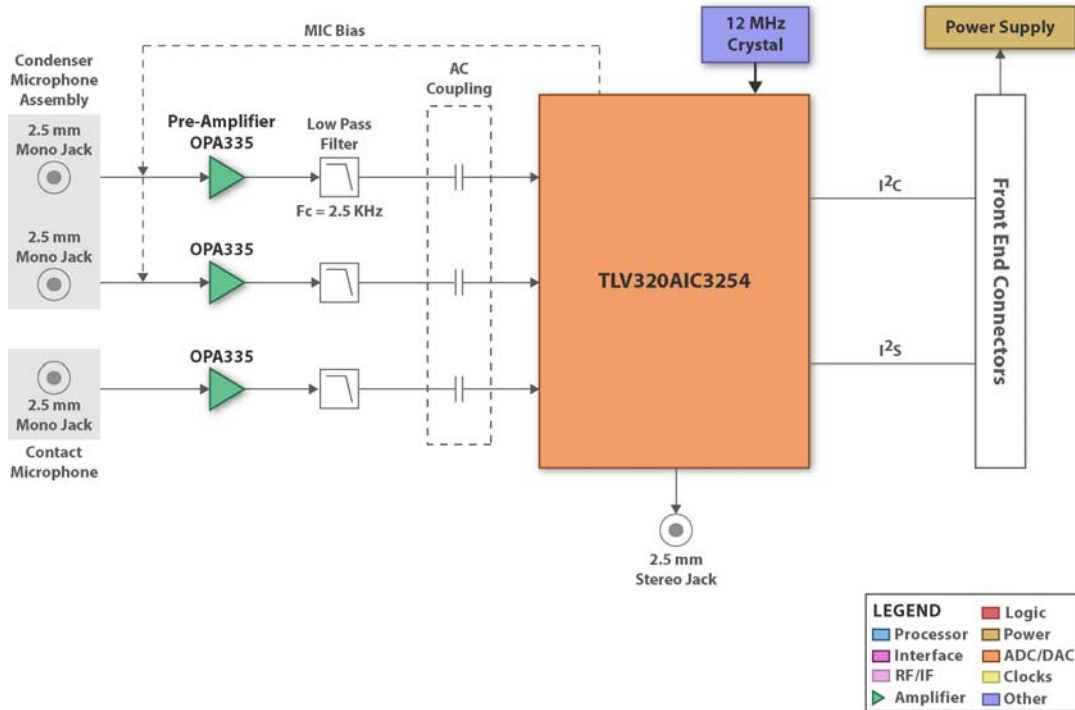


## Digital stethoscope (DS) analog front end module for the C5505 DS medical development kit

The TMDXMDKDS3254 digital stethoscope (DS) analog front end (AFE) module is part of the [DS medical development kit \(MDK\)](#), which consists of the DS AFE module, a processor board (C5505 DSP evaluation module), and a set of collateral and application software source code to implement the DS application. The DS MDK delivers a complete signal chain solution to enable developers to build an entire DS system quickly for evaluation and get to production faster.



### DS MDK features

- Audio output in three selectable modes
  - Bell mode (20Hz to 220Hz)
  - Diaphragm mode (50Hz to 600Hz)
  - Extended range (20Hz to 2000Hz)
- Three channel input, two condenser and one contact microphones
- Volume control and mute
- Real-time display of heart signal via onboard LCD and also on PC
- Store and playback option on PC side

### DS AFE module key components

- TLV320AIC3254 – flexible, low-power, low-voltage stereo audio codec with programmable inputs and outputs
- OPA335 – 0.5- $\mu\text{V}/^\circ\text{C}$ , CMOS zero-drift operational amplifier

Flexibility is the key feature of the TLV320AIC3254, as the record path contains programmable input channel configurations covering single-ended and differential setups, as well as floating inputs or mixed input signals. It also includes a digitally controlled stereo microphone preamplifier and an integrated

microphone bias. Programmable filter blocks are available that can remove audible noise that may be introduced by mechanical coupling.

The playback path of the AIC3254 offers signal processing blocks for filtering, true differential output signals, flexible mixing of the digital-to-analog converter (DAC), analog input signals, and programmable volume controls.

As the microphone output is in the range of mV, the OPA335 provides appropriate amplification of the input signal. This is achieved by AC coupling the preamplifier and including variable gain to increase the signal-to-noise ratio (SNR).

The DS AFE module can seamlessly connect through standard interface to various processor platforms, such as the [C550x EVM](#) or the OMAP35xx Zoom Development Kit.

## EVALUATION BOARD/KIT/MODULE TOOL (“Tool”) WARNINGS, RESTRICTIONS AND DISCLAIMER

### **For Feasibility Evaluation Only in Laboratory/Development Environments, Not for Medical Diagnostic Use.**

This Tool is intended solely for evaluation and development purposes. It is not intended for diagnostic use and may not be used as all or part of an end equipment product.

This Tool should be used solely by qualified engineers and technicians who are familiar with the risks associated with handling electrical and mechanical components, systems and subsystems.

### **Your Obligations and Responsibilities.**

Please consult the User’s Guide prior to using the Tool. Any use of the Tool outside of the specified operating range may cause danger to the users and/or produce unintended results, inaccurate operation, and permanent damage to the Tool and associated electronics. You acknowledge and agree that:

- You are responsible for compliance with all applicable Federal, State and local regulatory requirements (including but not limited to Food and Drug Administration regulations, UL, CSA, VDE, CE, RoHS and WEEE,) that relate to your use (and that of your employees, contractors or designees) of the Tool for evaluation, testing and other purposes.
- You are responsible for the safety of you and your employees and contractors when using or handling the Tool. Further, you are responsible for ensuring that any contacts or interfaces between the Tool and any human body are designed to be safe and to avoid the risk of electrical shock.
- You will defend, indemnify and hold TI, its licensors and their representatives harmless from and against any and all claims, damages, losses, expenses, costs and liabilities (collectively, “Claims”) arising out of or in connection with any use of the Tool that is not in accordance with the terms of this agreement. This obligation shall apply whether Claims arise under the law of tort or contract or any other legal theory, and even if the Tool fails to perform as described or expected.