

# The **l3benchmark** package

## Experimental benchmarking

The L<sup>A</sup>T<sub>E</sub>X3 Project\*

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## 1 Additions to **l3sys**: elapsed time

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<code>\sys_gzero_timer:</code>	<code>\sys_gzero_timer:</code>
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Resets the timer to zero.

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<code>\sys_timer: *</code>	<code>\sys_timer:</code>
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Expands to the current value of the engine's timer clock, a non-negative integer. In engines without clock support this expands to 0 after an error. In Lua<sub>T</sub><sub>E</sub>X only the CPU time is measured, while in other engines real time is measured (including time waiting for user input).

## 2 Benchmark

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<code>\g_benchmark_duration_target_fp</code>
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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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<code>\benchmark_once:n</code>	<code>\benchmark_once:n {&lt;code&gt;}</code>
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Prints to the terminal the time taken by T<sub>E</sub>X to run the `<code>`, and an estimated number of elementary operations. The `<code>` is run only once so the time may be quite inaccurate for fast code.

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<code>\benchmark:n</code>	<code>\benchmark:n {&lt;code&gt;}</code>
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Prints to the terminal the time taken by T<sub>E</sub>X to run the `<code>`, and an estimated number of elementary operations. The `<code>` 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: (slow code) \benchmark_toc:
\benchmark_toc:
```

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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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