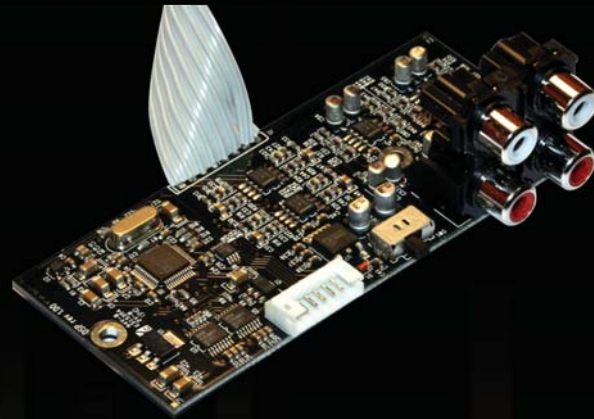


## DSP Module technology for integration into two, four and six channel amplifiers

### DSP Feature Packages-

	Level 1	Level 2	Level 3
- Available for OEM Manufacturing	X	X	X
- Turnkey Designs Available	X	X	X
- 2 Ch Amp Compatible	X	X	X
- 4 Ch Amp Compatible	X	X	X
- 5/6 Ch Amp Compatible	X	X	X
- (Optional) real time USB Interface	X	X	X
- Sync to and from PC/Amp	X	X	X
- Works with Windows 7 & 8	X	X	X
- Branded Software Package (Additional Fee)	X	X	X
- Customizable Software Services (Additional Fees)	X	X	X
- Proprietary G.U.I. Design (OEM)	X	X	X
- Retrievable settings files from Amp to PC	X	X	X
- Encrypted license key for protected and isolated design operation	X	X	X
- Features licensed for individual DSP boards available in designed software packages	X	X	X
- Individual channel input gain adjustment	X	X	X
- Optional Ch 5&6 Source from Ch 1-4 summed mono (On 5 or 6 channel amps)	X	X	X
- Selectable input channel configuration	X	X	X
- Sub channel input select / Sum	X	X	X
- Individual channel phase invert 180 degrees		X	X
- Individual channel muting	X	X	X
- Channel L/R bridge select	X	X	X
- EQ adjustments +/- 20dB in .1dB increments (L&R combined global adjustment all channels)	X	X	X
- EQ adjustments +/- 20dB in .1dB increments (L&R combined per pair of channels)		X	X
- EQ adjustments +/- 20dB in .1dB increments (Per individual channel)			X
- Variable EQ "Q" and freq on all bands all channels			X
- AP/HP/LP X-Over types on all channels	X	X	X
- Adjustable frequency on all crossovers 20Hz - 20kHz	X	X	X
- Band Pass Crossovers all channels		X	X
- Dual cascading 12dB X-Overs for 12/24dB optional slopes (HP/LP)	X	X	X
- Quad cascading 12dB X-Overs for 12/24/36/48dB optional slopes (HP/LP X-Over), BP X-Over (12/24dB)			X
- Variable noise gate controls (Per Ch pair)			X
- Up to 5ms signal delay in .02ms increments per channel		X	X
Package Cost <small>(Package costs are rated as a per unit bases. Level 2 &amp; 3 package additional costs are on top of the chosen base hardware platform)</small>	(Included)	+\$4.00 USD	+\$8.00 USD



### Available Hardware Configurations-

- 2ch In / 4ch Out - \$18.00 per unit + amp cost
- 4ch In / 4ch Out - \$19.50 Per unit + amp cost
- 4ch In / 6ch Out - \$22.00 Per unit + amp cost
- 6ch In / 6ch Out - \$24.00 Per unit + amp cost

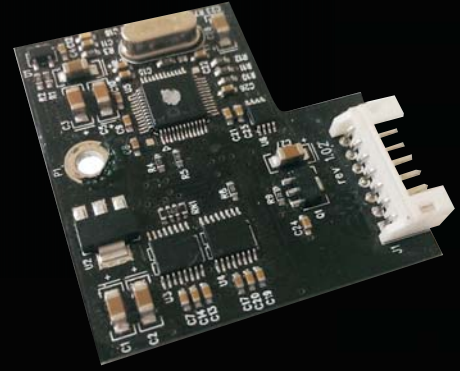
### Custom Software (GUI) Interface services available-

