

i.MX Applications Processors

# Smart Application Blueprint for Rapid Engineering (SABRE)

Platform for automotive infotainment based on i.MX53



## Overview

Freescale delivers performance and design flexibility with its Smart Application Blueprint for Rapid Engineering (SABRE) platform for automotive infotainment based on the i.MX53 family of automotive applications processors. A high-performance, market-focused development system, the SABRE platform for automotive infotainment offers a solid foundation for next-generation converged telematics and infotainment platform designs. The i.MX53 family of automotive applications processors represents Freescale's next generation of advanced multimedia and power-efficient implementation of the ARM® Cortex®-A8 core for the automotive market. With core processing speeds up to 1 GHz as well as a high-level integration, the SABRE platform for automotive infotainment enables customers to recreate today's consumer user experiences in the car.

A range of highly flexible connectivity options makes the i.MX53 SABRE platform for automotive infotainment ideal for developing many different types of advanced infotainment and telematics applications. The platform is designed to support many off-the-shelf peripherals for automotive systems, such as terrestrial and satellite radio tuners, Wi-Fi®, Bluetooth®, GPS, cellular modem, iAP authentication modules, MOST and CAN vehicle networking, cameras and displays. It is also a modular platform, allowing customers to integrate the AI platform i.MX53 CPU card into their own systems to rapidly prototype solutions with a custom peripheral set.

## Flexibility

- Explore multiple connectivity options through support of common automotive system peripherals via dedicated headers
- Investigate advanced video and graphics use cases through the i.MX53's hardware accelerated high-definition video processing unit and OpenGL® ES 2.0 and OpenVG™ 1.1 dual graphics accelerators
- Use proven design examples and software drivers to reduce hassles associated with design-in of key connectivity options
- Enable rapid prototyping of human-machine interfaces (HMI) running in the full system or CPU card standalone mode
- Develop automotive network connectivity applications using the on-board CAN and MLB peripherals

## Performance

The i.MX53 SABRE platform for automotive infotainment offers system designers access to key features required for an end design, enabling rapid development of advanced in-car applications. When combined with third-party production-ready software components, an optimized OS and a system-validated board support package, designers have the tools to test and maximize the performance of the applications they have developed.

The i.MX53 family of automotive applications processors is ideally suited for development of infotainment and telematics applications with the capability to run up to 1 GHz with a 400 MHz external memory interface supporting common DDR2, LP-DDR2 and DDR3 memories. Dual display applications are also supported by the platform using the i.MX53's on-board low-voltage differential signaling (LVDS) interface. High-performance, multi-channel audio and audio mixing applications are supported using the on-board enhanced serial audio interface, multiple I<sup>2</sup>S (I/O) and a hardware asynchronous sample rate converter. Multimedia applications are also supported via the i.MX53's dual graphics processors as well as the video processing unit, capable of supporting full 1080p video decode with minimal CPU loading.

## Personality

Freescale's i.MX53 SABRE platform for automotive infotainment allows designers to quickly prototype custom applications using multiple on-board interfaces, giving confidence to project decision makers that the application is that much closer to production. Programmers can develop user-interactive software and render product-specific graphics on the MCIMX-LVDS1 display module—a high-quality touchscreen-enabled, high-resolution LCD, available

as an add-on module to the SABRE platform for automotive infotainment. With the Freescale i.MX53 SABRE platform, prototyping and development are simplified to reduce time to market.

## SABRE Platform for Automotive Infotainment Based on the i.MX53 CPU Card

- i.MX53 automotive applications processor running up to 1 GHz
- 1 GB x 32 DDR3 running up to 400 MHz (800 MHz DDR)
- 32 MB 16-bit parallel NOR flash
- NAND flash socket
- LVDS output
- VGA output
- SD card interface
- High-Speed USB (OTG) interface—pin configurable as OTG, host or slave
- 1.5 Gb/s SATA interface
- Ethernet interface
- JTAG and UART interfaces
- Capable of running standalone on common 5 V power supply
- 281 card edge MXM connector for main board connection

## SABRE Platform for Automotive Infotainment Based on the i.MX53 Main Board

- Second LVDS output
- Multi-channel audio codec and I/O for up to eight channel outputs, one stereo line input and two microphone inputs
- SPDIF receive interface
- iAP module connector
- De-serializer input for video/camera input
- Triple video DAC with analog video inputs for video/camera input

- Dual USB host connectors
- SiriusXM radio module connector
- Broadcast tuner module connector
- GPS module connector (UART)
- MLB25/50 INIC connector
- Low- and high-speed CAN interfaces
- Bluetooth module connector (I<sup>2</sup>S + UART)
- SD card interface (Wi-Fi modules or data cards)
- 16-bit parallel expansion header
- 12 V DC input (powers main board and CPU card when connected)

## Freescale Connect Partner Program

The Freescale Connect partner program is your essential source for embedded designs based on Freescale solutions. The program comprises a global network of independent engineering companies that offer the vital tools, software, technology, engineering services and training to speed your design. From reference boards to optimized software, Freescale Connect provides a powerful and comprehensive ecosystem that partners with you in making the world a smarter, more connected place. Learn more at [freescale.com/partners](http://freescale.com/partners)

## i.MX53 SABRE Platform for Automotive Infotainment



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