

## HANDS-ON REVIEW

# Bryston BDP-π Digital Music Player

BY GORDON BROCKHOUSE



Here's a trick question: which is the better platform for computer audio, Mac or Windows? Depending on how adept you are with computers, how willing you are to troubleshoot software problems, and how highly you prioritize sound quality, the correct answer may be "neither."

Several audio brands offer components that can play music files from an attached, networked or built-in drive, and also stream music from the Internet. While these products look like conventional stereo components, under the hood they're single-function computers dedicated to playing music. All (or almost all) of them run some variant of the open-source Linux operating system.

Bryston offers two such products: the BDP-2 Digital Music Player (C\$3,495), introduced in 2014 and upgraded a year ago, and the smaller BDP-π (a.k.a. BDP-pi, C\$1,295), launched this past summer. Both require a separate DAC. The BDP-2 offers several advantages over its kid brother, including DSD playback capability, support for internal 2.5" drives, and a broader range of output interfaces.

The newer BDP-π is part of Bryston's range of one-third-size components. Inside the compact chassis is a Raspberry Pi single-board computer and HiFiBerry Digi+ digital output board. Originally developed in the U.K. as a low-cost platform for teaching computer science, the Raspberry Pi has been adopted by hobbyists for home-built computer audio playback systems.

You can piece together a home-built Raspberry Pi music server for about one-third the cost of a BDP-π, but the process is involved and quite fiddly (especially loading the operating system). With the BDP-π, you get a fully built and configured system, with pre-installed "Manic Moose" music software. *Manic Moose* can be controlled from a Web browser running on a PC, Mac, iOS or Android device.

On the back are an Ethernet network interface, four USB ports, HDMI output, TOSLINK optical digital output, and SPDIF coaxial digital output. The USB ports can be used for connecting USB drives and for output to a USB DAC. The BDP-π supports high-res audio to 192kHz/24 bits.

While you can theoretically operate the BDP-π using front-panel buttons and menus on the small 2.5" colour LCD, it's way easier using the Web interface. For that you need a network connection. The BDP-π does not have built-in Wi-Fi, so if your audio system isn't near your network router or an Ethernet drop, you'll need to put in a Wi-Fi bridge to get the player connected to your home network.

### APPLE VERSUS PI

The BDP-π piqued my interest because it's about the same price as the Mac Mini that I use for computer audio playback. I wanted to assess the claims of Bryston (and makers of similar products) that its digital players deliver better sound quality than conventional computers.

Here's their rationale: when playing music, PCs and Macs often have several unrelated processes running. This can stress computer resources, which may compromise bit-perfect playback, especially with high-resolution files. Most computers have spinning hard drives and fans that inject unwanted noise into the listening environment. Most desktop computers (including the Mac Mini) have internal switching power supplies, which create electrical noise, as do the computer's video, Wi-Fi and Bluetooth circuitry. The computer's audio sub-system may perform sample-rate conversions that compromise bit-perfect playback, particularly with high-resolution files.

By comparison, the BDP- $\pi$  has an external power supply; and it has no video circuitry, Wi-Fi, Bluetooth, fans, or spinning hard drive. It doesn't have to scan for viruses or monitor peripherals. Its hardware and software is dedicated to one task: bit-perfect audio playback. So it's reasonable to expect a component like the BDP- $\pi$  to deliver better sound than a five-year-old Mac Mini.

I should note that I've performed some upgrades to my Mac, all aimed at optimizing sound quality. The most important was installing *Audirvana Plus* music software. *Audirvana Plus* bypasses *iTunes*, the Mac's pre-installed music software, and the Mac's Core audio system. It prioritizes audio playback over other tasks. By default, *iTunes* plays all music, including high-res files, at CD resolution. There's a pain-in-the-ass way to change playback to a different resolution, but *iTunes* won't automatically make changes to suit the file you're playing. By contrast, *Audirvana Plus* can be set to play all music at the native sampling rate, or to upsample to a setting suitable for your DAC. It will prioritize audio over other tasks during music playback, so that other processes don't disrupt playback. There



Bryston's BDP- $\pi$  digital music player has four USB ports for connecting external drives and output to a USB DAC. There are also TOSLINK optical and SPDIF coaxial digital outputs, plus HDMI. The USB, TOSLINK and SPDIF outputs support resolution to 24 bits/192kHz; HDMI is limited to 16/48.

are other programs that provide similar functions, such as *JRiver Media Center*, which is available for both Mac and Windows. If you're playing music (especially high-res music) from a computer, better player software than *iTunes* or *Windows Media Center* is a must.

