

## Acceleration Platform SDK

## Xelera Suite

## INTRODUCTION

Enterprises are increasingly challenged to adapt to rapid data growth and real-time processing requirements in data centers and the cloud. One increasingly common solution is the use of hardware accelerators, which can facilitate Big Data analytics by reducing computational tasks from hours to minutes/seconds or reducing the latency of real-time critical applications to microseconds. But then a new question arises: how to incorporate hardware accelerators without disrupting workflow? Xelera Suite is a **hardware-independent, on-demand scalable, and easy-to-deploy** acceleration platform that provides one-touch access to GPU and FPGA accelerators in data centers, public clouds, and edge clouds.

## ABSTRACTION

Xelera Suite's Compute Hardware Interface provides a single API to FPGAs, Nvidia and AMD GPUs. The North-bound API remains the same regardless of the device type. The Compute Hardware Interface is an efficient shim which does not add any performance loss.

## LATENCY

Xelera Suite guarantees an ultra-low latency at system level. It allows user software applications to access PCIe-attached hardware accelerators with a round-trip latency of only 2.5µs. In addition to the host interface software, Xelera Suite provides libraries of latency-optimized accelerator kernels.

## DEPLOYMENT

Xelera Suite manages large repositories of acceleration kernels automatically. It detects the available accelerator hardware and selects the adequate accelerator binaries. Xelera Suite can be deployed via Docker, virtual machines or bare-metal. It supports intra-accelerator virtualization via SR-IOV.

## LIBRARIES

Xelera Suite provides building block libraries with FPGA and GPU device software to enable hardware acceleration in different software applications:

- Network function and network security acceleration
- Low-latency Machine Learning inference
- Cryptography
- DPDK drivers for hardware accelerators

## SCALING

Computing tasks can be distributed automatically and transparently across accelerator cards, CPU cores and server nodes.

## COUPLING

Xelera Suite can connect SmartNIC FPGA cards and GPUs via a high-throughput and low-latency peer-to-peer PCIe bridge.

## OPERATION

Xelera Suite provides monitoring, logging and reporting through a comprehensive dashboard. Alternatively, the workloads can be controlled via an API for 20+ programming languages.

## SOLUTION BRIEF

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## SUITE

- Acceleration platform software for high-performance computing
- One-touch access to the most advanced GPUs, FPGAs and AI ASICs in data centers, public clouds and edge clouds
- Hardware-agnostic accelerator abstraction layer
- Automatic and transparent scalability

