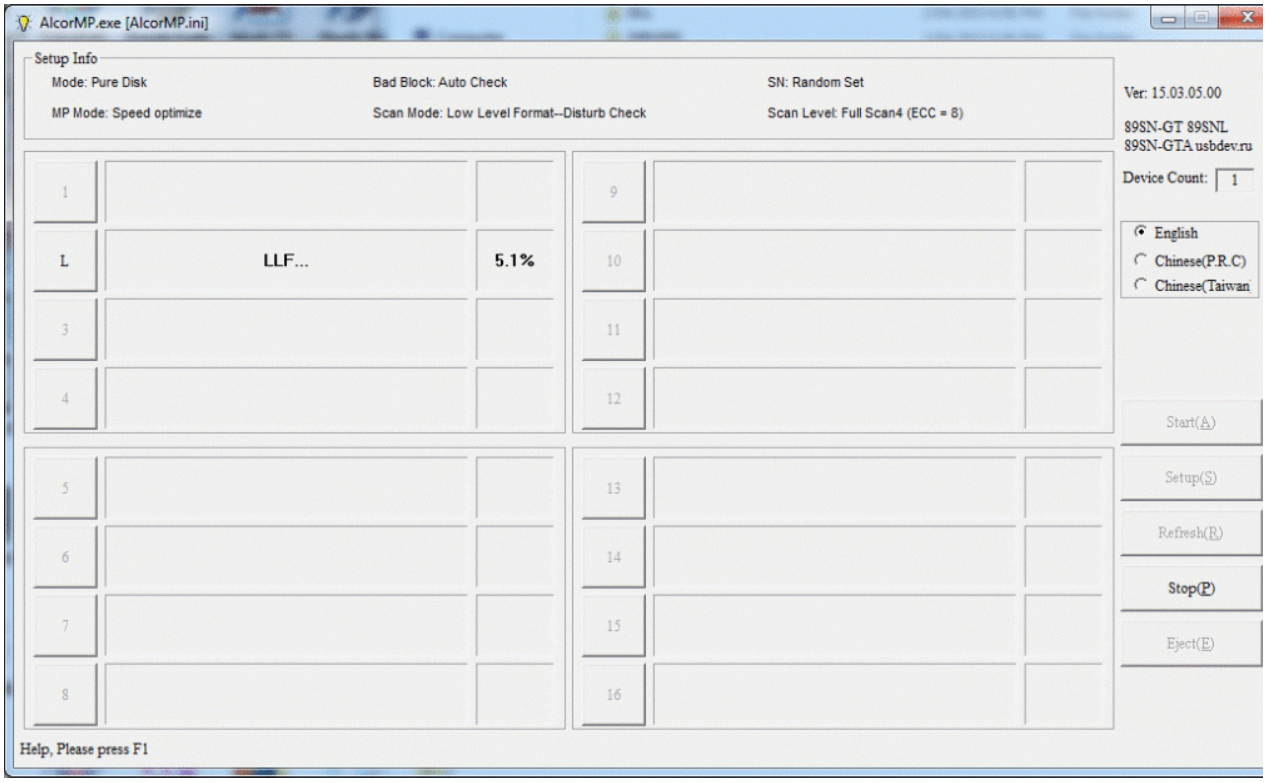
software is available from usbdev.ru. The software is capable of running in E guide is in Chinese only, so I've pretty much done my exploration without mu

