Intel Quantum SDK An Open-Source Quantum Compiler Using the LLVM Framework

Xin-Chuan (Ryan) Wu, Ph.D.

Research Scientist (Intel Labs)

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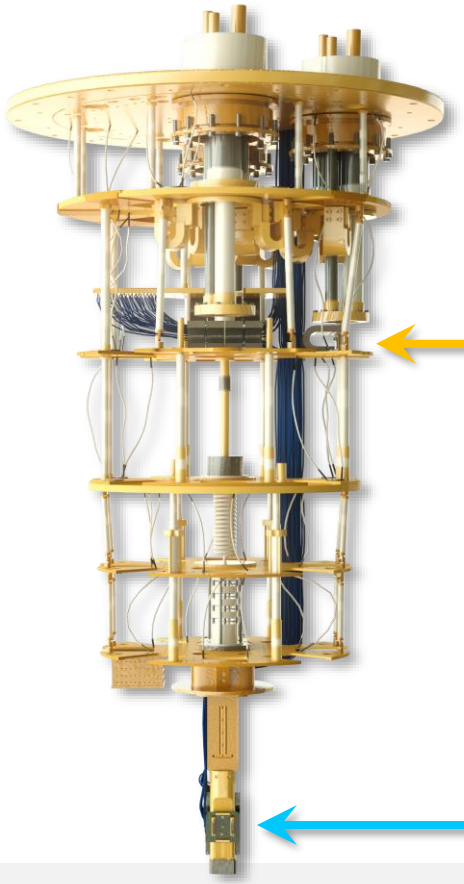
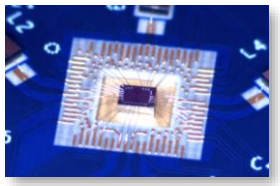
Intel's Full Stack Approach to Quantum Computing

Hardware



Room Temp Electronics

Horse Ridge II Control Chip



Spin Qubit Processor

Applications / Algorithms

C++ Quantum Compiler

Quantum Runtime

Qubit Control Simulator

Quantum Dot Simulator

Software

Why Intel® Quantum SDK?

C++ Language for Quantum

C++ language extensions for describing quantum and classical programs

Parameterized Quantum Instructions

Quantum runtime library to support dynamic parameters for variational algorithms

Quantum Compiler

Optimizing quantum applications to reduce the resource usage

Quantum Program Execution

Supporting quantum computing backends to execute the program

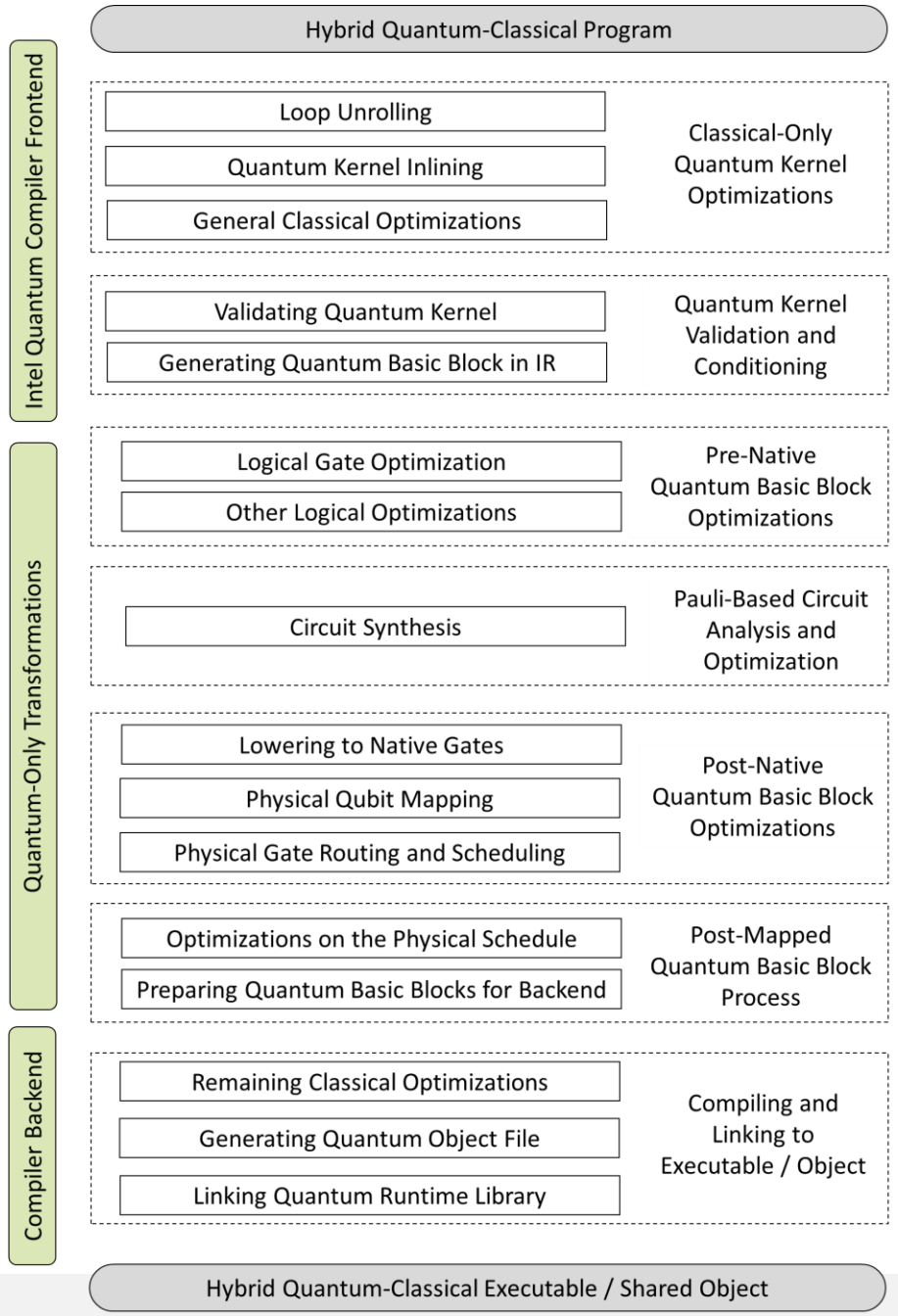
Quantum Compilation Flow

Intel Quantum Compiler

LLVM IR for quantum kernels

A single compiler for quantum and classical programs

Linking the Quantum Runtime (QRT) library



Intel® Quantum SDK

- Version 1.0 is available
- Find out how you can access the Intel Quantum SDK at https://developer.intel.com/quantumsdk

- Version 1.1 coming this year!
  - New qubit noise models
  - New target qubit backend
  - Based on LLVM-17
  - An open source project on quantum optimization