- Project Setup (Branded Software / DSP encryption and protection) \$1000  
(Multiple designs done at the same time qualify for a discounted rate)
- Custom font color, change fonts, background colors, tool colors, or change from control styles - \$100/hr
- Custom GUI -

### Programming Dongle- \$12.00 each (MOQ 300)

Ubuy Programming dongle allows for real time adjustment and tuning of the integrated DSP. This dongle is required for all adjustment of the different levels of the DSP features. Dongles are available with a variety of cable lengths (Additional cost for additional length requirements or alternative cable colors) or some cable colors) and are equipped with a hardwired male USB connector.

# Hardware Specifications



- 2ch In / 4ch Out (Base level unit)
- 4ch In / 4ch Out (Adds 2nd Input and Input Buffer)
- 4ch In / 6ch Out (Adds output DAC, Output Buffer)
- 6ch In / 6ch Out (Adds on more Input Buffer, output DAC, Output Buffer)

## AD1701 DSP Specifications-

The DSP board uses 2 AKM Stereo ADCs to sample incoming audio signals, these are passed over the I2S bus to the Analog Devices ADAU1701 DSP Processor for signal transformation.

The ADAU1701 has 6 Analog outputs from its built in DAC which are buffered and amplified. This board uses an onboard 8K i2c EEPROM to allow the ADAU1701 to self-boot. The DSP Profile image is created in Sigma Studio(tm) and can either be a one off image as created by Sigma Studio, or a custom GUI interface can be created to give end customers the ability to edit parameters of the DSP image.