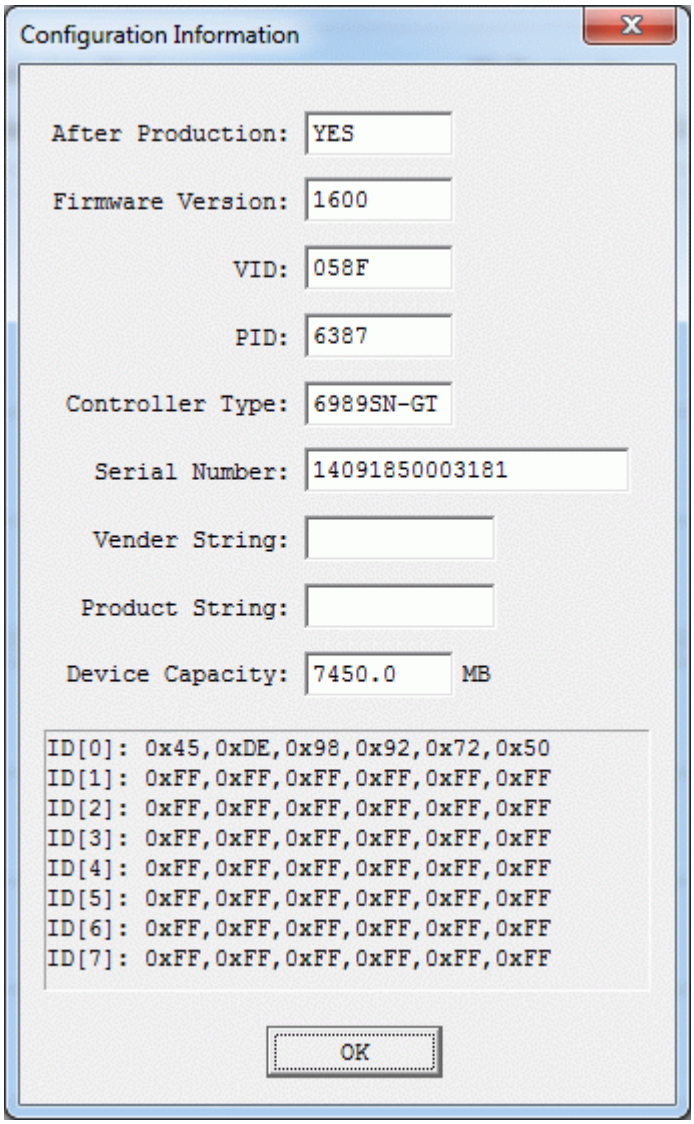


To work properly with this particular USB key, which uses a very late control **Version 15.03.05.00** or newer. I tried a Version 14 with no luck, due to the default, it will run with administrative rights so it can hook a special driver to them. The program has a large set of accompanying .bin files, which seem to itself, **which makes this controller a possible safety issue**, as noted fo exploit. The fact the controller can be so easily reprogrammed is a boon for th

These files perform the low-level format, testing and provide the firmware fo special partition tools for those who wish to use the iStar features.

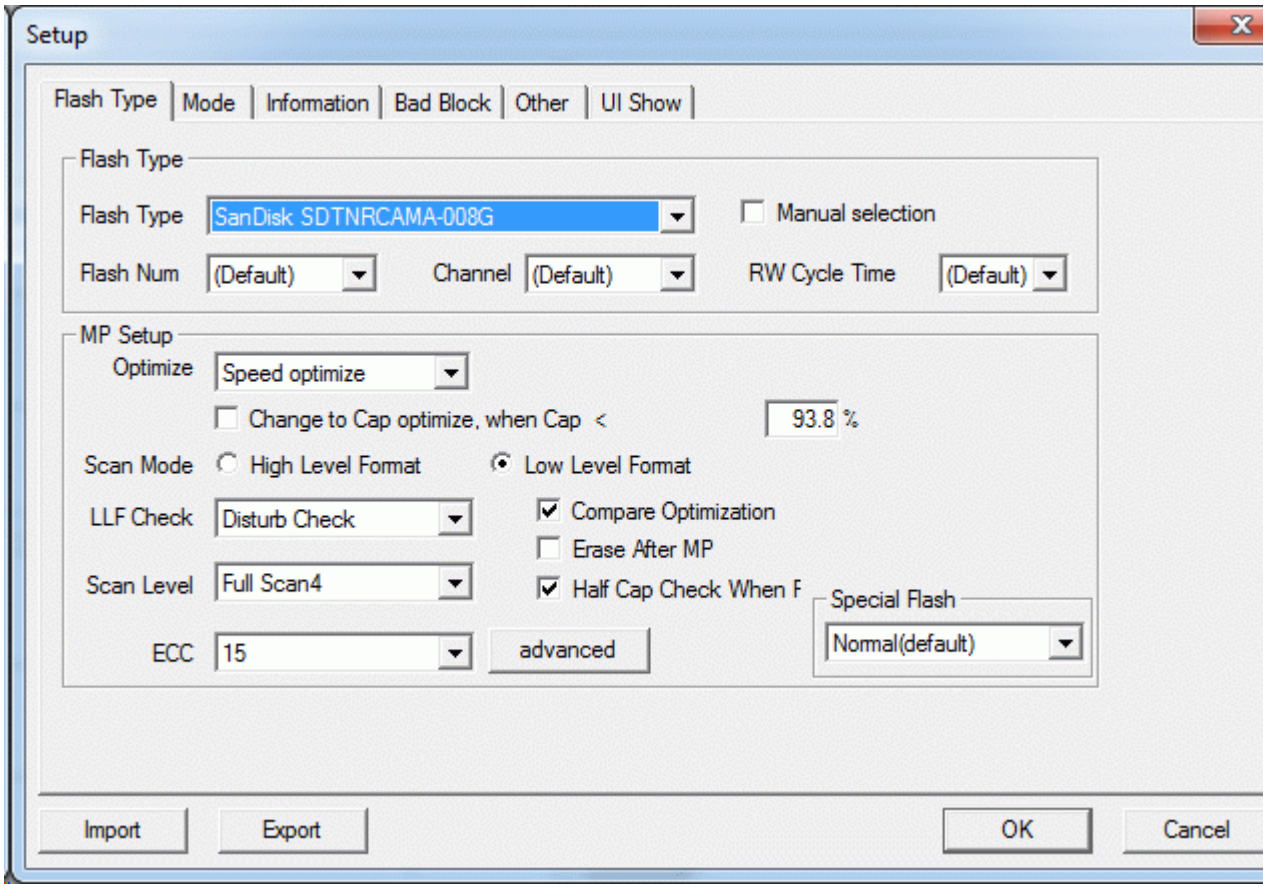
This is like an engineer's playground – a tool made by engineers fo the tool looks like this, and at the moment, it is performing a low-level forma have it show up its flash ID and other information, and would load "sensible" processing that was done on the unit at the factory.