I also increased the Mac Mini's RAM from 4GB to 16GB. This lets me set *Audirvana Plus* to load an entire high-res album into system memory before playback, limiting hard drive access. I've also replaced the original 750GB spinning hard drive with a 240GB solid-state drive (SSD) to improve system performance. The operating system and music app run from the SSD; the music files are on an external Thunderbolt drive.

A current Mac Mini with similar capabilities (8GB RAM, 256GB SSD) retails for C\$1,207, including mouse and keyboard. Add a monitor and music software, and you're about the same price as the BDP- $\pi$ . In both cases, you have to add storage for your music library.

Even if you're playing music files from a device like the BDP- $\pi$ , you'll like want a regular computer for tasks like ripping CDs and tagging your music files. You can transfer music files from your computer to a drive connected to a BDP- $\pi$  over your home network from macOS Finder or Windows File Explorer, and also edit their metadata from your computer.

### TIME TO LISTEN

Bryton Vice President James Tanner delivered the BDP- $\pi$  to my Toronto home in early October, and connected it to my system and home network. The network connection involved connecting an Ethernet cable from the Apple AirPort Express to the BDP- $\pi$ 's network port, then pointing my iPad's Web browser at the BDP- $\pi$ . Easy as pie.

That brings up the *Manic Moose* screen. There are two views: the dashboard for checking and adjusting player settings, and the Media Player for selecting music. In anticipation of this project, I had already loaded a few hundred albums onto a Western Digital Passport drive, which I connected to one of the BDP- $\pi$ 's USB ports.

On Tanner's recommendation, I used a coaxial SPDIF connection between the BDP- $\pi$  and the internal DAC on my Simaudio Moon Neo 340i integrated amplifier. I started with a generic 75 $\Omega$  video cable. But to make the playing field as level as possible, I substituted a 1m Wireworld Silver Starlight 7 Digital Audio Cable (US\$250). This is a reasonably close match to the 1m Wireworld Platinum Starlight 7 USB cable between the Mac Mini and the 340i's internal DAC.

### PROS

- + Excellent sound; fully comparable with a carefully tuned Mac and specialized software
- + No fuss, no muss: just connect the BDP- $\pi$  to your home network and enter the player's address into your Web browser
- + Stability: a dedicated single-source player makes glitches less likely, and provides a single point of contact if problems occur

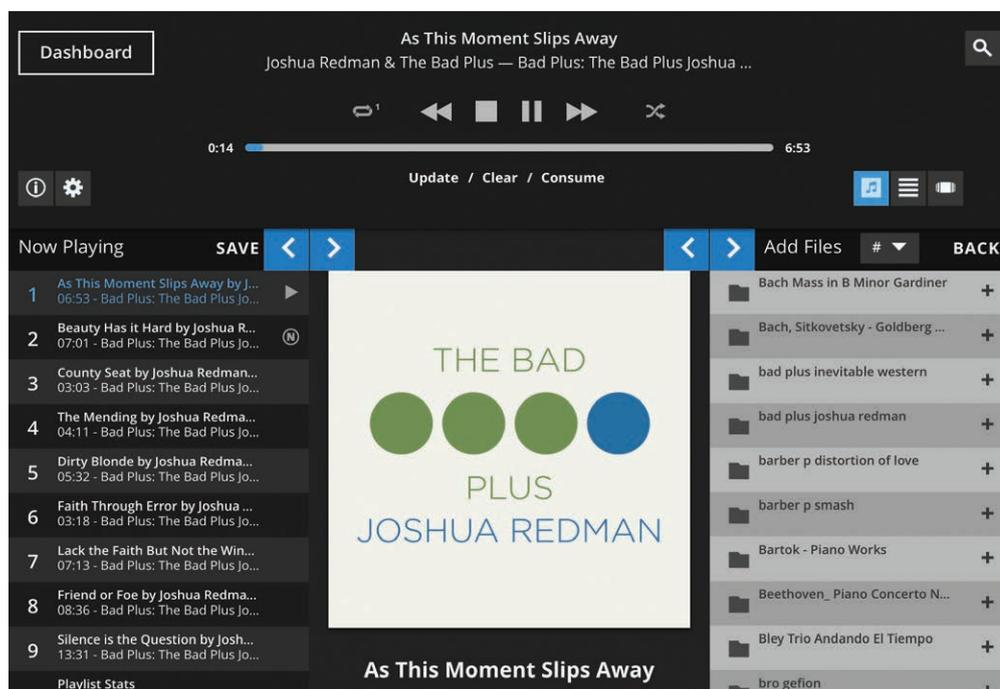
### CONS

- Compared to Apple and Mac applications, control software has a Spartan feel to it (but it gets the job done)
- No Wi-Fi; if your router isn't near your audio rack, you'll need a Wi-Fi bridge

This allowed easy back-and-forth switching between the Mac Mini and BDP- $\pi$ . I spent hours cuing up the same music on both platforms and then straining to hear differences. I listened to jazz, classical and rock, in CD-resolution and high-res, through KEF LS50 monitors (with a Sunfire Atmos XT subwoofer filling in the bottom octaves) and HiFiMAN Edition X V2 headphones. With some tracks, I switched back and forth quickly for instantaneous comparisons of the same passage. On others, I'd listen at length on one input and then the other, so I could bask in the experience.

