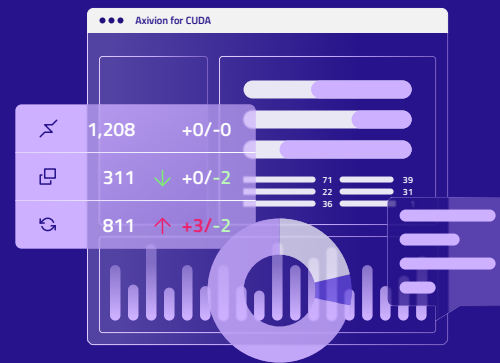


Axivion for CUDA

Unlock the Full Potential of Your CUDA Applications



Automated Static Code Analysis and Architecture Verification for Your CUDA Applications

CUDA has become a cornerstone of today's high-performance computing, powering applications across various industries. As these applications scale, raw performance is no longer enough. **Safety, security, reliability, and maintainability** are now essential for sustainable development.

Whether you need to maintain high software quality, ensure software segregation and freedom from interference or need to comply with guidelines and regulations: **Axivion always includes your CUDA C++ code** during the analysis.

Minimize Technical Debt

Axivion for CUDA helps you reduce existing technical debt, and **prevents new debt from developing**. It integrates seamlessly into your current development environment and offers the flexibility to adapt and scale with your evolving needs.

Most static analysis tools treat CUDA as a generic C/C++ extension, missing its unique constructs and challenges. Axivion for CUDA is **designed specifically for GPU applications**, offering full support for CUDA syntax, architecture verification, and compliance with industry standards.

It **integrates seamlessly into CI/DevOps workflows**, helping teams maintain clean, compliant code without sacrificing speed or innovation.



Ensure Compliance

Comply with **NVIDIA's CUDA C++ guidelines** as well as other leading guidelines and industry standards.



Enhance Maintainability

Reduce time needed to fix **technical debt** by 33% and keep your code maintainable.



Maximize Efficiency

Save up to 15% in **development costs** by making sure your software architecture is easy to understand.



Detect Bugs Early

Save time and money by detecting bugs early. Fix them before they cause damage.



Reduce Your Team's Workload

Let your developers **focus on building features** instead of fixing bugs.



Faster Time to Market

Surpass your competitors, by going to market faster with a higher-quality product.



Contact us

Do you have questions?

Are you interested in a demo?

Axivion for CUDA

Your All-In-One Tool for C, C++, and CUDA C++

Ideal for Safety-Critical Programming

Axivion ensures **compliance with standards and guidelines** such as MISRA, ISO 26262, IEC62304, CERT, CWE and, of course, NVIDIA's CUDA C++ Guidelines. Even without detailed knowledge about the rules, it is easy to meet the requirements and develop safe and secure software.

Automated **multi-language support** enables complete analysis across mixed-language codebases, thereby **eliminating the need for manual reviews** or applying multiple tools.

The Axivion **Tool Qualification Kit** supports automated validation and requalification after updates. It helps qualify the entire toolchain, covering both static code analysis and architecture verification for CUDA-based projects.



SGS-TÜV Saar GmbH has certified that Axivion's Static Code Analysis is suitable for

use in the development of safety systems up to the highest level of the safety requirement contained in the respective standard:

- EN 50716 (up to SIL 4)
- IEC 61508 (up to SIL 4)
- IEC 62304 (up to Class C)
- ISO 26262 (up to ASIL-D)



Download the certificate:

Architecture Verification

Architecture Checks

Keep your software architecture clear and maintainable by **automatically detecting deviations from the intended structure** after each code change. Existing architecture debt can be addressed through targeted refactoring, with progress tracked in detailed result reports.

Architecture Recovery

Recover the architecture, even if no documentation is available. This is particularly useful when dealing with legacy and third party code.

Architecture Export

Extract all necessary elements (e.g. components, functions, information flow, dependencies) from the code to open and modify them in Enterprise Architect.

Static Code Analysis

Axivion Static Code Analysis is ideal for developing safety-critical software. It automates repetitive, full-scale checks and **delivers reliable results through comprehensive reports**. By detecting issues early, Axivion helps prevent technical debt, conserve resources, and maintain high code quality.

- ✓ Clone Detection and Management
- ✓ Metric Monitoring
- ✓ Coding Guidelines & Defect Detection
- ✓ Dead Code Analysis
- ✓ Cycle Detection



If you want Axivion to be part of your AI-powered workflows, simply activate our Model Context Protocol (MCP) Connector and use your preferred large language model (LLM). Your AI agent can now access the Axivion documentation and the findings from the analysis to help developers understand and fix bugs faster. Connecting the agent to other sources (e.g. the internet, internal servers) is up to your discretion.

By using the plugin for VS Code, developers can not only apply AI to understand the code, but also to make changes to the code with the help of AI.

AI-augmented, not AI-dependent: Axivion does not use AI for the analysis, thus making it suitable for developing software for safety-critical environments and compliance verification.