

Audison bit One HD DSP

Processor Review

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Undoubtedly one of the finest DSP units available on the market, delivering high resolution audio perfectly to any integrated system.



When it comes to the world of DSP processing for car audio, one of the leading products for the last seven years has been the Audison bit One. Because Audison is so passionate about audio and relentlessly working towards producing ever better gear, we now have the new bit One HD. The bit One HD presents a whole new era of DSP performance, with the implementation of the most powerful DSP chipset available. Operating at 450 MHz/32 bits, the new processor provides the computing power to make the bit One HD capable of processing high resolution audio at 96 kHz/24 bits. The new flagship processor has a suggested retail price in the U.S. of around \$1,700, and has already garnered a coveted EISA award.



THANKS TO AN AUTOMATED CALIBRATION PROCESS, THE BIT ONE HD CAN AUTOMATICALLY ADJUST AND MAKE CORRECTIONS FOR UP TO 12 DIFFERENT CHANNELS OF INPUT, INCLUDING FIXING FACTORY EQUALIZATION AND CHANNEL DELAY ISSUES.

FEATURES

Everything you need is included in the box, including the control software to be installed on your computer, and even a handy RCA to 3.5-mm adapter to connect your iPod, smartphone, or Audison's RVA (Remote Volume Adjust) unit. The RVA enables you to control the volume of a device connected to the bit One HD via the head unit. Once that's done and you have opened the 70-page owner's manual, there are clear instructions on how to proceed with your installation. Believe me, if this is your first bit One HD, you are going to want to read the instructions

carefully because this is a complicated device. A guiding hand from your local Audison dealer wouldn't be a bad idea either. In addition to the manual, a handy fold-out quick start sheet with simple graphical instructions is also printed and enclosed. As software updates become available, the bit One HD is easily updatable as well, thanks to its open platform design.

When a product is this powerful, getting the installation dialed in is critical.

Thanks to an automated calibration process, the bit One HD can automatically adjust and make corrections for up to 12 different channels of input, including fixing factory equalization and channel delay issues. The unit

comes with two different discs [CD and DVD] that have specially developed audio setup tracks on them. Calibrating the input levels, correcting the factory EQ, and even compensating for the channel delays in OEM systems is done automatically by simply following some on-screen prompts. The software walks you through your system architecture, and even has provisions if you happen to be using some passive crossovers. While the guided process works fine and is very simple to use, and I completely understand why the input sensitivity setup process has been automated, I'm sort of old school and I would prefer the option of setting it myself. If you're like me, fortunately you can manu-

QUICK TECH SPECS

Frequency Response (+/-3.0 dB)	<10 Hz - 44 kHz
Signal to Noise Ratio (ref to 2V out)	-90.3 dBA
THD+N (ref 2V out, @ 1 kHz)	0.004%
Input Impedance (Spkr Level)	15k Ohms
Output Impedance	210 Ohms
Input signal range	758 mV - 16 Vrms
Maximum Output Voltage - Stereo outputs (unclipped)	41 Vrms
Maximum Output Voltage - Subwoofer outputs (unclipped)	41 Vrms
Nominal Impedance	(2) 4 ohm coils
Mounting Depth	EVO 10 100 mm M-CAR 63 mm



TECHNICAL DATA

To provide a full list of all the features would require more space than I have in this issue, but here is a list of the main points of interest:

PROCESSOR
High resolution processing at 96 kHz/24 bit
12 input analog channels
2 optical digital inputs, max 192 kHz/24 bit
Aux input
13 output channels
2 digital outputs (AD LINK) control bus (13 total output channels)
Full-range, high-pass, band-pass, low-pass filters
Butterworth, Bessel, or L-R filter alignments
Selectable crossover slopes up to 48 dB/Oct
70 steps of frequency choices from 10 Hz to 20 kHz
0-180-degree phase control
Individual channel mute when tuning
Linked channels while tuning
Parametric 5 pole input and main EQ, +/-12 dB; Parametric 11-pole output EQ, +/- 12 dB
Self adjusting dynamic EQ for different volume levels
Parametric bass boost, selectable from 10 to 500 Hz
Time alignment up to 297 inches, with minimum resolution down to 0.01 ms
4-volt RMS output

ally setup the system after the automated procedure.

Once connected and setup, input signals are processed in their native resolution without downscaling, whether it's the OEM radio's output or a high-resolution audio source. The bit One HD is also equipped with full digital input capability, you can use it to create a fully digital system with a digital source, like the Audison bit Play HD or the Sony RSX-GS9 head unit we reviewed earlier this year. Then, the digital signal can be sent to an amp with fully digital inputs, like Audison's Voce.

The new bit One HD has 12 input channels for speaker-level inputs, and six channels for low-level inputs, as well as an auxiliary input and two TOS-LINK optical digital inputs. The 13 channels of output can be configured to seven channels for even higher audio quality by adding in Audison's optional Finite Impulse Response filter, which is a downloadable software release.

The control software for the bit One HD is very complete and allows the tuner to adjust virtually

anything, but it does take a little getting used to. There is a lot of functionality on that screen, so reading the manual and playing around a bit will save you from getting lost. Once you've found your bearings, there isn't much it won't allow you to tune, adjust, or correct. For easy, common adjustments while driving, the bitOne HD includes a DRC MP [Digital Remote Control Multimedia Play]. This easy-to-use remote connects via the Audison AC Link bus, and can function as your primary volume, balance and fader control, as well as sub volume and other additional functions.

LISTENING

For my listening session, I chose to provide signal to the bit One HD with a Sony High Resolution Audio capable source unit - in this case, the RSX-GS9. The outputs were configured to three channels: full-range on left and right, plus a subwoofer. I did play around with the crossover filters while I was listening just to see how well they worked, and they worked perfectly.

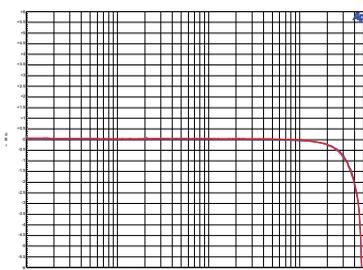
I have to say the sound quality from the system is simply brilliant. If you have not experienced high resolution audio yet, and you are serious about your music, you are missing out on a great thing. Subtle nuances are always evident, and the dynamic range is amazing. The system's ability to go from very soft to full crescendo is startling. Bass performance is solid and deep, and the system's ability to create a realistic stereo image is uncanny. There are no untoward noise problems, and no issues with adjustments.

CONCLUSION

There is no question that the Audison bit One HD represents some of the highest performing digital signal process-

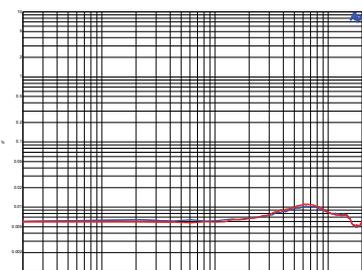
ing available. It's a very well thought out unit in terms of all the input and output capabilities and various modes of connectivity. Then there is the reason you buy such a product in the first place - the sonic performance. When it comes to sound quality, I think the new bit One HD is head and shoulders better than the original bit One. With 13 channels available, as well as de-equalization with FIR filters, the bit One HD could make a serious difference in any OEM configuration. I believe I heard every bit of the high resolution signal, and it sounded very good indeed. If you're looking for a product to connect, control, and customize your sound, the bit One HD is worth a close look. PMS

Max Flat - Frequency Response



Ref - 2.0V - OdBr Stereo Sweep

Full Bandwidth THD+N vs Frequency



Ref 2.0 Vrms

Common Mode Rejection Ratio

