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Subject: Interesting DAC Bargain - \$135  
Posted by [FredT](#) on Mon, 15 Aug 2005 18:19:47 GMT  
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Here's one that's hard to believe, but there are some favorable reviews of it on the web, so I ordered one to see (and hear) for myself. It's a non oversampling DAC that uses eight parallel DAC chips, much like the Audio Mirror DAC, with OPA 602 op amps, for \$135. I did a special order with eight-pin op amp sockets instead of the standard model on which the op amps are soldered directly to the board and can't be changed easily. I plan to swap out the 602's for the much preferred OPA627's. Total cost including the eight-pin sockets and air shipping to Houston is \$176. The DAC-AH can be seen under DAC's at <http://eshop.diyclub.biz/> I noticed there are several other dacs including a 6922 tube output model, the DAC-72 for \$280, and several others including upsampling models for more. It would be nice if someone ordered one of these and let us know how it sounds. I'll post my impressions of the DAC-AH later. Here's the link to a review by someone who did an op amp and coupling cap upgrade. This is where I learned the seller will accommodate special upgrade requests like op amp sockets.  
Kew!!<http://www6.head-fi.org/forums/showthread.php?t=93233&page=1&pp=20>

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Subject: Re: Interesting DAC Bargain - \$135  
Posted by [Wayne Parham](#) on Mon, 15 Aug 2005 21:48:00 GMT  
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Oh, man, you're just finding all the cool stuff. Thanks for the tip!

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Subject: Re: Interesting DAC Bargain - \$135  
Posted by [akhilesh](#) on Tue, 16 Aug 2005 11:17:40 GMT  
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Really cool link, Fred. They seem to have lots of good deals for the DIYer! thanks-akhilesh

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Subject: Re: Interesting DAC Bargain - \$135  
Posted by [FredT](#) on Tue, 16 Aug 2005 12:02:27 GMT  
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I chose this one because it's so cheap, but I'm especially intrigued by their \$368 DAC-60, which uses the much better 24/96 Burr Brown PCM-1704 dac chip and has a 6922 tube buffer output stage. I'll post my impressions of the DAC-AH after it has had a couple of weeks to break in. It

would really be cool if someone else bought the DiyBiz DAC-60 or the DAC-72 and we could do a comparison of these and other non-mainstream DAC's like the Scott Nixon and the dAck! at next year's Great Plains Audio Fest. On another digital-related topic, I'm very happy with my Onix XCD-88 with the upgrade OPA627 op amps. This one is also an incredible bargain at \$299, and it comes from a US based distributor.

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Subject: Re: Interesting DAC Bargain - \$135  
Posted by [jim denton](#) on Tue, 23 Aug 2005 20:38:18 GMT  
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Fred----I have been trying to make up my mind about which used \$1300 CD player to buy when I checked ART forums to see what is hot and WOW you come up with new DAC's!!!!---Ok Fred, which model ;the 60 or the 72 do you suggest so we can test and compare---I'm game to try one out ---- Jim

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Subject: DAC 60 or 72  
Posted by [FredT](#) on Tue, 30 Aug 2005 12:05:16 GMT  
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The difference described on the DIY biz web page is that the DAC72 uses the 20 bit Burr Brown 1702 DAC chip while the DAC60 uses the 24 bit 1704. I have no idea how that might translate into performance differences. There may be other differences that are not described, but both models appear to use the same two-transformer power supply and the same parts names (Dale, Oscon, etc) are used in the descriptions. Given the minimal \$73 price difference between the \$295 DAC72 and the \$368 DAC60, if I were buying I would go with the DAC60. The Burr Brown 1704 DAC chip is state-of-the-art. Take a look at the specs in the comparison chart at <http://www.audiodesignguide.com/DAC/dac5.html>

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Subject: Re: DAC 60 or 72  
Posted by [jim denton](#) on Wed, 31 Aug 2005 14:08:04 GMT  
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Fred, these are all up sampling types, correct? So what happened to the Scott Nixon concept of non- upsampling types? Can you give me a brief over view JD

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Subject: Non-Oversampling versus Oversampling DACs

Posted by [FredT](#) on Sat, 03 Sep 2005 00:40:09 GMT

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This whole digital business is as clear as mud to me. PCM audio is a technically complex process that requires the use of technical terms I'm not familiar with. But the review of the Audio Note 1 DAC at the link below that provides the most understandable description I have seen. Many believe the damage that brickwall filters do within the time domain is largely responsible for the unnatural digital sound we have grown accustomed to with PCM audio. They believe a DAC with no brickwall filter produces a more natural sound than one with. But in last month's Houston Audio Society meeting we listened to three non oversampling DAC's that sell in the \$400-\$800 price range, then we heard all three seriously outperformed by a \$2,200 oversampling DAC. Big surprise: the one that cost three times more sounded better than the cheap ones. My interest in these Chinese DAC's is due to the fact that they appear to have many of the features you find in mainstream DAC's costing several times more, so I'm interested in whether they sound as good as the high priced spread. For \$175 including air freight I'm willing to find out. Of course if I can persuade someone to buy one of the more expensive models I'll do that too so we can compare them:) I'm sure someone who understands DAC's better than I do will read this, and hopefully they'll jump in here and help us understand this better.

