

Guidemaster: Is Valve Index the best virtual reality system to buy in 2019?

Enlarge / Front row: PlayStation VR, Oculus Quest, Valve Index, Oculus Rift S. Back row: HTC Vive, Oculus Rift, HTC Vive Pro. (Only headsets from the front row made our recommended-in-2019 list.)

Sam Machkovech

reader comments

67 with 49 posters participating, including story author

Share this story

Virtual reality as a consumer-grade tech isn't going anywhere if the PC gaming titans at Valve Corporation have anything to say about it.

Today marks the company's launch of its own VR system, the Valve Index, and it's easily the company's biggest hardware launch ever. Valve has previously sold \$50 controllers and set-top boxes, and they've partnered with other hardware makers to launch things like computers. But the Valve Index is another level entirely—it's priced at \$999 for a full kit, built top to bottom at Valve's Seattle-area headquarters.

What's more, its launch day allocation sold out even before I'd written my lengthy hands-on impressions article last month. Not bad for a gadget category that's still often relegated to "niche" status.

Clearly, companies are still plugging away at VR and taking it

seriously enough to launch new headsets and interesting games in 2019. We're a full three years out from the first wave of VR headsets, and those initial offers (like the Oculus Rift or PlayStation VR) have yet to be left in the compatibility dust. Right now it all adds up to a *lot* of VR headsets to choose from, whether you're a brand-new buyer or someone keen to upgrade your existing rig.

So instead of focusing exclusively on the Valve Index for its launch day (especially since, again, it's sold out as of press time), I'm using this as an opportunity to resolve the state of the VR union. Ars has tested pretty much every major VR headset that's available to customers in 2019, and using that experience and knowledge I'll try to answer the two questions I get the most in my line of work: "Which VR headset is the best?" and "Should I buy into VR yet?"

Note: Ars Technica may earn compensation for sales from links on this post through affiliate programs.

Table of Contents

Remind me why I should care about VR

Modern virtual reality, for the uninitiated, is sometimes as simple as strapping a monitor to your face with a motion-sensing system attached. Move your head while you're seated in a chair, and the screen's imagery will transform in a way that replicates being somewhere else. ("You're on a beach. Look left, and you'll see the ocean. Look right, and you'll see the resort.")

Take that one step further, and you can expect a fuller "six degrees of freedom" (6DOF) system. That means you can put on a headset and then get up from your chair and walk around (so long as you map out a "safe space" beforehand, which most VR

systems support). These systems also typically include handheld controllers, and their combinations of buttons and triggers can turn your hand into a gun, a paintbrush, or something else. Hold the controller in front of your eyes, and you'll see it convincingly float in your VR view.

Why go to all this trouble when a TV or phone screen can do the trick? The best VR software answers that by translating your head, hand, and body movement in ways that might otherwise be abstracted by a controller or a mouse. Think of the first time you waved a Wii remote to throw a ball or play tennis—way more immersive than tapping a single button—then imagine that sensation cranked to 11 by truly natural motion. Some of my favorite VR software of the past few years has let me: wave a lightsaber to the beat of uptempo music; control a Mario-styled hero while literally using my head to solve puzzles; mold 3D pieces of art without spending a penny on supplies; play incredible games of laser tag in my modest living room; get sucked into a transcendental Tetris experience; and much, much, much more.

All of those games and apps, by the way, require a 6DOF setup as opposed to the “3DOF” limits you'll find on systems like Google Cardboard and Samsung GearVR, which turn your smartphone's display into a simple VR system. This guide focuses exclusively on 6DOF VR options. If you're interested in a simpler, cheaper VR experience, I recommend the \$200 Oculus Go (or at least reading my lengthy May 2018 review of that platform). There's a whole world of “virtual reality cinema” that works on 3DOF headsets, as well, which we've covered at length in the past.

Valve Index: The VR system of the future, at least in terms of

screens

- The Valve Index and its incredibly reflective front plastic plate in my Seattle apartment.
Sam Machkovech
- Valve Index's shipping box.
Sam Machkovech
- A super-zoom of the hardware's logo on the cardboard box. It's stylin'.
Sam Machkovech
- I'm a big fan of the color-changing reflections on the sticker. It was a real heartbreak to break this seal.
Sam Machkovech
- The inside of the Valve Index's shipping box, top layer. Let's pull those blue tabs...
Sam Machkovech
- ...and get to the second layer. This includes mounting hardware, AC adapters, and cables for the lighthouse tracking boxes; charging cables for the controllers; and a foam "back plate" to insert into the headset if you have a smaller-than-average head.
Sam Machkovech
- Another Valve Index view on the retail box.
Sam Machkovech
- Valve Index, as donned on the author's head.
- This strap doesn't reinvent the VR headset wheel, but it's plenty comfortable and evenly distributes the hardware's weight.
- Pulling the headset up to rest on your forehead is absolutely an option and works fine enough.

Since today is the Valve Index's launch day, this portion of the guide is the longest. I'll start with a TL;DR: Everything that I love about the Valve Index (\$999 for full system, \$499 for headset only) feels like the future of VR. Everything disappointing about the Valve Index feels like a holdover from

the industry's past.

Valve spoke directly to this duality when introducing the Index system in late April. The company's spokespeople made very clear that it wants the VR hardware universe to deliver three major "tentpoles" of quality, then the company highlighted Valve Index's emphasis on only one of those tentpoles: "high performance." The result is a system that feels like VR made by engineers for engineers. The Index offers huge boosts in screen, audio, and controller quality, but it's marred by some usability compromises.

This all begins with the system's pair of LCD panels, which deliver a combined pixel resolution of 2880×1600. We've seen that exact number on the HTC Vive Pro and Samsung Odyssey+ (more on those later), but Valve Index didn't stop at resolution. Its engineering team effectively transformed that pixel count into something that feels much fuller than the competition with a few tricks. First was a shift from OLED panels to a new "fast-switching" LCD panel process, which includes a much more dense "subpixel resolution"—meaning, Index's screens don't have noticeable, tiny gaps between pixels (better known to VR veterans as the "screen door effect"). Whether reading a virtual sign or a virtual piece of paper, users can expect more legible details than they'd see in similarly specced OLED panels. Playing a "VR MMO" like *Orbus* means contending with a lot of text, and Valve Index makes that stuff easier to parse than other headsets in its weight class.

What's more, the field of view (FOV) within Index is roughly 20 degrees wider than any other headset on this list... *without* demanding additional horizontal pixels. This is a neat engineering trick on Valve's part. Index's custom-designed panels and lenses don't appear to use particularly unique parts compared to other headsets; tightly zoomed photos of the headset's insides look like other headsets, quite frankly. Yet not only does Index offer a wider horizontal expanse to let

users perceive more peripheral content, it also does a remarkable job of delivering a wider “sweet spot” of clear pixels. On other headsets, you may find yourself aiming your gaze directly at finer details because the edges of the lenses are blurry. That’s a natural issue with curved “Fresnel” lenses, and Index has *some* blurring on its lenses’ edges, but quite frankly, it’s *half* what you’ll find in the competition.

Again, that’s happening without making your gaming PC draw more pixels to fill in that wider perspective. The effect is admittedly subtle if you haven’t used competitors’ headsets in a while, but switching back and forth between the Index and any other headset on this list makes the difference very evident (in Index’s favor).

<https://arstechnica.com/?p=1526767>