MT103E-HD Dual Microphone 16KHz Echo Canceling System

The MT103E-HD is a DSP based, dual microphone, stereo echo cancelling daughter board.

Features

- The MT103E-HD is a dual microphone, single output, stereo, 16KHz Noise Canceling / Echo Canceling solution
- The MT103E-HD utilizes your own microphone and own loudspeaker. It provides both analog and digital outputs
- Both the microphone(s) and the far-end inputs are connected through a 0.1” pitch header. User can design the board to mount on its motherboard with mating connector, or connect to the MT103 through wires
- Controllable input level and phantom power supply via free downloadable utility
- Analog output through a 0.1” pitch header. User can design the board to mount on its motherboard with mating connector, or connect to the MT103 through wires. digital output through USB connection
- Phoenix’s proprietary echo canceling, noise canceling, and AGC algorithms with no gating, to prevent the loss of critical information

Phoenix Audio Technologies, 16 Goodyear Suite 120, Irvine, CA 92618; Tel (818) 937-4774
Fax (818) 859-1054
www.phnxaudio.com

Specifications

- 32KHz sampling frequency; 100Hz-16KHz bandwidth
- Two levels of Echo Canceling aggressiveness and three levels of Echo Canceling speed
- Controllable tail length – up to 220 ms.
- Residual noise suppressed to the environment noise level to prevent pumping noise
- Eight preset color filters for both the output and the speaker signal
- Low latency (10msec)
- Microphone inputs connected to pins 1 and 2 of J1. The following microphone settings are available using the setup software:
    - Mic level (280mV peak-to-peak)
    - Line level (2V peak-to-peak)
    - add 6dB boost
    - Optional 2.8V power supply (phantom) , via 1Kohm resistor

*Units are preset to Mic level without 6dB boost; Phantom On

Note: user can use a single microphone connected to either pin 1 or pin 2 of J1

- Far-end inputs connected to pin 3 and pin 4 of J1. The input setting is Line level (2V peak-to-peak)

Notes:

1) **Far-End input will be received through the USB channel if it's active**
2) **Only one far-end signal is required; the two inputs will support stereo loudspeaker systems**

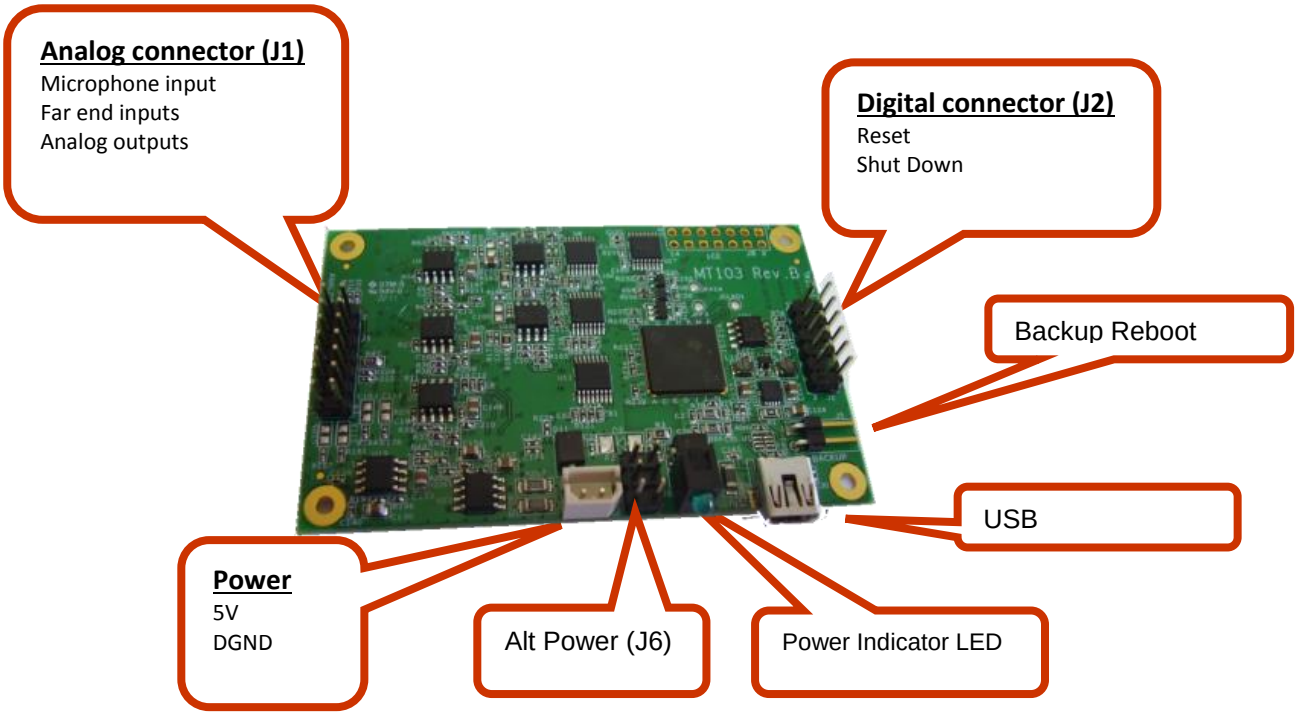
- System Output connected to the pin11 of J1. The following output settings are available using the setup software:
    - Line level: 2V peak-to-peak
    - Mic level: 200mV peak-to-peak

