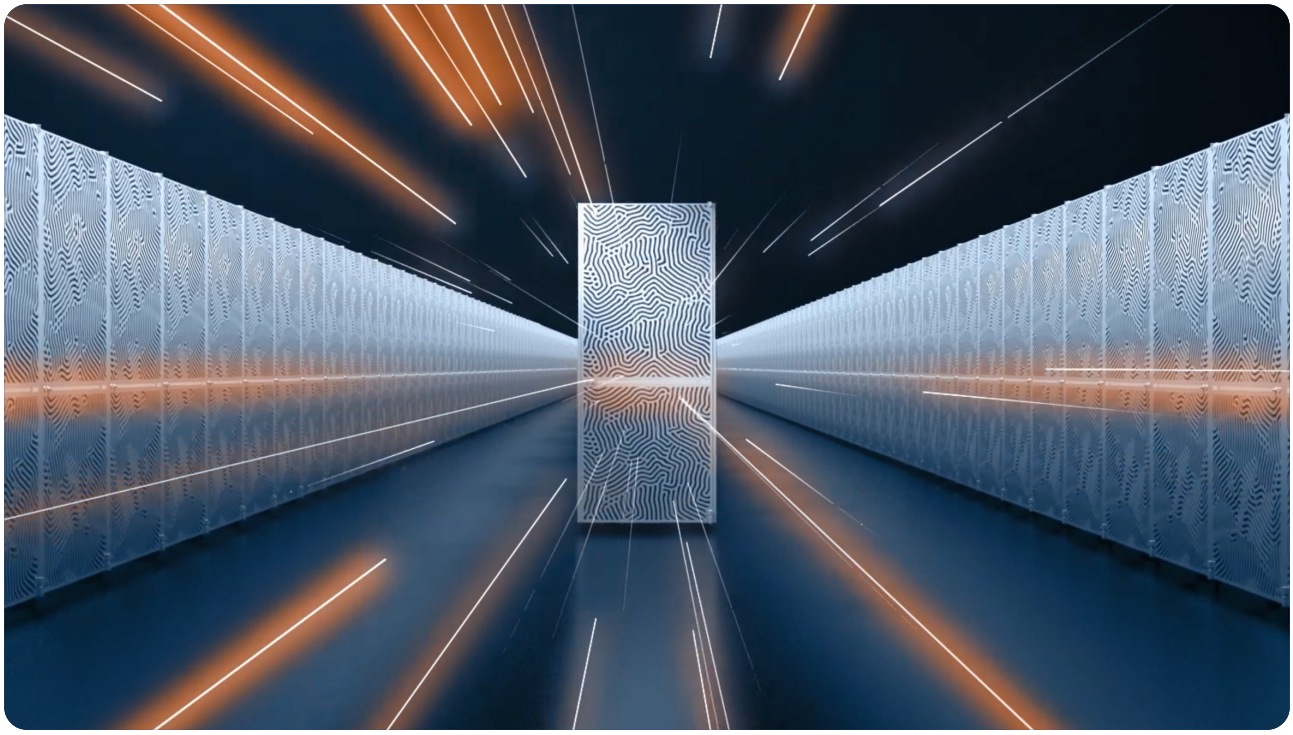
Bull

CEPP one+
Accelerate workload, give value to simulation!

Our Mission: The Bull CEPP (Centre for Excellence in Performance Programming) supports organisations world-wide to tackle industrial, scientific challenges by exploiting the value from gigantic data. Combining deep HPC proficiency, data sciences and profound industry knowledges, CEPP accelerates HPC simulation, optimises cluster performance and operation, reduces cost-to-innovation.

Many of our valued customers have been relying on Parallel Studio for an extended period, and some still use the Intel® legacy compiler within the oneAPI version. However, it is important to note that this legacy compiler was set to be deprecated in 2024.



At CEPP, we understand the importance of a seamless transition to newer Intel® compilers, libraries, and tools. That's where our expert team, CEPP one+, comes into play.

Our professional team, in close collaboration with Intel®, is dedicated to supporting and overseeing the migration process. We work hand-in-hand with Intel, giving us access to pre-release versions of Intel® oneAPI, ensuring the effectiveness of crucial fixes.

With a modular and flexible service offering, CEPP can customise our service offering adapting your goals with training, workshops, webinars or dedicated resources for your specific project.

Our strength

Seamless Transition	oneAPI Access	Cost Control
The ability to meticulously analyse and characterise compilation issues, ensuring a smooth transition.	Our direct access to Intel® support allows us to create feature requests and advocate for bug fixes in upcoming Intel oneAPI releases.	The flexibility of putting projects on hold while awaiting product fixes, ensuring that your costs remain under control throughout the migration process.

Task force initiative

Objective:

Our primary objective is to establish a collaborative Customer/Bull Task Force right at your office. This task force will conduct a thorough audit of your legacy codebase, aiming to identify options and strategies that support heterogeneous programming. To achieve this, we're prepared to deploy one or two of our experts who will work in close collaboration with your teams for a duration of one (1) week.

Throughout this intensive one-week engagement, we will provide an initial kick-start by imparting essential knowledge and insights into SYCL and/or OpenMP 5.

Our experts will guide your teams through these technologies, ensuring a smooth transition toward heterogeneous programming.

