



Support for ISO 26262

What is ISO 26262?

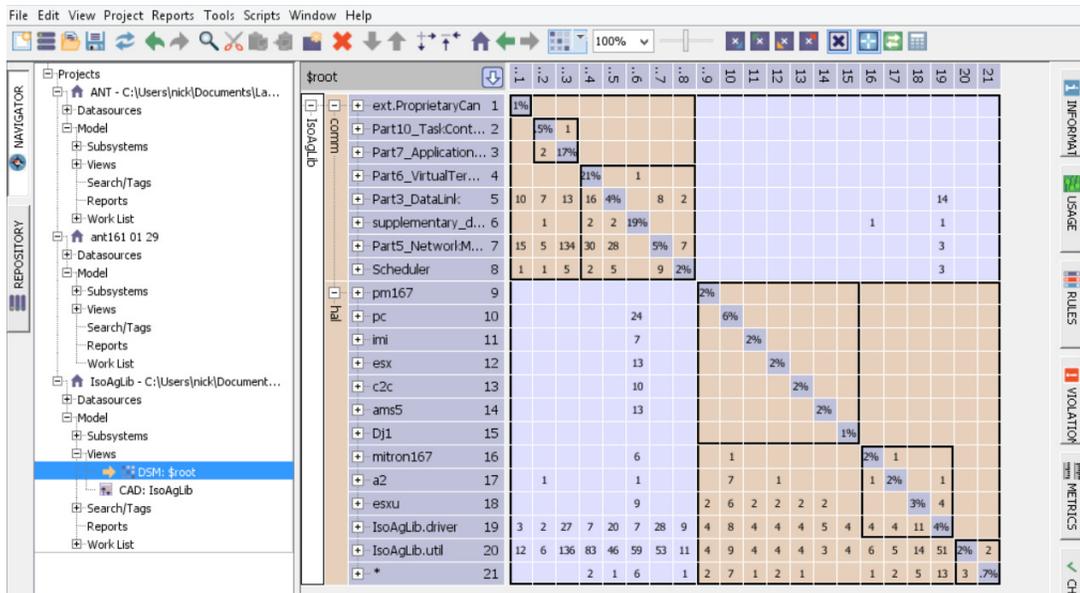
ISO 26262 is an international standard for functional safety of electrical and electronic systems in motor vehicles. The standard is comprised of 10 parts that span the entire automotive safety lifecycle including management, development, production, operation, service, and decommissioning. Lattix products apply directly to Part 6: Product Development: Software Level and specifically for software architecture design and software modeling.

How Lattix products support ISO 26262

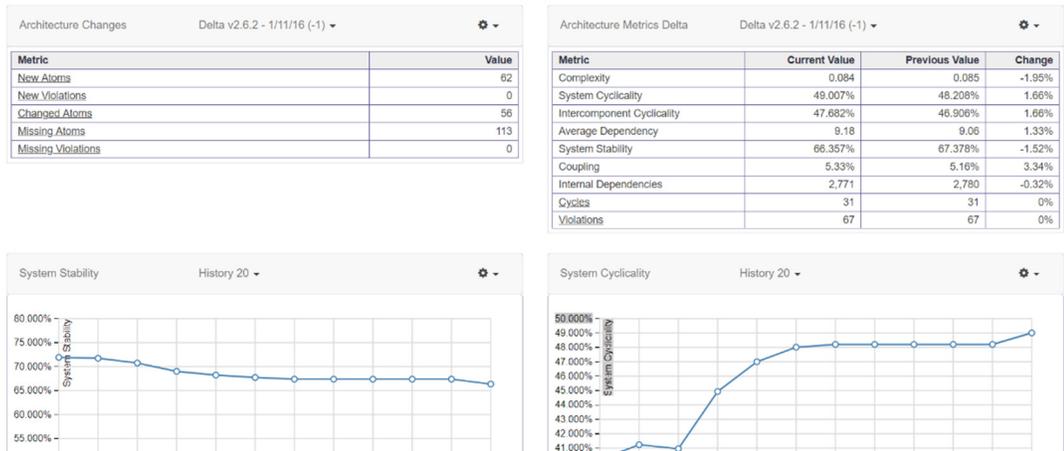
Lattix Architect and Lattix Web enable companies to quantify, visualize, and control their software architecture and complexity. This is a critical component of ISO 26262. Lattix products help companies quantify the design information and verify the validity of the design in terms of conformance, feasibility, testability, and maintainability.

