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PERFORMANCE PORTABILTY IN THE EXTREME-SCALE SCIENTIFIC SOFTWARE DEVELOPMENT KIT

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The extreme-scale scientific software development kit (xSDK) [1] is an ecosystem of independently developed interoperable mathematical libraries for high performance computers with the goal to simplify their combined use and portability. Many of these libraries are used in combination by a variety of application codes and will need to perform well on the upcoming exascale computers, which require the use of new programming models to fully take advantage of their fastest processing units. Consequently, portability is an important requirement. Many of these libraries are long standing software products that require significant changes to allow efficient use of these new heterogeneous architectures. Different strategies involve investing in revised software design and refactoring as well as leveraging advances in programming models, runtimes, and development tools. In this presentation, we will discuss the portability strategies used by the individual xSDK libraries and the difficulties that need to be overcome for their successful implementation.

REFERENCES

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