Always-connected Windows laptops show promise but still need work

Laptops with built-in cellular connections are poised to be an actual thing for consumers this year, after years of being only available to business customers. One of the biggest pushes for these connected PCs is from Qualcomm, which has been touting its Snapdragon platform as the future of mobile laptop computing. Windows on Snapdragon computers, which run on Qualcomm's smartphone processors and modems, are finally making their way to store shelves this spring.

The Windows on Snapdragon platform does more than just provide an integrated cellular modem that frees you from having to rely on Wi-Fi. It's a complete change to the core structure of Windows that allows it to run on processors originally designed for smartphones. Alongside that major architectural change come a number of benefits aside from integrated connectivity, including instant resume from sleep, significantly longer battery life, and quiet, cool machines. Basically, the new platform makes laptops work like how we're used to smartphones working: instantly, quietly, and efficiently.

Microsoft tried and failed at this idea before
Of course, this idea has been tried before, and Microsoft has some significant failures (*cough* Windows RT *cough*) in its history that promised many of the same things. Qualcomm and Microsoft argue that this time around, things will be different, as processors are much more powerful and Windows on Snapdragon is not limited to just a handful of apps.

To get an idea of how this new platform works and how it's different from the standard Windows 10 that's available on

hundreds of millions of devices already, I've been using one of the first Windows on Snapdragon PCs to arrive: Asus' NovaGo convertible. Asus plans to sell the NovaGo in the US starting on May 1st for $599, which includes 4GB of RAM and 64GB of storage.

The model I've been using won't be sold in the US and has more RAM and storage than what we'll be able to buy, so this isn't a review of the device itself, but more of a look at how the platform that will run on various devices from HP, Lenovo, and others. (TL;DR on the machine: it's a clunker of a convertible, with a dated design, no USB-C ports, and mediocre everything else — basically, what you'd expect from a $600 laptop.) I've been using the NovaGo as my primary computer to see how it can hold up to my daily workflow, what apps I can install and use on it, and how well those battery life claims hold up. While the experience wasn't as bad as Windows RT or other earlier efforts, it still hasn't sold me on the platform.



The first thing that struck me about using the Always Connected PC was just how little was different from the Windows 10 on every other laptop or computer I've used. The interface is the same; performance when switching virtual desktops, swiping through apps, using gestures on the trackpad, and interacting with the touchscreen are all the same, too. Fluid animations are certainly not a given, especially since this computer is running a tiny smartphone chip, but I'm happy to report they work as well here as on any other Windows laptop I've used.

Most modern apps, especially those downloaded from the Microsoft Store or preinstalled on the machine, opened swiftly, with little discernible difference between how they work on Intel-based computers. However, other apps were much more sluggish on the Snapdragon computer, leading to a frustrating experience (more on app stuff in a bit).

Since the processor in this computer is the same Snapdragon 835 chip found in countless Android smartphones last year, there are no fans necessary. The NovaGo is a dead silent machine, yet it remains cool under load.

Just as I recently found with Microsoft's Surface Pro LTE, having an always-available LTE connection in my computer is fantastic. I don't need to rely on sketchy public Wi-Fi, nor do I need to hassle with tethering my smartphone to get online. I tested the NovaGo with T-Mobile service, and it performed similarly to T-Mobile smartphones in my area. In addition, when the lid is closed and the laptop is in standby, it still maintains its connection to receive emails and other updates, just like a smartphone. I want this in every computer I use, even if I have to pony up for an unlimited data plan to use it.

Resuming the Windows on Snapdragon PC from sleep is similar to waking up a smartphone: you just hit the power button, and it's ready to go. A cold boot takes a similar amount of time

as an Intel computer, but I never felt the need to shut down the computer entirely, so I rarely encountered that.

Qualcomm boasts tremendous battery life from these Windows on Snapdragon PCs, and this particular model lasts quite a long time between charges. It doesn't come close to the 20 or 24 hours that Qualcomm claims, but in my real-world usage, I'm averaging about 11 or 12 hours per charge. That's a lot better than I typically see from a light and portable ultrabook, and significantly longer than the six or seven hours I get on the Surface Pro LTE.

It's possible to download and install the Chrome browser on Snapdragon PCs (presuming you flip the switch from the out-of-box Windows 10 S mode to Windows 10 Pro, as was done on this computer), but you probably won't want to. Performance in Chrome is rather bad, with sluggish load times, stuttery scrolling, and slow transfers between tabs. You'll have a much better time sticking with Microsoft's Edge browser, but that brings its own issues, namely poor compatibility with certain websites and a tendency to get overwhelmed after a few hours of use, requiring a restart of the browser.

The Chrome issues extend to web-wrapper or Electron-based apps, such as Slack, which have abysmal and frustrating performance. I ended up using Slack in a tab within the Edge browser, which performed much better than the Slack app downloaded from the Microsoft Store.

Windows on Snapdragon is a 32-bit platform, which means that any 64-bit (x64, in Microsoft parlance) apps will fail to install or run on it. As a result, a lot of more recent tools and utilities just can't be used on this system, and I quickly ran into issues when my preferred Twitter app and screenshot tool both required x64 support, even though they are listed in the Microsoft Store. Your mileage may vary, but since x64 has been around for a number of years now, there's a good chance that an app or utility you rely on now won't work on the

Snapdragon PC, and you'll have to find an alternative or search around for a 32-bit version of the tool. (I was able to find an alternate screenshot tool easily enough, but suffering through the official Twitter for Windows app has been awful.)

And 32-bit support doesn't guarantee that every app will work, either. I was able to install an email client, but it crashed every time I tried to set it up with my email accounts, rendering it unusable. Windows' own Mail app also behaved oddly: it took three tries of adding and removing my Google accounts before it would support basic archiving. (This is despite Qualcomm and Microsoft assuring me that the app is compiled from the same source as what's on Intel-powered machines.)

I did download and run Adobe Photoshop for laughs; it works about as you'd expect it to: slowly. The limitation against x64 apps means that virtually any modern game will not install on this computer, not that it'd run very well on this hardware if it did install.





Overall, while there were some definite pluses to using the Windows on Snapdragon computer (long battery life, silent design, and integrated connectivity), I couldn’t wait to go back to using any one of the other Intel PCs I’m used to. Between the app compatibility issues and the general feeling that I was always pushing the machine to the edge and it was barely holding on, using the NovaGo as my primary work computer hasn’t been a very pleasant experience. In fact, it reminds me a lot of using a low-end Chromebook.

This platform might work for the most casual of users who can live with the Edge browser and don’t rely on many third-party apps or utilities. But if you’re a heavy user looking for the holy grail of an always-connected computer that can last well beyond a workday away from an outlet, Windows on Snapdragon isn’t likely to be your answer. Chances are, we’ll see more connected PCs and soon, but the better ones are likely to be powered by Intel processors, not the same chip that’s in your phone.

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