## Acsia

Technology that drives Tomorrow

# Breaking New Ground in High-End Digital Instrument Cluster Market

Here is how Acsia entered the high-end digital instrument cluster market, leveraging advanced boot time optimization and humanmachine interface development to significantly enhance functionality and user experience for a global automotive supplier.

### **Technology & Business Landscape**

The quest for offering a top-notch driving experience to customers has always been the driving force behind continuous innovations in the automotive industry. A critical question posed was: "Is it possible to develop a Linux-based IC/IVI that boots up in just one second?" This challenge was paramount as OEMs sought solutions to significantly enhance digital instrument clusters, offering improved functionality and interactive experiences that boost driving safety and comfort.

### **Key Trends**

#### Boot Time Optimization

Automotive manufacturers are striving to achieve faster boot times for IC/IVI systems, aiming to reduce industry norms from 10-30 seconds to less than 5 seconds.

#### Advanced Human-Machine Interfaces (HMI)

The adoption of sophisticated HMI technologies, such as Rightware Kanzi, is crucial for creating seamless and intuitive user interfaces in digital clusters, infotainment systems, and heads-up displays (HUDs).

#### **Real-Time Graphics and Performance**

There is a growing need for real-time graphics rendering on constrained hardware platforms, driven by the desire to deliver high-quality animations and visual effects without compromising performance.

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### **Customer Problem Statement**

A European Tier-I automotive supplier faced multiple challenges:

#### FastBoot Development

Required a Linux-based IC/IVI system with a boot time of just 1 second, a significant reduction from industry norms.

#### Kanzi Expertise

Needed deep expertise in Kanzi for developing advanced digital instrument clusters.

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#### **Animation & Boot Time Issues**

Struggled with animation glitches and poor boot-up performance in a Kanzi-based instrument cluster for a sports car.

### **Acsia Solution**

Acsia was selected due to their proven expertise in Boot Time Optimization and HMI development using Rightware Kanzi.

#### FastBoot Solution

- Reduced boot time from 20 seconds to 6 seconds by optimizing Bootloader and Kernel configurations.
- Further reduced to 4.6 seconds by customizing the boot loader and optimizing the Kernel.
- Achieved a 1.2-second boot time using innovative, proprietary techniques.

#### Kanzi-Based HMI Development

- Acsia's team underwent advanced training in Kanzi at Rightware, Finland, earning the Rightware Partner title.
- Built a strong partnership with Rightware, enhancing their expertise in Kanzi for IC development.

#### European Sports Car Project

- Resolved a long-standing animation glitch within a week.
- Reduced boot-up time from 7.5 seconds to 4.5 seconds in three months.

#### North American Cluster Program

- Developed the full instrument cluster software stack and HMI layer in Kanzi for five variants.
- Implemented a "Problembased Training" methodology for efficient team ramp-up.
- Took on complete development responsibility, including sprint planning, handling change requests, and bug fixing.

### **Business Outcome & Impact**

#### Achieved Faster Boot Times

Delivered a boot time of 1.2 seconds, setting a new industry standard.

#### Enhanced Customer Experience

Solved critical animation and boot performance issues, meeting OEM targets and improving user satisfaction.

#### Successful Project Completion

Helped the Tier-I supplier meet critical production milestones, ensuring timely vehicle rollouts.

#### Strengthened Partnerships

Built a strong relationship with Rightware and established Acsia as a trusted problem solver in the automotive software domain.

### **Key Learning**

#### Deep Expertise in Boot Time Optimization

Demonstrated ability to significantly reduce boot times through innovative techniques.

#### Mastery of Kanzi for HMI Development

Advanced training and partnership with Rightware enhanced Acsia's capabilities in developing sophisticated digital clusters.

#### Effective Problem-Solving

Successfully resolved complex technical issues quickly, establishing a reputation for reliability and expertise.

#### Efficient Team Ramp-Up

Implemented effective training methodologies to quickly scale up and meet project demands.

#### Complete Development Responsibility

Proven capability to handle comprehensive development tasks, from planning to execution, ensuring project success.

### **Expert Speak**



Anil S VP Delivery

Our success in resolving complex challenges for the Tier-I supplier, from fixing animation glitches to optimizing boot-up performance, is a testament to Acsia's capability in managing high-stakes projects. By efficiently ramping up our team and maintaining seamless project execution, we not only met but exceeded our client's expectations. This reinforces our position as a reliable and innovative partner in the automotive industry."



Vasantharaj G VP Technology

"Our venture into Kanzi-based HMI development was driven by a clear vision to excel in the global automotive market. The advanced training our team underwent in Finland and the strong partnership we built with Rightware enabled us to master this cutting-edge technology. Our ability to swiftly resolve critical issues and enhance the performance of digital instrument clusters demonstrates our technological prowess and dedication to delivering superior solutions."

#### About Acsia Technologies

Acsia is a global leader in automotive software powering Digital Cockpits & Displays, e-Mobility, and Telematics. We use our expertise to develop solutions that simplify complex problems and create safer, sustainable, and more compelling driver and passenger experiences. With a presence across the United States, Germany, Sweden, Japan, and India, we collaborate with top carmakers and Tier-I suppliers.