Initially, I set *Audirvana Plus* for bit-perfect playback at the native sampling rate. The background on the BDP- $\pi$  seemed a tiny bit blacker, with the emphasis on "tiny." Next, I tweaked *Audirvana's* filter settings to upsample 44.1 and 88.2kHz files to 176.4kHz, and 48 and 96kHz files to 192kHz. This added a slight bit of refinement to the Mac Mini, making the BDP- $\pi$  sound a tiny bit grainy by comparison, again with the emphasis strongly on "tiny." We're talking very small stuff here, definitely not worth sweating.

Lastly, I used a new option in *Audirvana Plus* to upsample PCM audio to DSD 128. This tilted the contest in the Mac Mini's favour. The sound became smoother, more analog-like, less electronic. The portrayal of space surrounding the musicians became more convincing, and the image acquired greater specificity and depth. The difference wasn't night-and-day; but it was noticeable and worthwhile – except for one thing.



By default, *Manic Moose*, the BDP- $\pi$ 's media player software, provides a folder-and-file view of your music. Attached and network drives appear in the right-hand pane. You can click on a folder to browse the folder's contents, or click the adjacent "+" sign to add its contents to the player queue. During playback, you see tracks in the queue in the Now Playing pane on the left. Album art and track information appears in the middle pane.

Upsampling to DSD 128 stresses the Mac Mini's processor to the point that the internal fan has to go full-speed to prevent overheating. I find this noise intolerable, and do not use this feature.

Other than upsampling to DSD, I have never, ever heard fan noise from my Mac Mini when playing music. As I verified with a macOS utility called "Activity Monitor," during music playback, *Audirvana Plus* is the primary user of system resources while it's loading a track into memory (typically 30 seconds or so); but CPU load is only about 25%. After that, it drops to less than 1%. Using a utility in *Manic Moose*, I confirmed that CPU load on the BDP- $\pi$  during playback ranged from 20 to 30%.

My conclusion: other than upsampling to DSD on the Mac, there is no significant sonic difference between these devices. That's not to say categorically that a dedicated player like a Bryston BDP can't outperform an off-the-shelf Mac or PC. For example, the BDP-2 has a linear power supply, whereas the BDP- $\pi$  and Mac Mini both employ a switching-mode power supply. Proponents maintain that linear power supplies are preferable because they produce less electrical noise. Cited benefits include improved dynamics, transients and articulation. Some hobbyists will retrofit an aftermarket linear power supply into their computer in pursuit of these benefits.

But in the case of the BDP- $\pi$  and Mac Mini, we have two audio sources that are virtually identical in terms of audio quality.

### IT JUST WORKS

But there are important differences between the two platforms, one of them being stability. In the Windows and Mac worlds, your computer can be playing tunes just fine until you install an update to the operating system. Then weirdness strikes.

A couple of years ago, after installing an updated version of OS X and iTunes, the music program I was using at the time (*BitPerfect*, which runs on top of iTunes) stopped playing high-resolution files. Basically, Apple broke something that was working just fine. I had two choices: wait until *BitPerfect* issued its own update (and went through Apple's approval process), or try to revert to the old version of OS X and iTunes (which technically isn't allowed, and isn't at all easy).

I've had minor issues with *Audirvana Plus* following Apple software updates, in which useful options that allow the player to bypass the Mac's audio subsystem were no longer available. (Some were restored in subsequent releases of macOS.) These things don't happen often, but it's maddening when they do.

Here is where a dedicated component like the BDP- $\pi$  has a real advantage. It's basically turnkey:

you don't have to purchase and install special software and other add-ons. It just works, and can be expected to keep on working. You're not constantly being nagged to install OS updates that could disrupt music playback. With the hardware and software coming from a single source, if something goes wrong, there's only one responsible party.

This can be a huge benefit not only for computer-phobic audiophiles, but for audio retailers as well. Dealers can't be expected to help with computers and third-party applications that they don't sell. But they are in a position to support purchasers of single-purpose products like the BDP- $\pi$ .

