

oneAPI workshop

27 September 2023

Technopolis Innopoli 3 - Meeting Room: Maslov

Address: Vaisalantie 6, 02130 ESPOO, FINLAND

AGENDA

08:30	Registration, coffee and light snacks
09:00	Welcome
09:10	<p>Introduction to oneAPI and Intel Developer Cloud infrastructure</p> <ul style="list-style-type: none"> - Motivation and oneAPI Standardization - Intel's oneAPI Toolkits Portfolio and Components - Intel oneAPI plug-ins for Nvidia and AMD hardware (CPU and GPUs) <p>Intel Developer Cloud (IDC) - A sandbox for software development and benchmarking</p> <ul style="list-style-type: none"> - Purpose: Demoing, testing, and porting applications - Hardware and Software offerings - How to onboard & how to get an IDC account <p><i>Stephen Blair-Chappell – HPC expert, oneAPI certified instructor</i></p>
09:30	<p>Introduction Direct Programming CPU/GPU using SYCL [part 1]</p> <ul style="list-style-type: none"> - Intro to heterogenous programming model with SYCL 2020 - SYCL features and examples “Hello World” Example <p><i>Soner Steiner, HPC expert, oneAPI certified instructor</i></p>
10:15	Coffee Break
10:30	<p>Advanced Direct Programming CPU/GPU using SYCL [part2]</p> <p>Device Selection Execution Model Compilation and Execution Flow Memory Model; Buffers, Unified Shared Memory (USM) Performance optimizations with SYCL features.</p> <p><i>Stephen Blair-Chappell – HPC expert, oneAPI certified instructor</i></p>
11:15	<p>Porting CUDA code to SYCL using Sycromatic</p> <p>Migration Cuda based GPU Applications to SYCL</p> <p><i>Soner Steiner, HPC expert, oneAPI certified instructor</i></p>
12:00	Lunch Break
13:00	<p>Hardware agnostic offloading to GPUs from Intel/ AMD/NVIDIA demos.</p> <p><i>Stephen Blair-Chappell – HPC expert, oneAPI certified instructor</i></p>
13:30	LAB1: Introductory lab to SYCL / DPC++
15:00	Coffee Break
15:15	LAB2: Sycromatic
16:30	Coffee + Additional Lab Time/ Individual Help (optional)

The agenda topics and timing are subject to change.

The Speakers



Stephen Blair-Chappell is an independent software consultant and is an Intel-certified oneAPI instructor. He was formerly the Technical Director at Bayncore where he led a team of consultants providing HPC and AI training on Intel Architecture. For 18 years he was a Technical Consulting Engineer at Intel helping their strategic customers in software optimization and code modernization. He is the author of the book "Parallel Programming with Intel Parallel Studio XE".



Soner Steiner is an HPC, HPDA, and IA specialist at Vienna Scientific Cluster (VSC) and is involved in the EuroCC-Austria project (a European network for awareness creation, consultancy, and training in HPC). He has 5 years of teaching experience at the university level (University of Applied Science, Austria-Wiener Neustadt). At VSC he is involved in training and consultancy of academia and industry. Before his role at the VSC, he was involved for several years in computational material science. And he is freshly a certified Intel oneAPI instructor in DPC++ essentials, OpenMP offload basics, and ML using oneAPI.