Looking for the configuration details of the Comsol gives us the following dat



The drive is formatted with a fixed capacity of **7450Mb** and has firmware ve be customized as well, but the vendor/product strings are empty, which expl in the HDTune Pro tests prior.

To begin the certification process, you will need to click on the Setup button. which **no entry is required – just click OK**.



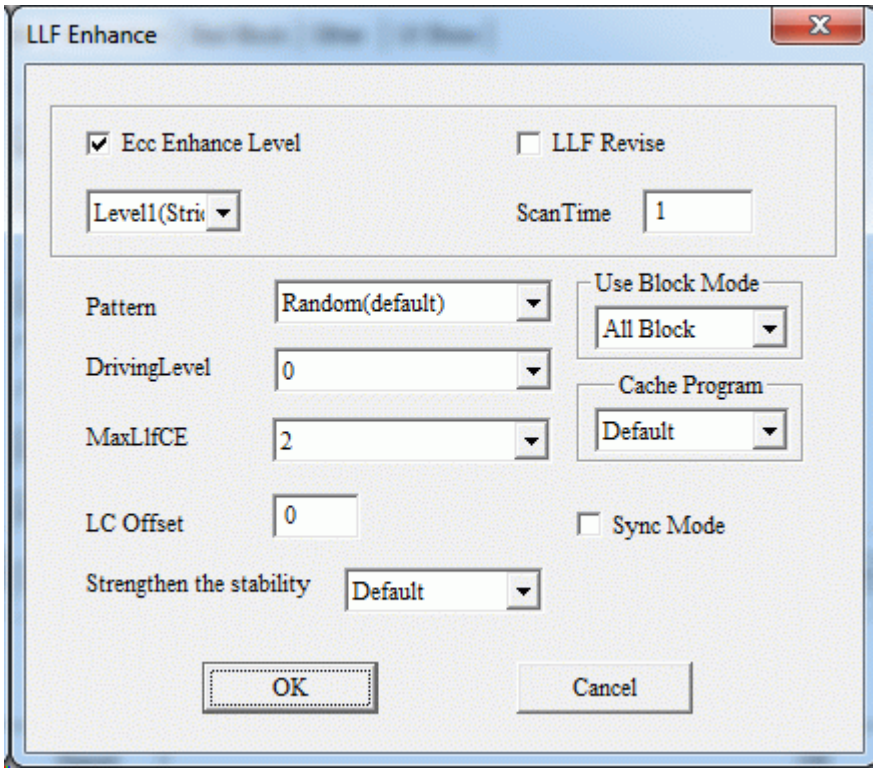
The first screen is a relatively cluttered one but it sets up the flash configurati the ID bytes as a Sandisk SDTNRCAMA-008G. Leaving the number, channel be sufficient for this drive.

The manufacturing process can be changed to optimize the drive for Speed, c which seems to be for a high level format based on pre-existing bad block ma You should really use either Capacity or Speed as the bad block data from the

A low level format will test the flash and make sure the flash is usable. This is drive to determine its correct capacity. The check mode is in LLF Check, with chose Disturb Check because this seems to be more thorough, and checks for whereas the other tests don't address this (but can be sufficient). I also select thorough test. The scan level can have an impact on robustness, with Full Sca flash is tested – Full Scan 4 is most thorough as far as I know. The ECC level **was one setting which caught my eye and I looked to understand a next part.**

The special flash section is there to deal with *particular* types of flash with qu should be left at Normal unless you have particular errors during manufactu

