C5000™ Ultra-Low-Power DSP Audio Capacitive Touch BoosterPack

Texas Instruments

Product Bulletin

For MSP430™ Value Line LaunchPad Development Kit

The Audio Capacitive Touch BoosterPack (ACTBP) is a plug-in board for the LaunchPad development kit and MSP430 Value Line microcontrollers. The kit offers a complete reference design for capacitive touch solutions, using the capacitive touch I/O ports of select MSP430 Value Line microcontrollers. This reference design allows designers to easily control the C5000 ultra-low-power DSP using TI's MSP430 microcontroller for crystal clear

playback and record of MP3 audio/voice files. Using the Audio BoosterPack, programmers realize the power and efficiency of the C5000 DSP without having to learn how to program the DSP. And the combination of the lowest standby power microcontroller (MSP430) with the lowest total power DSP (C5000) allows manufacturers to deliver ultra-low-power devices with extremely long battery life.

Key benefits

- Includes MSP430G2553IN20 Value Line microcontroller – pre-programmed with demo firmware to easily control complex DSP algorithms
- Includes the TMS320C5535 digital signal processor (DSP) – lowest active power for crystal clear audio/voice MP3 encode and decode
- Supported by a user interface for OLED display and MP3 playback/record application APIs
- Capacitive touch scroll wheel, proximity sensor and on-board LEDs
- Supported by a complete capacitive touch software library
- Stereo single-jack headset connector (supports stereo/mono headphones with built-in mic)
- microSD card with pre-programmed DSP code for MP3 playback, record and music storage (file storage)
- USB mass storage device capability for the microSD card with provided USB cable
- OLED display (monochrome, 96×16 pixels)
- Quick Start Guide included
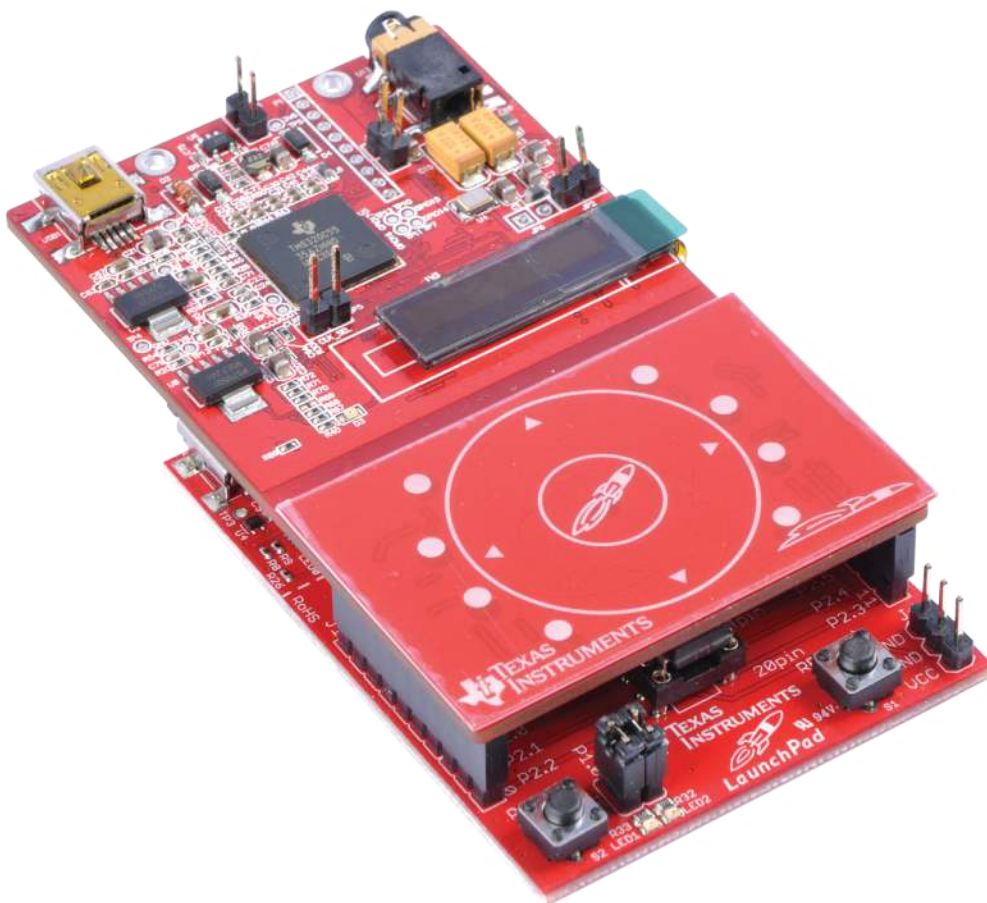
Technical Details

The Audio Capacitive Touch BoosterPack allows quick evaluation and simplified design of audio capacitive touch products and includes:

- BoosterPack board with ultra-low-power C5000 DSP for crystal clear playback and recording of MP3 audio and video files
- microSD card pre-programmed with the DSP function code -- MP3 playback, record and music storage (file storage)
- Mini-USB cable for connection with a computer to power up the system
- Stereo single-jack headset connector (supports stereo/mono headphones with built-in mic)
- Initial demo headset with integrated microphone
- MSP430G2553 Value Line Microcontroller pre-programmed with the ACTBP host demo application – this will replace the MSP430 on the separate LaunchPad (not included).
- Supported by a user interface for OLED display and MP3 playback/record application APIs
- Capacitive touch scroll wheel, proximity sensor and on-board LEDs
- Supported by a complete capacitive touch software library
- USB mass storage device capability for the microSD card with provided USB cable
- OLED display (monochrome, 96×16 pixels)
- Quick start guide

Software

Through the MSP430 LaunchPad (not included), designers can interface with integrated software environments such as Code Composer Studio version 4 or IAR Embedded Workbench. These free IDEs include an assembler, linker, simulator, source-level debugger and C-compiler to help developers integrate new and customized audio and voice applications. TI also offers a complete capacitive touch software library, enabling designers to quickly and easily prototype and test new designs.

Support

With the Audio Capacitive Touch BoosterPack designers also get unlimited access to the LaunchPad Wiki. This Wiki promotes collaboration and simple sharing of solutions and ideas, making LaunchPad along with the BoosterPack a complete development environment for audio capacitive touch designs. This active and growing online community supplements the hardware and software components of the LaunchPad and BoosterPack package and provides instant support, projects and helpful hints that will be shared through the Wiki pages and E2ETM forums.

For customers looking for extra support for the C5000 DSP, TI offers complete support by TI's extensive Developer Network, as well as a complete Chip Support Library, comprehensive application notes, reference designs, application guides, videos and online communities.

Get Started Today

Easily upgrade low-power applications with TI's new C5000 DSP-based Audio Capacitive Touch BoosterPack for the MSP430 LaunchPad development kit. For the first time, new functionalities can be enabled on the DSP and controlled solely by the MCU, including crystal clear audio capabilities.

For more information on the C5000 Audio Capacitive Touch BoosterPack, please visit **www.ti.com/audioboosterpack.**

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