

Speeding up the development of new healthcare products



Image: Optos

Optos, part of the Nikon group, is a leading provider of retinal imaging products and services to eye-care professionals. It worked with EPCC and Intel to significantly enhance and optimise a software algorithm central to a new and novel retinal imaging product. Using machine learning technologies the device will enable practitioners to see more, discover more and effectively treat more ocular pathology.

The challenge

Reducing time to discovery and diagnosis is of critical importance in eye care in order to optimise patient management and improve patient workflows. For eye-care professionals a key attribute of diagnostic devices is rapid analysis and response. Optos was keen to significantly improve on current software run times of around 100 seconds and we jointly agreed an ambitious target to reduce run times to 12 seconds. With cost a significant factor in product sales, we needed to achieve this on economically advantageous hardware.

How we helped

Working with Intel we undertook profiling analysis of the Optos code. From this we identified specific areas of

code for further analysis and optimisation. The end result was that we overachieved on our target by reducing run times to around 6 seconds. Further, with Intel's help we identified a processor sustaining the run-time advantages of the optimised code at a cost significantly lower than current alternatives.

The benefits

The optimised Optos codes are now fast enough to be deployed on a production device. Additionally we identified an Intel chip that is cheaper than the previous candidates and is better suited to Optos' codes. This combination allows the company to cut costs while enhancing the performance of its product.

CodeOptScotland

The project was part-funded by Scottish Enterprise under the CodeOptScotland programme, which brings together Intel, EPCC and Scottish-based companies to optimise key business software running on Intel processors. By enhancing the competitiveness of Scottish-based companies, this mutually-beneficial collaboration delivers significant impact to the wider Scottish economy.

“This project has brought direct benefits to our business, both by enabling us to develop competitive products faster and by building essential knowledge within our organisation. We look forward to a continued productive relationship with EPCC.”

Dr Jano van Hemert, Optos Research Director

EPCC: the UK's leading supercomputing centre

Our Accelerator service: supercomputing on demand

Cirrus is just one part of our Accelerator service, which delivers high-performance computing capability at a fraction of the cost of buying and operating in-house HPC services.

Accelerator can be used as a:

- Transformative HPC resource accelerating development and discovery lifecycles
- Flexible HPC resource smoothing out demand peaks
- Contingency over internal HPC infrastructure failure

Accelerator provides access to:

- ARCHER: our high-end compute system for large-scale simulation and modelling challenges
- Cirrus: a midrange, industry-standard Linux cluster. An ideal platform for applying commercial software tools



to solve a range of CFD and FEA simulation and modelling problems

- RDF: our large-scale data facility giving access to petabyte-scale data storage and archive facilities.

The World Class Data Infrastructure

The World Class Data Infrastructure (WCDI) will be a new facility managed by EPCC for the secure and trustworthy hosting and analysis of huge and varied datasets. Available to academia and industry, the WCDI will underpin the Data-Driven Innovation programme of the Edinburgh and South East Scotland City Region Deal.

We have been certified for the ISO 27001 Information Security standard for all the supercomputing and data services that we run, such as the NHS National Services

Scotland national Safe Haven. A Safe Haven is a secure environment in which data is linked and accessed, providing a high-powered computing service, secure analytic environment, secure file transfer protocol for receipt of data, and provision of analytic software.

With our unique combination of facilities and skills, we aim to be a leader in the secure hosting and management of datasets for academia and industry.

With the security of our exceptional expertise

With over 100 highly-qualified permanent staff, we ensure you get the most from our systems.

We can help you with:

- General HPC support
- Data management and analytics
- Computational modelling & simulation
- Training & consultancy
- Software development

To discuss our services for business, contact George Graham at EPCC:
g.graham@epcc.ed.ac.uk +44 (0) 131 651 3460 +44 (0) 777 370 8191