The emergence of automotive audio bus technology
The A²B standard is fast becoming a critical technology for the advancement of vehicle infotainment systems. The A²B bus standard is an in-vehicle networking alternative to legacy multimedia focused bus systems such as Media Oriented System Transport (MOST). In addition to its obvious advantage of replacing legacy cable systems and reducing complexity through a simple, unshielded, twisted-pair (UTP) cable, it also transports high-quality audio to over 32 discrete channels – anywhere throughout the interior of a vehicle. In contrast to other bus technologies, the A²B digital system is deterministic, which makes it ideal for applications such as voice recognition, in-car communications, and active noise cancellation (ANC).

Automotive grade hardware and tools for the A²B bus standard
By leveraging its extensive automotive system design expertise and working in close collaboration with Analog Devices Inc., Mentor® Automotive has developed a comprehensive set of hardware and software solutions to help developers quickly test and analyze audio systems for the A²B standard.

The Mentor Automotive A²B Analyzer System is an integrated development and validation solution enabling the simulation and analysis of a complete A²B network. The A²B Analyzer System consists of the following components:

A²B Analyzer hardware
The A²B Analyzer is a compact USB 2.0 device designed for plug-n-play compatibility. With a small form-factor, the device affords portability and enables usage in multiple environments – from development on an engineer’s bench to in-vehicle testing. Powered via a USB 2.0 connection, the device supports a variety of audio and general-purpose ports:

PRODUCT FEATURES:
- Master or Slave node simulation
- Analog and digital source and sink to the A²B bus
- Node-level bit-perfect audio data capture/playback
- Node-level I²C data capture
- Support for A²B diagnostics and error management
- Seamless operation with A²B network stack for plug-in development
- All digital standard codec support
- Low MIPS/CPU overhead
- Compatible with AD241x/AD242x transceivers
- Available ASIO Driver support
- Supported on Windows and Linux platforms

MULTIPLE USE MODELS:
- Engineering
- Test & Validation
- Production
- Demo Development

BENEFITS:
- Quickly simulate nearly any kind of A²B device
- Enables rapid deployment of A²B compliant systems
- Extensive debug and diagnostic capability
- Cost reduction through automating test setups
- Improved audio component reliability through comprehensive testing
- Flexible development and testing platform
- Audio, command and control over USB
- 3.5mm stereo jacks
- Digital audio I/O
- Optical S/PDIF
- I²C
- GPIO
- Tri-colored LEDs
- CAN expansion

The device can be easily daisy-chained with other A²B Analyzers, or A²B standard compatible audio devices, to emulate a real-life, master-slave based audio network.

The A²B Analyzer SDK
The A²B Analyzer System includes a software development kit (SDK) to help users create custom test applications to suit their unique needs. The SDK contains libraries, build and header files, comprehensive API documentation, and sample applications to enable developers get up and running quickly.

A²B network configuration and node simulation tools
The process of discovery, configuration, and node simulation is greatly simplified via the easy-to-use GUI-based tools. As a first step, the A²B configuration tool allows users to quickly discover an entire A²B network at the push of a button. In addition, the tool enables developers to quickly configure, optimize, and analyze A²B streams, nodes, and networks. The powerful node simulation tool provides significant versatility in terms of audio routing to the various nodes in the A²B network. In addition, the tools also support the network diagnostics and robust error management schemes that are a part of the A2B technology. Lastly, the optional ASIO Driver add-on enables seamless operation with compatible professional audio processing clients such as AudioMulch, REAPER, and Adobe Audition etc.

More about Mentor Automotive
Mentor Automotive provides a leading portfolio of automation design tools and software, built on deep expertise in systems engineering, to help customers solve the most complex design challenges facing the industry. Solutions reside in three key areas for automotive electrical and electronic design: connectivity and networking; in-car experience; and subsystems and technology.

For the latest product information, please visit: www.mentor.com/embedded-software/xse-automotive/a2b