*Units are preset to Line level

Note: Output will be transmitted through the USB channel if it's active

- Speakers – (Far-end out signal) is connected to pin 13 and pin 14 of J1. The output setting is Line level: 2V peak-to-peak

How to Connect:



Phoenix Audio Technologies, 16 Goodyear Suite 120, Irvine, CA 92618; Tel (818) 937-4774
Fax (818) 859-1054
www.phnxaudio.com

Analog Connector (J1) Pin Definition

Pin	Name	Function	Level	Rating
1	IN1	Mic 1 In	Mic/Line	Mic = 140/280 mV ptp Phantom 1K 2.8V Line = 2/4V ptp Input Impedance 24K AC Coupled Max Rating 4Vptp
2	IN2	Mic 2 In	Mic/Line	
3	IN3	Far End 1 In	Line	Line = 2V ptp Input Impedance 24K AC Coupled Max Rating 4Vptp
4	IN4	Far End 2 In	Line	
5	IN5	NA		Max Rating 4Vptp
6	IN6	NA		Max Rating 4Vptp
7	3.3V		OUT	
8	AGND		AGND	Input Amp Ground
9	AD0	10 bit A/D converter	AD0	Input level 0V-3V Maximum Rating 4.5V
10	AGND		AGND	Output Amp Ground
11	OUT1	System Out	Mic/Line	
12	OUT2	NA	Line	
13	OUT3	SPKL (FarEnd out)	Line	Line = 2V ptp
14	OUT4	SPKR (FarEnd out)	Line	Line = 2V ptp

GND connection recommendation

Improper GND connection can generate unwanted ground noise. In most cases we recommend that you connect both analog grounds (pin 8 and 10) to your motherboard's power supply ground – and short the two as close as possible to the source (motherboard).

Digital Connector (J2) Pin Definition

Pin	I/O	Function	Notes	Nominal Rating	Max Rating
1	I	N/A	Pulled Up – 100K	VIn Low<0.8V Vin High>2V	0V – 4.5V
2	I	N/A	Pulled Up – 100K		
3	I	N/A	Pulled Up – 100K		
4	I	N/A	Pulled Up – 100K		
5	I	N/A	Pulled Up – 100K		
6	O	SDA(I2C)	Pulled Up – 5K	VIn Low<1.0V Vin High>2.3V	0V – 4.5V
7	I/O	SCL(I2C)	Pulled Up – 5K	VIn Low<1.0V Vin High>2.3V	
8	I	Shut Down	Active High, Pulled Down	VIn Low<0.7V Vin High>2.0V	0V – 5.0V
9	O	N/A		Vout Low <0.4 Vout High >2.5	I Out Max 4mA
10	O	N/A			
11	O	N/A			
12	I	Reset	Active Low, Pulled up 100K	VIn Low<0.7V Vin High>2.0V	

