INTRODUCING ONEAPI

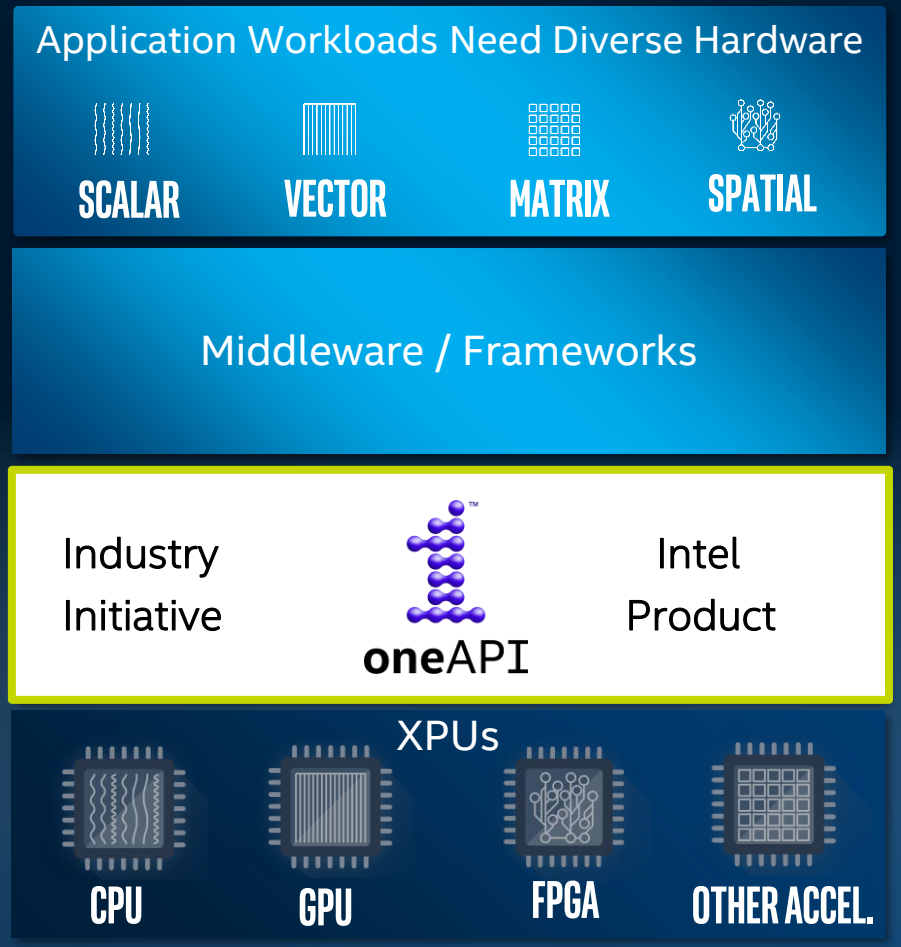
Unified programming model to simplify development across diverse architectures

