

# Software development for multicore

## ➤ Using or writing numerical software?

Want the best performance from multicore and cluster systems?

*NAG experts help you get best performance and scalability through software and algorithm optimization.*

## ➤ Move your software to multicore

NAG can help you to port your software to multicore processors and related technologies (e.g. GPUs and clusters). NAG parallel programming experts work with you to evolve or innovate your software to achieve increased performance from the extra cores on modern multicore processors. NAG can introduce parallel processing into your applications using appropriate standards and languages, including OpenMP, CUDA, MPI and others.

If your software is already parallelised, NAG can optimise the algorithms and implementations to get the best utilisation of resources, whether extra processor cores, memory bandwidth or inter-processor communications. NAG experts can optimise your software to scale from a few cores to thousands of cores on the latest clusters and supercomputers.

By enhancing your software to take advantage of the latest parallel computing technology – from multicore processors to supercomputers – you ensure that your domain expertise is supported by the most capable technical computing to deliver the best results.

## ➤ Why NAG is your best choice for results

NAG has many years of experience in developing and supporting industrial strength numerical software on many systems ranging from workstations to multi-thousand node supercomputers. NAG has one of the largest collections of high performance numerical computing expertise available to help customers. NAG specialises in partnerships that integrate flexibly with the needs of your development and user teams.

*“NAG is without question a technical authority... The fact that NAG people are partner orientated is just a bonus”*

**Dr Matt Gardner,**  
Associate Director CACI Ltd

**nag®** Results Matter. Trust NAG.

## ➤ Parallel software engineering consulting and services

Supporting application developers

- ▶ Parallel software engineering for performance, robustness and portability
- ▶ Scalable parallel application support – from multicore to supercomputers
- ▶ Algorithm development and innovation
- ▶ Courses in parallel programming
- ▶ Tuned routines and libraries

Supporting high performance technical computing in your business

- ▶ Impartial evaluation and benchmarking of technology and solutions
- ▶ Independent support for technical computing strategy, planning and procurement
- ▶ Full HPC application support service spanning helpdesk, consulting and training



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## ➤ Optimise your software to gain better performance on multicore processors

Multicore processors (including GPUs) are becoming the default for scientific and numerical computing. Your software won't achieve the performance possibilities unless it is optimised for such architectures. NAG HPC Consulting is available to help, with our experience of the parallel programming technologies and methods of high performance computing.

## ➤ Savings example

NAG consulting services have enabled savings in computing time valued at around \$3M for a materials science application.

[www.nag.com/castep](http://www.nag.com/castep)

## ➤ Global

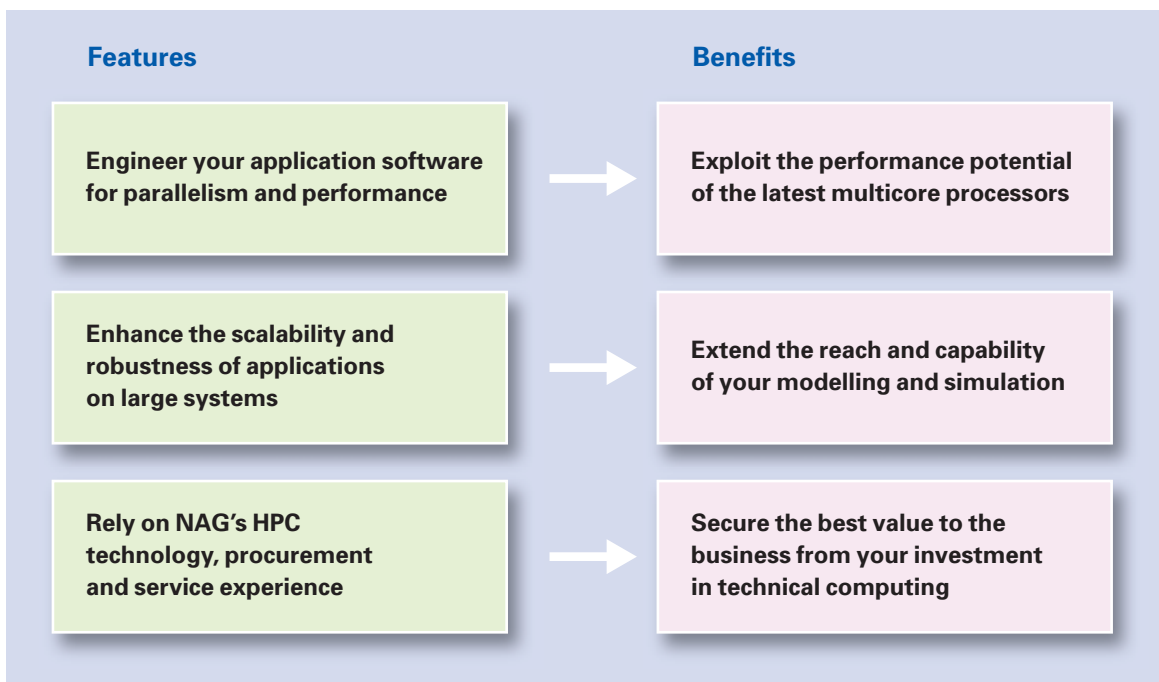
NAG provides consultancy services to the well known global leaders in both the hardware and application software markets.

[www.nag.com/case\\_studies](http://www.nag.com/case_studies)

## ➤ NAG HPC expertise in action

HECToR is the UK's £113M national academic supercomputer service. NAG provides impartial technology advice to the hardware procurements and provides the support for HPC application development.

[www.nag.com/hector](http://www.nag.com/hector)



## ➤ Further information

Visit [www.nag.com/hpc](http://www.nag.com/hpc) to find out more about how NAG can help you.

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