

A2B BUS FEATURES

Line topology

Single master, multiple slave

Up to 10 m between nodes and up to 40 m overall cable length

Communication over distance

Synchronous data

Multichannel I²S/TDM to I²S/TDM

Clock synchronous, phase aligned in all nodes

Control and status Information

I²C to I²C

Phantom power or local power slave nodes

Configurable with SigmaStudio™ graphical software tool

Qualified for automotive applications

ADDITIONAL TRANSCEIVER FEATURES

Configurable as A²B bus master or slave (AD2403/AD2410)

I²C interface

8-bit to 32-bit multichannel I²S/TDM interface

Up to 32 upstream channels or combination with up to 32 downstream channels

I²S/TDM or PDM microphone inputs

APPLICATIONS

Automotive audio communication link

Communication network for:

Microphones/speakers

Sensor/actuator

I²C peripherals

GENERAL DESCRIPTION

The Automotive Audio Bus (A²B®) provides a multichannel, I²S/TDM link over distances of up to 10 m between nodes. It embeds bidirectional synchronous data (for example digital audio), clock, and synchronization signals onto a single differential wire pair. A²B 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. A²B 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 A²B chip is programmable over a control bus (I²C) for configuration and read back. An extension of this control bus is embedded in the A²B data stream allowing direct access of registers and status information on slave transceivers as well as I²C to I²C communication over distance.

Complete technical specifications are available for the A²B transceiver. Contact your nearest Analog Devices sales office to complete the nondisclosure agreement (NDA) required to receive additional product information.

Table 1. Product Comparison Guide

Feature	AD2401	AD2402	AD2403	AD2410
Master capable	No	No	Yes	Yes
Functional TRX blocks	A only	A + B	A + B	A + B
I ² S/TDM support	No	No	Yes	Yes
PDM microphone inputs	4 Mics	4 Mics	None	4 Mics
Maximum node to node cable length	10 m	10 m	1 m	10 m

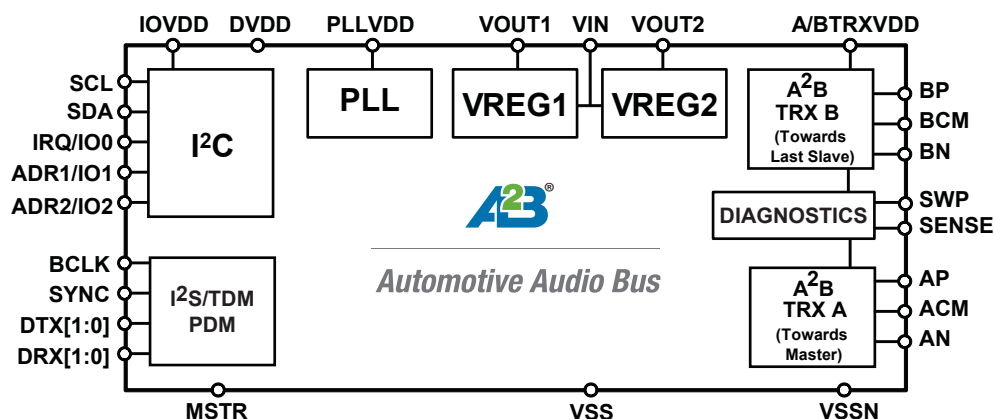


Figure 1. Functional Block Diagram

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AD2401/AD2402/AD2403/AD2410

I²C refers to a communications protocol originally developed by Philips Semiconductors (now NXP Semiconductors).