Review of Non Oversampling DAC

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Subject: Re: Non-Oversampling versus Oversampling DACs

Posted by [Wayne Parham](#) on Sat, 03 Sep 2005 05:43:32 GMT

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There was another thread a while back on the same subject: "Non-oversampled v. Oversampled"

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Subject: It's Singing In My System

Posted by [FredT](#) on Wed, 07 Sep 2005 12:53:40 GMT

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The DAC-AH arrived yesterday. It sounded harsh and two dimensional at first, but by this morning, after a full afternoon and all night playing, it has improved quite a bit. Then I turned it off, let it sit for about an hour, and replaced the OPA602 op amps with OPA627's. This wasn't as easy as I had expected because the space is tight and one of the sockets apparently had some debris in one hole. Getting the replacement in was hard. I hate all these little parts in modern electronic components - I pine for the good old days when the smallest part was a half inch long resistor and IC's were only a science fiction dream. No I don't. I turned it on with the 627's installed and heard an immediate and obvious improvement. The image is quite a bit wider and more three dimensional. Instruments are more precisely placed. The digital harshness is gone. Now when little miss Norah whispers "Come away with me" I know she's talking to me and she means it. But I doubt she would buy me all this kewl audio gear like my wife does. This DAC will not cause any

of the rich guys I know to sell their DCS Delius, Verdi, Purcell separates, but it's definitely one of those products whose performance exceeds what I would expect at its price point. Highly recommended as an upgrade from a mass market player!

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Subject: Interim Report

Posted by [FredT](#) on Fri, 09 Sep 2005 21:43:27 GMT

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With about 40 hours running time I decided to compare it to my Onix XCD-88 player and my Scott Nixon tube dac. So far the Scott Nixon and the Onix are tied, with the Lite DAC in third place. I really do need to give this DAC another 50 hours before forming any conclusions, but at this point it sounds just a bit opaque compared to the other two, which sound transparent in comparison. I did rig it briefly as a non oversampling dac just to hear the difference, and the opacity/harshness was gone but so was the upper treble. I did this mod by attaching jumper cables to the leads of R35 and R36, tapping into the output of the dacs before the op amps. The positive lead from each resistor was connected through a 3uF Northcreek cap for DC isolation, then into the interconnect to the preamp. I made no other changes such as removing the op amps. I would appreciate it if someone who knows more about dac design would look at the link below and tell me if these resistors are the correct place to tap into the dac chip outputs. There's a link to the schematic in this article.<http://www.audiodesignguide.com/DAC/dac5.html>

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Subject: 2nd Interim Report

Posted by [FredT](#) on Mon, 12 Sep 2005 12:38:41 GMT

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In my first report I mentioned a slight opaqueness/harshness. As the DAC continued to break in this did not diminish. I want to clarify this isn't a glaring fault, and it might not even be noticed with lower resolution speakers, but it did persist and the bottom line was that the "magic" just wasn't there for me. Yesterday afternoon, as a last resort, I removed the OPA627 op amps and reinstalled the OPA602's. After a night of repeating the breakin track from the Stereophile Test CD #3 the harshness is now gone. Go figure! This isn't a bad DAC, especially when you consider the \$135 price tag. The bass and lower midrange are a bit more pronounced, and is about 5dB louder than my Scott Nixon tube dac, making it an especially good choice for anyone with bass shy speakers like Fostex single drivers and many horn speakers. The soundstage is more convincing than the SN dac - wider with a slightly better separation and isolation of instruments.

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Subject: Upgrade

Posted by [FredT](#) on Tue, 13 Sep 2005 15:13:15 GMT

This dac continues to impress me. This morning I did the first upgrade, replacing the cheap electrolytic output caps with Northcreek Zen 3uF metallized polypropylene. Fortunately the case consists of separate metal panels for the front, back, sides, top, and bottom, so it's easy to take it apart and work on the circuit board without having to unsolder any connections. The parts on this board, like most digital components, are small, so it was good that I used caps with stranded leads. I was able to cut all but three or four of the individual wires that form each lead, and even then it was hard to get them through the tiny holes in the board. I wish I could say I hear an improvement, but it's so hard to tell that I will just rely on my faith that a quality metal poly cap sounds better than a 50 cent electrolytic.