The advanced button brings up a new dialogue with more features –

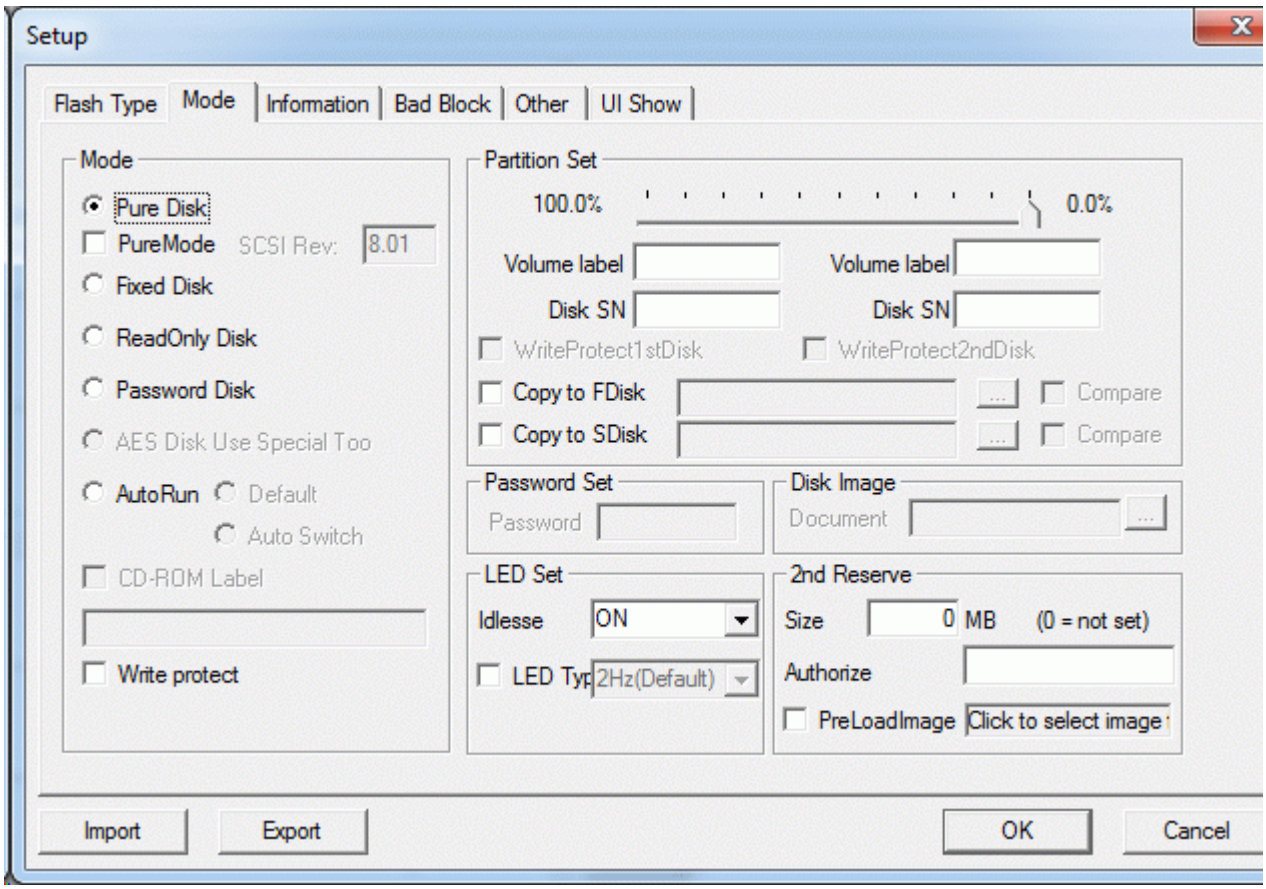


The ECC enhance level feature is normally off, but can be turned on to impro format revise can increase the scan time by running the low level format loop is **generally unnecessary**, as the remaining ECC should be able to handle passed.

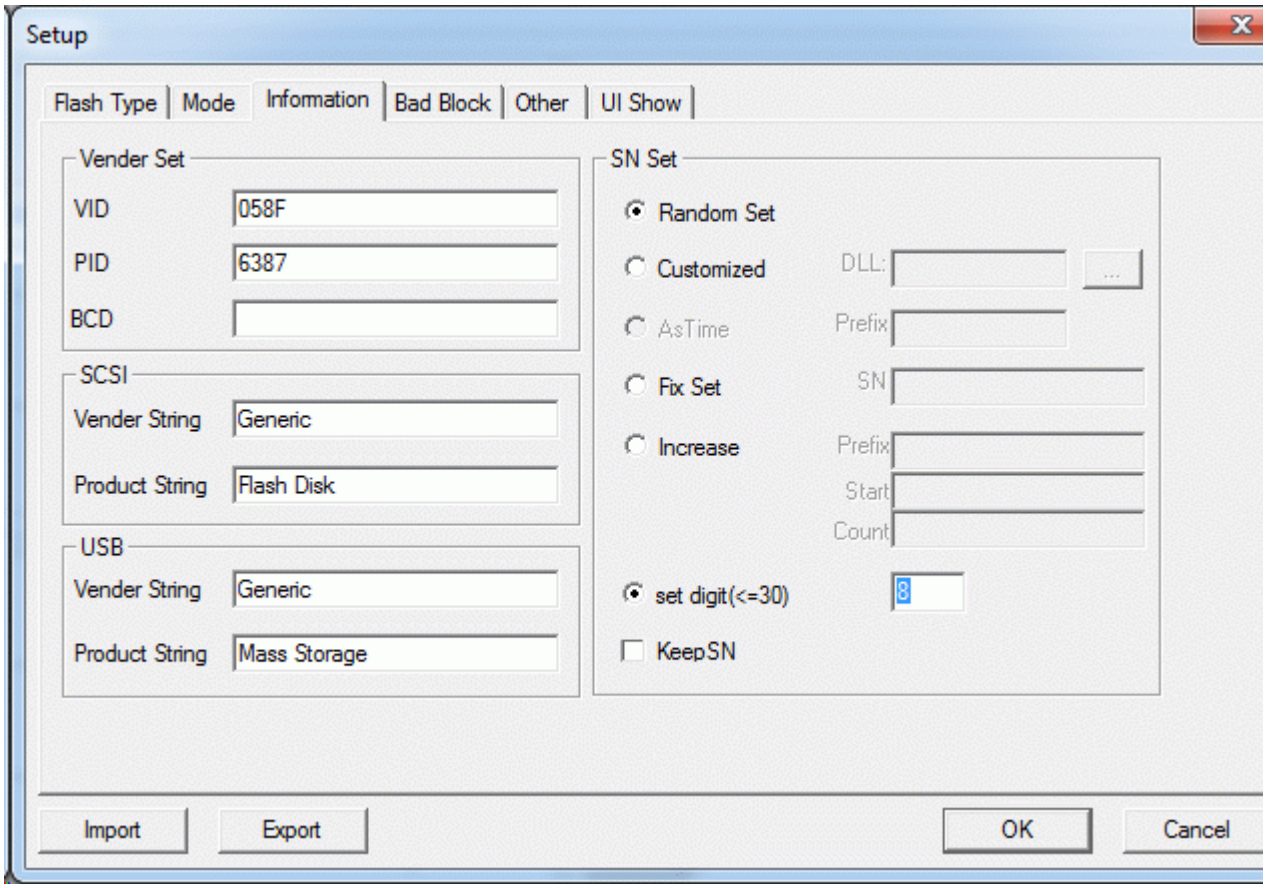
Pattern controls the test pattern used in low level formatting, and driving lev chips. The MaxL1fCE seems to do with flash chip enables, and should be left what LC Offset is used for. Sync Mode may be indicative of the flash interface but I'm not entirely sure.

