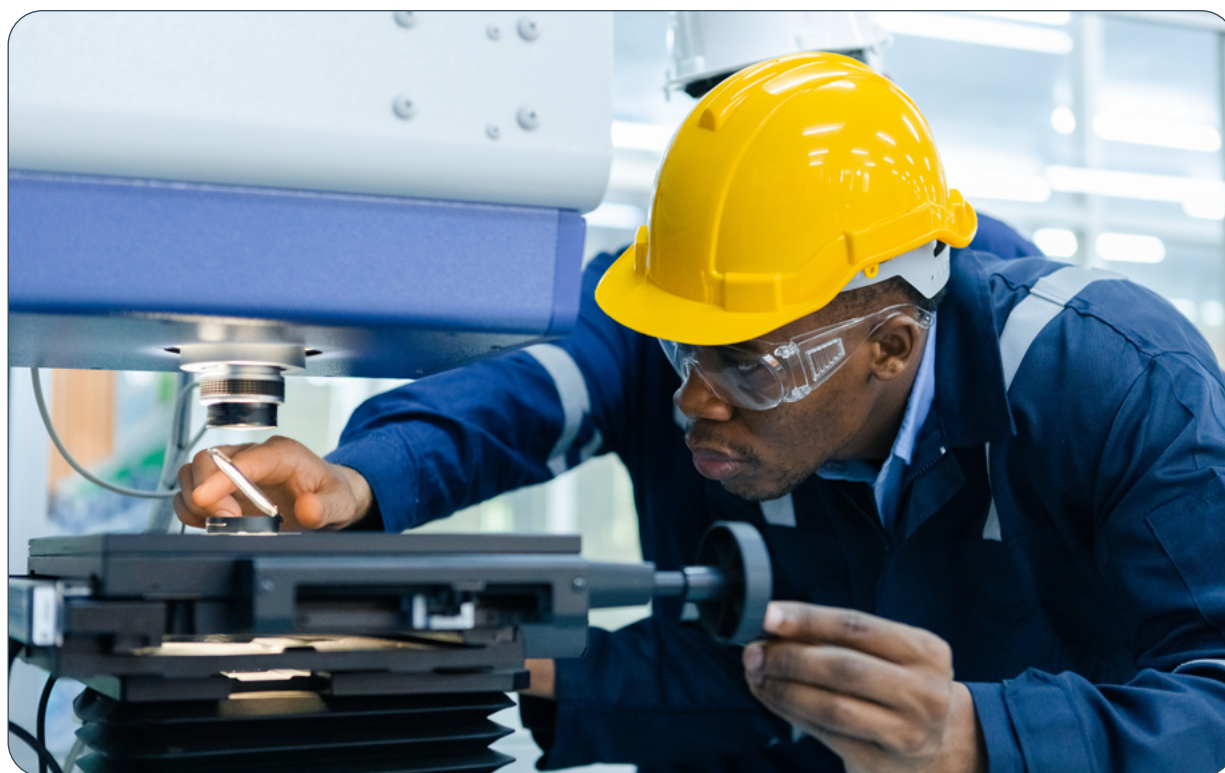


Enabling more efficient and effective field engineering

Llama-powered Domain-Expert Agent captures and scales specialized knowledge about integrated circuit design



At a glance

Aitomatic developed a Llama-backed Domain-Expert Agent (DXA) to capture decades of specialized knowledge — and empower field engineers across a leading integrated circuit (IC) producer's company with expert guidance.



Industry

Manufacturing



Use case

Equipping field engineers with on-demand expert advice



Goal

Resolve customer queries faster and more effectively



Llama version

Llama 3.1 70B



Deployment

On-premises

Results*

3x

faster issue
resolution

75%

first-try success rate
vs. 15-20% from
generic AI tools



Significantly reduced
dependency on
senior experts

The challenge

Time-consuming and inconsistent field engineering

A leading producer of integrated circuits and software solutions was experiencing operational challenges with its customer support. IC field engineers needed to consult complex technical information and expert knowledge that wasn't easily accessible, leading to inefficient response times and inconsistent support quality.

Faster and more effective query resolution

The IC design company looked to AI to equip field engineers with on-demand expert advice. Ultimately, the company wanted to systematically capture and scale its veteran experts' knowledge through AI agents to streamline support processes, increase efficiency and improve customer satisfaction. Such AI agents would need to comprehend and synthesize complex information, deliver expert-level insights and recommendations and produce consistently accurate responses to highly technical questions.

AITOMATIC

Aitomatic is transforming the semiconductor industry with its Domain-Expert Agents (DXAs). Through its neurosymbolic AI technology, Aitomatic helps semiconductor companies capture and scale their deep domain expertise to enhance and transform operations.

