

# Accell DisplayPort 1.2 to HDMI 2.0 Adapter Review

- By Ari Altman
- Published February 29, 2016
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## Pros

Works like magic, turning a DisplayPort output into an HDMI 2.0 output in terms of video, passing 4K at 60Hz with 4:4:4 sub-sampling; comes in at a reasonable price

## Cons

Surround sound is too much to ask for...

## Star Rating



## Introduction

Since the introduction of 4K TVs, home theater PC enthusiasts have been hoping to get their hands on an easy method to actually get high-quality 4K images on screen. Sure, you could use HDMI 1.4, which any modern PC comes equipped with, but then you're stuck with 4K at 30Hz, which is anything but a smooth experience. And while DisplayPort 1.2 is more than capable of providing 4K output at 60Hz, the vast majority of mass-market TVs don't come equipped with a DisplayPort input. So it is with great excitement that The Tech Buyer's Guru reviews Accell's new [DisplayPort to HDMI 2.0 Converter](#), which promises to be everything enthusiasts have wanted for so long!

HDMI 2.0 output on desktop PCs has actually been possible since September 2014, when Nvidia

released its GeForce GTX 900 line of GPUs. But they started out quite expensive, and only in late 2015 did Nvidia finally release a video card targeted at HTPC enthusiasts: the [GeForce GTX 950](#), which came it at \$150 and offered both HDMI 2.0, HDCP 2.2, and even H.265 encoding and decoding! Alas, that's still a lot of money if all you need is basic 4K output for desktop use or video streaming, and furthermore, thusfar no GTX 950 model has arrived in the low-profile format often required for HTPC use.

Many enthusiasts had hoped Intel would come to the rescue with the release of the Skylake platform in August 2015, and the surprise of many, including TBG, Intel simply ignored the 4K HTPC market all together. Yes, Skylake can now do 4096x2304 at 60Hz over DisplayPort, up from 3840x2160@60Hz on previous-gen products, but that's not the trick we've all been waiting for. And all along, AMD has been strangely-silent on HDMI 2.0, with even its ultra-high-end Fiji GPUs, released in June of 2015, failing to include a single HDMI 2.0 port. It's as if HDMI 2.0 were a dirty word, but the truth is that it's the only thing that makes the true 4K TV experience possible.

So as you can probably tell, there are plenty of folks lined up for a way out of this quagmire, and Accell has swooped in to potentially save them all with one simple product, its DisplayPort 1.2 to HDMI 2.0 converter, [available at Amazon for \\$37.99](#). Will it save the day? Our review will answer that question in short order!

*We'd like to extend a special thank you to Accell for providing this review sample.*

## **Description and Features**

There really isn't too much to say here. This is a self-powered converter, which you plug into your video output, and then pair with a high-quality HDMI cable to pass 4K signals. Please, dear reader, take that "high-quality" bit seriously. Older HDMI cables will fail right off the bat, so despite the fact that the HDMI consortium refused to create an HDMI 2.0 cable spec, there is such thing as an HDMI cable that cannot meet the spec. So, if you haven't purchased an HDMI cable lately, do yourself a favor and buy [Amazon's "latest standard" cable](#), which we can assure you is code for HDMI 2.0!

Speaking of specs, Accell has published some fairly heady specs on this part, the most relevant of which we've listed below:

- Resolution up to 4096x2160 @60Hz, 8-bit color
- 3D video support up to 1080p @120Hz
- Supports content protection formats HDCP 1.4 and HDCP 2.2
- Audio support up to 8 channels LPCM @32kHz
- Supports RGB up to 12 bpc, YCbCr4:4:4 -4:2:2 -4:2:0 up to 12 bpc