Alternative Power Connector (J6) Pin Definition

Pin	Function	Notes	Nominal Rating	Max Rating
1	Power GND			
2	Vout	Connected to pin 4	4.75V-5.25V; 100 mAmp	0-7V
3	Vout Via 4.7Ohm			
4	Vout	Connected to pin 2	4.75V-5.25V 100 mAmp	0-7V
5	NC			
6	NC			

Note: Pins 2 or 4 can be used as VIN to power the MT103, but the supply must be through a Diode (0.5A)

Modifying System Parameters Through the SDK

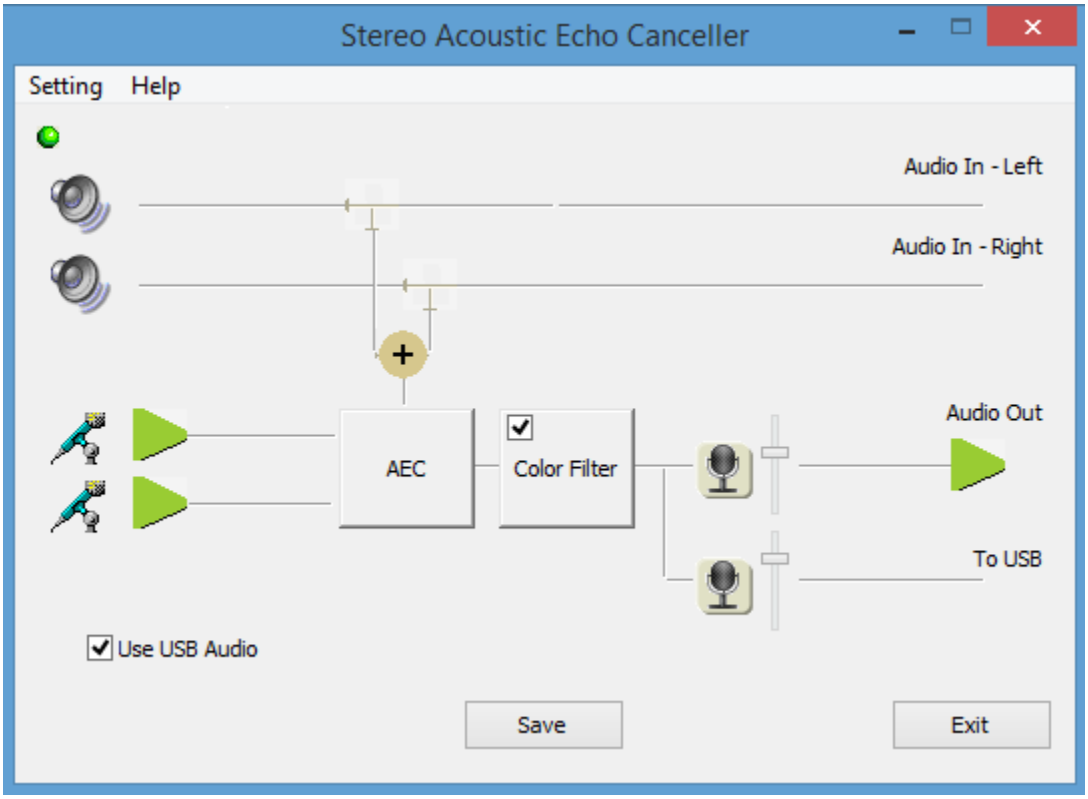
As mentioned in the Specification section, some of the MT103E-HD parameters can be controlled, modified, and stored on the unit using a software setup utility which we refer to as the SDK.

