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1/2/06 at 7:25pm THREAD STARTER

post #1 of 275



Ferbose

HEADPHONEUS SUPREMUS

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1,819 Posts.. Joined 6/2004

Location: Boston

With a component this good, there is no need to beat around the bush. PreSonus central station is simply an amazing deal. It can serve as a no-compromise preamp, a first-rate headphone amp and a quality digital source. At \$500, it is utterly impossible to ignore. Strangely enough, it has attracted hardly any attention on head-fi, and hence I seized the opportunity to review it.

Features

Central Station is designed for computer-based studio users who miss the I/O and monitoring functions of the mixer. Its curiously flexible connectivity is best understood by reading the manual and the block diagram therein. It provides one active and one passive preamp signal paths, and seamless switching between multiple inputs and outputs in both balanced and unbalanced modes. It boasts a purely passive volume control circuit based on relays and resistor networks, providing totally transparency. Its two independent headphone amps deliver clean, sweet and powerful outputs, comparable to dedicated headphone amps in its price range. It accepts both Toslink and coaxial S/PDIF inputs, providing quality D/A that beguiles its modest price. Central Station is the jack of all trades in both studio and home settings.

Central Station accepts three analog inputs (one RCA, two TRS), and two digital inputs (RCA coaxial and Toslink). It has three passive outputs and two active ones. The three passive outputs are individually selectable, except that A and B can't be both on. All the input/output switching is controlled by illuminated blue buttons that activate relays (no clicking). Some audiophiles may be concerned that most of the back panel connectors are TRS female plugs. In reality one just needs TS-to-RCA adapters to keep using one's favorite RCA cables. I doubt if a rugged adapter can cause any sonic distortion. Alternatively, many pro-audio companies offer well-built TS-to-RCA cables at reasonable prices. From DAC1 to Central Station, I use Mogami XLR-to-TRS cables for balanced connection. As far as I can tell, the unit automatically adapts to balanced and unbalanced modes depending on whether TRS or TS plugs are inserted. There is no problem when I have balanced signal in and unbalanced out. There is an optional cable-linked remote control which is handy for studio users.

Looks

Here is a picture of the front and back.

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Digital Audio Meter

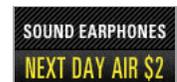
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It is fairly difficult to open up the unit, but here are two picture of its gem-packed interior. The yellow cubes are relays regulating a resistor network used to achieve purely passive volume attenuation.

Preamp Section

Today's digital sources usually have enough output voltage (~2V) to directly drive most power amps and active speakers. The most important function of the preamp is to provide volume control, instead of voltage amplification. In this case, isn't passive attenuation the best solution? After all, passive components provide the purest signal path.

However, passive volume control is not as simple as a volume pot. To ensure compatibility with other components, the preamp should maintain a high input impedance and a low output impedance. However, passive preamps based on variable resistors or stepped attenuators will have variable impedance at different knob positions, resulting in compromised compatibility, dynamics and bass. A better solution is to use many fixed-value resistors to form a network, and each volume setting should have its unique signal path involving specific resistor combinations to maintain desirable impedance values.

Central Station has a combination of 34 relays (NEC EE2-12NUX, **\$200 for 100 pieces**) and a network of military-grade, metal-film resistors to help define the specific signal path at each volume setting. If I understand correctly, as the volume knob turns, a DSP chip (Wavefront AL3101) and a programmable microcontroller chip (Atmel ATMEGA8515L) compute and choose the suitable resistor combination by regulating the relays. It is complicated inside but truly simple outside. When the user turns the volume pot (not stepped), the volume changes smoothly, without any hint of the ultrafast computation and switching events occurring inside. Central Station has been reviewed by many pro-audio magazines, and none of the reviewers reported any trace of distortion or coloration from its passive volume control. I used Central Station in a wide variety of connection schemes, and there was never a sign of weak dynamics or bass, just utter transparency. For example, my Benchmark DAC1 can operate in both fixed and variable (preamp) modes, but I now prefer operating DAC1 in fixed mode and routing to Central Station for volume control. I can't say if DAC1's built-in volume control degrades the signal in any way, but it alters things a little. On the other hand, Central Station's volume control does not add or subtract anything. People like to say that the best preamp has no sound of its own, which is easier said than done. Here is a totally transparent preamp for only \$500, can it get any better than this? How about throwing in a good DAC and two fine headphone amps?

