Stay connected:
kitware.com
kitware@kitware.com

kitware

Helping You Visualize Your World

Innovative Scientific Computing Solutions

Looking for more information?

Scan to learn more about our scientific computing capabilities and contact our team.

Working with Kitware

Kitware provides professional support for all our open source platforms and tools, giving you access to our talented research and development team. We can also help customize these platforms, from tailoring them to your workflows to connecting them with your existing tools.

Visualizing at Exascale

High-performance computing (HPC) is transforming the way research communities tackle scientific challenges, from investigating nuclear energy to modeling climate research. The potential to unlock answers and insight into these challenges, however, requires processing data of unprecedented size. Visualization is a key step in obtaining such in-depth insight, so it's important that researchers can manage, analyze, and visualize extreme scale data.

As one of the primary contributors to the open source Visualization Toolkit (VTK), ParaView, and CMake, Kitware is working closely with customers and collaborators to build the foundation for exascale visualization. These long-standing software toolkits and applications are part of the exascale ecosystem. They offer critical benefits such as in situ analysis and revolutionary technology stacks to evolve with the next generation of computing.

ParaView
Rigorous validation of simulation information with a schema

Visualization Toolkit
Learn how to process images and create 3D computer graphics using this premier visualization system.

Computational Model Builder
Explore all the components of the CMB suite, from pre-processing tools to post-processing visualization options.

trame
An easy-to-use web framework to create stunning, interactive web applications compactly and intuitively.

CMake
Control the software compilation process using this powerful, cross-platform build environment.

In situ Analysis & Visualization

In situ analysis and visualization is of considerable interest to the HPC community because of I/O cost savings, increased temporal accuracy, and available computational resources. Kitware's ParaView Catalyst provides these benefits. Catalyst has been integrated and used with many simulation codes, including ones from the Department of Energy (Albany, MPAS-O, and Sierra), the Department of Defense (AdH, GEMS, Helios, and SMURF), and others (BEC, LESLIE, PHASTA, Code Saturne, CAMV, and UH3D). These simulation codes fuel various research fields, including rotorcraft analysis and design, ocean systems exploration, atmospheric changes, and thermal hydraulics processes inside nuclear reactor cores.

HPC Simulation Workflows

Kitware's CMB platform can be implemented across the entire simulation HPC workflow. You can easily apply the framework to specific problems, from defining the proper geometric domain and mesh to setting simulation parameters and submitting the simulation job to simulation result analysis and visualization. Our approach to simulation HPC workflow management creates a modular environment that, when tailored, can leverage existing and future simulators, mesh generators, and HPC toolkits. Our team has developed various custom CMB applications, from hydrological to nuclear reactor simulations.

Bespoke Visual Analytics

In what we consider to be a breakthrough technology development, Kitware has developed trame, a simple, easy-to-use, Python- and web-based visual analytics framework that weaves powerful open source components and systems together. Based on the culmination of decades of work with the visualization systems ParaView, VTK, and VTK.js, trame enables the creation of applications meeting the requirements above with simple Python scripts; and leverages Python's powerful integration capabilities to leverage open platforms such as Vuetify (for powerful GUIs), Plotly, and MatPlotLib.

Providing Cutting-Edge Software Services

Kitware is a leader in providing software services to projects across a wide range of domains. As the creator of CMake, CDash, and CTest, Kitware has extensive experience building high-quality software, upgrading infrastructure, and facilitating community outreach for customers from national laboratories, government institutions, corporations, and universities.