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A novel control system architecture for quantum computing

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Sinara is an open-source, open-hardware control system specifically created for quantum applications that is currently operational in numerous global laboratories. Its design is based on ribbon cable connections linking a controller with peripheral modules. This seemingly uncomplicated and economical method, however, has raised concerns about system reliability, thermal management, and effective monitoring. As quantum technologies evolve beyond their exclusively experimental phase, it becomes imperative for control systems to offer a higher level of dependability in their hardware platforms. In this poster, we introduce an innovative system architecture named DI/OT, based on the Compact PCI-Serial standard, a product of collaborative development with CERN. Our objective with this new architecture is to facilitate smoother system maintenance, enhance reliability, and broaden its applicability beyond quantum physics applications.

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