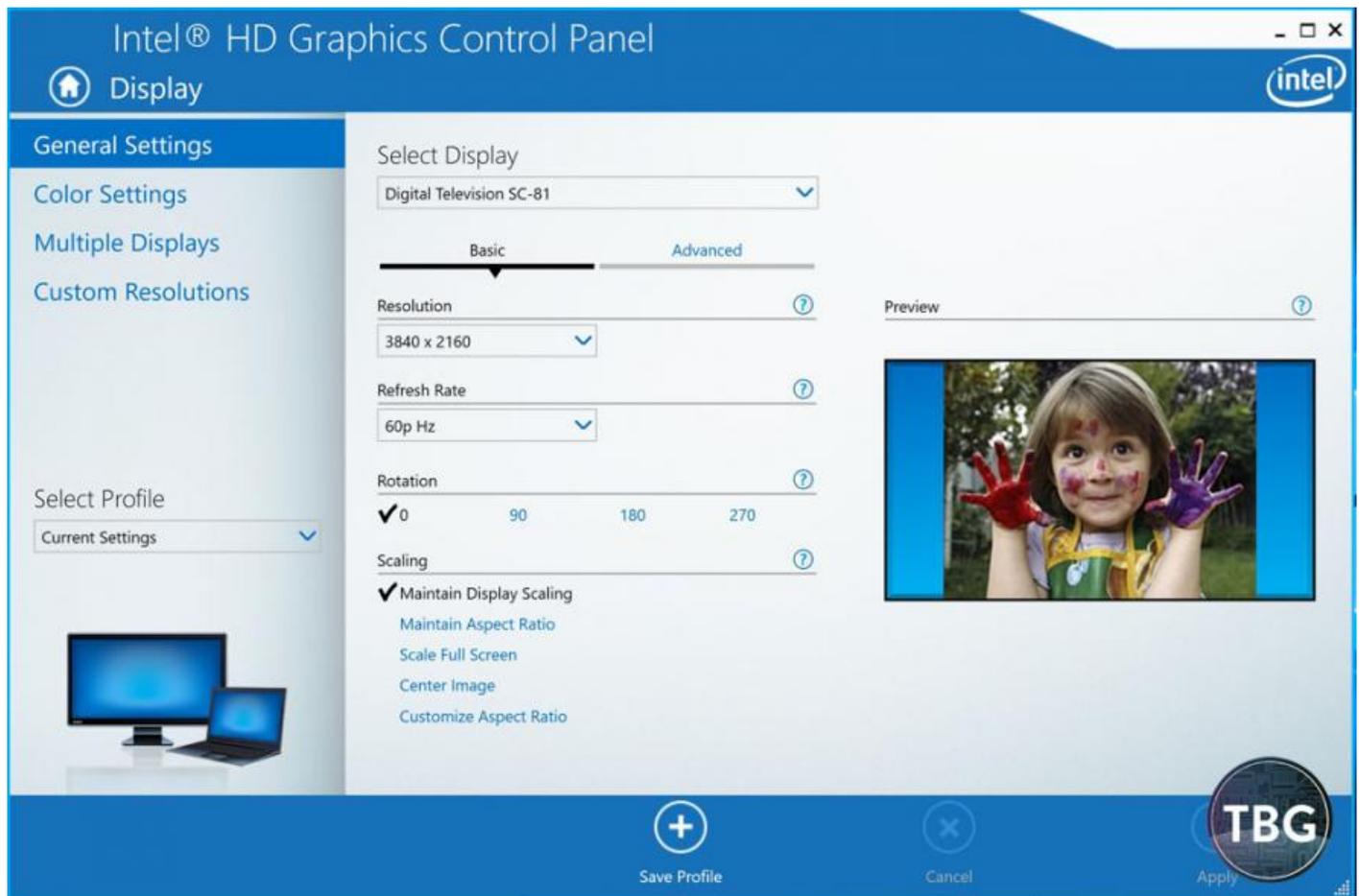
Truth be told, there's one spec above that is a bit tricky to interpret, and it turns out to be a whole lot less useful than you might think it is. We'll explain all that on on the next page.



To put the adapter to the test, we tried it on two test systems:

Both systems were tested with the following AV equipment:

We're going to give this cable a real workout, seeing whether it can beat running an HDMI cable from the HDMI 1.4 output of both of our systems (using Intel Haswell and Skylake chipsets), and then whether it can match the HDMI 2.0 output of our GeForce GTX 980 Ti video card! But before we get to the actual performance on the next page, first we present proof that this adapter can indeed output 4K@60Hz from your motherboard's built-in Intel DisplayPort:



But there's more than meets the eye, literally, as you'll see on the next page...

