-02. Adv Setup
Update Firmware

Shut down the HDD clone. Restart the system and insert the CD/DVD/HDD/USB port with the latest version of the firmware into the media.

Press **ENT** and the system will begin scanning for a new firmware version. If found, this will be displayed on the LCD as shown below.

Press **ENT** again to begin updating. If the upgrade is successful the system will restart automatically.

Searching F/W ...
Please Wait ...



Update F/W X.XX
To X.XX -> Yes

Attention 1: This is Function 10-03. of ARS-2051F.

Attention 2: USB update for some models only, please see page 38 "Appendix B" for more information.

5.12.03 Compare Firmware

This function is used to compare the current system firmware version with the new version the user is upgrading to. This ensures that the downloaded firmware is the latest version. The message "Last update F/W" indicates that it is the latest version.



Attention: This is Function 10-04. of ARS-2051F.

5.12.04 Quick Erase HDD

This function is used to quickly erase all data on the target HDD with "00" character. Please backup any important data before using this function.

12-04.Adv Setup
Quick Erase HDD

Press **ENT** to enter the following screen. Use the Up and Down buttons to select the HDD to erase.

Quick Erase HDD
ALL/Target CH:*

Press **ENT** again and the LCD will prompt you to confirm the erase operation.

All data will be
lost,Erase? No

Attention: This is Function 10-05. of ARS-2051F.

5.12.05 Full Erase HDD

This function is used to full erase all data on the target HDD with "00" character. Please backup any important data before using this function.

12-05.Adv Setup
Full Erase HDD

Press **ENT** to enter the following screen. Use the Up and Down buttons to select the HDD to erase.

Quick Erase HDD
ALL/Target CH:*

Press **ENT** again and the LCD will prompt you to confirm the erase operation.

All data will be
lost,Erase? No

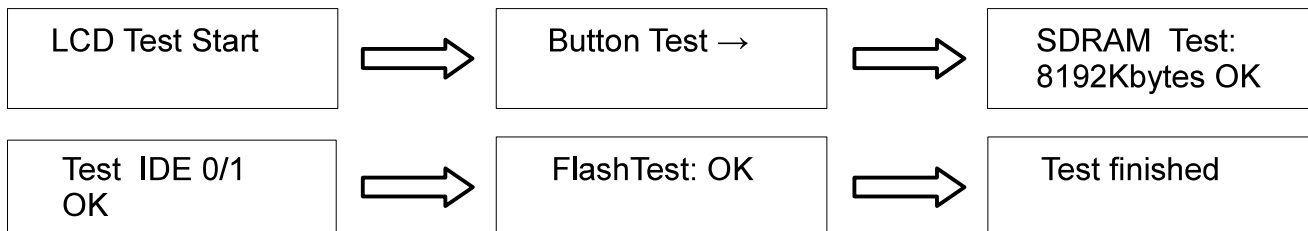
5.12.06 H/W Diagnostic

Press **ENT** to enter the following screen. This function is used to check that the system is operating normally.

12-06.Adv Setup
H/W Diagnostic

Press **ENT** again to enter the following screen. The LCD will cycle through the test categories as they are performed. The LCD display is tested first, the control panel is tested next (requires manual operation), then followed by the system's internal diagnostics, hardware connection test then the RAM and SD Flash test. All test results are shown on the LCD. This is a simple way to verify that the system is operating normally.

Press **ENT** and the system will begin the tests as shown below.



Once the system diagnostics have been completed the "Test finished" message will appear on the LCD.

Attention: This is Function 10-06. of ARS-2051F.

5.12.07 Load Default

Press **ESC** to return to the main menu then use the **ENT** button to select. This function resets all settings to their factory default. This function helps the system recover from errors caused by an illegal operation.

12-07.Adv Setup
Load Default

Press **ENT** to enter the following screen. Use the Up and Down buttons to confirm reset to factory defaults.

Load Default
Config? Yes

If Load Default OK, this will be displayed on the LCD as shown below.

Load Default
Ok

Attention: This is Function 10-07. of ARS-2051F.

5.12.08 Copy HPA

If this function is set to "ON", the system will completely copy the data in a source HDD's host protected area.

12-08. Adv Setup
Copy HPA

The default is "OFF". Use the **ENT**, Up and Down buttons to change this to "On".

Copy HPA
OFF

Attention: This is Function 10-10. of ARS-2051F.

5.12.09 Burn In (ARS-2051F not support)

This function is used to burn test the system reliability.

12-09. Adv Setup
Burn In

Press **ENT** to enter the following screen.

Burn In Mode
Copy & Compare

Use the Up and Down buttons to choose Compare, Async Copy & Cmp and Async Compare, then press **ENT** to confirm.

5.12.10 Detect HDD Delay (ARS-2051F Only)

This function is used to set the time interval between the system's re-scans of all connected HDD devices.

Press **ENT** and the LCD will show the following info.