The SDK is a graphic software utility, available for Windows operating systems that can be downloaded for free from our website. The SDK communicates with the MT103E-HD through a standard USB link.
Once the settings have been modified using the SDK, the user can save the new settings onto the device (by clicking Save). The parameters that can be modified with the SDK include:

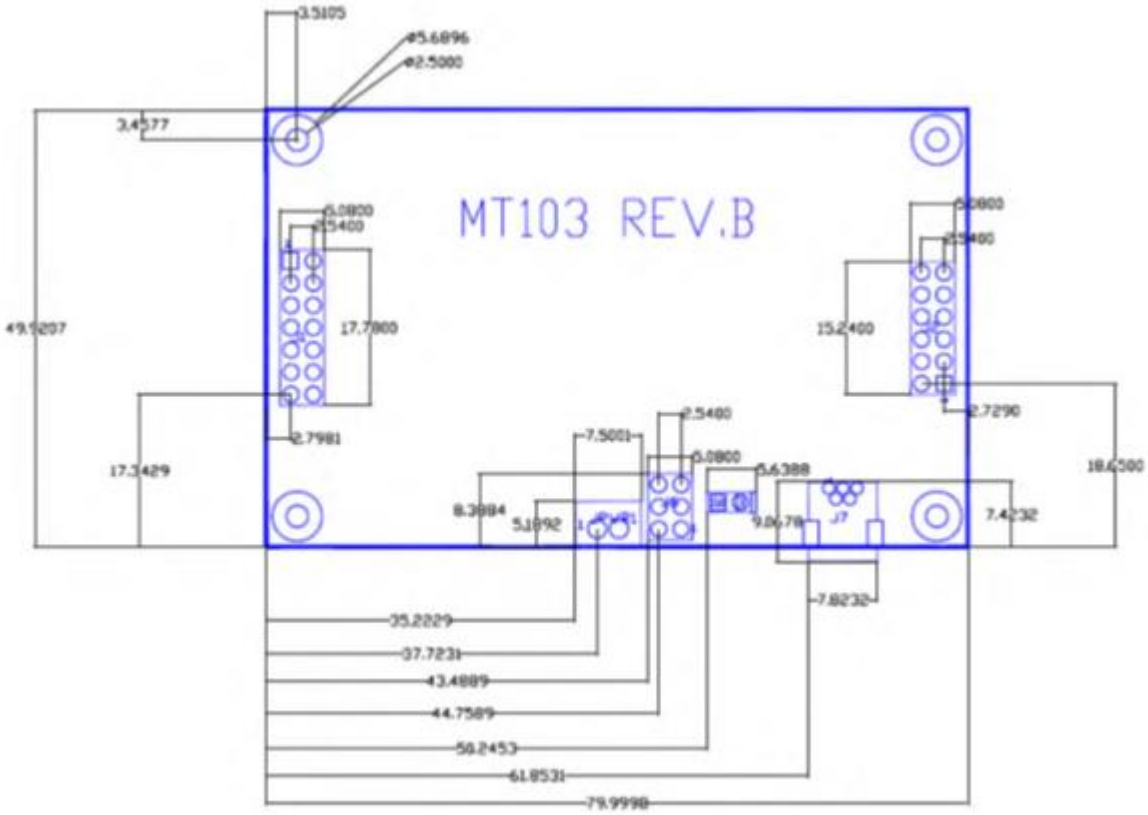
- Input level (mic / line / 6dB boost)
- Phantom power supply (yes / no)
- Output level (mic / line)

These parameters can be controlled by "double clicking" the specific icon (for example the input amplifier) or through the software's menu.

For additional information please refer to our website at www.phnxaudio.com.



MECHANICAL DRAWING IN DFX



Phoenix Audio Technologies, 16 Goodyear Suite 120, Irvine, CA 92618; Tel (818) 937-4774
Fax (818) 859-1054
www.phnxaudio.com