Unified and simplified language and libraries for expressing parallelism

Uncompromised native high-level language performance

Based on industry standards and open specifications

Interoperable with existing HPC programming models



oneAPI INDUSTRY INITIATIVE
ALTERNATIVE TO SINGLE-VENDOR SOLUTION

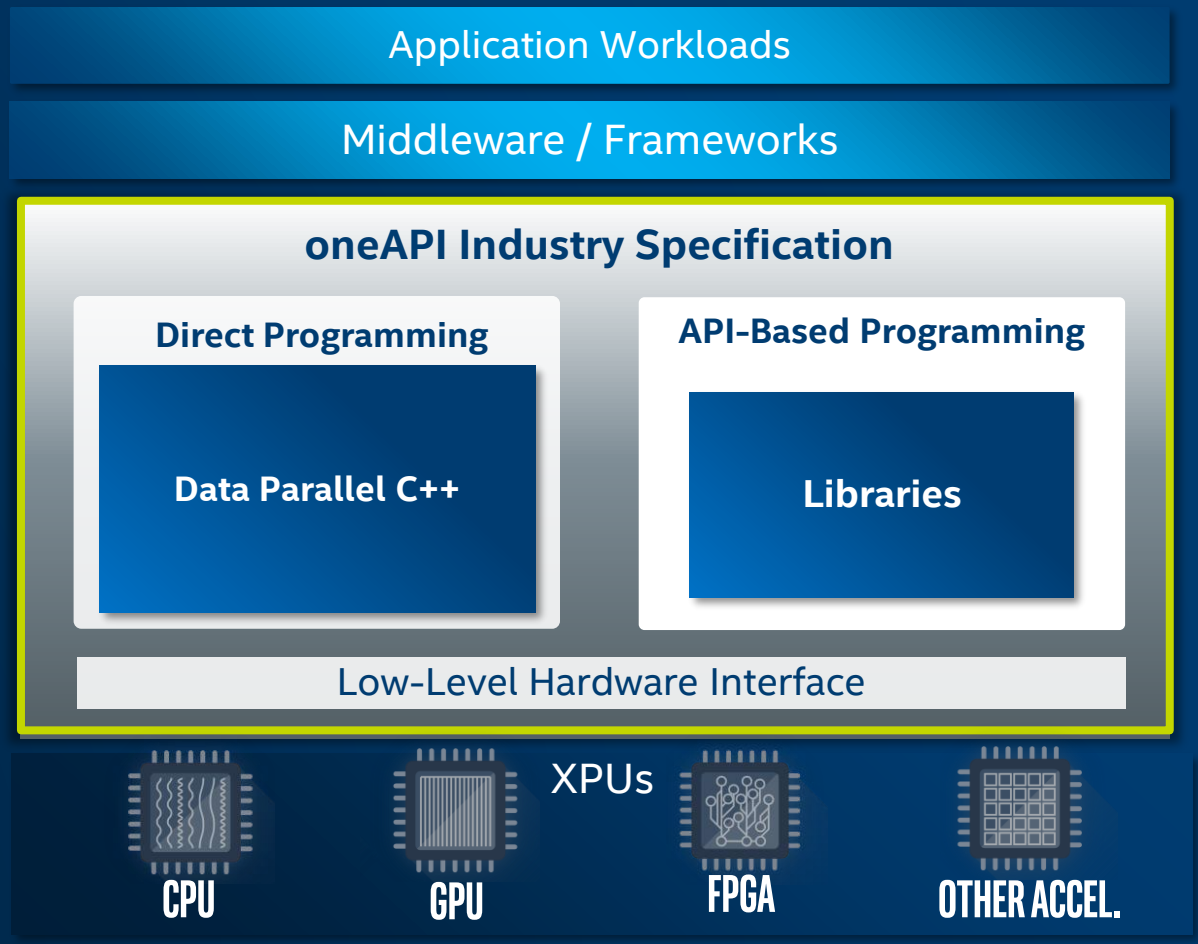
A standards based cross-architecture language, DPC++, based on C++ and SYCL

Powerful APIs designed for acceleration of key domain-specific functions

Low-level hardware interface to provide a hardware abstraction layer to vendors

Open standard to promote community and industry support

Enables code reuse across architectures and vendors



Visit oneapi.com for more details

Some capabilities may differ per architecture and custom-tuning will still be required.

Refer to software.intel.com/articles/optimization-notice for more information regarding performance & optimization choices in Intel software products.