Strengthen the stability should be left to default – enabling this **brings up a speed will be sacrificed for stability**, which is probably not necessary fo

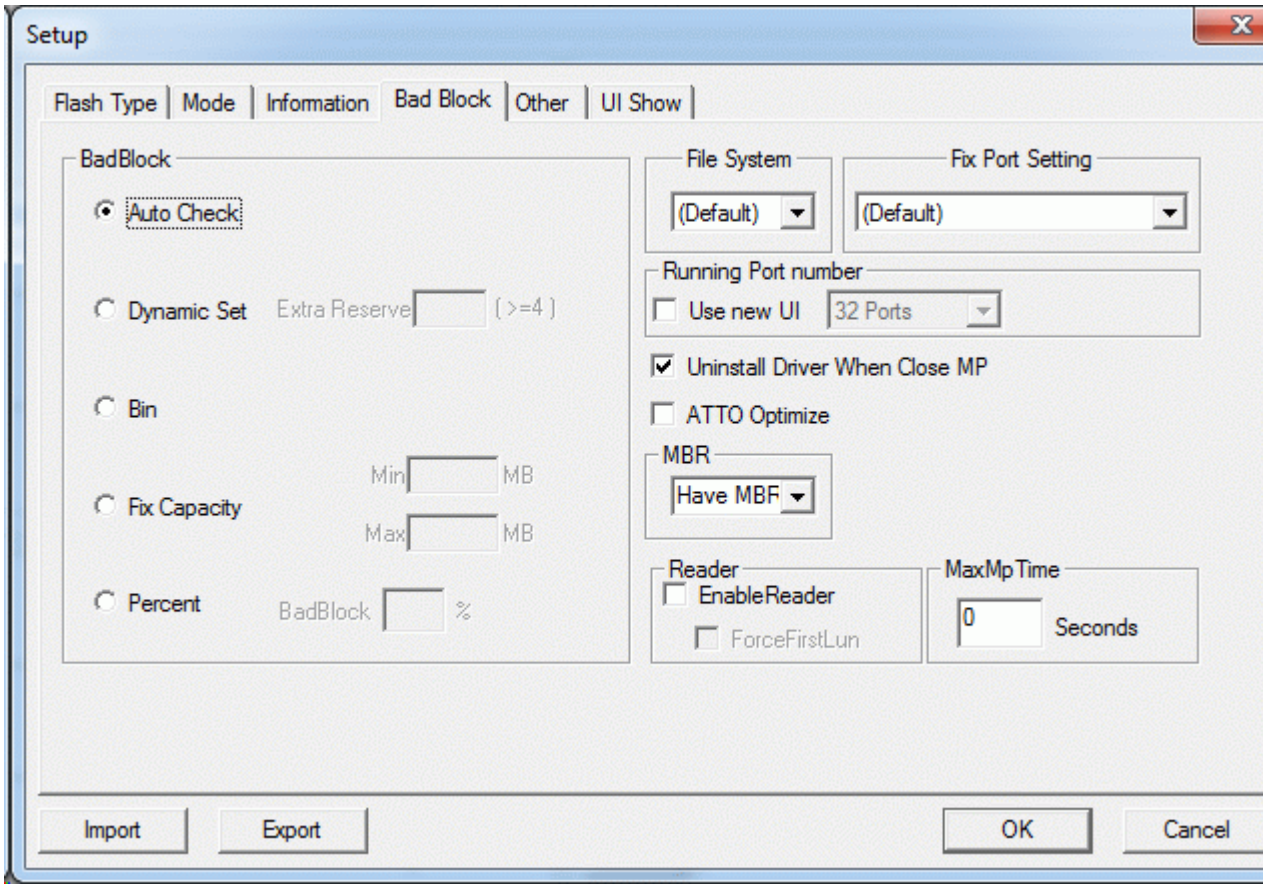
Use Block Mode controls which blocks are used. This can be changed to odd
flash chips. Cache program can be enabled or disabled, but I'm not sure what
see if it does anything in a later part.



