

Warwick Data Store: A HPC Library for Flexible Data Storage in Multi-Physics Applications

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With the increasing complexity of memory architectures and multi-physics applications, developing data structures that are performant, portable, scalable, and support developer productivity, is difficult. In order to manage these complexities and allow rapid

prototyping of different approaches we are building a lightweight and extensible C++ template library called the Warwick Data Store (WDS). WDS is designed to abstract details of the data structure away from the user, thus easing application development and optimisation. We show that WDS generates minimal performance overheads, via a variety of different scientific benchmarks and proxy-applications.

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