

NXP Automotive and Rovi Corporation

At-A-Glance

Challenges: NXP Automotive was building a chip platform that in the future would offer new digital media options in the automobile, but they needed software that would enable the media to be played not only on different devices, but on devices that were made by different manufacturers.

Solution: NXP Automotive decided to partner with Rovi because of their proven, interoperable software and because Rovi is also a promoter of DLNA standards. Rovi's Media Player and Media Server software stack is being used in NXP Automotive's reference design to demonstrate the future solutions.

Benefits: With Rovi's DLNA compliant Connected Platform SDK, NXP Automotive can give real-time demonstrations that showcase the exciting future of multimedia in the automobile.

Customer Profile: NXP is a top 10 semiconductor company founded by Philips more than 50 years ago. Headquartered in Europe, the company has 37,000 employees working in more than 20 countries and posted sales of \$5 billion in 2006. NXP creates semiconductors, system solutions and software that deliver better sensory experiences in mobile phones, personal media players, TVs, set-top boxes, identification applications, cars and a wide range of other electronic devices. News from NXP is located at www.nxp.com.

Imagine being able to automatically synchronize the music in your car with your catalog of music at home. Visualize driving into your garage, knowing the tunes in your car are synchronizing with the devices that connect with your home stereo system as you park. Downloads, file transfers and uploads to your devices would be automatic; just a flip of the switch on your home stereo or personal computer and the music you just enjoyed in your car could now be played in your home.

Now imagine listening to your favorite play list of music on your mobile phone and having it connect wirelessly and automatically with your car's stereo system when you get into your car. Without plugging your phone into the radio or any other piece of physical media in the car, the songs on your mobile phone play seamlessly from your car's speakers.

Next, think wireless for the road trip of the future where one passenger can watch a movie that's being streamed over the air through a TV network, and a second passenger can watch favorite cartoons sourced from the Digital Video Recording at home. No DVDs needed, and discord over who gets to choose a movie first is a thing of the past.

These exciting wireless scenarios and others are being developed by NXP Automotive & Identification (NXP Automotive), a business unit within \$5 billion NXP Semiconductor (NXP). With these scenarios, the NXP Automotive team is on a leading edge innovative path to create new avenues for how consumers can access and enjoy digital media on different devices that sit in their automobile, their home and on their mobile phones.

And they are partnering with Rovi and other companies around the world to make it all happen.

"As consumers discover all they can do with their connected digital home, they'll decide they'd also like similar options for their cars and mobile phones," said Miguel Stief, marketing manager – Car Infotainment, NXP Semiconductors. "It's exciting to consider all the possibilities there can be for viewing and sharing digital media in the automobile; it's our goal to turn many of these possibilities into a reality."

According to NXP, the scenarios are planned for reality when NXP Automotive's PNX9520 chip – that's being enhanced with special software stacks to power the specific scenarios – joins with other software, hardware and wireless networking devices. The combination is being designed to create the automobile industry's newest technology wave of multimedia options.



Partnering to Support DLNA Standards and Advance Digital Media Enjoyment in the Automobile

One essential new software stack on the PNX9520 chip platform is the connectivity piece – the technology that will enable the digital media not only to play on different devices, such as the car stereo and the mobile phone, but also to play on the devices even if they're made by different manufacturers.

This is where Rovi's software comes into play because Rovi offers both ready-made middleware solutions and a software tool kit that allows for customization as needed.

Other factors that pointed NXP Automotive to Rovi and its Connected Platform:

- They knew Rovi was partnering successfully with other NXP business units and had familiarity with NXP's chips and platforms.
- They knew Rovi's Connected Platform Software Development Kit (SDK) was proving successful in those ventures. The Media Player and Media Server software stacks, which are part of this SDK, were suited to build the use cases that NXP desired.
- They also knew Rovi was a Digital Living Network Alliance® (DLNA) promoter and built its Connected Platform to the DLNA guidelines.

A significant part of NXP's partnership with Rovi centers around both companies' commitment to develop products to meet DLNA guidelines.

"Knowing [Rovi] will provide the connectivity piece gives us confidence that we're going in the right direction. But the real sweet spot is having a partner who believes as much as we do in DLNA standards. We're sending a much stronger message by working together to support DLNA than if we were to do it separately," added Stief.

To showcase to customers what the future will hold, the NXP Automotive team built a reference design. Rovi's Media Player and Media Server software stack are part of the reference design, sitting on NXP's PNX9520 chip. The solutions were ported onto the PNX9520 chip by Rovi's engineers who worked with the NXP Automotive

technical team to ensure compatibility between the two companies' technologies.

The NXP Automotive team has been using the reference design to give demonstrations at industry events and customer meetings, complete with the various software, hardware and wireless components needed to show, for example, how a movie on a mobile phone can appear within seconds on a car's media screen.

"Having [Rovi's] solutions on our chip to demonstrate the DLNA connectivity between the different devices is helping us spotlight our upcoming product and the power of supporting DLNA standards," stated Stief.

And giving real-time demonstrations has underscored the power of observation. Potential customers and interested viewers can see for themselves just what it will be like to have an automobile with wireless devices that recognize, play and share digital media regardless of their brands.

"Talking about how DLNA connectivity will make these scenarios a possibility is nowhere near as powerful as showing a live demonstration where digital media is shared within seconds between devices made by different manufacturers," said Stief. "We'll take a picture with a mobile phone of attendees at an event watching our demo, and less than 15 seconds later that picture appears on a nearby automobile screen. We couldn't do that without [Rovi's] DLNA-supported Connected Platform SDK. The result is powerful."

The NXP Automotive target markets for its PNX9520 chip are automobile OEMs and car radio manufacturers, specifically those who design their products based on DLNA guidelines. Rovi and NXP Automotive teams will continue to work together and, as partners in the true sense of the word, both companies remain committed to supporting DLNA standards.

According to Stief, the future looks very bright. "We want to say goodbye to brand boundaries and give consumers more flexibility and options to view their multimedia. That's where digital media is heading."

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