Aitomatic's customer

A company that designs and builds integrated circuits and software solutions to enable connectivity

- **Company size:**
1,800 employees
- **Company annual revenue:**
\$700M



The solution

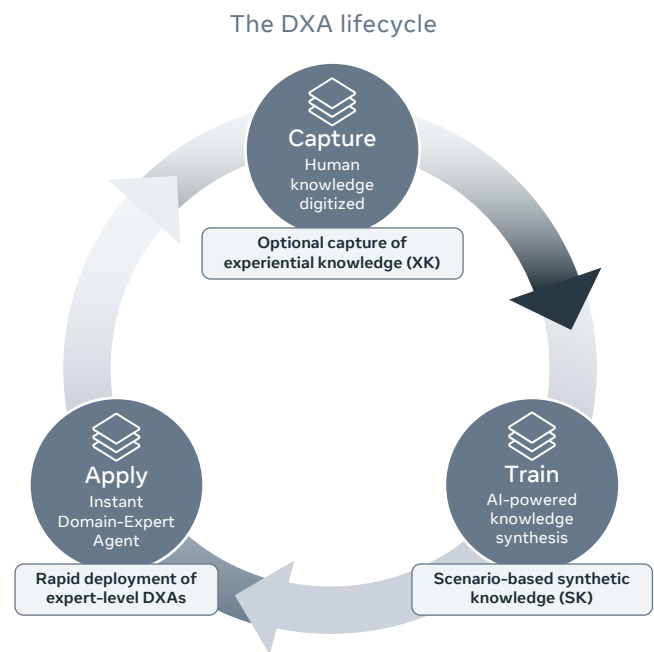
A field support Domain-Expert Agent powered by Llama

Aitomatic's DXA platform powered the development of a DXA to capture and scale the IC design company's expert knowledge. For training and operational problem-solving, the DXA leverages Llama 3.1 70B.

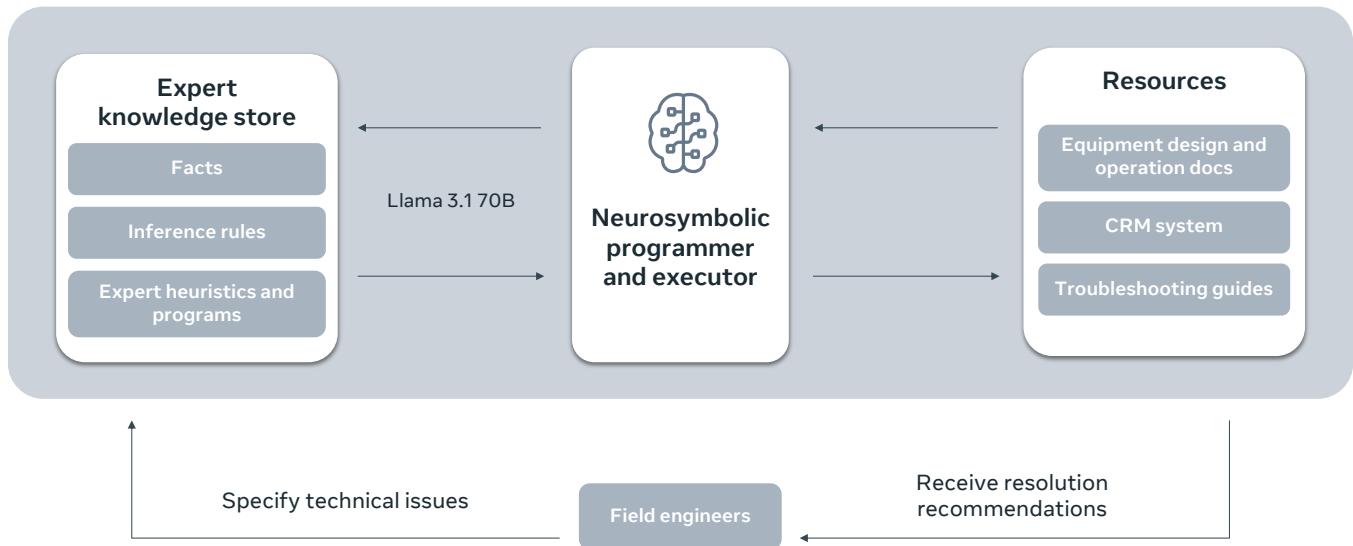
"Llama stood out because of its great customizability and versatility," says Vinh Luong, Head of Open Source at Aitomatic. "The model could be easily fine-tuned for semiconductor terminology and concepts and used as a modular component in agentic problem-solving flows, enabling highly specialized Domain-Expert Agents that could understand and respond to complex IC design queries efficiently."

