# The l3benchmark package
# Experimental benchmarking

The LaTeX3 Project*

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## 1 Additions to l3sys: elapsed time

\sys_gzero_timer: `\sys_gzero_timer:`

Resets the timer to zero.

\sys_timer: ⋆ `\sys_timer:`

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 LuaTeX only the CPU time is measured, while in other engines real time is measured (including time waiting for user input).

## 2 Benchmark

\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.

\benchmark_once:n `\benchmark_once:n {`⟨*code*⟩`}`

Prints to the terminal the time taken by TeX 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.

\benchmark:n `\benchmark:n {`⟨*code*⟩`}`

Prints to the terminal the time taken by TeX 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_toc:

\benchmark_tic: ⟨*slow code*⟩ \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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The italic numbers denote the pages where the corresponding entry is described, numbers underlined point to the definition, all others indicate the places where it is used.