Headphone Amp Section

I honestly did not have high expectations for the headphone amp on Central Station when I bought it. First, PreSonus HP4 did not impress me at a head-fi meet, but one should not expect too much for \$99 anyway. Second, none of the pro-audio reviews I have read seriously discussed the headphone amp functions. I assumed they were pretty mediocre, just thrown in for the convenience. They were convenient, alright, because each jack has its own volume control and input selector, operating as two independent amps. But they also sound good—clean, powerful and sweet. It compares favorably to DAC1's built-in headphone amp. DAC1's headphone amp is "lean and mean"—clean, fast and exciting, but a bit thin and in-your-face. Central Station's headphone amp is "big and easy." The output is super powerful, in fact powerful enough to drive K1000 without distortion. At the same time, with low-impedance, high-sensitivity cans like SR225, the background is pitch-black. Low level details are highly resolved when driving K501 and playing classical music, without any solid-state glare. The amp's sweetness is clearly manifested when it cures K501's slight sibilance in the violin's top range. What impresses me the most is its three-dimensionality, as it brings out low-level spatial cues to fill up K501's expansive soundstage. When K501 is driven by my Cayin HA-1A tube amp (\$450), the soundstage is equally impressive, but in a different way. Tubes make the soundstage larger by adding fullness, but Central Station does that by resolving all the miniscule spatial details. Tube warmth is comfy, but the clarity and airiness of clean SS amplification is also pleasing. At the end of the day, I enjoy my K501 equally on Central Station and HA-1A.

Surprisingly, Central Station also imparts sweetness and spatiality to SR225, making classical music quite listenable. I use SR225 mostly for rock music, in which case I still prefer it with DAC1's amp. But that's just me, and some head-fiers who heard my DAC1/SR225 found it a bit too aggressive. One man's aggressiveness becomes another man's speed and attack. I suspect there are people who would like to mate SR225 with the Central Station's relaxed presentation over DAC1's hard-pressed agility.

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Reviewed by [50an6xy06r6n](#)

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At a recent So-Cal meet, I was blessed to have Edwood's DIY headphone switch box, modeled after Ray Samuel's. With this box I could level match two amps precisely and conduct instant A/B switching. Comparing Central Station's amp to Grace m902, another headfier and I could not really tell a difference. Maybe the difference would reveal itself in a more careful listening at home, but on that spot we thought they were pretty much identical. Compared to Ray's Hornet in battery mode, the Hornet sounded a tad sweeter, and Central Station sounded a tad bigger, so they scored a tie. Only the Dynahi seemed to sound noticeably better than Central Station, offering a more refined sound.

Based on these listening tests, I believe Central Station's headphone performance would not be a misfit in a \$400 dedicated amp. Since it actually carries two independent headphone amps that can play different signals, the headphone section alone is worth its retail price (\$500). I have no idea how PreSonus can pull this off. The quad OP-amp behind the headphone jacks is nothing special (Motorola MC33079D), and the distortion quoted is not especially low (0.015% THD+N at 150 mW into 60 ohms). Nevertheless, hearing is believing.

DAC section

Several pro-audio reviews have compared Central Station's DAC other D/A devices commonly found in studios. In *Mix* magazine, the reviewer thinks it is as good as, if not better than, Apogee's well-regarded Mini-DAC (\$900). The reviewer at *Sonic State* magazine says it is only a notch behind Benchmark DAC1 (\$975). This sounds like Central Station's is competitive with dedicated DACs costing above \$500. Isn't this too good to be true?

In my own setup, I am able to compare Central Station's DAC to Benchmark DAC1 (\$975) and Sony DVP-NS900V SACD/DVD player (\$1000). The Sony is one of those early-generation SACD players known for their audio quality, but for redbook playback it is slightly bettered by Central Station in terms of resolution. DAC1 in turn is slightly better than Central Station, providing lower noise level and smoother sound. But these differences are all relatively small and require special attention to differentiate. I have no idea how PreSonus manages to install a high quality DAC in there, when D/A is only a side feature. As far as I can tell, it uses AKM chips for S/PDIF receiver (AK4117VF) and D/A converter (AK4394VF), and MC33079D for output stage.

Although Central Station can achieve D/A results well worth its price, jitter reduction may be its weakness. It accepts both coaxial (RCA) and Toslink signals, but I found Toslink to perform better. The sound is better with glass fiber optical cables than ordinary polymer fibers. Inactivating the video circuit and LCD display of my Sony transport also helps improve the sound. This suggests that jitter rejection on Central Station is not the best, definitely not as good as DAC1. DAC1 is said to be jitter immune, and indeed I have hardly heard any difference due to transports or cables. To get the best sound out of Central Station's D/A, decent transport and optical cables are recommended. Knowing that superior jitter rejection is often expensive and hard to achieve, I would still declare the DAC inside Central Station a winner. If its jitter rejection can be significantly improved, I would probably sell my DAC1.

