

# Minimum requirements

## Hardware

The following table summarizes the minimum and recommended configurations for development and debugging:

	Minimum	Recommended	Remarks
Processor	Intel Core i5	Intel Core i7	
RAM	8Gb DDR3	16Gb DDR4	DDR4 is only important for GPU
Hard Disk Drive	300Gb	700Gb	
Solid State Drive	—	256Gb	Faster applications, more complex setup
External USB Drive	250Gb	1Tb	Backups are mandatory

Laptops are as suitable as desktop computers for development.

## Software

### Operating system

The software stack should be based on the GNU/Linux or BSD operating systems whenever possible.

MacOS X - based on FreeBSD - can also be used for development, taking a few extras hours into account every month to maintain the development environment sane and up-to-date, since Apple does not make it easy for its users to customize their system.

Windows is not suitable for production calculations and has various security issues that will not be fixed any time soon. It should be used for teaching purposes only, in the extremely rare situations where no alternative operating system can be used.

### Compilers

Every computer that will be used for scientific software development and/or production calculations should provide a recent stable version of GCC (the [GNU Compiler Collection](#)) installed. In 2017, the minimum suitable version is 4.9.4 (former versions lack important Fortran features), and the recommended one is 6.3 (Fortran 2003 and 2008 extensively supported). GCC is a reference for development and debugging, due to its great portability, and because it is [Libre Software](#).

For production calculations, the most recommended compiler for the selected architecture is usually required as well. Many of such compilers are proprietary and bound to the periodic purchase of a time-limited license. They usually produce code that is from 20% to 100% faster than GCC, since portability considerations are secondary for them.

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