10-01. Adv Setup
Detect HDD Delay

Press **ENT** then use the Up and Down buttons to choose different time settings (1~60 sec)

Detect HDD Delay
1Sec

5.12.11 Link Option (for USB mode) – requires AEC-4420DX (ARS-2051F Only)

This function is used to decide if 7. USB Mode will be shown in the main menu as pictured below.

10-08. Adv Setup
Link Option

Press **ENT** and the LCD will display the available options as shown below. The default is "Menu On" and 9. USB Mode will appear in the main menu.

Link Option
Menu On

If set to "OFF" using the Up and Down buttons, the 9. USB Mode option will not appear in the main menu.

5.12.12 USB Auto-Link – requires AEC-4420DX (ARS-2051F Only)

This function sets the ARS-2051F to immediately enter USB mode on startup. This allows direct control via PC as shown below.

10-09.Adv Setup
USB Auto-Link

Press **ENT** and the LCD will display the available options as shown below. The default is "OFF".

USB Auto-Link
OFF

5.13 USB Mode (ARS-2051F only)

This option allows a copy controller connected to the host computer's USB port to be operated from the PC.

Choose option 9 from the menu:

9. USB Mode

Press **ENT** and the LCD will display the corresponding information as shown below.

Switch USB Mode?
NO

Use the Down arrow to select YES then press **ENT** again to switch to USB Mode. The LCD will display the following info.

USB L.H Mode
D1:HDD D2:HDD

Now press **ENT** to switch to stand-alone mode. The LCD will display the following info.

Copy Mode

Chapter 6 Basic Troubleshooting

6.1 LCD

If the LCD blank after the device is turned on, check that the power cable is properly connected and that the power supply is on.

6.2 Error Message

When the system is running a copy operation or hardware diagnostics, if the operation is manually terminated by pressing ESC an error message will be shown by the LCD. This may lead to an illegal operation and cause the device to stop reminding. If this happens, the device must be restarted.

6.3 Hard Disk

If unable to read the hard disk please check that the data and power cables are properly connected.

6.4 Keys

If pressing the keys on the front panel produces no response from the system, the keys may have malfunctioned. Please check the control panel to see if the wiring has come loose.

6.5 Firmware Upgrade

The device can be updated to new versions of firmware through CD/DVD/HDD and USB port (for ARS-5501F/5501H/5503M/5503H/5505E/5505M/5505H/5509M/2061F only). If unable to update the firmware, check that the firmware was downloaded correctly. A failed firmware upgrade may cause the duplicator to become inoperable. If the system is working normally, do not attempt this operation. If the system is already experiencing problems, please contact your distributor for repairs.

6.6 Startup/Shutdown

Do not suddenly turn off the power while the system is performing an operation. After shutting down normally, wait a moment (usually around 5 seconds) before starting the system again so it can run its self-diagnostics.

6.7 About Copy HPA

The HPA (Host Protected Area) is a hidden data region defined in ATA/ATAPI-4. This area is not usually accessible to software. The SATA HDD Duplicate Controller supports the copying of data from this hidden area.

Appendix A Error Messages List

NO#	Error Messages	Description	Applied to
1	Source Drive Not Exist!	No source HDD exist during operating	Copy, Async Copy, Compare, Async Compare, PreScan Source, Source Size, Copy Size, Tolerance Size
2	User Abort!	Cancel operating	Any function and any time
3	No Drive Exist	No HDD exist during operating	Device Info
4	X Space Not Enough Target Drive Space Not Enough	When source capacity is small than target	Copy, Compare
5	X Space Not Enough Target Drive Fail!	When source capacity is small than target	Async Copy, Async Compare
6	PreScan Fail	Lose SATA connection during copy or bad sector on HDD	PreScan Source
7	Source Drive Read Fail!	Lose source SATA connection on source port during copy or bad sector on source HDD	Copy, Async Copy, Compare
8	Target Drive Write Fail!	Lose target SATA connection on target port during copy	Copy
9	Target Drive Read Fail!	Lose target SATA connection on target port during comparing	Compare
10	Target Drive Fail!	Lose target SATA connection on target port during async comparing	Async Copy, Async Compare
11	Target Drive Not Exist!	No HDD exist during operating	Overwrite
12	One pass One pass failed	Lose SATA connection on SATA port during Overwrite	Overwrite
13	3 pass pass 1 failed	Lose SATA connection on SATA port during Overwrite	Overwrite
14	7 pass 5220.22-M pass 1 failed	Lose SATA connection on SATA port during Overwrite	Overwrite

If you hear the warning signal while the copying function is executing (a beep every 5 seconds), the LCD screen will display the problem status; you may press any button to return to the copy progress screen.

Appendix B Firmware Update via HDD / USB

1. HDD Update

1. Create a 50MB partition (FAT/FAT32/NTFS) HDD.
2. Copy the latest of firmware into HDD.
3. Insert the HDD with firmware to Source port of HDD Duplicator.
4. Execute "Update Firmware" function.

2. USB Update (ARS-2051F / 2055PF / 2061F PCB:5.2 not support)

1. Copy the latest of firmware into USB root directory.
2. Insert the USB with firmware to USB port of HDD Duplicator.
3. Execute "Update Firmware" function.