At a recent So-Cal meet, I connected DAC1 using variable output to Central Station level matched to the internal DAC, and let some head-fiers do A/B using K501. The difference in sound quality was almost nonexistent. Because level matching happened to be quite precise, and the relay switches don't create clicks--several people actually questioned if switching really took place when I pushed the buttons. We were also fortunate to have a great source, Esoteric DV-50 (~\$5000), on the same table. DV-50's unbalanced analog out and digital optical out were both connected to Central Station, to compare the internal DAC versus the Esoteric's. Several of us were able to hear some minute differences, but it was hard to determine which sounded better. It should be mentioned that DV-50 is a mighty fine transport, and therefore PreSonus probably would not sound as impressive when driven by lesser transports. I also inserted Central Station into a four-way DAC shoot-out with Benchmark, Lavry Black and AQVOX USB2. Fed by a four-way optical audio distribution amplifier, and using identical cables, the four DACs were level matched carefully and monitored through a Dynahi amp with four inputs. Headphones were either K1000 or SA5000. In this setup PreSonus sounded just as good as the other three except for a slight hint of sibilance in the upper midrange.

After these listening tests, I am convinced that Central Station's DAC can hold its own against upper-tier digital sources. It is worthwhile to spend \$500 on Central Station just for the DAC alone.

Cons

Central Station comes with a separate power supply unit that resembles an oversized wall wart. The separate power supply outputs both 16V and 9V via a 4-pin connector. When I plug it into my Furman Power Factor Pro conditioner, I hear noticeable differences in its headphone amp and DAC sections. As usual, better power brings better resolution and a more pleasant sound. I therefore conclude that the power supply section is not top-notch, but my \$1000 Sony SACD player also benefit equally from conditioning. In comparison, DAC1

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HiFi Headphones (UK) YUIN

is little affected by conditioning, indicating an excellent power supply design. To get the best sound out of Central Station, I recommend a good, affordable power conditioner, such as the Furman Power Factor Pro unit I use (\$229). Besides, other components will also get superior surge protection to say the least.

Conclusion

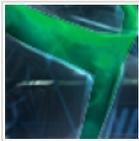
PreSonus Central Station is a super-achiever by all accounts. As a passive preamp it boasts a cutting-edge, no-compromise design. I failed to hear any sound from its passive volume control circuitry. I do not doubt that there are better-sounding active preamps out there which can add "magic" to the signal, but for me zero-alteration is good enough. In consumer audio, \$500 can only buy entry-level preamps. In comparison, Central Station's value is off-the-chart.

On top of that, it has two independent headphone amps that are powerful but sweet. After a series of comparisons at home and at a head-fi meet, I think its headphone section represents a \$500 value in its own right. As if that's not enough, PreSonus also puts in a quality DAC that comes very, very close to the performance of several upper-tier digital sources in direct A/B comparisons. Its connectivity is much more flexible than anything else in the consumer audio market. Don't forget that it also has an active preamp signal path independent of the passive preamp. As with most pro-audio products, its build quality is quite solid and is likely to last for years. I think most audiophiles on a budget will find Central Station an indispensable centerpiece for a two-channel system. Audiophiles not on a budget should still check out its preamp function, because I seriously doubt if there is a cleaner way to control volume than using relays and resistors. To say Central Station is a great bargain is an understatement. I wish more audiophiles could experience it for themselves to see why it has already caused a splash in the pro-audio world.

Reply

1/2/06 at 8:45pm

post #2 of 275



Naga

500+ HEAD-FI'ER

offline

969 Posts. Joined 12/2004

Location: ____

nice review, i have an HP4 and i like it (havent spent alot of time w/ anything else really); a few others like it too - what can you say about the quality of the pots on this? (they feel almost like crap on the hp4 🙄)

i wonder how this central station would work w/ the HD 580

edit: also greatly looking forward to the comparison b/w this and other SS amps

Reply

1/3/06 at 1:31am

post #3 of 275



jvbb2005

100+ HEAD-FI'ER

offline

262 Posts. Joined 10/2005

Thank you for your inputs, Ferbose. I have to say I really enjoy reading this **GREAT** review. However, coming from a consumer grade hi-fi/head-fi world, I don't really understand some pro terms and got no clues about the "**Pro connectivity**" thing. May I ask a few questions?

1. What's the purpose of the green meters looking thing on the front panel?
2. Do you think this HP sections of the central station can power oldies monitoring cans like the 600ohm Senn HD540s, 400ohm AKG K340s, 600ohm DT880s?
3. Do you hear any background noise when you plug low-impedance cans or IMEs like Westone UM2s?
4. Do you think the redbook performance of the DAC section is better than the redbook performance of SONY S9000ES? What happens if I play SACD? Will the digital signal bypass the DAC of the central station?
5. You said that the HP amp is neutral. This is what I am looking for in an amp. But does this neutral sound become *BORING/ not so exciting* over long listening sections and make one unable to enjoy the music but analysing the music?
6. Can you give a ball park figure on roughly how much one needs to invest in new cables/adaptors should the central station be introduced to a system with only RCA connections?

Sorry about shooting so many questions at once. I am just too new to the pro gears.....

Reply

1/3/06 at 2:51am **THREAD STARTER**

post #4 of 275