The next screen across allows you to select the mode which the drive appears
fixed disk, read-only, password protected, or U3-style CD-ROM. You can pre
the drives and the images to be pre-loaded. The LED behaviour can be custo
CD-ROM can be used to turn the drive into a USB CD-ROM drive for installi
installation (e.g. Windows XP), or for storing things read-only (without using
drive)

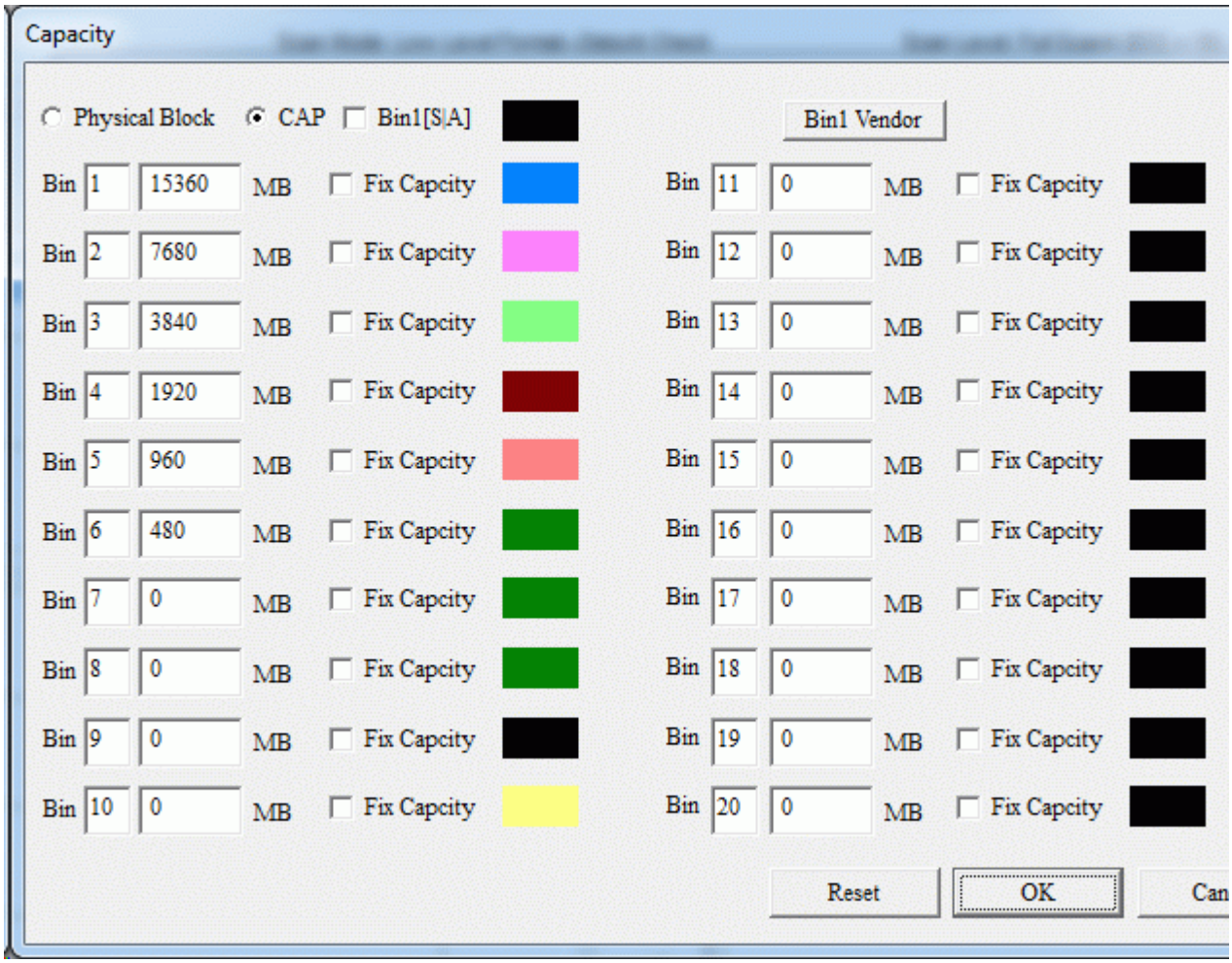


The information tab allows you to set the VID, PID and strings – so you can c Device Manager. That can be a pretty good party trick.



