

# AD2426W/AD2427W/AD2428W

## Enhanced Automotive Audio Bus Transceivers



### Overview

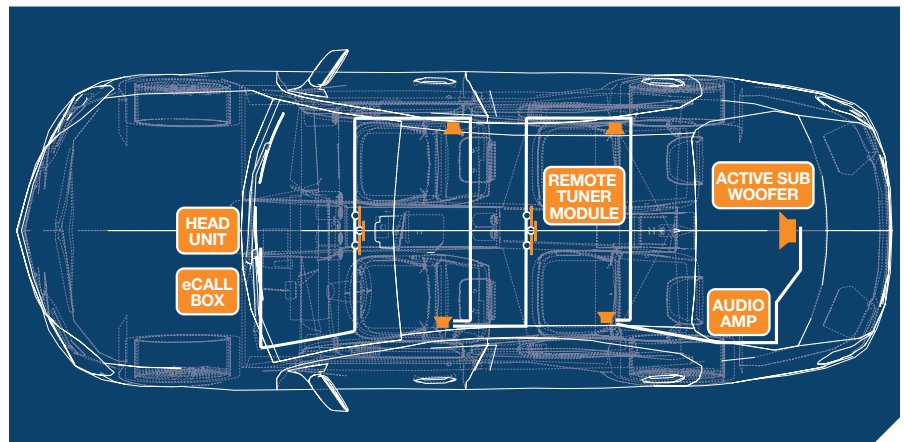
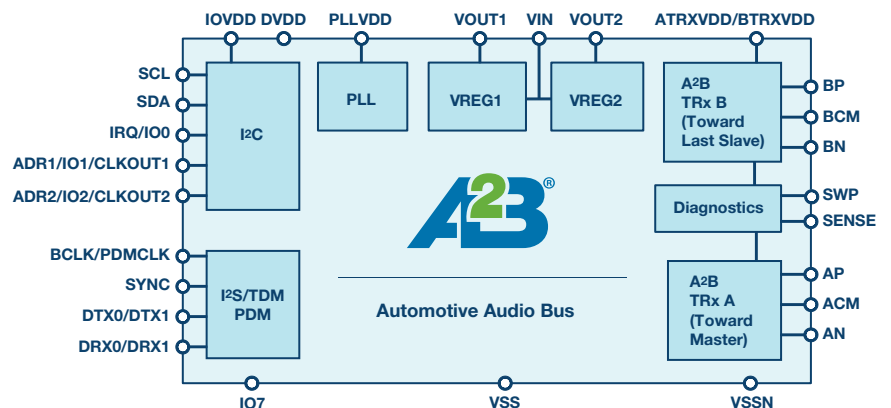
Automotive Audio Bus® technology provides a multi-channel, I<sup>2</sup>S/TDM link over distances of up to 15 meters between nodes. It embeds bidirectional synchronous data, clock, control data, and a power supply onto a single, differential wire pair. A<sup>2</sup>B® supports a direct point-to-point connection and allows multiple daisy-chained nodes at different locations to contribute or consume time division multiplexed channel content. A<sup>2</sup>B is a single master, multiple slave system where the transceiver chip at the host controller is the master. It generates clock, synchronization, and framing for all slave nodes. The master A<sup>2</sup>B chip is programmable over a control bus (I<sup>2</sup>C) for configuration and readback. An extension of this control bus is embedded in the A<sup>2</sup>B data stream, allowing direct access of registers and status information on slave transceivers, as well as I<sup>2</sup>C-to-I<sup>2</sup>C communication over distance.

### Target Applications Include

- ▶ Audio ECU communication links
- ▶ Active noise cancellation (ANC)
- ▶ Road noise cancellation (RNC)
- ▶ Microphone arrays for hands-free, in-car communications and eCall systems

### Simple and Cost-Effective Architecture for Emerging Applications

- ▶ Digital audio; single, low cost, unshielded twisted pair (UTP) wire transports audio, control, clock, and power

