

# Denso Taps Altia to Win the Cluster Design Race, Year After Year

Altia platforms allow Denso to meet highest design requirements



**DENSO**

## The Customer

Denso International America (DIAM) is the North American subsidiary of Denso Corporation, one of the world's largest suppliers of automotive technology and componentry. Its products, which include infotainment and safety systems, human machine interface solutions and head up displays, are found in vehicles around the planet. DIAM employs more than 1,000 people at its facilities in the heart of Detroit, Michigan – perfectly situated to service North American automotive OEMs.

# The Challenge

## Demand for lower cost, tighter code

DIAM is a deeply technical company, devoted to quality. When given a challenge by its OEM customers, whether defined by performance, innovation, cost or other factors, it will pursue the most reliable and cost-efficient solution by leveraging its world-class technical expertise.

DIAM's culture, built over its 45-year history in the U.S., drives its reputation for technical acumen. It expects the same of its partners. "DIAM knows that its challenge is to provide the lowest cost solution for the automaker's vehicle," stated Mark Taylor, Director of Sales, North America for Altia. "They have to push their embedded product architecture to the limit to enable them to win that business."

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DIAM uses Altia's software to do its own HMI engineering, so our responsibility is to make sure DIAM remains successful in the delivery of their products with each of our DeepScreen targets delivered.

# The Solution

## Altia makes it happen

After an extensive and careful review process, DIAM selected Altia as its development partner. Nhi Pham, a Team Leader at the time for DIAM, recalled the reasons for the company's choice. "Altia's code generator is extremely efficient, producing code with a very low memory footprint," said Pham, now DIAM's Director of Software Engineering. "But just as valuable to us was the company's commitment to customer support. Altia has always been there for DIAM to support the most difficult technical issues. We value them as an extension of our team."

DIAM has invested in a number of seats for Altia Design, Altia's full-feature UI design, simulation and model integration environment. Altia Design not only allows users to build high-fidelity, functionally complete prototypes and GUIs, but also to iterate those designs quickly. Users can describe animation, stimulus and behavior without programming; furthermore, they can import, create and control objects from third-party environments.

DIAM uses Altia Design primarily to develop new HMIs for instrument clusters. To convert models and prototypes into

In the early 2000's, DIAM's embedded graphics products for vehicle instrument clusters were coded entirely by hand. Most of the work was done internally, with outside resources brought in as needed. The supplier began looking for a partner that could generate high-quality code automatically, while also increasing the speed and cost-efficiency of the process.

"The initial challenge back in 2010 was to prove that automated coding could be as good, as reliable and as high quality as existing hand-coding processes," said Taylor. "DIAM was in the midst of working on an instrument cluster program for one of Detroit's major auto manufacturers. The need was to get results faster, at less cost but with higher reusability. It was a challenging ask."

deployable graphics code, it uses Altia DeepScreen, the company's graphics code generator. DeepScreen generates small, efficient code that is fine-tuned for the target OS, completely removing the task of hand coding. It supports virtually all semiconductors including chips from Renesas, NXP, Qualcomm, Cypress (Infineon) and many others.

Altia extends comprehensive technical and customer support for all its products, including Altia Design and DeepScreen. "DIAM uses Altia's software to do its own HMI engineering, so our responsibility is to make sure DIAM remains successful in the delivery of their products with each of our DeepScreen targets delivered," commented Taylor.

Altia ensures that DIAM's priorities and deliverable timing are met on a continuing basis via a specific product delivery plan. "We will document what the needs are, the timing for those needs, and then we deliver," Taylor said. "We're often working alongside DIAM engineers on their critical path, because the needs arise right when DIAM is trying to win a project."

# The Results

## Innovation through close cooperation

Over the past ten years, DIAM and Altia have developed a close working relationship, with intimately aligned development programs. As the auto industry moves into more advanced display technologies, the two companies are in frequent discussions on how to respond.

"Every time we are challenged to tighten our code or add a new feature we haven't tackled before, DIAM interfaces directly with our best engineers—even our chief engineer," noted Taylor. "DIAM understands what we do at a very deep level, and we're pleased to have them at the table."

High on the list of development needs are new "integrated cockpits" that use a single microprocessor to drive a vehicle's instrument cluster, infotainment unit and head up display. "DIAM is fully involved in our product roadmap," Taylor commented. "Like all software companies, we're constantly looking to the future to provide solutions that enable our customers to develop and build new products. We have mechanisms in place to be able to scope and deliver on what DIAM might ask us for next. We work closely with DIAM – and all of our customers – to ensure that their priorities are ours, and vice versa."

Regardless of the size of the microprocessor, price and performance are always the issue. Altia helps DIAM meet those imperatives across a diverse set of microprocessors and for a full spectrum of vehicles, from luxury to economy.

"Altia caters to complicated requirements and limited resources," said Pham. "From ATR and JPEG features to tinting, Altia products give us a lot of design flexibility because of the huge memory savings its platforms provide."



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## A Relationship built on support

DIAM continues to rely on Altia's customer support as a cornerstone of its relationship. "If we see something that is not up to expectations, we raise a support ticket and Altia is able to provide a fix quickly," stated Yong Li Chen, DIAM Manager of Software Engineering, adding that Altia offers onsite support whenever necessary. "When we need more optimization or assistance to debug an issue, we can send our model to Altia and their team provides us with a solution. Their help allows us to maximize our capabilities."

Altia is committed to assisting DIAM, and the OEMs it serves, with the highest-class, best looking HMIs in all classes of vehicles. DIAM's use of Altia has resulted in their

products in over a dozen vehicle lines totaling millions of instrument clusters. Altia has also helped DIAM place its graphics in one of the most important and best-selling vehicles in North America—a point of pride for both firms.

"We helped DIAM to grow its presence in that vehicle from a small graphics display to a big eight-inch display," noted Taylor, describing the OEM part. "DIAM has built this delivery excellence around Altia. It is great to see those who have trusted your company and support be promoted two or three times within DIAM and remain such great partners for us."

## Contact Us

For more information about how Altia can help you get your next great GUI into production, visit [www.altia.com](http://www.altia.com) or email [info@altia.com](mailto:info@altia.com).

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