### *Features of the ADAU1701 DSP*

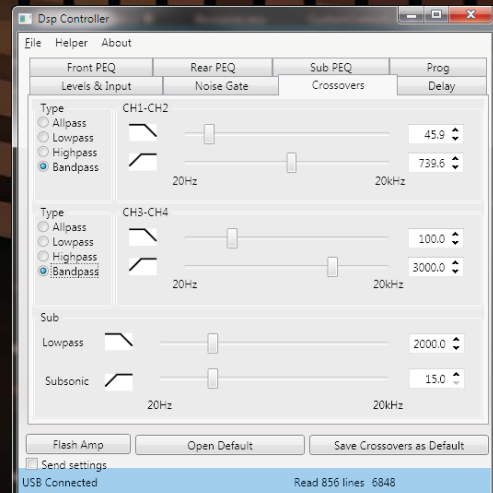
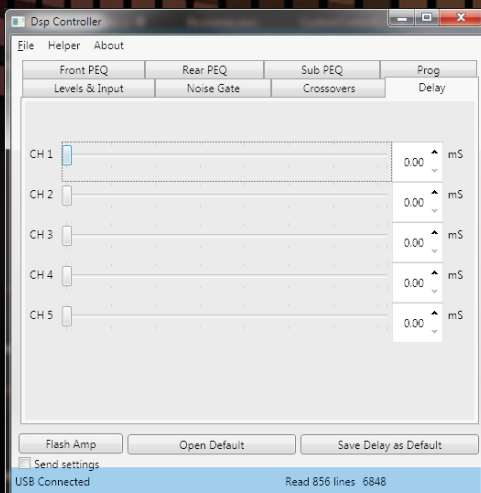
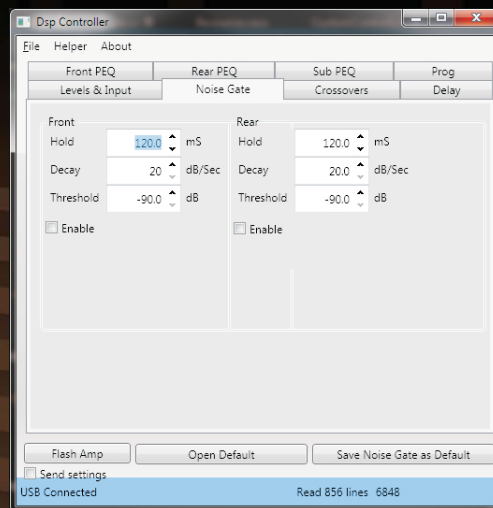
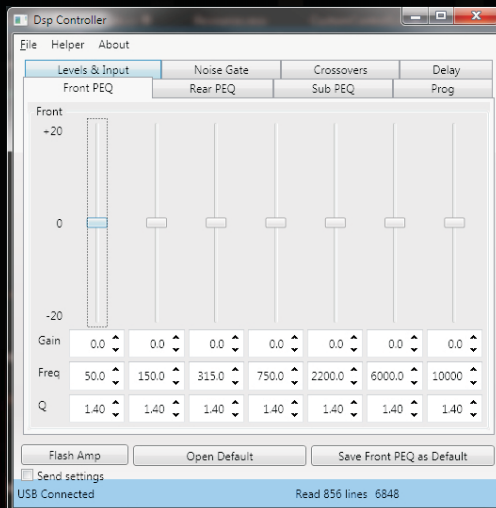
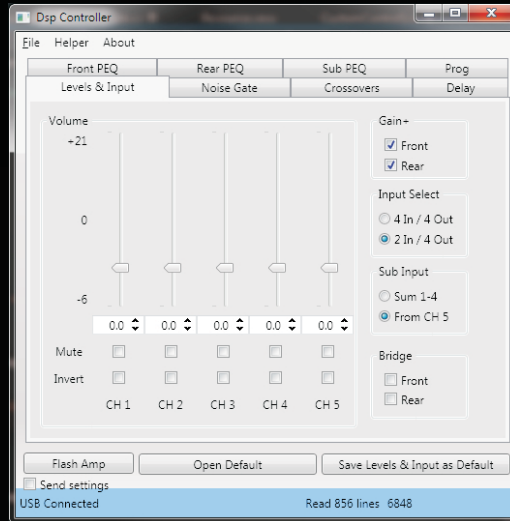
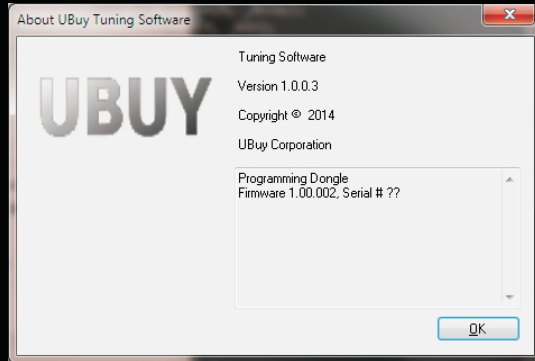
- 28-/56-bit, 50 MIPS digital audio processor
- 2 ADCs: SNR of 100 dB, THD + N of -83 dB
- 4 DACs: SNR of 104 dB, THD + N of -90 dB
- Complete standalone operation
- Self-boot from serial EEPROM
- 28-bit  $\times$  28-bit multiplier with 56-bit accumulator for full double-precision processing
- Clock oscillator for generating a master clock from crystal
- PLL for generating master clock from  $64 \times f_S$ ,  $256 \times f_S$ ,  $384 \times f_S$ , or  $512 \times f_S$ , clocks
- [http://www.analog.com/static/imported-files/data\\_sheets/ADAU1701.pdf](http://www.analog.com/static/imported-files/data_sheets/ADAU1701.pdf)

### *Features of the AKM AK5358B ADC*

- Linear Phase Digital Anti-Alias Filtering
- Single-ended Input
- Digital HPF for DC-Offset cancel
- S/(N+D): 92dB
- DR: 102dB
- S/N: 102dB
- Sampling Rate Ranging from 8kHz to 96kHz
- Master Clock:
  - 256fs/384fs/512fs/768fs (8kHz ~ 48kHz)
  - 256fs/384fs (48kHz  $\times$  96kHz)
- Input level: TTL/CMOS
- Audio Interface: 24bit MSB justified / I2S selectable
- Power Supply: 4.5  $\times$  5.5V (Analog), 2.7  $\times$  5.5V (Digital)

# Custom Software Layout

The following images are for example purposes only. The images may not reflect exact available options or available features or represent the final feature set of your intended feature package.



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