

# AUDISON BIT ONE DSP PROCESSOR

Text by Garry Springgay // Photos by Mark Pereira and Manufacturer



**I**f you are really into car audio, and if you're not, you wouldn't be reading this... you have probably spent a significant amount of time, energy and money into choosing the components for your system that you thought sounded best. And then you probably spent even more time getting them installed to provide the best possible performance once mounted in your ride. But let's face it, car audio is fraught with compromises, from speaker positioning, to too many reflective surfaces, to always having to sit off to one side or the other (unless you are fortunate enough to drive a McLaren F1). Some of you I'm sure for various reasons have also been relegated to retaining the factory headunit, and making all your upgrades downstream of that. Well whether you're a bona-fide tweaker, or you simply need a very good OEM interface that allows you to remove all the factory EQing, I have very good news for you.

The folks at Audison have been hard at work for a long time, perfecting what some believe is the ultimate car audio interface and tuning tool. The resulting product is a very powerful DSP processor they call the Audison Bit One. The \$799.95 Audison Bit One is a fantastic piece of technology. It incorporates more flexibility and adjustment capability than any other processor in recent memory. It will accept as many as 8 channels of high-level speaker inputs, or six channels using regular RCA inputs. It will even accept two different types of pure digital inputs, if you have an SPDIF or Coaxial digital output. There are two Auxiliary inputs which use standard RCA connections, for additional available sources. You can even connect a cellular hands-free kit and use the Bit One to mute the audio as well as fine tune the cell phone audio.

Control of the various sources, as well as common adjustments, are made via the dash mounted DRC, or Digital Remote Control. The tuning and settings are done via a Windows based laptop. Outputs are flexible as well; there are eight channels of RCA outputs, as well as 8 channels of digital outputs using the AD link, which will come in

handy on the Audison Thesis amplifiers. Of course control connections for Audison AC link and DRC compatible amplifiers are included as well.

The Bit One itself is rather diminutive when you consider the immense amount of processing power it has. The main brain and connection unit measures approximately 8.9 x 5.9 x 1.1 inches. Because the Audison engineers took advantage of all the available space, there are connection points on all four sides of the Bit One, which is one reason the unit can be as small as it is. The DRC unit measures 3.6 x 1.7 x 0.7 inches thick, and should be pretty easy to find a home for. All of the required cables and connections are included in the box.

The included software is quite simple to use and understand, if you know your way around a computer, and have a grasp of basic tuning tools. Things work in real time, and pretty much the way you'd expect, and many of the set up steps include a fully automated menu, where all you have to do is load a CD and click "next".

But if you are "digitally challenged" and don't know a .dll file from a notch filter, you'd best leave the installation and setup to an authorized dealer. The Bit One is too expensive and far too powerful to be wasted by an incorrectly done setup. >>





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So, it sounds cool right, but what can it do for you? Well lets take a look at a few different scenarios. First, let's say you have a system where you have had to retain the OEM headunit. There are no pre-outs and no amplifier turn-on signals on your radio. There is also no cell phone mute function. With the Bit One, you have the ability to solve all of the above problems, and many more. The high level inputs can be connected to your OEM radios speaker outputs. You can sum the channels to get a single full range output, or configure them as independent channels to a dedicated output. An internal signal sensing circuit will provide a 12V trigger to turn on external aftermarket amplifiers. And you can connect a hands-free cell kit to the Bit One, and now your system will automatically mute when your cell rings. The DRC will even display a message to let you know the phone is ringing!

But I think the best part of what the Audison Bit One can do for you in this situation, is remove all the OEM equalization that was applied to compensate for the crappy factory speakers, and get you back to a much flatter response. This is an often overlooked, but key step to getting a good sounding system using the OEM headunit. Even if your head unit doesn't have but a single pair of outputs, the Bit One can configure Front, Rear, and Subwoofer outputs from a single pair of full range inputs.

Or maybe you have an aftermarket head unit and amplifiers, and simply want to be able to tweak and adjust things. Well Sparky, the Bit One was made just for people like you. To actually list all of the various adjustments and functions would take the rest of this issue, and then we'd have no room for our hot model photos, so I've made a list, of just the main functions a Bit One can provide. You're welcome. After you read the list, you'll understand what I meant about an immense amount of tuning power.

## LEVEL SETTING

- Input sensitivity – Adjusted using supplied set-up CD
- Separate level settings for Auxiliary sources
- Independent level control for each of the 8 output channels

## EQUALIZATION

- Automatic de-equalization using supplied software and setup discs
- Four separate 31 band graphic equalizers
- Separate 31 band graphic equalizers for each of the auxiliary inputs

## CROSSOVERS

- Crossover filters; High Pass, Low Pass, Bandpass, Full Range, 70 different frequencies between 10Hz and 20kHz; selectable filter slopes from -6 to -48dB per octave; selectable Linkwitz or Butterworth alignments; muting for each channel; separate 0-180° phase setting for each channel.

## TIME ALIGNMENT

- Guided procedure allows inputting of the speaker distance from the listener, and automatic calculations of required delay. Manual fine tuning adjustment of delay settings for all eight channels.

## DIGITAL REMOTE CONTROL

The DRC acts as a master volume control, and also provides quick adjustments for subwoofer volume, balance, fader, memorized settings, and turning the Dynamic EQ on and off.

## STANDARD AND EXPERT MODES

- There are standard modes that greatly simplify adjustments, and will do things like adjusting both front channels together, rather than independently. But for total and complete control you can select Expert mode, and take control over each setting on each channel separately.

