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## Speed and memory optimisation

FDTD is a computationally demanding technique and for many calculations it is necessary to face problems of not enough memory and computing power. There several options how to improve GSvit solver performance.

By default, GSvit is run in a single thread, which means that probably most of the computing power of your computer is not used within such calculation. To improve this, [Multithreading](#) can be used.

[Graphics cards](#) are an alternative to using computer processor for most of the algorithms. At present, NVIDIA CUDA enabled graphics cards are supported. Except really cheap and simple graphics cards, most of the conventional graphics cards should be already suitable for significant speedup of calculations. The best can be obtained from graphics cards dedicated for high performance computing, which are however already quite expensive.

To reduce the [amount of memory](#) we can also not allocate some arrays, e.g. if the material used within the calculation has no changing magnetic properties.

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