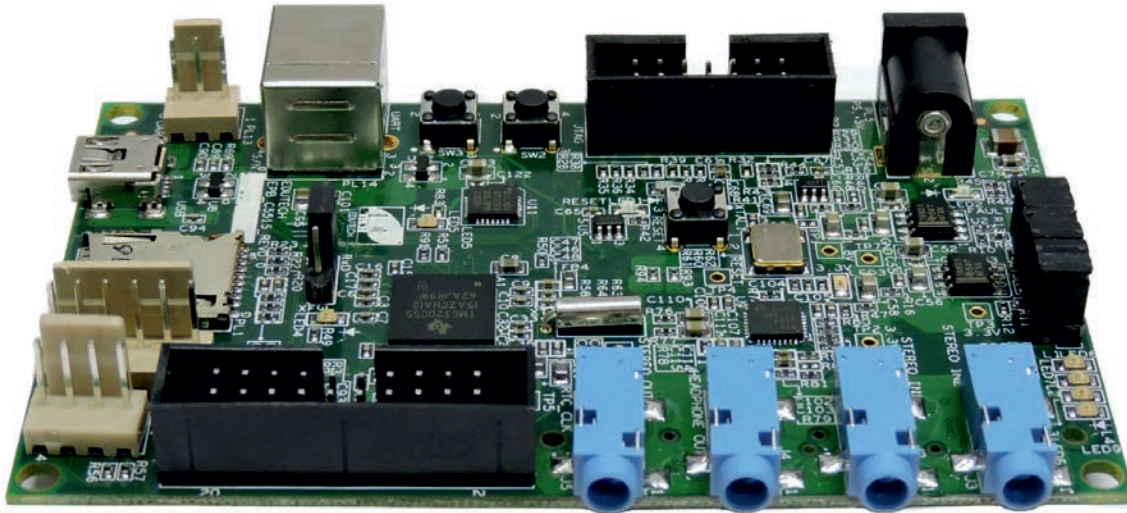


Basic DSP Lab

Edutech offers a low cost Digital Signal Processing Lab solution for the study of basic signal processing and filter related experiments.

- Low cost DSP Lab solution for signal / audio processing
- Set of DSP target board and USB JTAG Emulator
- Signal / Audio Processing Accessories
- Code Composer Studio Tool

Educational Practice Board for TI C5000 platform (Basic DSP Training Kit)



Features

Processor

- TMS320C5515 – Fixed Point Digital Signal Processor
- DSP with up to 60, 75, 100, 120 MHz Clock Rate
- On board JTAG emulation connector

Memory

- On board 32MB Flash Memory (3V 70ns Parallel NOR Flash Memory)
- 320K Bytes Zero-Wait State On-Chip RAM, Composing of:
 - 64K Bytes of Dual-Access RAM (DARAM), 8 Blocks of 4K x 16-Bit
 - 256K Bytes of Single-Access RAM (SARAM), 32 Blocks of 4K x 16-Bit
 - 128K Bytes of Zero Wait-State On-Chip ROM (4 Blocks of 16K x 16-Bit)

Data Transfer Interfaces

- On board 3 pin header for UART interface
- On board USB TYPE B Connector for UART interface for Debug Console
- On board Reset Switch with LED indication
- On board Mini USB Type AB Connector for USB device interface
- On board SPI based micro SD card interface
- On board 6 pin relimate connector for SPI communication
- On board 4 pin relimate connector for I2C communication

Input/output Interfaces and other Facilities

- On board 20-Pin GPIO connector
- On board 3.3V Power-On LED indication
- On board XF LED indication
- On board 4 User LED at GPIO Pin as GPIO Test point
- On board ADC based 2 user push buttons for various applications
- On board 10 bit 4 channels Successive Approximation ADC input facility

On Board Special functionality

- Four Audio I/O ports for audio processing activities
 - Audio jack for Headphone out
 - Audio jack for Stereo out
 - Audio jack for Stereo In1
 - Audio jack for Stereo In2
- LED to indicate power surge
- LED to indicate high voltage input
- LED indication for USB connection for Debug Console
- Various test points for various signals
- Jumper selection to switch UART between USB connector and 3 pin connector for RXD line
- +5V operation

Development Tools

USB JTAG Emulator

USB JTAG Emulator for program downloading and debugging on DSP board, compatible with latest version of CCS (V5 or later)

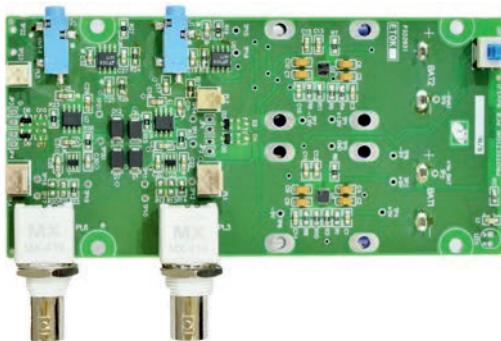


Code Composer Studio

Integrated development tool (IDE) for DSP lab from Texas Instrument



Protection Kit (Optional)



- Specially designed kit to protect audio codec of Basic DSP Training Kit from high input signals typically from function generator
- Restricts 3V P-P input signal to the DSP board
- Designed to ensure minimum signal loss
- Operated on two 9V pluggable battery mounted on the kit itself
- Two BNC connectors for supply input signal to the kit.
- Two Audio jack connectors for output signal to be connected to the DSP kit using Aux cables
- Power-on switch for easy operation
- Power on LED indication

Experiments

1. Write a "Hello World" program and execute on EPB_C5515 target board using CCSv5 or later
2. Write a program to blink single XF LED on EPB_C5515 target board
3. Import a program to Blink 4 user LEDs on EPB_C5515 target board
4. Write a program for Basic file I/O for CCS5.3 using EPB_C5515 target board (i.e., reading/writing data from/to a file stored in your system into code composer studio)
5. Plotting Graph to the CCS Graph window for the read data from the PC to the buffer
6. Square_Wave_File input/output from PC with CCS_v5 and C5515
7. Write a program for Basic signal generation for CCS5.3 using EPB_C5515 target board
8. Write a program for re-generation of sine wave for CCS5.3 using EPB_C5515 target board
9. Write a program to control gain of AIC3204 coded for EPB_C5515 target board
10. FIR Filter Implementation using Linear Buffering
Write a program to implement linear buffering using EPB_C5515 target board

11. FIR Filter Implementation using Linear Buffering

Write a program to implement linear buffering using EPB_C5515 target board using assembly language function for "linearbuff()"

12. Fixed-Point Implementation

13. FFT and Spectrum Analysis

14. Overlap-Save Method for Filtering using FFT



Sine Wave



Ramp Wave

Lab Content

- 10 quantities each of DSP Educational Practice Board
- USB Emulator
- Signal/Audio Processing Accessories
- Power Supply

For workshop / Training at your Institute
please visit www.edutechlearning.com