This collaborative effort is designed

To empower your organisation with the tools and expertise needed to navigate the complexities of modern programming paradigms effectively

Case study with a Tier 1 European Weather Institution

Methodology

- Translate OpenACC directive to OpenMP (Hugh support from compilers and hardware)
- Comparison between OpenACC and OpenMP version on any HPC hardware

1st Dwarf

- Simple translation of OpenACC directive
- It works on the client's HPC hardware
- Trouble with a 3rd party's compiler on the client's hardware

2nd Dwarf

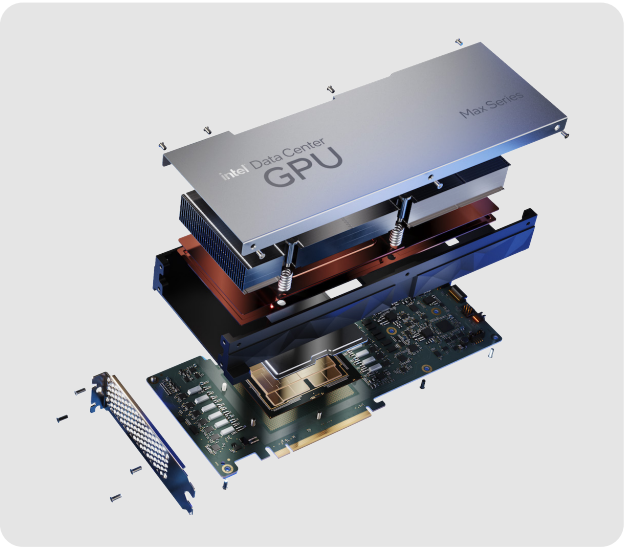
- 67 files with 2079 directives
- Usage of intel tools : intel-application-migration-tool-for-openacc-to-openmp
- Some troubles with translation of acc loop vector and omp declare target

Code migration service

Objective:

Empower your organisation with the knowledge and support needed to make informed decisions about your code migration, streamlining the process and enhancing the performance and portability of your applications.

Our Code Migration service is tailored for clients who have GPU-accelerated codes currently implemented with OpenACC or CUDA. The core objective of this service is to assess the feasibility and cost of transitioning to industry-standard programming models like OpenMP or SYCL. Based on this thorough analysis, we will provide you with a well-defined migration plan.



Phase one: Code assessment

1

Step 1: involves a comprehensive audit of your GPU-accelerated codes to gauge their complexity and understand their intricacies.

2

Step 2: a detailed report that outlines the level of complexity inherent in your code. Our experts will also present these findings to your team, ensuring full transparency and clarity.

3

Step 3: Using the insights gathered during the previous phases, we will craft a comprehensive proposal, including a migration plan tailored to your specific needs. The duration of this initial study will vary depending on the size and intricacy of your application.

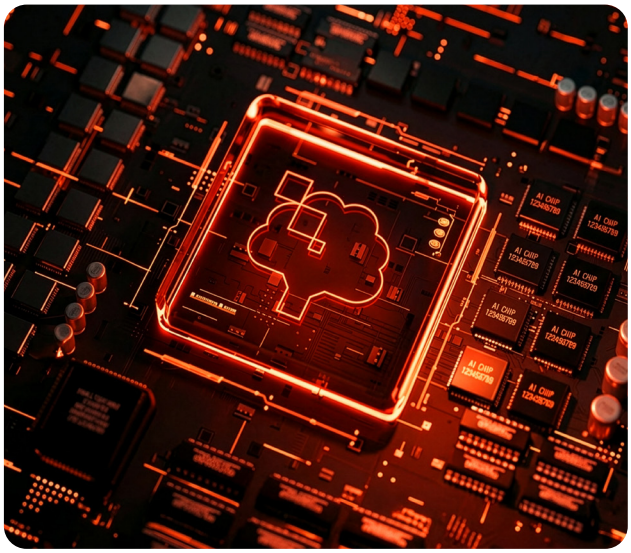
Phase two: Migration decision

The second phase of the process hinges on the conclusions drawn from the report and your organisation's decision to proceed with the migration to OpenMP or SYCL. Once you've made your choice, our expert team will guide you through the migration process, ensuring a smooth transition that maximises the benefits of these industry-standard programming models.

Code modernisation service

Objective:

Designed to assist end users in the modernisation of their HPC/AI codes, focusing on non-vendor locking languages such as OpenMP5 and SYCL. By embracing these standards, we aim to open the doors to the world of heterogeneous computing, unlocking new possibilities for your organisation.



Code audit

In the initial phase of the Code Modernisation process, we begin with a comprehensive audit of your existing codes. This audit serves to determine the complexity of your codebase and estimate the time required for a full or partial modernisation. Our experts will provide you with a detailed assessment, outlining the challenges and opportunities that lie ahead.

Flexibility to suit your needs

Our Code Modernisation offering is highly flexible, designed to put you in control of your project's trajectory and costs. You have the freedom to pause projects at any juncture, adjust the implementation speed, and select technologies that align precisely with your business needs. We believe in tailoring our services to your unique requirements, ensuring that you achieve the modernisation outcomes that matter most to your organisation.

At every step of the journey, our goal is to empower you with the expertise and support needed to modernise your codes successfully, enhancing performance, portability, and your competitive edge.

“At CEPP, we are committed to delivering a seamless and effective transition to the latest Intel® technologies, backed by our strong partnership and expertise. Your organisation's performance programming needs are in capable hands with CEPP one+.”

Christophe Berthelot
CEPP Manager, Bull
christophe.berthelot@bull.com

“Intel has partnered closely with the CEPP for many years to develop productive methods to modernise high performance software and deliver more efficient applications in science and industry. CEPP one+ extends this collaboration to use open and multi-architecture oneAPI developer tools to simplify and maximise the benefit of programming modern accelerated computing systems.”

Joe Curley
VP & GM, Software and Technology Group, Intel
joe.curley@intel.com

Connect with us

bull.com

Bull-CS-BR-CEPP-Oneplus-RGB_v1