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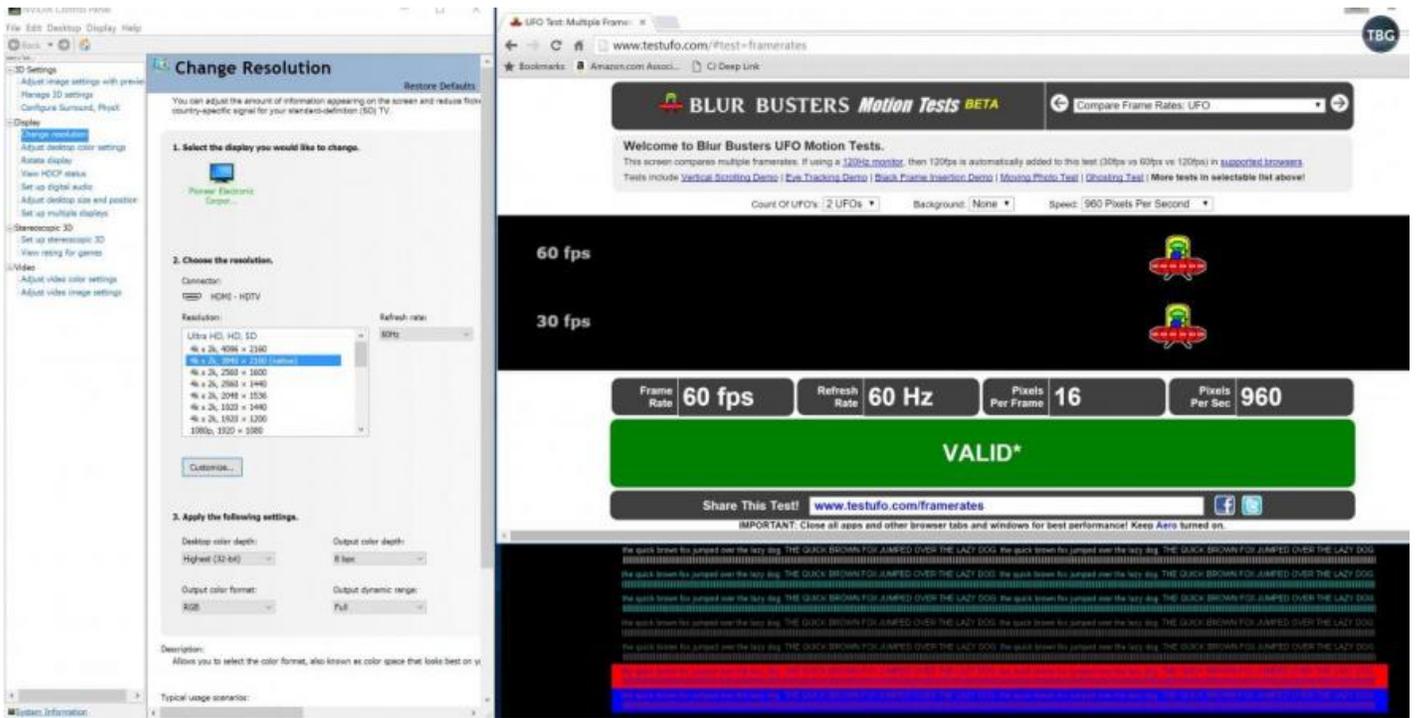
## Cons

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## Performance

On the previous page, we showed how an Intel-based motherboard could output 4K@60Hz to a TV via DisplayPort. We also tested our GeForce GTX 980 Ti video card, which has an HDMI 2.0 outputs, as well as multiple DisplayPort outputs. In the test below, we've used one of the DisplayPort outputs:



Here we see all the relevant video specs checking out: 4K RGB output at 8bpc with the full dynamic range, properly rendering at 60fps as shown on [testUFO.com](http://testUFO.com) and demonstrating full 4:4:4 chroma subsampling (using a test image [available here](#)).