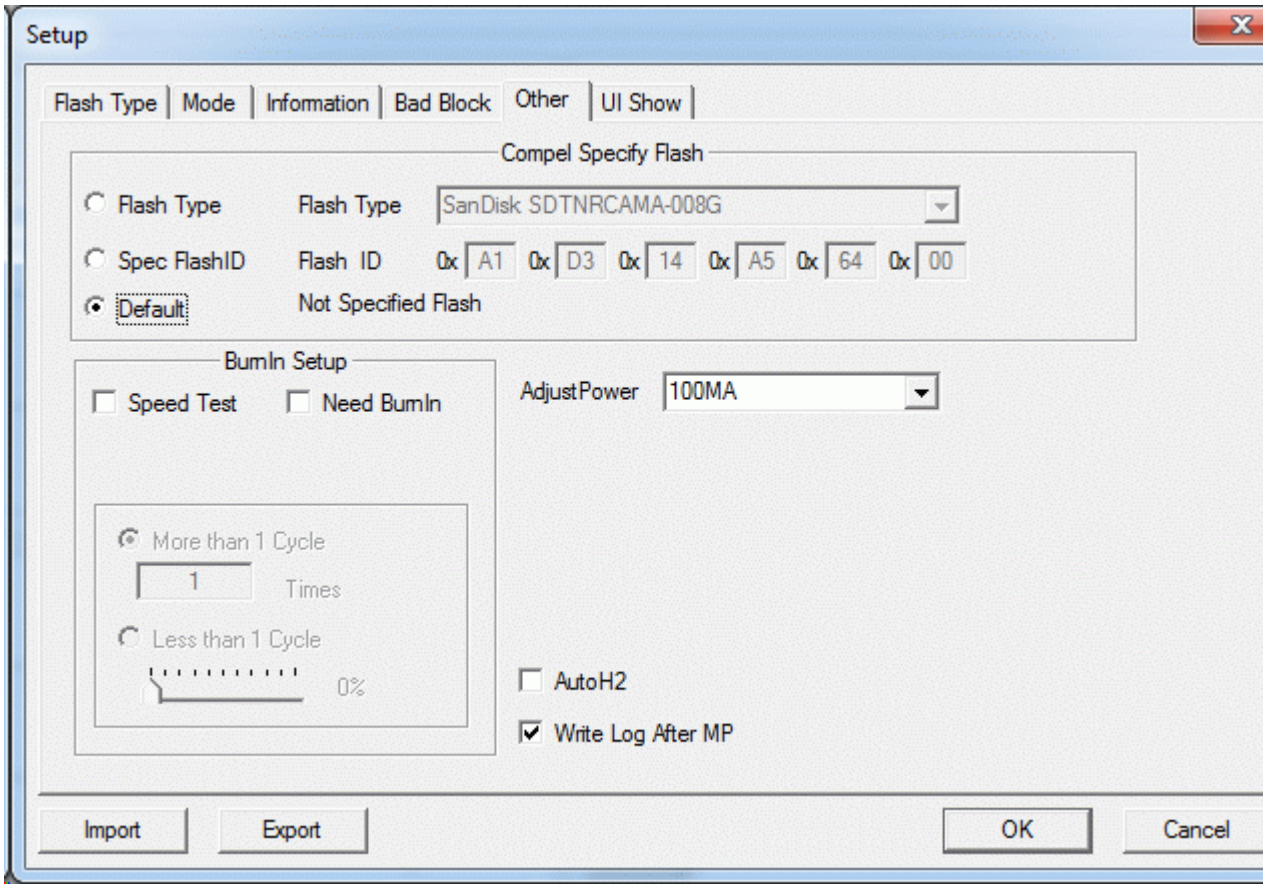
The bad block configuration screen gives you the opportunity to set how the f optimizes the drive size based on how much flash is **actually** workable. This *may not leave any spare blocks for replacement should blocks fail during "r* sure the Alcor Micro is capable of doing dynamic block replacements.

Dynamic Set leaves some blocks for reserve, whereas bin allows the system to target or another, and decide which "regular" capacity to allocate a drive to b interesting as it implies there could be *very* odd-sized flash keys out there – r workable flash?

