

EXHIBIT 178

Samsung Galaxy Tab 10.1 (Wi-Fi)

pcmag.com

- Pros

The thinnest tablet currently available. Excellent 10.1-inch HD screen. Honeycomb 3.1 brings improved multitasking, Flash support, and a higher-quality user experience. Comes with earbuds—a rarity for a tablet.

- Cons TouchWiz UI means update delays for future Android versions. App selection is weak. Even with a strong Wi-Fi signal, online video playback sputtered in our tests.
- Bottom Line

The Wi-Fi-only Samsung Galaxy Tab 10.1 is the thinnest Honeycomb tablet available, and it's very capable, but its Touchwiz UI means Android updates are in doubt.

Not its first tablet, but Samsung's first entry into the recent Honeycomb tablet boom, the Wi-Fi Samsung Galaxy Tab 10.1 is a hair thinner than the Apple iPad 2 (\$499, 4.5 stars). Despite this physical feat, it won't replace last year's seven-inch Galaxy Tab—Samsung reps claim they're selling far too well. The \$499.99 (list) Tab 10.1 is as capable as any of its Honeycomb competitors, but Samsung might change that. Though it was originally released with an untouched version of Honeycomb, an August update introduced Samsung's customized TouchWiz UI. Samsung has a checkered past when it comes to timely Android updates and UI customizations on its phones, and though the TouchWiz verdict is a pretty good one here, timely updates could still become a problem. Regardless, the Galaxy Tab 10.1 is one of the best Android tablets available right now.

Design and Features

Measuring approximately 6.9 by 10.1 by 0.3 inches (HWD), the Samsung Galaxy Tab 10.1 looks vastly different than every tablet we've seen thus far. Just kidding—they all look virtually identical. From the front, the Tab 10.1 most closely resembles the iPad 2 in overall appearance (no logos, just a black frame around the display) and the Motorola Xoom (\$599, 3.5 stars) in shape. Like the Xoom, it has a 10.1-inch, 1,280-by-800-pixel display that makes it ideal for watching widescreen-format video and HD content. By taking up more surface area than either the Xoom or iPad 2, the Tab 10.1 manages to be thinner and, at 19.9 ounces, lighter than either. The plastic back panel is offered in white (like our review unit) or black, and both models are available in 16GB (as we tested) or 32GB capacities, the latter costing \$599.99. There's also an LTE version of the Galaxy Tab 10.1 from Verizon Wireless, which sells for \$529 (16GB) and \$629 (32GB), with a two-year Verizon contract.



[View all 12 photos in gallery](#)

The back panel houses the rear-facing 3-megapixel camera lens. A front-facing 2-megapixel lens is situated on the front panel, and both lenses sit in the middle of the long top edge of the tablet, for horizontal use. Near the lenses, on the top panel, there's a 3.5mm headphone jack that is thoughtfully accompanied by a pair of standard-issue earbuds. The earbuds aren't terribly good, but something is better than nothing, which is what you get with nearly every other competing tablet.

Along the side panels, there are left and right internal speakers; the top edge houses the Power and Volume controls, and on the bottom panel there's a proprietary connection for the included charging/sync cable, which connects the tablet to both your computer and the AC adapter via USB.

Just like all the recent Honeycomb tablets, the Tab 10.1 is powered by Nvidia's dual-core Tegra 2 processor. The tablet supports 802.11n Wi-Fi and Bluetooth 2.1 + EDR, and there's built-in GPS, an accelerometer, gyroscope, and compass. While the Tab will handle 1080p video, there's no HDMI output to mirror to an HDTV, unlike many other Honeycomb tablets such as the Asus Eee Pad Transformer TF101 (\$399-499, 3.5 stars). And there's no USB port, either.

Performance

Because all Honeycomb tablets thus far have shipped with the same Tegra 2 CPU inside, our system test results (on the BenchmarkPi or GUIMark2 Flash tests) for the Galaxy Tab 10.1, even after the TouchWiz update, are very similar to those for almost every other Honeycomb tablet. Until a current-gen Android tablet emerges that doesn't use Tegra 2, this is unlikely to change. That said, that Tegra 2 means strong overall processor performance, with smooth UI navigation and fast loading times for most Flash-based websites. The one change we noticed with the TouchWiz update was diminished browser performance; the TouchWiz browser was noticeably slower than the stock Honeycomb browser.

Samsung rates the Galaxy Tab 10.1 (Wi-Fi)'s battery life at up to 9 hours. Our own test results will be posted here soon.

