Jama software®

Infineon

Infineon Transitions From a Document-Centric to Data-Centric Development Flow with Jama Connect®

Jama Software helps Infineon manage complex product development subject to regulatory compliance with features that increase the teams' efficiency.

- 47,000+ employees worldwide

- Founded in 1999

- Company Focus: To create solutions that make our world easier, safer, and greener with technology that achieves more, consumes less, and is available to everyone.

Founded in 1999 as a spin-off of Siemens AG, German semiconductor manufacturer, Infineon Technologies AG is a world leader in semiconductor solutions that make life easier, safer, and greener. Ranking among the top 10% most sustainable companies in the world, Infineon is a leading player in automotive, digital security systems, power and sensor systems, and industrial power control.

In the 2020 fiscal year, the company, based in Neubiberg, Germany, reported sales of around €10 billion with about 47,400 total employees worldwide.

Infineon is dedicated to delivering zero defects regarding committed functionality, reliability, time, volume and cost, and has pledged to achieve CO_2 neutrality by 2030. Semiconductor and system solutions from Infineon make our world easier, safer and greener – with technology that achieves more, consumes less, and is accessible to everyone.

INFINEON CUSTOMER STORY OVERVIEW

Database-centric approach increases the efficiency of Infineon product development

Jama Connect helped Infineon shift from a document-based approach to a more modern requirements management solution enabling newfound product development efficiencies around complexities, communication, reviews, and compliance.

CHALLENGES

- Keep the overview on ever-increasing product complexities and avoid requirements misunderstandings

- Provide compliance without compromising time-to-market goals

- Manual document versioning makes review cycles and alignment difficult

- Improve the review & sign-off process, making it an integral part of the requirement management system

- Need for enhanced reuse capabilities

- Exchange requirements information with customers and suppliers

- Overcome the scaling limits of a document-centric approach

SOLUTIONS

- Jama Connect's scalability supports complex projects

- Easier to show compliance to industry regulations

- Jama Connect Review Center supports an efficient process

- Provide requirements-accurate versioning to back trace decisions

- Reuse requirements to shorten development cycles

- Digital exchange of requirements between customers and suppliers

RESULTS

- Better management of product complexities throughout the development cycle

- Systematic handling of requirements from product definition to product development and verification

- The traceability of requirements enables functional safety standards compliance

- Improved collaboration with distributed teams both inside and outside of their organization

- More effective exchange of requirements to ensure functional safety standards are met

Seeking a Modern Solution to Enable Efficient Requirement Management

Infineon was looking to transition from a document-centric approach to a modern, database-centric requirements management solution

Keeping the overview on ever increasing product complexities and avoid requirements misunderstandings leading to under/over-engineering

Infineon's product portfolio scales from single-transistor products to the most complex system-on-chips involving several globally dispersed teams who author, read, and interact with thousands of requirement items across several hierarchies. Infineon chose the Jama Connect self-hosted platform to support its requirements management.

Keeping an overview on the requirements is a daily challenge. The risk of missing requirements along the development flow can lead to cost increases or to malfunctioning products which could have potentially significant consequences when used in safety relevant contexts.

Complex products, with thousands of requirements, push document-centric requirements management to the limit. The maintenance of such documents is a challenge, and due to the complexity, the tracking of single requirement changes becomes nearly impossible.

Managing the interfaces between the requirements management system — and a variety of tools — within the highly complex product development tooling landscape is another challenge. It is essential that the specific roles consuming the requirements information get the appropriate information seamlessly, for instance to enable a requirements-driven pre-silicon and post-silicon verification. Another example is coupling to the change management system to authorize the change of already released requirements only when a change request has been accepted.

> " *Jama helps to structure the requirements and design documentation information.*
>
> **Stefan Kluwe**
> Requirements Manager
> Microcontrollers

Provide compliance to industrial standards e.g. ISO 26262 without compromising time-to-market objectives

Semiconductor companies must adhere to industrial standards and regulations while keeping pace with market changes. Infineon's Automotive division delivers its products to the key players of the automotive value chain, and therefore needs to comply with standards like ISO 26262 (functional safety for road vehicles). For this reason, safety-relevant requirements, their implementation and verification must be traceable along the product development process.

Manual versioning of documentation requires great care to not impede effective review cycles and alignment

With a document-based approach, the revision history has to be written by hand, whereas with a database approach, every change is automatically recorded.

Another challenge of a document-based approach is the difficulty to provide real-time feedback to capture the team alignments efficiently.

Need for enhanced reuse capabilities

The reuse of existing IP – e.g. in the form of already verified pieces of design – is at the heart of Infineon's strategy to optimize the use of development resources and to meet time-to-market objectives. With a document-based approach, the reuse of information artifacts suffers from structural limitations preventing a seamless reuse. Infineon was therefore looking for a requirements-reuse mechanism fitting to its high-end needs.

Exchange requirements information with customers and suppliers

Infineon's products are part of the value chain for several industries; hence the product definition is heavily influenced by several customer inputs. Being able to exchange requirements information between customers and suppliers is vital to supporting better (and safer) product definition that aligns with Infineon's customer application needs. This is especially true when the target application is safety relevant.

Jama Connect Manages Complex Requirements-Related Product Development Information

Infineon brings projects on to the Jama Connect platform and manages them using the platform's many features. The ability to keep information and requirements structured — and in one place — supports the complex product development process, working with multiple teams and thousands of items.