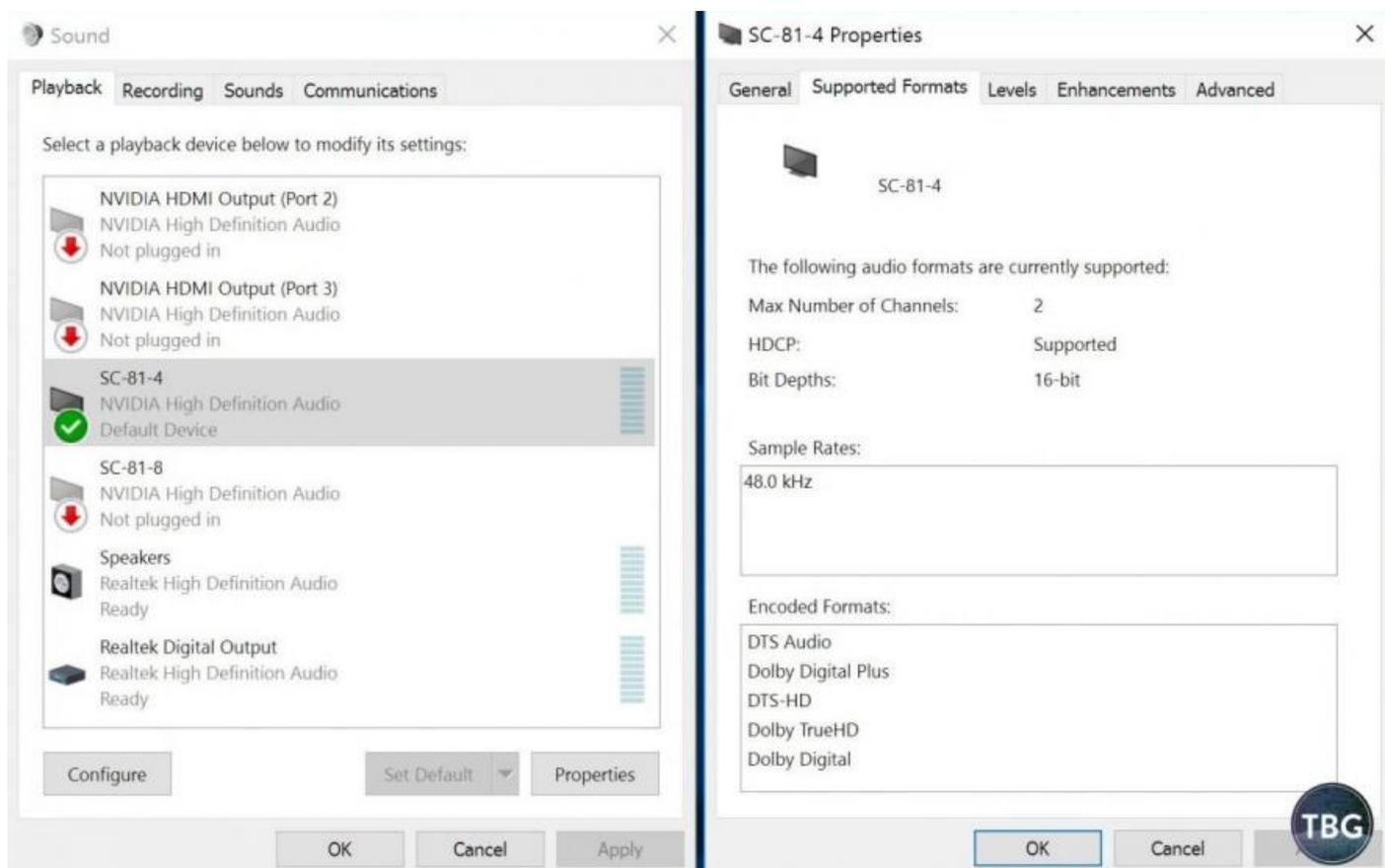


So story, over, right? Well, let's do a couple more tests to make sure. First, we loaded up Rise of the Tomb Raider and set it to a 4K resolution. Sure enough, it was able to render at above 30fps, which HDMI 1.4 is limited to. The screenshot shown here is compressed, but you can see the [original here](#). Note that even our beefy GeForce GTX 980 Ti 6GB cannot hit 60fps in this game, but it does go over 30fps.