### POLISHED APPLES

However, it's not a shutout. While the BDP- $\pi$ 's *Manic Moose* interface works fine, it's less polished than applications like *Audirvana* and *JRiver* – or *iTunes* and *Windows Media Player* for that matter.

By default, *Manic Moose*'s Media Player provides a folder-and-file view of your music, much like Windows File Explorer and macOS Finder. This makes it important that you choose file and folder names that are descriptive enough for you to remember their contents. Attached and network drives appear in the right-hand pane of the *Manic Moose* player. If you add a drive, you'll have to re-index the music library. You can click on a folder to drill down and browse the folder's contents, or click the adjacent "+" sign to add its contents to the player queue.

During playback, you see tracks in the queue in the Now Playing pane on the left. You can change their order just by dragging and dropping them. Album art and track information appears in the middle pane. On top are transport controls for pausing, skipping tracks etc. Alternatively, you can choose the artist view, which shows artists in your collection in a narrow left-hand pane, and albums by the highlighted artist in the larger right-hand pane. Bryston is developing an album view for *Manic Moose*, which presumably will be pushed out as a firmware update.

In addition to local content, the BDP- $\pi$  can play Internet radio. You can also access the Tidal streaming service by clicking the Applications button on the Dashboard screen. After logging in, you can access your TIDAL favourites, playlists etc., just as you can from the TIDAL app.

You can also control playback with third-party software players. For iOS, a cheap-and-cheerful choice is *MPaD* for the iPad (\$4 from the App store) and *MPoD* for the iPhone (free). These provides a familiar artist-and-album view of

your music. There's also an Android version: *MPoDroid*. I found *MPaD* generally satisfactory, except for its inconsistent display of album art. It's more colourful than *Manic Moose*, but still rather utilitarian.

At the other extreme is *Roon* music library software (a Meridian Audio spinoff). This is a very slick piece of software that scans your local music libraries and TIDAL favourites, then combines everything into an extremely rich interface that includes not just your music, but resources like reviews and artist bios. And it generates recommendations based on your preferred music.

The BDP-π can act as a *Roon* endpoint, meaning that *Roon* will play music through it, and integrate music on drives connected to the BDP-π, either directly or networked. For this to work, the *Roon* core software has to be running on a PC or Mac connected to the same network as the endpoint. You control everything with the *Roon* app, which is available for Windows, macOS, iOS and Android (but check hardware requirements).

*Roon* has been garnering great reviews, and quite a few awards, but I find it overwhelming. It's also expensive. *Roon* is offered on a sub-

scription basis: US\$119 annually or US\$499 for a lifetime subscription. That's not too rich for everyone's blood, but it's too rich for mine.

It may be a matter of familiarity, but to me applications like *Audirvana Plus* hit the sweet spot: polished, functionally rich and intuitive, without being overwhelming. You can stream TIDAL from within *Audirvana*, so that the service benefits from the program's excellent sonics. For the adventurous, there are lots of intriguing options, like the ability to tweak digital filters to suit your DAC. A license cost US\$74. For US\$10, you can add *A+ Remote*, an app that lets you control *Audirvana* from your listening seat, using an iPad or iPhone.

If *Audirvana* isn't your cup of tea, there are other choices, like the hugely popular *JRiver Media Center* (for both Mac and Windows) and *BitPerfect* (\$10), a nifty Mac-only player that works with *iTunes*.

### THE BOTTOM LINE

Let's rephrase the question I posed at the beginning of this piece. For file-based music playback, is it better to use a general-purpose personal computer, or a dedicated digital player like

the Bryston BDP-π? As should be clear by now, there's no straightforward answer.

From a control standpoint, I prefer PC and Mac players like *Audirvana* and *JRiver* to *Manic Moose* and *MPaD*. I think anyone coming to serious computer audio from *iTunes* and *Windows Media Player* will feel the same. But *Manic Moose* and *MPaD* definitely get the job done.

On the other hand, I value the stability that a dedicated digital player can provide. I've suffered through enough software glitches to appreciate the value of a product dedicated to a single function. In the computer world, most of us have had the experience of software, hardware and peripheral vendors pointing fingers at each other when something stops working – or just shrugging their shoulders. That won't happen with the BDP-π; Bryston is responsible for everything.

On sonic grounds, it's basically a coin toss. The audio performance of the BDP-π is excellent, but not appreciably better (or worse) than a properly configured Mac or PC. Note the qualifier "properly configured": that involves some upfront work, as well as periodic troubleshooting. That's where the real difference lies. **wh**