Jama Connect's scalability supports complex projects

The Jama Connect platform can scale to accommodate Infineon's most complex projects with tens of thousands of items and help the hundreds of people involved stay in sync. For example, Jama Connect can hold an entire project in one single location so there is a single source of truth. This makes it easy to track the source of a requirement and follow any changes throughout the lifecycle of a product's development.

Jama Connect includes a robust Rest API that supports in-house built integrations to meet Infineon's key integration requirements — this enables them to address both their current and future needs as they scale. "Jama Connect's API is well-featured compared to other tools and provides a good representation of most of the features we need," shared Matthias Heger, Jama Connect Application Owner.

> *Due to its highly complex environment, Infineon required an on-site deployment model. Jama Connect was deployed on-premises with ongoing upgrades deployed in a manner that integrates to Infineon's overall IT processes with ease. With the press of a button we can upgrade instances, reducing a lot of work on my end.*

Matthias Heger
Jama Connect Application Owner

Enable compliance to industrial standards through transparent handling of requirements and an efficient information structure

Jama Connect helps Infineon to structure information according to the requirements from industrial standards and move smoothly through the audit process.

For example, Infineon introduced specific attributes in their data model to help structure and filter information.

With the Jama Connect Validation Kit, Infineon is able to produce the necessary evidence required for tool qualification according to ISO 26262, which needs to be re-assessed before any Jama Connect upgrade deployment in the on-premises environment. Pierre Nury goes on to explain, "We appreciate a lot that we have the Jama Connect Validation Kit, always released at the same time a new version of Jama Connect is available. This is very important, as any time we deploy a new Jama Connect version, we have to deploy the qualification artifacts – this goes hand in hand."

The use of Jama Connect Review Center improves the quality and the efficiency of reviews

Compared to Infineon's past documents-based approach, the Jama Connect Review Center provides increased efficiency and helps to ensure quality. As a central hub to capture feedback and communication of reviews, Jama Connect Review Center simplifies and streamlines the reviews activities, facilitates collaboration within and across the teams, and gives all stakeholders easy access to a place where they can provide instant feedback when required. The improved collaboration improves the efficiency and increases the level of detail and quality of reviews.

> *Jama Connect Review Center is used to record the acceptance of the product development teams for each requirement. It also supports our optimized review process for functional safety inspections.*

Pierre Nury
Technical Lead Requirements Management Methodologies

The reuse feature is helping to shorten the development cycle

Infineon's IP-reuse strategy is well supported by the Jama Connect native reuse functionality. Dedicated central libraries are provided to allow the reuse of hardware modules. The reuse feature in Jama Connect makes it easier to leverage Infineon product data libraries with the usage of the "reuse and synchronization." It therefore helps to shorten the development cycle and to reduce the risk of new product development.

> *We are able to prepare content much faster by using the reuse feature because we rarely start from scratch. We are going into the direction of forming more common libraries that we can use in different projects. And this has the potential to help in preparing the content and shorten the cycles.*

Diego Lunardini
Principal Concept Engineering
Integrated Sensors

Exchange requirements data with globally distributed customers and suppliers

To support the product definition process, Infineon exchanges requirements with its customers and suppliers across requirements management solutions. Data Exchange for Jama Connect provides Infineon a mechanism to import/update requests for quotations coming from their customers using the ReqIF standard and to provide their feedback.

"Smooth data exchange is essential to deal with the increasing number of exchange requests by our customers," says Pierre Nury.

Infineon partnered with Jama Software to extend the Jama Connect Data Exchange tool to support ReqIF import & export.

> *We intend to use Jama Connect Data Exchange's new ReqIF support for two different use cases: first to provide Infineon product safety manuals to our customers, and second to import and assess the requests for quotations during product definition.*

Oliver Salomon
Program Management
Development Methodologies

RESULTS

Jama Connect increases efficiency during product development

By deploying Jama Connect, Infineon product development teams have adopted a more efficient working style to manage complexity, increase collaboration across teams, and improve transparency.

Better management of product complexities throughout the development cycle

The complex products that Infineon teams build require large amounts of data to be used from a central source, by teams distributed over different locations. With Jama Connect, Infineon is also able to collaborate with teams outside their organization and exchange requirements to ensure functional safety standards are met throughout the product development lifecycle.

> *By using Jama to manage our requirements-related information over the product development cycle, our R&D engineers increase their daily efficiency and simultaneously contribute to the current digital transformation. Jama's good usability won over our development teams.*

Pierre Nury
Technical Lead Requirements
Management Methodologies

Jama Software® is focused on maximizing innovation success in multidisciplinary engineering organizations. Numerous firsts for humanity in fields such as fuel cells, electrification, space, software-defined vehicles, surgical robotics, and more all rely on Jama Connect® requirements management software to minimize the risk of defects, rework, cost overruns, and recalls. Using Jama Connect, engineering organizations can now intelligently manage the development process by leveraging Live Traceability™ across best-of-breed tools to measurably improve outcomes. Our rapidly growing customer base spans the automotive, medical device, life sciences, semiconductor, aerospace & defense, industrial manufacturing, consumer electronics, financial services, and insurance industries. To learn more, visit us at: jamasoftware.com.