

**HD TACH 3.00 README FILE**  
**SIMPLI SOFTWARE, INC.**  
<http://www.simplisoftware.com>

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**SECTION 1 - WHAT IS NEW IN 3.0?**

HD Tach has been essentially unchanged since 2000 when TCD Labs, Inc. was acquired by Oak Technology, Inc. Simpli Software, formed by the original group of TCD Labs employees, has acquired all rights to the benchmarks and source code from Oak Technology and we are dedicated to again producing industry standard, easy to use, accessible, and accurate drive performance benchmarks.

HD Tach 3.0 is a complete line by line rewrite. We have taken your suggestions and improved the product greatly in all aspects.

- Support for Windows 2000 and Windows XP only. We will evaluate the need for Windows 9X/ME support on an ongoing basis.
- Built in drive database so you can compare benchmarked drives and save your benchmarks into the database.
- Internet support to download benchmark library updates from our web site.
- 'Upload' button to upload your benchmark results to our web site. We encourage you to use the 'Upload' button as the database will be primarily user supported. We would like to get 3-4 benchmarks for each drive before we submit it to our database for a 'reality' check.
- Zoom/pan feature on graphs. Draw a box using the left mouse button from left to right to zoom, from right to left to unzoom. Right click and drag to pan the graph.
- Support for quick and long reads.
- We believe all benchmarks to be more accurate. CPU benchmark now uses the internal counter in Windows for CPU utilization and should be much better on newer processors.

**SECTION 2 - WHAT VERSIONS OF HD TACH ARE AVAILABLE?**

HD Tach (Free): The non-commercial version of HD Tach is to be used only for non-commercial purposes or for a limited evaluation by commercial customers. Other versions, listed below, are available on our web site for a nominal cost.

HD Tach Commercial License: The purchase of an HD Tach commercial license

entitles the purchaser to use HD Tach on up to one computer at a time for commercial use.

HD Tach RW: HD Tach RW adds several features. Sequential write test is available on removable media and non-partitioned fixed disks. Additionally, when an RW user chooses to save a set of benchmark results a .csv (comma separated values) file is saved for use in spreadsheet programs or internal databases. Finally, HD Tach RW is capable of performing the sequential read and write tests on the entire disk instead of the small number of zones in the quick and long test.

HD Tach OEM: HD Tach OEM is not yet available, but will be an advanced interface to the Tach benchmark library allowing control over all test parameters, including running the same test with different parameters (example: sequential read with 32KiB blocks and 64KiB blocks). Users will be able to create test sets to perform on selected devices and use the CSV feature to chart results in any form imaginable.

### **SECTION 3 - HOW DO I RECORD GOOD BENCHMARKS?**

Before benchmarking, reboot your computer. This will clear system caches and unload many unnecessary programs. Upon booting quit all programs that may have been loaded during the boot process, task bar icons, disable virus scanners. Advanced users should unplug the network cable and disable the swap file.

Give your system time to 'stabilize' - Windows does a lot of work in the background, so do not use HD Tach until you see your hard drive light stop blinking for 10-15 seconds. This may take one to two minutes after boot. During the benchmark do not move the mouse or press any keys.

### **SECTION 4 - I'M A JOURNALIST OR WRITE FOR A WEBSITE, CAN I USE OR REDISTRIBUTE HD TACH?**

Simpli Software will provide complimentary licenses to journalists for internal use of HD Tach, contact [hdtach@support.simplissoftware.com](mailto:hdtach@support.simplissoftware.com). You may not publish benchmark results using the non-commercial license of HD Tach.

HD Tach MAY NOT be redistributed without permission. We often grant permission to redistribute HD Tach on magazine cover CD's. If you would like to redistribute HD Tach on the web you may LINK our site, contact [hdtach@support.simplissoftware.com](mailto:hdtach@support.simplissoftware.com) for the correct URL and to register with us, we will link to magazines and sites that link us on an index page listing our media partners.

You must contact us even if you have a license for a prior version of HD Tach, your license is for version 2.70 or earlier.

### **SECTION 5 - SUPPORT**

For HD Tach support please refer to our online forums at [www.simplissoftware.com](http://www.simplissoftware.com). Support is also available from [hdtach@support.simplissoftware.com](mailto:hdtach@support.simplissoftware.com), but priority on this account is given to our commercial customers.