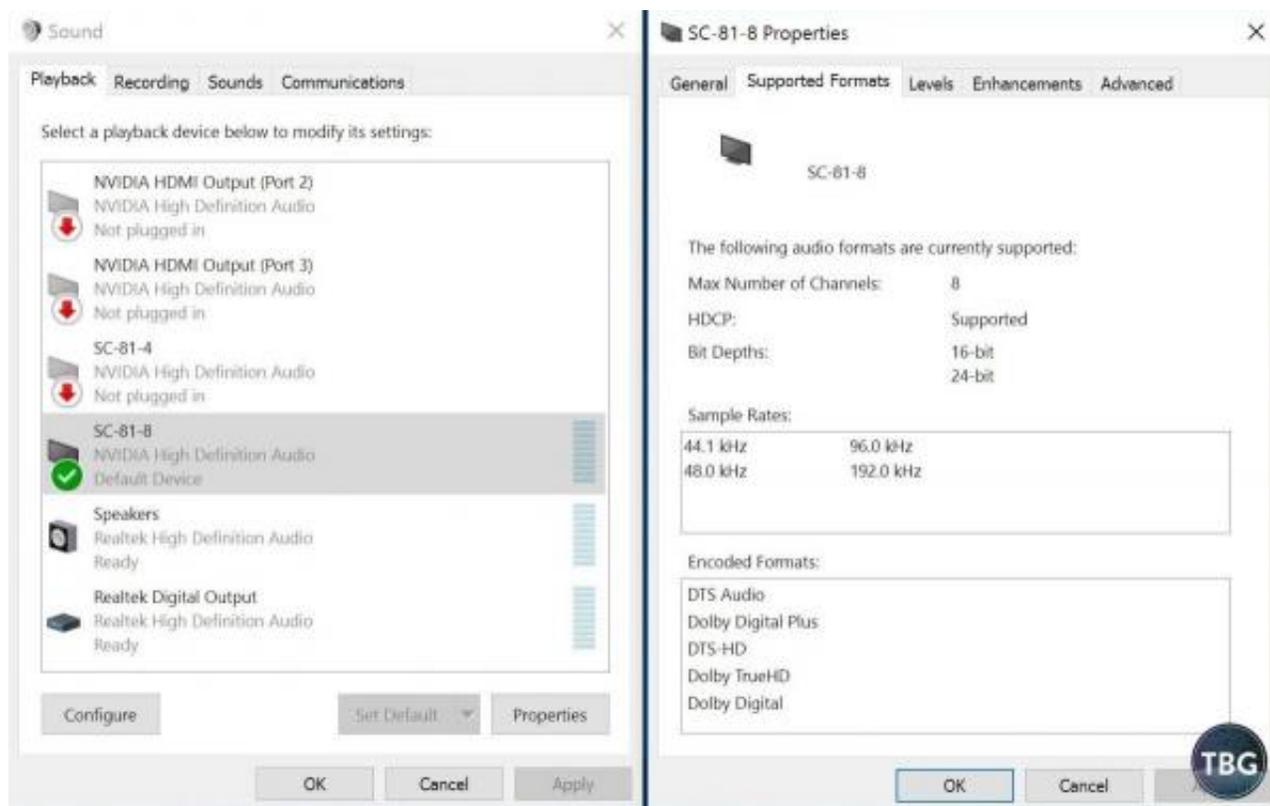
Secondly, we loaded up a stunning new 4K streaming clip, [Skylight](#) on Vimeo, which truly demonstrates the magnificence of a 4K image on a 4K set. We had no dropouts, skipped frames, or other anomalies. Again, the full 4K screenshot is [available here](#).

So the Accell adapter passes with flying colors, delivering 4K results that PC enthusiasts have been dreaming of for years, right? Well, hold on a minute. As we said on the previous page, there's a catch, and it's more than meets the eye. In fact, it's what *doesn't meet* your ears. While this adapter is rated to pass 8-channel audio at 32kHz, that unfortunately doesn't mean anything to high-end audio equipment. Using our GeForce card as an example, we see that surround sound isn't even an option:



When hooked up to our Intel-based motherboard, we could select surround sound, but it would not output any sound at all. And this is in contrast to simply using an HDMI 1.4 cable, where you're greeted

with the option to actually enable surround sound, as shown in the screenshot below.



Needless to say, no matter what we tried, we could not get surround sound output from the Accell adapter, despite it working perfectly through our Pioneer AV receiver over HDMI 2.0 on our GeForce card and over HDMI 1.4 via both of our Intel-based test motherboards. We're going to call a spade here: Accell is listing a spec that will mis-lead consumers, because even if it's technically correct, it's meaningless in terms of generating usable audio output.

## Conclusion

So were we initially blown away by the Accell adapter? Yes, absolutely! It's achieved something that seemed impossible for years, a simple, inexpensive, self-powered adapter that allows 4K HDTV users to get true 4K@60Hz content displayed off of PCs not equipped with a modern Nvidia GeForce card.

But the devil is in the details, and the Accell adapter isn't quite a true HDMI 2.0 substitute, as it simply cannot handle surround sound signals at the bitrates PCs actually use. This is quite a let-down, but for anyone using built-in stereo speakers on an HDTV set, this isn't a concern at all. We could get perfectly good stereo sound in all of our test clips.

Do keep in mind that you'll need a DisplayPort port, either on your video card (all modern Nvidia and AMD cards have them), or on your motherboard. While budget motherboards rarely include such outputs, you can find them on mid-range boards like the Asus H170 Pro Gaming, which is available from [Amazon for \\$129.99](#). Choosing a board like this for your next build will allow you to achieve 4K video output at 60Hz without investing in a separate video card. To see sample builds that you might use this model with, check out our comprehensive [Do-it-Yourself PC Buyer's Guides](#). You can even pair it with an

[Intel NUC](#) when used with a [mini-DisplayPort to DisplayPort adapter](#)!

As of our publication date, the Accell DisplayPort 1.2 to HDMI 2.0 Adapter is available for [\\$37.99 shipped free through Amazon](#).