DATA PARALLEL C++

STANDARDS-BASED, CROSS-ARCHITECTURE LANGUAGE

Parallelism, productivity and performance for CPUs and Accelerators

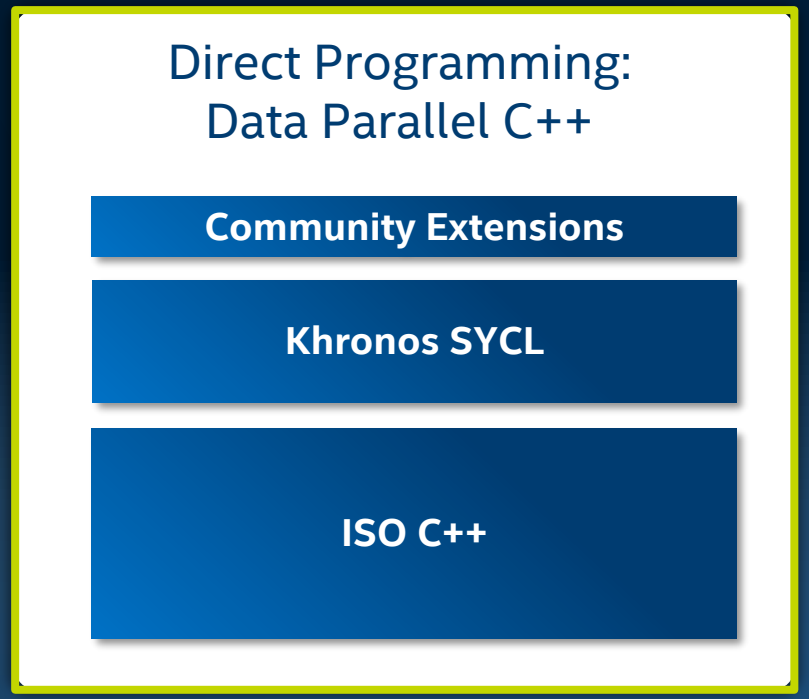
- Allows code reuse across hardware targets, while permitting custom tuning for a specific accelerator
- Open, cross-industry alternative to single architecture proprietary language

Based on ISO C++ and Khronos SYCL

- Delivers C++ productivity benefits, using common and familiar C and C++ constructs
- Incorporates SYCL from the Khronos Group to support data parallelism and heterogeneous programming

Community Project to drive language enhancements

- Extensions to simplify data parallel programming
- Open and cooperative development for continued evolution

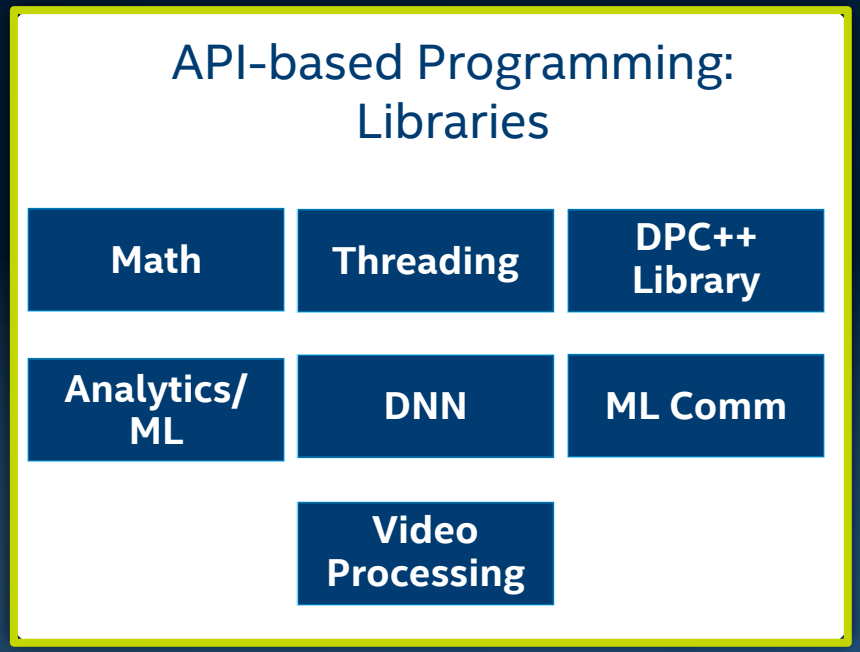


The open source and Intel beta DPC++ compiler currently supports hardware including Intel CPUs, GPUs, and FPGAs.
Codeplay announced a DPC++ compiler that targets Nvidia GPUs.

POWERFUL API LIBRARIES

Designed for acceleration of key domain-focused functions

Each can be custom-coded for any platform to deliver uncompromised performance



Custom-tuning for each architecture will still be required.

oneAPI INITIATIVE – ECOSYSTEM SUPPORT

Indian Institute of
Technology Delhi

UNIVERSITY OF
CAMBRIDGE

These organizations support the oneAPI initiative 'concept' for a single, unified programming model for cross-architecture development. It does not indicate any agreement to purchase or use of Intel's products.
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