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Subject: Re: Upgrade

Posted by [Wayne Parham](#) on Wed, 14 Sep 2005 01:54:41 GMT

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I'm reeeeeeally wanting to get together and hear your DAC-AH and the Scott Nixon DAC compared with it. I'm anxious to hear that Onix CD player too. Maybe I'll get a chance to come to one of the next Texas audio club meetings or you can come to one of the Oklahoma meetings. Then again, the next GPAF will be here before we know it...

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Subject: DAC-60 or 72? How about the DAC-68?

Posted by [FredT](#) on Thu, 15 Sep 2005 19:16:11 GMT

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Actually, the one that intrigues me the most is the DAC-68. At \$575 it's still dirt cheap by audio price standards, but it seems to offer some better internal parts than the others. Looking at the pictures of the inside on the Lite Audio web site I see some M Caps and a few other parts I usually don't see in audio components that sell for less than \$2K or more.  
<http://www.liteaudio.com/2005-1-22/2005122154743.htm> What are the white rectangular parts near the output jacks? They look like rectangular metallized poly Wima-type caps but I don't recognize the information printed on them. Are they the "Full Balance LPF using discrete transistor components (four LPF)" described in the DiyClub DAC-68 site? What is an "LPF".

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Subject: One More Time - What's an LPF?

Posted by [FredT](#) on Thu, 15 Sep 2005 23:55:20 GMT

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What are the white rectangular parts near the output jacks? They look like rectangular metallized poly Wima-type caps but I don't recognize the information printed on them. Are they the "Full Balance LPF using discrete transistor components (four LPF)" described in the DiyClub DAC-68 site? What is an "LPF".<http://www.liteaudio.com/2005-1-22/2005122154743.htm>

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Subject: Re: One More Time - What's an LPF?

Posted by [Wayne Parham](#) on Fri, 16 Sep 2005 03:50:04 GMT

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I imagine LPF stands for low pass filter. Most DACs have one on the output. It passes signals under 20kHz and filters ultrasonic switching artifacts. The white parts look like capacitors to me. Can you see from the traces what they connect to?

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Subject: DOH!

Posted by [FredT](#) on Fri, 16 Sep 2005 09:28:57 GMT

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Thanks, that makes sense. Why didn't I think of that. The traces aren't visible in the picture, but given the mystery parts' position on the board they probably are located between the tube output stage and the output jacks in the signal path. If I get serious about buying one I'll send an email asking about them. Interestingly, I looked at the Diy Biz web page this morning and the DAC-38 is still included in the list of offerings, but when you click on it the page that comes up says "There are no products to list in this category". Are they playing games with my head, or is it divine providence delivering me from temptation by removing the source?

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Subject: Re: DOH!

Posted by [Wayne Parham](#) on Fri, 16 Sep 2005 09:54:33 GMT

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I'm thinking those caps may be B+ decoupling (PS filter) caps or output coupling caps. Since there's no transformer visible, it is probably capacitor coupled on the outputs. Keeps the plate voltage off the signal output.

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Subject: Opportunity To Hear The DAC-AH

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Posted by [FredT](#) on Sun, 18 Sep 2005 18:45:30 GMT

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Our best opportunity before the 2006 GPAF would be the next time the Dallas Audio Club has an all member meeting. Club members already have several Scott Nixon DACs so I could bring the DAC-AH and the Onix player. I sold the Fredarray II's today and have several hundred dollars burning a hole in my pocket:) I might just order a DAC-60 too. I looked at the inside pictures and a schematic and there are wonderful opportunities for upgrading. There's a picture of the inside of an upgraded DAC-72, which is the same as the 60 except for one chip. I would include a link but it's on the Taco Bell forum, so I'm including this link to my picture

pages:<http://fredt300b.smugmug.com/gallery/132868/25/36512237>I have reached a final conclusion about the DAC-AH: It sounds very nice, and I prefer the overall sound to the Scott Nixon dac and the Onix XCD-88 player. It is voiced toward the warm side, which probably isn't the best match for my tube electronics and warmly voiced line arrays. It would be a super choice for a solid state mid fi system that's voiced toward the bright side - It won't attenuate the treble at all, but it will improve the treble/midbass balance. It might also be good in a system using single driver speakers that tend to be a bit light in the bass.

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Subject: Re: Opportunity To Hear The DAC-AH

Posted by [Wayne Parham](#) on Mon, 19 Sep 2005 10:43:16 GMT

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I need to replace a player that's on the fritz, but I've been too busy to fool with it. So I'm interested in this very much.