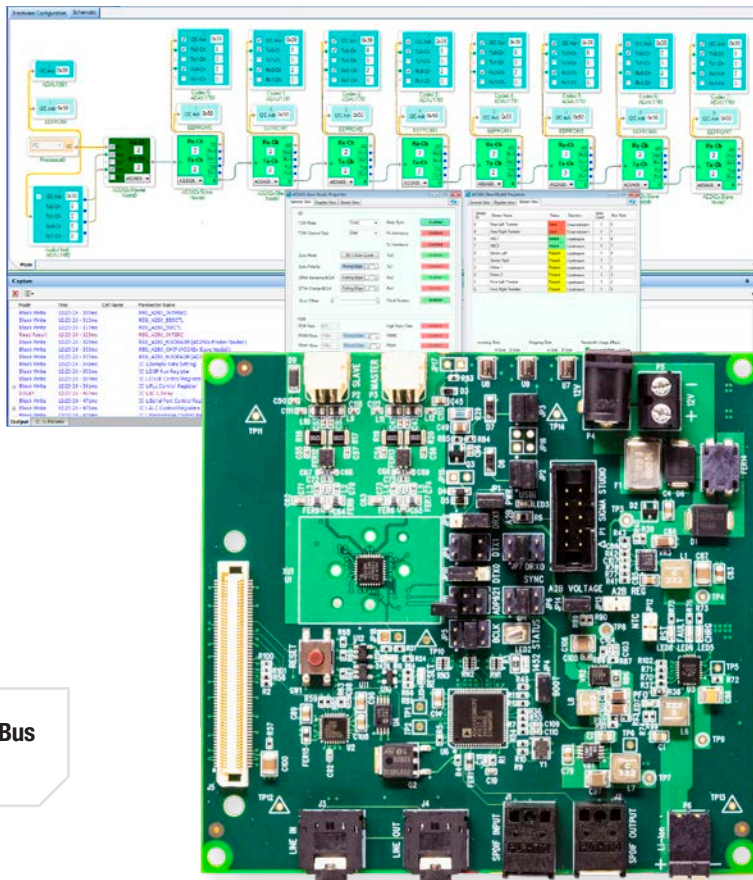


## Features and Benefits

High bandwidth (50 Mbps) digital bus	Support for up to 32 upstream and downstream audio channels
Data, control, clock, plus power on a single wire pair	System cost reduction using low cost, UTP cable
Single master, multiple slave, line topology	Daisy-chaining supported with zero processor overhead
Phantom power capability	Eliminates the need for local power supplies
Embedded diagnostics	Easy system-level fault detection and correction
Fully configurable via SigmaStudio™ graphical design environment	Fast time to market

## SigmaStudio Graphical Design Environment

- ▶ Visual bus setup and stream-based network design
- ▶ Intuitive graphical user interface to configure the bus
- ▶ Export/import of streams, nodes, and bus configuration
- ▶ Extensive debug and tracing support
- ▶ Bus bandwidth utilization calculation
- ▶ Bit error rate test (BERT)
- ▶ Line diagnostics
- ▶ Firmware driver generation



## Multifunction Evaluation Systems

- ▶ Proof of concept
- ▶ Test and verification
- ▶ Debug, EMC testing

To learn more about the breakthrough Automotive Audio Bus technology, [watch the video](#).

## Evaluation Board Ordering Guide

Model	Description
EVAL-AD2428WB1BZ	Phantom power slave evaluation board; stereo in, stereo out, and stereo microphone
EVAL-AD2428WC1BZ	Phantom power slave evaluation board with four microphones
EVAL-AD2428WD1BZ	Master evaluation board with SigmaDSP® ADAU1452
EVAL-AD2428WG1BZ	Local power slave evaluation board; stereo in, stereo out
EVAL-AD2428WD2DZ	Master EMC board
EVAL-AD2428WG1DZ	Local power slave EMC board
EVAL-AD2428WC1DZ	Phantom power slave EMC board

## Product Comparison Guide

Feature	AD2426WCCSZ <sup>1,2</sup>	AD2427WCCSZ <sup>1,2</sup>	AD2428WCCSZ <sup>1,2</sup>
Master capable	No	No	Yes
Functional TRx blocks	A only	A and B	A and B
I <sup>2</sup> S/TDM support	No	No	Yes
PDM microphone inputs	4 mics	4 mics	4 mics
Maximum node-to-node cable length	15 m	15 m	15 m

<sup>1</sup> Z = RoHS compliant part.

<sup>2</sup> W = qualified for automotive applications.

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