# The Mobile Linpack Benchmark for iOS Portable Devices

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The Linpack benchmark was implemented for the Linpack package users to let them measure a time needed for solving systems of linear equations using this software package [1]. The Top500 world-wide ranking list [2] has been formed in 1993 based on this benchmark. Later the Linpack became the most commonly used benchmark between hardware vendors and is still very popular. Primarily that's due to the rich history and accumulated data despite of the fact that modern problems became more complicated than simple linear algebra tasks and there are a wide variety specific benchmarks presented. Despite of diverge of this benchmark implementations for different architectures they provide conditional comparison of computational systems by floating point operations per second. Like every modern personal computer or high performance system mobile devices exploit the benefits of parallel technologies having multi-core processors and GPUs, so mobile benchmarks have to be able to make full use of that advantages.

The aim of the first work stage presented here is to develop the next version of the Mobile Linpack [3], and to provide a flexible tool for benchmarking iOS portable devices, that can use all advantages of the target platform and collect obtained data for enriching the existing ranking list [4], having the following features:

- Multicore-CPU and GPU support. Almost every modern processor consists of two or more cores allowing perform asynchronous multithreading code. As well as personal computers, mobile devices also have graphical processing units, providing computational power not only for computing image pixels, but also for general purpose computations.

- Support for various implementations. We provide not only the best performance benchmark implementation, but also the cross-platform implementation that can share code with Android.

- Flexible run parameters. Original benchmark using for ranking high performance systems provides a lot of parameters that can be tuned to get the best result or find some behavior patterns.

- Advisory system to presume the optimal parameter values on which the best performance can be achieved.

- Quick Start mode with recommended defaults, and Advanced mode with adjustable run parameters.

## References

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