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Subject: DAC-60 Arrived Today

Posted by [FredT](#) on Mon, 26 Sep 2005 23:42:10 GMT

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Returned from the hurricane evacuation shelter (son's house in Austin) at 2:30 this morning, and the DAC showed up about noon. This is the one that sells for \$368; UPS air shipping adds another \$90 to the final price. I looked under the hood and I'm impressed. Nice heavy construction, two R-core trannies, six separate regulated power supplies, two 24/96 Burr Brown PCM-1704 dac chips (one for each channel), discrete components in the 3rd order filter, EH-6922 tube output stage (no op amps!). Sounds very good right out of the box. I'm confident it would be priced around \$1,368 instead of \$368 and would receive rave reviews in Stereophile if Musical Fidelity or another of their favored manufacturers bought it from the same Chinese OEM manufacturer and sold it with their badge on it instead of the Lite Audio name.

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Subject: Re: DAC-60 Arrived Today  
Posted by [Wayne Parham](#) on Tue, 27 Sep 2005 02:14:18 GMT  
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Glad to hear you're alright; Better still, you come home to find a present on your doorstep next day! Welcome home!

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Subject: First Upgrade  
Posted by [FredT](#) on Fri, 30 Sep 2005 15:40:13 GMT  
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I replaced the resistor in the CRC tube section high voltage power supply with a 10 henry choke and applied chassis damping material to the top cover and accessible areas inside the chassis. Picture at <http://fredt300b.smugmug.com/gallery/132868/1/38101224>  
Inside the Lite Audio DAC-60

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Subject: It isn't that great IMO.  
Posted by [mac](#) on Sat, 22 Oct 2005 20:01:14 GMT  
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I bought one, upgraded the opamps to OPA627BP and replaced the output coupling caps with BG NX. It sounds okay in my system but I prefer the BB dac inside my SB2.

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Subject: Second Upgrade  
Posted by [FredT](#) on Fri, 18 Nov 2005 16:31:06 GMT  
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Vlad Bazelkov of Audio Mirror was by the house last month, spotted the DAC-60, and asked if he could look inside. I told him to take it back to his shop and have his way with it:) I got it back today with a few mods, including a bypass cap on the cathode resistors, and the 6922's replaced with 6N1P's. Initially when I received the DAC-60 my only disappointment was that the treble sounded a bit attenuated compared to the analog output of my Onix CD player. That is no longer a problem with the upgrades - the treble is very good, and I believe the soundsage is more convincing and the overall sound is a bit more dynamic too. This thing definitely is a keeper. I believe the next change will be to upgrade the output caps, probably with Auricaps (the stock caps are those blue rectangular thingies behind the tubes in the photo).

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Subject: Re: Second Upgrade  
Posted by [Wayne Parham](#) on Fri, 18 Nov 2005 19:18:35 GMT  
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Wow, that's cool. I really need to follow your example, I've just been too busy to look up. Maybe after the holidays, first of the year, I'll check in with you and see what's best for a medium priced CD player and DAC. Thanks for keeping us informed.

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Subject: Re: DAC 60 or 72  
Posted by [bluemetor](#) on Sat, 11 Feb 2006 20:25:06 GMT  
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All:Here is the low-down on the Lite Audio DACs.The Lite DAC-AH is the only Lite DAC that does not over sample. A description of what it does can be found at [www.pacificvalve.us](http://www.pacificvalve.us)The Lite DAC 72 – forget it. It uses an old Burr Brown chip, the PCM1702P-K. This chip sounded bright and thin. Spend the extra money and get the DAC 60 which uses an excellent AD converter called the BB PCM 1704U-K. Now it gets even harder. Recently there have been a number of DAC 60s out of Hong Kong outfits with the PCM1704U chip instead of the PCM1704U-K chip. BIG difference between the two.Then there is the DAC 68, and I have heard one and I am going to get one. Incredible resolution and very smooth sound. There is more – there is also a DAC 38, and a DAC 39 Upsampler. I do not know if Pacific Valve is going to carry these.Pheew!

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Subject: Re: Second Upgrade  
Posted by [rick](#) on Sat, 08 Apr 2006 15:59:03 GMT  
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Mr.FredT:I just bought the dac60 and consider changing output caps like you've done to yours. I looked at your photo's at smugmug. I thought the stock caps show 2uf on them, curious as to your use of 3.3 cap. I wonder also the bypass cap is it a different type? Also through your modifications has the bass rendering and other improvements been realized? Thanks for any reply. This is a quantum leap for me digitally as I've used a cheap Sony carousel player for years. Now I have a cheap Yamaha carousel player heads above the Sony and with a digital out. Hence the Lite60. Doggies, what a difference. It's been fun listening to old familiar c.d's. My only impression that's less than sterling is that bass on some recordings,(not all)seems a little bit coy and I've read that it is such a characteristic to this particular dac. So if slipping a cap in tweeks it more heavy hittin I'm in. Thanks again.Rick

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