Lattix Architect does this by analyzing the information from a CASE tool created at the design stage and reporting metrics such as system stability and complexity. With this numerical information, you can quantify the design information to satisfy the “selection of an appropriate design method in designing.”

Lattix Architect can read in the source code, which helps software architects and developers reduce risk by visualizing the code structure. This allows them to identify bad dependencies, interface violations, and eliminate excess code complexity. Lattix Architect can quickly detect relationships between components that violate design rules therefore satisfying the requirement to verify compliance with the design.



With Lattix Web, managers and executives also get a high-level view of risk. The project page shows how the project is performing by providing a summary of key system metrics and trends, changes between releases, architectural diagrams including interactive DSM and CAD, and various reports such as design violations, cycles, cohesion, coupling, and largest components.



Lattix integrates with the entire DevOps toolchain including build systems, CI engines, and promotion pipelines using its command line utility and RestAPI. This means that you can either create your own custom dashboard or use ours to monitor your compliance with ISO 26262 architectural design requirements.

Specific topics covered by Lattix include:

Topic	Lattix Support
Enforcement of low complexity (mandatory §7.2, §7.4.3)	Lattix Architect enables users to reduce complexity by identifying circular dependencies and excessive complexity
Use of established design principles	Lattix Architect enables architects to establish design principles. It provides them with the visibility and control needed to ensure the design specifications do not degrade over time and unwanted dependencies are not introduced during development
Hierarchical structure of software components (mandatory §7.2)	Lattix Architect provides a scalable and collapsible/expandable graphical representation of the hierarchical structure of software components (DSM and CAD)
Restrict size of software components	Lattix Architect provides a report of the size of software components. A custom script can be created to identify modules that have exceeded the maximum size allowed.
Restrict size of interfaces	Lattix Architect can create a custom report of the size of interfaces. A custom script can be created to identify interfaces that have exceeded the maximum size allowed.
High cohesion within each software component (mandatory §7.4.5)	Lattix Architect provides the Robert Martin metrics for Cohesion and Coupling (Incoming, Outgoing, Abstractness, and Distance metrics)
Restricted coupling between software components	<p>Lattix Architect can be used to view relationships and dependencies between components. It provides a series of metrics such as Coupling, Coupling Enrichment, Coupling Strength, Connectedness, Stability, and System Cyclicity.</p> <p>Coupling measures the percentage of pairs of systems that are strongly connected in the system dependency graph.</p> <p>Coupling Enrichment compares the coupling of the architecture with what we would expect on a system that was organized randomly but with the same number of elements, relationships and the same degree of in and out relationships on nodes.</p> <p>Coupling Strength measures how strongly coupled the system dependency graph is, by considering the length of the shortest cycle involving each pair of systems.</p> <p>Connectedness measures the percentage of (ordered) pairs of systems that are connected.</p> <p>Stability measures the impact when an element of a system is changed.</p> <p>System Cyclicity measures the percentage of elements of a system that are in cyclic relationships.</p>

Summary

Lattix products help companies comply with the architectural design requirements in the ISO 26262 standard to ensure the safety of the automobiles they produce and better manage their increasing code complexity.

Try Lattix Architect on your ISO 26262 Project

Contact Lattix at sales@lattix.com or call 978-664-5050.

www.lattix.com

Understand, Define, and Control Software Architecture