

Simple HDD/SSD Benchmarks

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1 Introduction

This document introduces some utilities and tests to help understand the performance of hard disk drives (HDD), solid state drives (SSD), and others.

1.1 History

Version	Date	Notes
0.1.2	2023-02-28	Improve writing
0.1.1	2022-05-24	Add introduction and history
0.1.0	2017-10-25	Initial release

2 Tools

```
1 smartctl
2 hdparm
3 bonnie++
4 gnome-disk-utility
5 dd
6 iohzone
```

3 Hints

Make sure that the device interface (SATA/SAS/mSATA/M.2/NVMe) of the host system is the best that the disk can support. See `smartctl` for more information: SATA version is: SATA 3.1, 6.0 Gb/s (2017: 3.0 Gb/s)

4 Gnome Disk Utility

```
aptitude install gnome-disk-utility
/usr/bin/gnome-disks
```

1. Select the disk, press the “cog” button, select SMART Data and Self-Tests “Start Self-Test”: short, long and conveyance.
2. Select disk, press “cog” button, select Benchmark

```
1 Transfer Rate:
2   Number of Samples: 100
3   Sample Size: 10 MiB (10,485,760 bytes)
4 Access Time:
5   Number of Samples: 1000
```

Make screenshot

5 hdparm

```
for i in {1..10}; do hdparm -t /dev/sdb > hdparm-t-$i.log;done  
for i in {1..10}; do hdparm -T /dev/sdb > hdparm-T-$i.log;done
```

Use a spreadsheet and `psppire` to analyze.

6 smartctl

```
smartctl -a /dev/sdb > smartctl-a.log  
smartctl -i /dev/sdb > smartctl-i.log  
smartctl -x /dev/sdb > smartctl-x.log
```

7 Further Reading

- <https://wiki.archlinux.org/index.php/Benchmarking>

7.1 smartctl

- https://www.thomas-krenn.com/de/wiki/SMART_Tests_mit_smartctl
- https://www.thomas-krenn.com/de/wiki/Analyse_einer_fehlerhaften_Festplatte_mit_smartctl

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