Recover Data from G-List Damaged Toshiba HDDs with Virtual Translator of MRT

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There is a common fault of Toshiba HDDs. That is translator does not work properly when G-List is damaged. In this case, MRT will report errors when accessing sectors.

Instructions of how to use virtual translator are as follows:

DR tool of MRT supports invoking factory program to read HDDs. To turn on this function, you have to boot factory program first. Then DR will invoke factory program to read data.

After we entered the factory program, we should pay attention to "Techno ON" and "Techno Off".

After clicking "Techno ON", the HDD will enter factory technology mode. In this mode, you cannot read correct data when accessing user sectors.

After entering factory program, the factory program will set HDD in "Techno ON" at start up. That is, the HDD is in factory mode.

We can know by testing that all the data viewed when accessing user sectors is wrong.

Please note that status light reports ERR at this time. When status light reports ERR, all the read data cannot be trusted.

We can know by continuously refreshing that the content of sector 0 changes at random, which also indicates that user sectors read in factory mode are wrong.

Now let us turn off factory mode and try again.

There are bad tracks in sector 0 of this HDD. Try reading sector 1.

We find that this HDD responds to DRQ slowly. For this kind of HDD, we can extend the timeout limit.

We can see that the sector has already been read. But when I try to read this sector after writing data to it, it becomes a bad block (status light reports ERR; error light

reports UNC; UNC is a unrecoverable parity error. All these indicate a bad block. It may be logical bad block or physical bad block).

This situation indicates that head write feature of HDD is unstable. That is, the head becomes read-only. This is due to physical damage of head.

In this case, the head can be read. But if you write it, there will be damage of it. In this way, firmware zone can also be damaged.

For HDDs of this kind, you should avoid writing.

When it is "Techno Off", the sector can be read properly.

After we click "Techno On", we can find sector with the same problem. It reports ERR when read. The read data changes at random.

This indicates that when conducting normal copy, you must click "Techno Off" first to read the data correctly.

In many cases, users open DR directly to start mirroring after entering factory program. They will find a lot of black blocks in DR. This is because the HDD is in "Techno NO" mode after entering factory program. The solution is to click "Techno Off" or power off the HDD and then power on. After powering on the HDD, it will come back to default of Techno Off mode. Please note that if you use PC3000 UDMA, the problem still exists. DE will read a lot of light green blocks which indicates untrusted data. This is also caused by not being in Techno Off mode.

Now there is damage in G-List and translator of this HDD. A lot of sectors cannot be read.

We can solve the problem with virtual translator.

Click "Techno Off", then start DR. Keep the factory program on.

Then select "Read from MRT utility" in DR.

We recommend you use PIO to read, and select the two options below.

Wait for the virtual translator to be recalculated.

Set the read block size as 1 (important)

Click "OK".

Then you may find that there are still some red blocks. Many sectors of these red blocks will be skipped, thus leading to a lot of yellow blocks being skipped.

Reset Skip settings. Go to Timeout. Set the jump size as 1(important).

Sometimes, you can unselect soft reset, hard reset and power off to prevent virtual translator becoming invalid after power failure.

Then you can begin to copy.

There are many bad tracks in the front sectors of this HDD. Let us try subsequent sectors.

We can see the data can be extracted.

After data extraction, we may need to complement those red blocks. How to do it?

We can use bitmap removal tool of DR.

We can remove red blocks and yellow blocks with bitmap removal tool so that they will become white blocks again.

Then we can do the complement for the second time, or for more times.

If the virtual translator becomes invalid half-way, we can recalculate virtual translator.

Read after exiting factory mode, then enter factory mode and read again.

Please note that when DR is reading in factory mode, it will lock factory module. The factory module cannot be closed at this time. To exit factory module, DR must read with factory mode exited.

Above is the usage of Toshiba virtual translator.