

# The `l3benchmark` package

## Experimental benchmarking

The L<sup>A</sup>T<sub>E</sub>X Project\*

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## 1 Benchmark

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`\g_benchmark_duration_target_fp`

This variable (default value: 1) controls roughly for how long `\benchmark:n` will repeat code to more accurately benchmark it. The actual duration of one call to `\benchmark:n` typically lasts between half and twice `\g_benchmark_duration_target_fp` seconds, unless of course running the code only once already lasts longer than this.

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`\g_benchmark_time_fp`  
`\g_benchmark_ops_fp`

These variables store the results of the most recently run benchmark. `\g_benchmark_time_fp` stores the time T<sub>E</sub>X took in seconds, and `\g_benchmark_ops_fp` stores the estimated number of elementary operations. The latter is not set by `\benchmark_tic:/\benchmark_toc:`.

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`\benchmark_once:n`      `\benchmark_once_silent:n`  $\{\langle code \rangle\}$   
`\benchmark_once_silent:n` `\benchmark_once:n`  $\{\langle code \rangle\}$

Determines the time `\g_benchmark_time_fp` (in seconds) taken by T<sub>E</sub>X to run the  $\langle code \rangle$ , and an estimated number `\g_benchmark_ops_fp` of elementary operations. In addition, `\benchmark_once:n` prints these values to the terminal. The  $\langle code \rangle$  is run only once so the time may be quite inaccurate for fast code.

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`\benchmark:n`      `\benchmark:n`  $\{\langle code \rangle\}$   
`\benchmark_silent:n`

Determines the time `\g_benchmark_time_fp` (in seconds) taken by T<sub>E</sub>X to run the  $\langle code \rangle$ , and an estimated number `\g_benchmark_ops_fp` of elementary operations. In addition, `\benchmark:n` prints these values to the terminal. The  $\langle code \rangle$  may be run many times and not within a group, thus code with side-effects may cause problems.

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`\benchmark_tic:`    `\benchmark_tic:`  $\langle slow\ code \rangle$  `\benchmark_toc:`  
`\benchmark_toc:`

When it is not possible to run `\benchmark:n` (e.g., the code is part of the execution of a package which cannot be looped) the tic/toc commands can be used instead to time between two points in the code. When executed, `\benchmark_tic:` will print a line to the terminal, and `\benchmark_toc:` will print a matching line with a time to indicate the duration between them in seconds. These commands can be nested.

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