Start a document

on the Layer Model of Quantum Computing

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Abstract

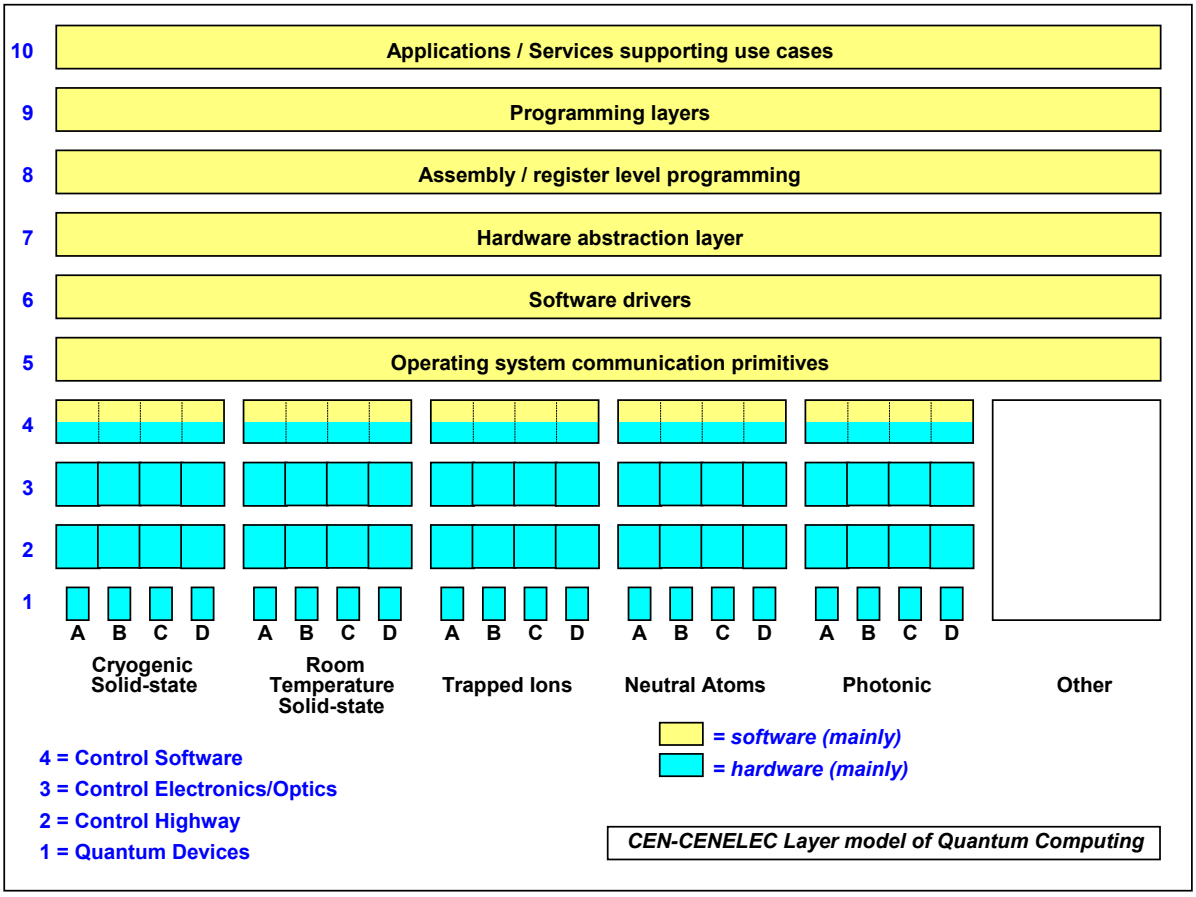
During the last 2-3 years, FGQT has reached consensus on a layer model for quantum computing. This model may need further refinement and that result should be formalized in a stand-alone official standard as soon as possible

This contribution proposes to start working on such a document

1 CEN-CENELEC Layer model of Quantum Computing

During the last 2-3 years, FGQT has developed a layer model of quantum computing in order to identify modules and how they should interwork with each other through well-defined interfaces. A module can cover multiple layers or can be a subset of a layer. The boundaries of the layers are aimed for specifying the interfaces between these layers.

This layer model has already proven to be very convenient in subdividing the entire field of quantum computing into chunks that can be handled by different experts, and also to identify functionality, modules, interfaces etc. However, this model is not formalized into an official document, and may need further refinement on individual aspects.
The layer model is shown below.



2 Proposal: Working item on layer model

We propose to start a "working item" on getting a formal standard on this layer model being published in the end. This document should phrase the functionality of each layer in more detail than was done in the Roadmap document of FGQT, and may be refined where needed. The scope should be limited to a high-level description of the layers, since further details on individual layers are to be elaborated in other, more dedicated, working items.

First version: Experiences from the past in the telecommunication sector (with the OSI-model) has learned that once such a layer model is published in an official document from CEN-CENELEC it will only be a "first version". It may be revised and refined on details when needed, so future upgrades of such a document are foreseen from the very beginning.

Timelines: Since FGQT has done already a lot of preparatory work on this layer model, it should be doable to create a first draft standard on this topic within half a year. By them it should be ready for sending-out by JTC22 to get formal approval of its content by CEN-CENELEC members.