Honeycomb and TouchWiz

Android 3.0 "Honeycomb," Google's tablet-specific OS, hasn't varied much at all from tablet to tablet so far. In a nutshell, it is a very capable OS—a tad cluttered at times, but more customizable than Apple's iOS. App selection for Honeycomb is weak, whereas Apple's iPad-optimized app selection is quite strong, so there is a need for improvement in this category, but it seems more up to developers than anyone else. Google recently released Android 3.1 (the Galaxy Tab 10.1 ships with it) to most existing Honeycomb tablets, and there have thus far been few manufacturer customizations. This Android version brings better multitasking (you can now open upwards of 20 apps simultaneously instead of just five) and full support for Adobe Flash 10.3. (As you might have heard, the iPad 2 has no Flash support whatsoever.) To better understand the OS, check out our Honeycomb review.

At the beginning of August, Samsung rolled out the update it promised for the Galaxy Tab, adding its custom TouchWiz interface to the Galaxy Tab 10.1. Though most of the changes are aesthetic and minor, and many are seemingly pointless (like changing the standard Honeycomb icons, which everyone does but no one needs to), there are more than a few really useful changes here.

The TouchWiz update added a number of new apps to the device, and gave it a total aesthetic overhaul. Let's start with the aesthetics: Nearly every app, menu, and window has been redesigned, from the browser to the notifications window, which is now called the Quick Panel. The browser redesign didn't appeal to me—I like Honeycomb's grayscale look, and TouchWiz makes everything very black-on-white—but others, like the Quick Panel, are welcome. You can now access and toggle Wi-Fi, GPS, sound, and more straight from the pop-up notifications window, which saves a ton of

time you'd otherwise spend digging in Settings to turn things on and off.

The Home Screen has also been redesigned, from the aforementioned button changes to the layout of the screens. Samsung fills all five home screens with widgets upon widgets; there's one for the weather, a large clock, a photo gallery, and widgets corresponding to Samsung's email, calendar, and social apps. It only takes about a minute to remove the widgets from the home screen, but they make the device feel just busy. Not to mention they slow down the home screen performance noticeably.

Samsung's best addition, and something I hope Android makes standard, is the Mini Apps Tray. There's a small arrow button in the middle of the bottom bar that, when pressed, pops up a list of apps: Task Manager, Calendar, World Clock, Pen memo, Calculator, and Music Player. They're not full apps, but little widgets à la those on the Mac OS X Dashboard. When you choose an app, it pops up over whatever app you're in; take a note or add a calendar appointment, hit Done, and it gets saved to the correct app without you ever really switching. This is incredibly useful for, say, making a calendar event out of an email or changing your music; it's the closest thing I've seen to true multitasking on a tablet, and I hope it only grows from its current, somewhat limited state. (Customization of those apps would be nice, for instance, and they have a tendency to lag.)

TouchWiz brings with it a bunch of different apps, most of which are standard TouchWiz fare. Media Hub is a place to buy and rent movies and music; Social Hub combines a bunch of social networks, calendars, and email services into one manageable inbox; Samsung Apps opens the curated Samsung app store. Amazon Kindle, Words with Friends, and Swype (a keyboard replacement) are also bundled in. Swype is an excellent tablet keyboard, and it's certainly a welcome addition here. There's also, mercifully, a dedicated on-screen button for taking screenshots, which most people won't care about but makes the life of a tech journalist far easier.

Otherwise, the changes are mostly Samsung's subtle "we can do this better than Google" modifications to the Email, Calendar, Music, and Videos apps, among others. And honestly, they're solid and more polished than the Google apps; I preferred a few of them.

Otherwise, there's not much to see here—TouchWiz is more of a refining and polishing of Honeycomb than a total reimagining of the operating system. A couple of gestures are supported, like the ability to put two fingers on the screen and tilt the entire device toward you or away from you to zoom in or out on the page, though why you'd ever need to do that escapes me. Much is the same here, and it's certainly not the jarring change to Android that TouchWiz is on the Galaxy S, which makes the phone completely different to use than other Android phones.

The biggest mistake Samsung may have made is releasing the Galaxy Tab 10.1 without TouchWiz in the first place. Users accustomed to Honeycomb will have to adapt to the new changes, and may not like doing so. The real potential problem here, though, is that when Google pushes out further updates to the OS, Samsung will have to first customize them and then push out that update to its customers. Samsung's customers in the mobile phone world know firsthand that it can take a long time—months or years—before the company deems its Android updates ready for release. Tread carefully here, and don't buy the Galaxy Tab based on improvements you hope to see from future updates.



Tim Gideon

Contributing Editor, Audio

Tim Gideon is an audio contributor for PC Magazine. After joining PC Mag in December 2006, he immediately shopped on eBay for a vintage Yankees pennant to hang next to his vintage Redskins pennant in...



David Pierce

Junior Analyst, Consumer Electronics

David Pierce is a junior analyst on the PCMag consumer electronics reviews team. He's a recent graduate of the University of Virginia, and got his

journalistic experience (and a tech itch) working with David Pogue...