FACT SHEET

In-Vehicle Infotainment

Why HARMAN?
Shortening Time-to-Market
Shorten your time from concept to delivery using our best practices, turn-key delivery models and rich talent pool.

Cross-platform
Take advantage of our experience in multiple industry verticals and leading platforms to rapidly exploit new market opportunities.

Global delivery footprint
Our skilled, talented engineers deliver solutions to companies like yours from centers throughout the world.

Solution accelerators
Get access to leading edge innovation and best practice by using our solution accelerators and global pool of partnerships.

HARMAN AUTOMATED UI DEVELOPMENT SUITE FOR AUTOMOTIVE

Create State-of-the-art HMI for Vehicles Effortlessly
Consumers have grown to expect the same type of connectivity that is provided on their mobile devices in their vehicles as well. Additionally, they expect an integrated experience across all the screens in the vehicle. In order to facilitate this type of rich user experience, Harman offers a new development suite.

Harman’s Automated UI Development Suite for Automotive assists in the creation of connected, multi-screen, adaptive and secure In-Vehicle Infotainment (IVI) systems. It provides the following components:

- **HMI Framework** – Provides a pre-established sub-system with a flexible architecture that allows the user to develop HMI more expediently while creating better user experiences.
  - Includes multi-screen support, allowing a unified user experience across all digital displays in the vehicle.
  - Supports rapid iterative design/deploy cycles so the HMI may evolve through time.
  - Permits reusable HMI business logic across different vehicle models and brands.

- **Tool Chain** - Allows the OEM to take and trace the end-to-end HMI process (leveraging Enterprise Architect, Doors Axure and Qt Creator, with additional plugins for code auto generation and UI design).

- **Software Development Tool Kit (SDK)** - Supports multi display solutions for the center display and rear seat entertainment systems using an HMI server.

- **Applications** - Provided as separate (downloadable) modules.

**Top-line Benefits**

- Allows multiple HMI to be developed based on the same state and business logic hence maximizing re-use as the platform evolves.
- Is flexible and supports various distributed system architectures like; Multi-SoC and Single SoC with Hypervisor.
- Creates stunning, high-performing and quickly adaptable UIs by allowing maximum HMI re-use at the requirements, wireframe and software development stages.
- Empowers rapid, continuous development that includes simulation, development on target devices and validation with test cases.
- Uses best in class tool chains to meet rapid, agile HMI development.

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### Features and Benefits

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<tr>
<th>Multi-Screen Strategy</th>
<th>GUI Presentation Layer acts like a HMI Server. To scale the number of displays simply add more HMI processes with a specified display resolution.</th>
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<tr>
<td>One Business Logic, Multiple HMIs</td>
<td>Allows multiple HMIs to be developed based on the same state/business logic thereby maximizing re-use of code.</td>
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<td>Single Code base</td>
<td>Permits OEMs to completely reuse their HMI for multiple brands but build the business logic just once.</td>
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<td>One-stop solution supporting end-to-end HMI development</td>
<td>Framework has abundant built-in function modules, including 2D/3D graphical interface, multimedia, online communication, data storage, web engine, Bluetooth and GPS which reduces the cost and risk of technology selection and procurement.</td>
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<td>Reduces development time</td>
<td>Professional UI design tool enhances cooperative work between designers and engineers, which significantly reduces the development period.</td>
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<td>More efficient development, less design Complications</td>
<td>Pre-built optimization software stack has realized direct deployment of particular development panel applications which significantly reduces development time in early environment configuration and deployment in embedded development environments.</td>
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<td>More artistic, stereoscopic and vivid interface</td>
<td>Abundant 3D and animation graphics as well as tables, and it also supports OpenGL ES 2.0 3D graphic system providing a better user experience.</td>
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### Partner with an industry expert

HARMAN Connected Services, a leader in software design and development, helps global brands dramatically reduce time-to-market while improving quality and productivity. Our end-to-end software engineering, IoT and data analytics services enable the world’s top automotive, mobile and communications and software-enabled businesses drive innovation-led growth. Via our over-the-air (OTA) software update, virtualization and device management solutions we keep billions of mobile, automotive and IoT devices of all sizes and complexity continuously and reliably relevant and secure. The mobile devices and intelligent systems that we power are connected, integrated and protected across all platforms and reach every corner of today’s digital world. HARMAN Connected Services is a division of HARMAN (NYSE:HAR), the leading global infotainment, audio and software services company.

For more information on Harman or the new Automated HMI Design Tool developed with Qt, go to [http://services.harman.com/Industries/automotive-connected-car](http://services.harman.com/Industries/automotive-connected-car) today.