## **SECTION 6 - USING HD TACH**

HD Tach will display a list of drives in the system. Select a drive and click the 'Run Test' button to benchmark. You may also select between 'Quick read' or 'Long read'. 'Long read' should produce more accurate read speed benchmarks, but will take 5-6 times longer than the 'Quick read'.

More details about the benchmarks are available in the tests.rtf file. A brief description and parameters used for HD Tach Consumer follows.

Access time (in milliseconds) - time to read one random sector from the hard drive. Includes seek time, latency, and read one sector. 512 random accesses are performed, average value reported.

Burst speed (in megabytes per second) - maximum speed of the computer to hard drive interface. This represents the speed of data transferred from the hard drive on-board-cache to the system memory. Burst speed can be used to determine if the drive is running at the higher speeds offered by ATA133, SCSI, etc. The burst speed uses a maximum of 128KiB block size, minimum of 32KiB block size, a single 128KiB pre-read and 32 repetitions.

Read speed per zone (in megabytes per second) - Each zone is displayed on the onscreen graph. Generally hard drives are faster on the outside of the disc (sector 0) and slower at the inside (end of disc) - your graph should reflect this. A 64KiB block size is used. The Quick read tests a maximum of 64 zones, with a 4MB preread area and a 4MB test area. The Long read tests a maximum of 256 zones with a 16MB preread area and a 16MB test area. The long test may take up to 8 times longer to execute. Average read speed is reported per zone.

CPU utilization (as a percentage) - This reflects the amount of time the CPU needed to read data from the hard drive. Generally a good drive interface will use less than 10%. The system is tested at idle (no hard drive usage) for 5 seconds to get a base CPU utilization. During the next 5 seconds the drive is sequentially read with a 64KiB block size while CPU usage is monitored. The difference between idle CPU and loaded CPU is reported.

HD TACH RW:

HD Tach RW offers two options in addition to the above.

The enable write test check box will be active when you have selected a removable media device (such as a flash disk) or a secondary, non-partitioned, hard drive. This will enable the sequential write test for the device.

The Full Bench option also becomes available as an alternative to quick or long bench. The full bench will benchmark every sector of the hard drive instead of picking small zones on the drive like quick or full. A full bench could take one to two hours on a 120 gigabyte hard drive. Full bench uses varying zone sizes for different device sizes to minimize the number of zones benchmarked. Under 1GB, 8MB zones are used. Under 40GB 64MB zones are used, under 100GB 128MB zones are used and for all other disk sizes 512MB zones are used.

## **SECTION 7 - WHAT IS IN THE UPLOAD FILES?**

When testing with Long read enabled you can upload results to Simpli Software. These upload files do not contain any personally identifying information. If you choose to provide your email address it is not contained in this file.

Data uploaded includes:

- Version of HD Tach software
- Drive identifier
- Benchmark results for access time, CPU utilization, burst speed, read speed. All benchmark results include maximum, minimum, average and median test scores.
- Time and date of test
- Windows 2000 / XP internal drive and adapter information structures.
- User selected bus type and Windows 2000 / XP detected bus type.
- User defined processor description (may be filled in for you, but you can edit)
- User defined controller description (you fill in or select from the auto-detected drop down list)
- User defined system information
- User test notes
- Auto-detected CPU information including results of CPUID instruction and CPU frequency

In addition, the beta attaches tachinit.log and tachtest.log, which are log files in the HD Tach directory containing more information about storage devices attached to your system and information from the test. You may review these files after running an HD Tach test with any text editor.

## **SECTION 8 - ABOUT THE NUMBERING SYSTEM (kb vs KiB vs MB)**

Simpli Software has adopted the numbering system used by the National Institutes of Standards and Technology as specified at <http://physics.nist.gov/cuu/Units/binary.html>. Hard drive manufacturers now define a gigabyte as  $10^9$  (GB) or 1,000,000,000 bytes. The Windows operating system defines a gigabyte (GiB) as  $2^{30}$  or 1,073,741,824 bytes. HD Tach 3.00 uses the definition adopted by the hard drive manufacturers.

## **SECTION 9 - FAQs, HELP AVAILABLE ON WEBSITE**

Simpli Software will continually update the frequently asked questions list and provide tips on getting the most reliable benchmark results on our website. Please check [www.simplisoftware.com](http://www.simplisoftware.com) for the latest information. We have also made forums available for users to discuss benchmark issues at [www.simplisoftware.com/Forums](http://www.simplisoftware.com/Forums).