

Call Information

Agenda

Attendees

Frank Shu(Microsoft)
Cory Reche (Micron)
Siamak (SST)
Jim Hatfield (Seagate)
Sumit Puri (Fujitsu)
John Geldman (lexar)
Sung H. Lee (Samsung)
Steven Fairchild (HP)
Frank Chu (Hitachi GST)
Aaron Wilson (STEC)
Mike Shen (CST Inc)
Steve Livaccari (IBM)
Jim Cooke (Micron)
Steve Wells (Intel)
George Penokie (LSI)
Tom Pratt (Dell)
Alvin Cox (Seagate)
Bill Martin (Emulex)
Suhas Nayak (Intel)
Dan Colegrove (Hitachi GST)
Rob Strong (Intel)
Dave Landsman(SanDisk)
Khaled Amer (Fusion-io)

Discussion:

1. Alvin Cox began by stating that JC64.8 had a meeting earlier the same day where this topic was discussed.
2. Steve Fairchild defined 'endurance' as 'longevity of the device relative to write and erase cycles'
 - a. Cells have a finite life which can vary dramatically with use patterns
 - b. It can be based on TB of data written or hour-based
3. Steven Wells prefers a 'tread wear' analogy to the 'gas tank' analogy in e09101, because a gas tank can be refilled, but flash endurance cannot.
4. A discussion ensued about how tires are rated and marketed for specific applications, where expectations are well understood. But SSDs are unlike this in that there is no current definition of what kind of SSD characteristics are needed/required for different use cases.
5. John Geldman suggested that the percent used endurance is sufficient for most uses.

6. Steve Fairchild disagreed saying that the percent is not fine-grained enough and does not account for previous use history. One of the situations of concern is moving an SSD from one host environment to another, where the use patterns are different.
7. John Geldman stated that 'endurance' is not testable until a device actually fails, and that device vendors are likely to cheat anyway, by stating that lots of life is left
8. Jim Hatfield suggested that in this scenario it is possible that the device vendors could leave the responsibility to the customer to hold them accountable..... and gambling on the possibility that customers won't bother, or won't remember what the previous predictions were.
9. Dan Colegrove asked if it was even practical to do the calculations needed to derive these statistics, without impacting performance.
10. Steven Wells brought up the point that during SLEEP, power on hours are not counted. If endurance is reported in power on hours, customers will not have a way to translate that into wall-clock-hours, because they have no idea how long the device may be in a sleep mode.
11. Jim Hatfield agreed
12. Steven Wells, John Geldman and Tom Pratt agreed that only the percent endurance is acceptable at this point, and that the gas tank analogy is the wrong one to use.
13. Back to tread wear.
14. Will there be / is there a data sheet for SSD products stating what total endurance a device will have ? This is needed to select the right SSD product for the right application (like avoiding selecting a truck tire for a passenger car)
15. What if a device has multiple, different types of solid state media inside ? How does this affect endurance ?
16. After 90 minutes, it became clear that among JEDEC 64.8 members, there is no consensus yet.
17. The expectation for this proposal was that T13 would engage in liaison activities to ask JC64.8 for recommendations about WHAT to report, and T13 would provide the MECHANISM to report that data.
18. T13 needs to wait for JC64.8 to come to a consensus.

Action Items

1. JC64.8
 - a. resolve the issue about what to report
 - b. hopefully before the April 2009 T13 plenary
2. T13
 - a. Wait for JC64.8 to bring new information