i.MX Applications Processors

SABRE Platform for Automotive Infotainment

Based on the i.MX 6 Series



Overview

Freescale delivers the ultimate in performance and design flexibility with the Smart Application Blueprint for Rapid Engineering (SABRE) for automotive infotainment based on the i.MX 6 series of automotive applications processors. A high-performance, market-focused development system, the SABRE for automotive infotainment offers a solid foundation for next-generation automotive multimedia platform designs. The i.MX 6 series represents our most scalable implementation of the ARM® Cortex™-A9 CPU cores for the automotive market. With pin-compatible single-, dual- and quad-core offerings and processing speeds up to 1 GHz, as well as a high level of automotive-specific integration, the SABRE for automotive infotainment enables customers to rapidly deploy today's consumer user experiences in the car.

A range of highly flexible connectivity options makes the SABRE 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:

- cameras and displays
- terrestrial and satellite radio tuners
- Wi-Fi, Bluetooth, GPS modules
- cellular modems
- smartphone authentication modules
- MOST 25/50 connectivity modules
- BroadR-Reach® Ethernet AVB modules

It is also a modular platform, allowing customers to integrate the platform CPU cards into their own systems to rapidly prototype solutions with a custom peripheral set.

Flexibility

- Explore multiple connectivity options through support of common automotive peripherals via dedicated headers
- Investigate advanced video and graphics use cases through the i.MX 6 series high-definition video processing unit and Triple Play graphics accelerators
- Use proven design examples and software drivers to reduce development time associated with design-in of key connectivity options
- Enable rapid prototyping of human-machine interfaces (HMI) running in the full system or with only the CPU card in standalone mode
- Develop automotive network connectivity applications using the on-board CAN, MLB and Ethernet AVB peripherals

Performance

The SABRE 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 and a system-validated operating system board support package (BSP), designers have the tools to test and maximize the performance of the applications they have developed.

The i.MX 6 series of automotive applications processors is ideally suited for development of scalable infotainment and telematics applications. Processor capability ranges from a single ARM Cortex-A9 core at 800 MHz up to a quad-core implementation at up to 1 GHz, with two dual-core variants each with varying levels of graphics performance. Dual and quad display applications are also supported by the platform using i.MX 6 series on-board low-voltage differential signaling (LVDS) and parallel display interfaces. High-performance multi-channel audio and audio mixing applications are supported using the on-board ESAI (enhanced serial audio interface), multiple I²S ports and a hardware asynchronous sample rate converter. Multimedia applications are also supported via the i.MX 6 series 3D graphics processors rated from 27 to 176 million triangles per second with independent OpenVG and composition processing. High-end multimedia use cases are supported via the i.MX 6 series video processing unit, capable of supporting full 1080p video encode and decode with minimal CPU loading.

Personality

The SABRE for automotive infotainment series allows designers to quickly prototype custom applications using multiple onboard interfaces, giving decision makers confidence that the application can progress quickly to

production. Programmers can develop user interactive software and render product-specific graphics on the MCIMXLVDS1 display modules—a high-quality touch screen-enabled, high-resolution LCD, available as an add-on module to the SABRE for automotive infotainment. Prototyping and development are simplified to reduce time to market.

SABRE Platform for Automotive Infotainment Based on the i.MX 6Quad or i.MX 6DualLite CPU Card

- i.MX 6Quad processor running up to 1 GHz or i.MX 6DualLite processor running up to 800 MHz
- i.MX 6Quad and i.MX 6DualLite can be configured as an i.MX 6Dual and i.MX 6Solo processor respectively for lower CPU load applications
- 2 GB DRAM running up to 533 MHz (DDR3-1066), 64-bit bus: i.MX 6Quad CPU Card
- 2 GB DRAM running up to 400 MHz (DDR3-800), 64-bit bus: i.MX 6DualLite CPU Card
- 32 MB 16-bit parallel NOR flash
- NAND flash socket
- LVDS LCD output
- HDMI display jack
- MIPI CSI connector
- SD card slot
- High-Speed USB (OTG) interface, pin configurable as OTG, host or slave
- 1.5 Gb/s SATA interface (i.MX 6Quad only)
- Ethernet daughter card connector for the following support:
  - Atheros Gigabit Ethernet PHY card (included in SABREAI kit)
  - Broadcom® BroadR-Reach Ethernet PHY or switch card (ordered separately)
- JTAG and UART interfaces
- Capable of running standalone on common 5 V power supply
- 281 card edge MXM connector for base board connection

SABRE for Automotive Infotainment Based on the i.MX 6 Series Base Board

- Second LVDS LCD 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
- I^2C module connector
- De-serializer input for video/camera input
- Triple video DAC with analog video inputs for video/camera input
- USB host connector
- SiriusXM® radio module connector
- Broadcast tuner module connector
- GPS module connector (UART)
- MLB25/50 INIC interface
- Low- and high-speed CAN interfaces
- Bluetooth module connector (I^2S + UART)
- SD card slot (Wi-Fi® modules or data cards)
- 12 V DC power supply (powers base board and CPU card when connected)



SABRE for Automotive Infotainment Based on i.MX 6 Series

freescale i.MX

For current information about Freescale products and documentation, please visit freescale.com/SABREAI

Freescale, the Freescale logo and the Energy Efficient Solutions logo are trademarks of Freescale Semiconductor, Inc., Reg. U.S. Pat. & Tm. Off. ARM is a registered trademark of ARM Limited. ARM Cortex-A9 is a trademark of ARM Limited. All other product or service names are the property of their respective owners. © 2012, 2013, 2014 Freescale Semiconductor, Inc.

Document Number: IMXSABREAI2FS Rev 0