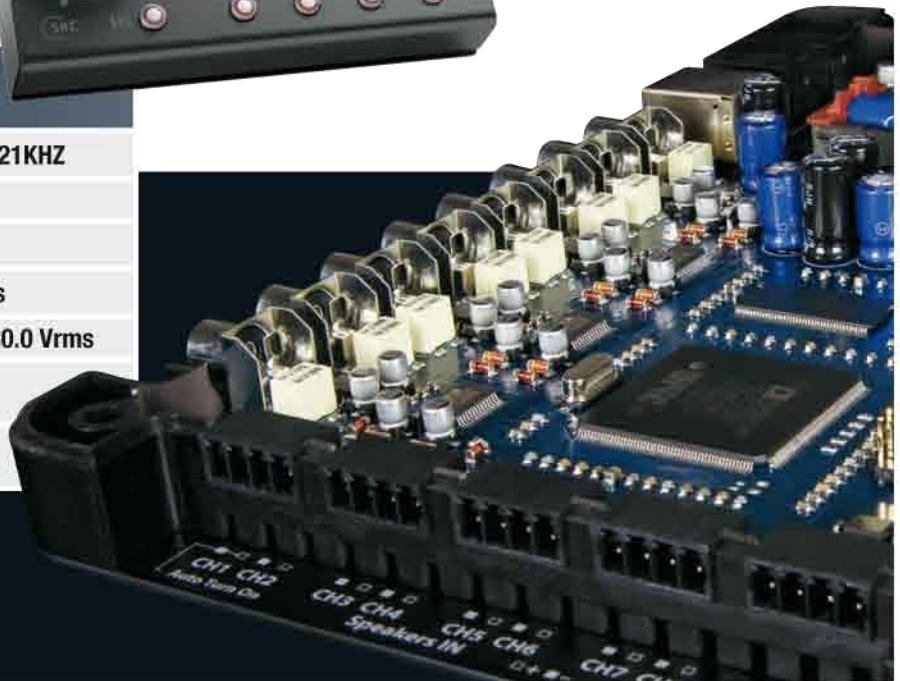
• Another really useful feature that sets the Audison Bit One apart from the competition is the Dynamic EQ function. If you've ever noticed your system loses both bass output as well as some of the upper end detail when you lower the volume, you're not alone. This is caused by the human ears inability to discern very low and very high frequencies at low volume. With the Bit One, you can dial in a specific EQ curve to compensate for the loss of these frequencies at each end of the spectrum. Then as you raise the volume, the Bit One will automatically decrease the effect, until you reach a predetermined level where it no longer applies any boost. This is especially handy, because you don't have to worry about overdriving anything as you turn the system up. Even better, you can use the preset curve, or create one all your own.

- Yet another feature that is always fun to play with, is the digital delay available for each channel. This function allows you to compensate for speaker-to-listener path-length differences, or delay the whole front stage to let the output from the subwoofers arrive earlier, which can really be helpful in bringing the bass up front. Of course while any imaging compensation you do for one position will have an adverse effect on any other position, if you frequently drive alone, you can have your cake and eat it too!

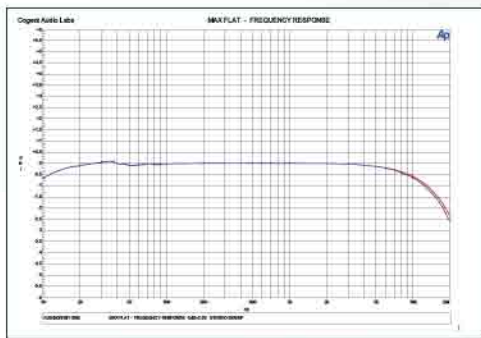


## QUICK TECH SPECS

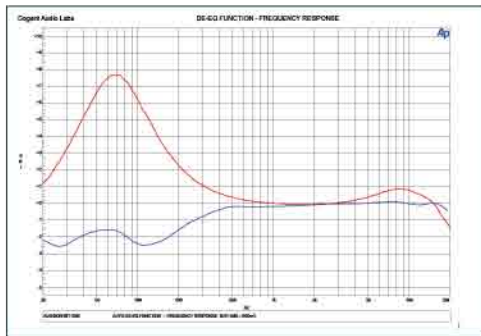
Frequency Range (+/-3.0dB)	<10HZ – 21KHZ
Signal to Noise Ratio (ref to 1V out)	-87dBA
THD+N (ref 1V out, @ 1kHz)	0.002%
Output Impedance	220 ohms
Input signal range	50mV – 30.0 Vrms
Maximum Output Voltage - Stereo outputs (unclipped)	4.1 Vrms
Maximum Output Voltage - Subwoofer outputs(unclipped)	4.1 Vrms







MAX FLAT - FREQUENCY RESPONSE



DE-EQ FUNCTION - FREQUENCY RESPONSE



#### ON THE BENCH

I hooked the Audison Bit One up to my trusty Audio Precision, and made a bunch of measurements. As expected with high end gear like this, it performed exactly as advertised, or in some cases even a little better! The Bit One has a wide range of adjustability, and the automated setup function means it's very capable of being fully compatible with virtually any head unit or other peripheral device.

With the Bit One, you have the ability to solve all of the above problems, and many more. The high level inputs can be connected to your OEM radios speaker outputs. You can sum the channels to get a single full range output, or configure them as independent channels to a dedicated output.

#### CONCLUSION

A couple thousand words in a magazine review can't do justice to the kind of processing power and far reaching tune-ability provided by Audison's Bit One. The software provides the kind of control and functionality that will allow you to tune a car in an hour or two, compared to the days a traditional setup would require. If you are in the market for an excellent tuning tool, and even more so if you have to interface with any OEM source unit, you really should visit an Audison dealer and get a live demo of what this thing can actually do in a car. If you truly enjoy tweaking, you may never go back in the house! *PBS*

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