

Intel Announces oneAPI Challenge Winners

March 25, 2021

March 25, 2021 — Intel today announced the winners of the [Great Cross-Architecture Challenge](#), a collaboration with the European Organization for Nuclear Research (CERN) and Argonne National Laboratory, and run by CodeProject. The challenge attracted participants across five continents, demonstrating the growing momentum of oneAPI's open, cross-architecture, multi-vendor programming approach. Entrants used oneAPI and Data Parallel C++ (DPC++) to create applications in areas such as bioinformatics, cryptography, data analytics, education, financial services, genomics, healthcare, image processing, mathematics, molecular dynamics, particle physics and ray tracing.

The Great Cross-Architecture Challenge invited software developers of all levels to use oneAPI to create fast, efficient and future-ready applications that take advantage of various XPUs, including CPUs, GPUs, FPGAs and other accelerators. Participants used free [Intel oneAPI Toolkits](#) and the [Intel DevCloud](#), which provides the ability to test code and workloads across a variety of Intel XPU architectures to update an existing C/C++ application, to port a compute unified device architecture (CUDA) application to DPC++ or create an entirely new oneAPI application to work on multiple architectures.



“The participants in the Great Cross-Architecture Challenge demonstrated the potential of oneAPI,” said Maria Girone, chief technology officer, CERN openlab. “Through its use, they were able to write code for heterogeneous hardware architectures with a diverse range of applications. People from across the world were able to access cutting-edge technology through this developer challenge. We look forward to welcoming the winners of the competition to CERN.”

“The challenge was an exciting opportunity to explore oneAPI and its power to develop applications across heterogeneous computing architectures,” said Katherine Riley, director of Science at Argonne Leadership Computing Facility. “The entries covered a breadth of topics and used multiple approaches that illustrated oneAPI’s vast potential — and the creativity of the participants! We look forward to bringing that creativity to Argonne as we prepare for our upcoming exascale system, Aurora.”

About the Winners:

Winner of a summer CERN openlab internship:

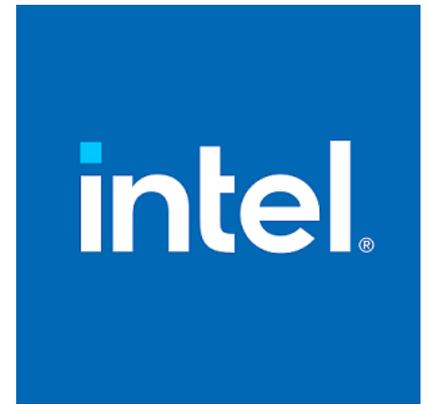
- [Eugenio Marinelli](#) of Sophia Antipolis, France, leveraged oneAPI’s cross-architecture libraries and tools to efficiently develop a new application that can be used to quickly and accurately decode digital data stored in synthetic DNA. This new storage method provides easy, quick and inexpensive data archival storage that can last centuries, even in harsh environments.

Winner of a chance to work on a oneAPI-related project with Argonne National Laboratory:

- [Andrew Pastrello](#) of Sydney, Australia, showed the ease of porting CUDA code and modified the application using DPC++ and oneAPI tools to synthesize audio from gravitational waveforms produced by black hole simulations to be used in music production and astronomy education.

Winners of a trip to CERN :

- [Rafael Campos](#) of Lisbon, Portugal, demonstrated oneAPI's fast and efficient development by adapting OpenCL applications to improve the performance, power and efficiency of bioinformatic applications. The solution has the potential to improve epistasis detection, enabling early detection of life-threatening diseases such as Alzheimer's and various cancers.
- [Zhen Ju](#) of Shenzhen, China, showed the ease of migrating a CUDA-based application and the benefits of an open programming model that serves various architectures. The application port efficiently and accurately filters out redundant sequences in gene research, benefiting pharmaceutical discoveries, agriculture and medical care.
- [Ricardo Nobre](#) of Lisbon, Portugal, used the Intel® DPC++ Compatibility Tool to port a CUDA-based application, with more than 95% of the code automatically migrated. The application utilizes CPU and GPU devices to detect new associations between genotypes and phenotypes, potentially resulting in improved preventative care, personalized treatments and drug development.



Participants had access to free resources, such as code samples, developer guides, webinars and the [DevMesh](#) developer collaboration portal to help speed their development.

About the Prizes:

Five grand prize winners were selected by an outside panel of [six esteemed judges](#) who evaluated the contest entries based on innovation, impact on humanity, use of cross-architecture computing, overall usefulness for target audience, level of coding expertise and quality of project explanation. Winners were awarded one of the following grand prizes:

- A summer CERN openlab internship (in person or virtual), or \$8,000 in cash.
- Participation in a oneAPI-related project at Argonne National Laboratory (in person or virtual), or \$8,000 in cash.
- One of three trips to CERN for a special tour, or \$5,000 cash.

Twenty applicants will receive \$500 cash prizes for their quality submissions. For more information, please visit the [Great Cross-Architecture Challenge contest site](#).

About oneAPI Ecosystem Support:

More than 65 leading research organizations, companies and universities support oneAPI. See [oneAPI ecosystem support/reviews](#). The [oneAPI applications catalog](#) details more than 250 oneAPI-powered applications.

About oneAPI Developer Resources:

To start building high-performance, cross-architecture applications, download free [Intel oneAPI](#) Toolkits locally or use the [Intel DevCloud](#).

Source: Intel