The DXA development process underwent three key phases:

1. **Capture:** Documents, notes and expert opinions covering advanced field-engineering support scenarios and complex technical manuals provided experiential knowledge. That information was organized into a Knowledge Store. Additionally, expert programs were structured and stored, including step-by-step and hierarchical procedures for analyzing support issues and evaluating potential solutions.
2. **Train:** Deep experiential knowledge was augmented with broad synthetic knowledge, including more generalized support cases, technical responses and context for typical design scenarios and IC products. This enabled the DXA to competently handle a diverse range of support situations.
3. **Apply:** The trained DXA was deployed to support field engineers. The DXA was connected to various informational resources including the IC design company's proprietary technical product specifications and expert troubleshooting guides.



IC field engineering Domain-Expert Agent



The IC field engineering Domain-Expert Agent pulls from specialized information to provide expert recommendations.

Jumpstarting development drives fast, economical industry-specific agentic AI

With open-source Llama providing a solid foundation, Aitomatic was able to jumpstart its efforts and reduce development time and costs of DXAs.

“The open-source community was instrumental in improving Llama’s capabilities. The collaborative effort accelerated our development process and allowed us to focus on industry-specific expert knowledge capture and agentic problem-solving rather than building foundational models from scratch.”

Christopher Nguyen
CEO, Aitomatic

Open-source Llama enables full control and ownership

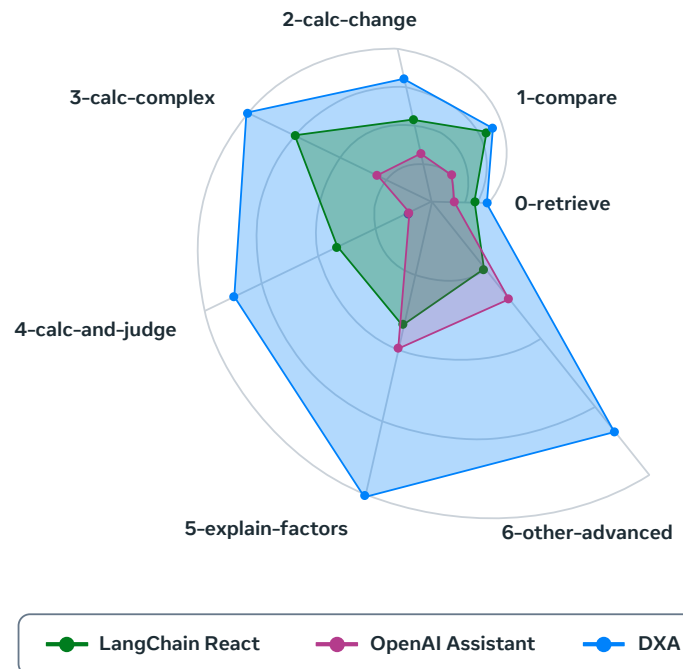
Protecting IP while maintaining a competitive edge was crucial. Aitomatic integrated Llama into its DXA framework from the open-source project [OpenSSA](#). With open-source Llama, the IC design company gained full ownership and control of its DXA trained with sensitive company-specific knowledge, eliminating dependency on proprietary AI models.

The outcome

Expert insights on demand make field engineers faster and better

The Llama-powered Aitomatic DXA rapidly gathers and synthesizes technical information, offers expert guidance and provides reliable responses. This is supported by its robust underlying neurosymbolic architecture that enhances both accuracy and consistency across various problem-difficulty levels.

With this DXA, the IC design company projects a significant improvement in its field engineering. They are aiming for 3x faster issue resolution and a 75% first-try success rate compared to the typical 15-20% from using general-purpose AI assistant tools. Field engineers can handle customer inquiries with greater speed and independence, minimizing the need for senior staff involvement. The DXA has successfully captured decades of specialized knowledge, effectively scaling this expertise across the company to empower engineers at every level.



DXAs show superior performance compared to other AI agents.

3x

faster issue resolution

75%

first-try success rate vs. 15-20% from generic AI tools



Significantly reduced dependency on senior experts

Conclusion

Llama enables the pursuit of AI-driven innovation in IC design

With the field-support DXA's proven efficacy, Aitomatic plans to enable the development of diverse DXAs in the IC design field — potentially automating the IC design process itself.



How can Llama enable your business?

Discover more about developing generative AI applications with open-source Llama large language models that bring unmatched control, customization and flexibility.

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