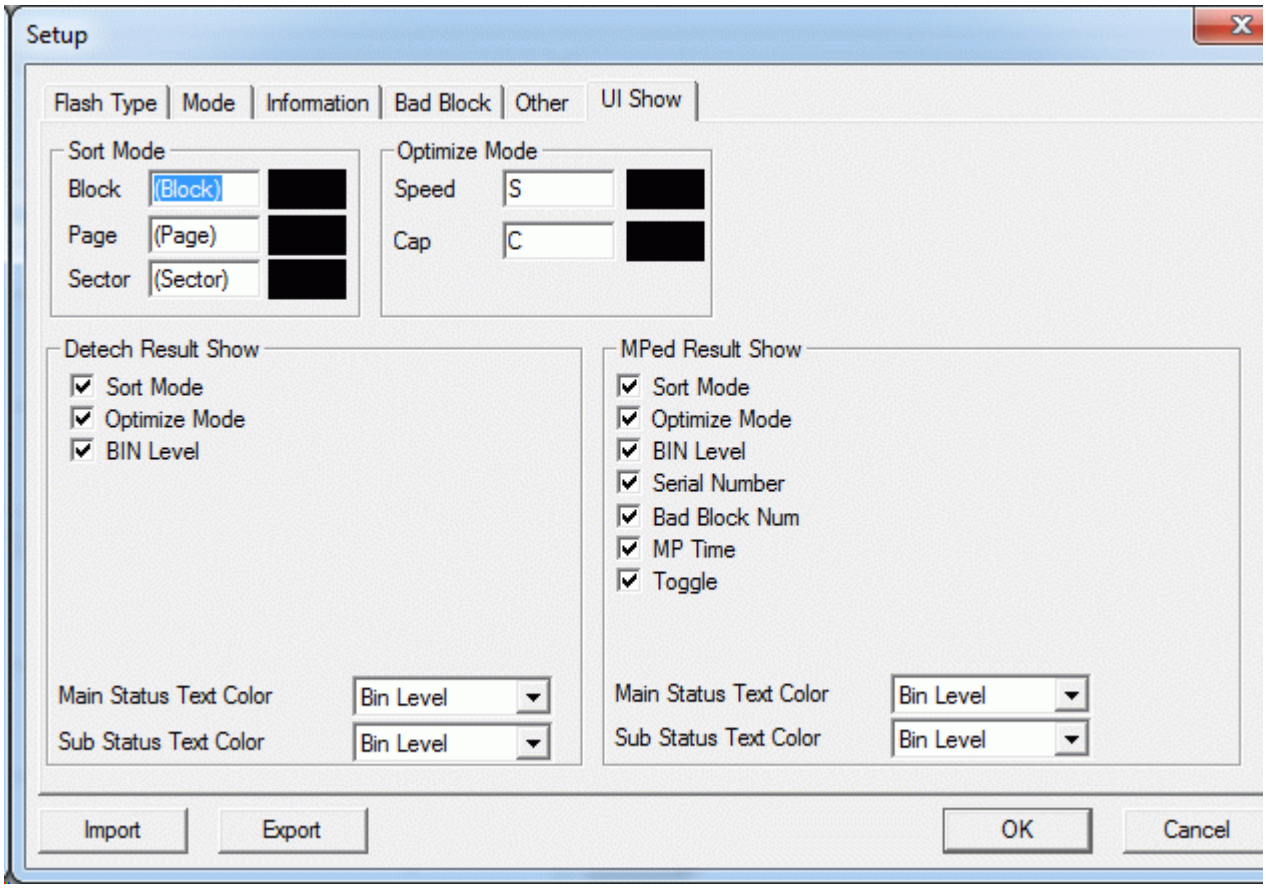


I'd have to say that the majority of manufacturers probably don't use this mo instead – either a drive passes or fails to provide a set capacity, and that's the this model). The final mode sets a fixed number of blocks as a percentage as '

Other settings include the format file system (you don't get a choice really), a production usage (up to 32 simultaneous drives qualified using the same mac **ATTO Optimize feature** which suggests there are a few tweaks to make th can be formatted with MBR or as VFAT (which isn't reliably bootable, but giv Reader feature allows other chipsets with integrated SD readers to have the s for production to be limited to a certain amount of time or fail.



The other page allows you to customize flash, and do multiple loop burn-in te to make it more acceptable to the end user's requirements. I have no idea wh option provides a quick listing in a text file of the results of drive optimizatio



The UI Show features are really only useful for those in production environm particular look or colour coding – the home user can live with the default.

Speed/Capacity, and ECC Optimization

The controller itself advertises support for 72 bit/1K BCH ECC, and no less th ECC being from 0 to 16 was a little puzzling, so I tried to consult the manual

The translated sections for ECC using Google Translate reads as follows:

> *ECC set*
> *FLASH poor quality need to be open for FLASH bad block ECC error certain capacity, but*
> *There may be some risks. ECC = 0 most stringent low grid FLASH ou most relaxed,*
> *Capacity may be larger, but there may be some risks.*

The original low-grid setting value refers to a low-level format ECC

ECC tuning levels: Level 1-4, may be appropriate to increase the capa selection level 1.
Low grid correction: low grid ECC scan times can make more accurc time, check only takes effect.
Scan times: You can manually set the number of low grid scanning, scan, but it takes a little more time,
Check only takes effect.
Patten: Patten can choose different scans, mainly for the more specic
Use Block Mode: manually choose to do the entire block or block or e
Cache Program: Open or closed manually select cache program com

Using Bing Translator gives me a very similar result:

ECC setting
Low quality FLASH needs to open up FLASH bad block by ECC error capacity can be improved, but
There may be a certain amount of risk. ECC=0 is the most strict, low ECC=15 is the most relaxed,
Capacity may be larger, but there may be a certain degree of risk.
Low setting refers to the use of a low-level format on the chosen ECC

ECC tuning level: level 1-4, may be appropriate to improve the capac 1.
Correction: low several times makes the ECC scanning is more accur check the do not take effect.
Scan frequency: low the number of scans that can be manually set, c accurate, but will spend more time,
Check the do not take effect.
Patten: you can select a different scan Patten, mainly for very specia
Use Block Mode: manually choose to do the full block or even block o

Cache Program: choose to turn on or turn off the cache manually pr

As a result, it seems that the **ECC setting sets the tolerance to block er formatting**. To verify this, I decided to run a low level format at **every** setti for **both capacity and speed optimize**. ECC Tuning was disabled. Rando (resulting in slightly random variances in formatted size), and Disturb test w were as follows: