



The science behind the report:

Microsoft Surface Go: Where great user experience, performance, price, and fast battery charge converge

This document describes what we tested, how we tested, and what we found. To learn how these facts translate into real-world benefits, read the report [Microsoft Surface Go offers a good balance of performance, price, and user experience](#).

On July 24, 2018, we finalized the hardware and software configurations we tested. Updates for current and recently released hardware and software appear often, so unavoidably these configurations may not represent the latest versions available when this report appears. For older systems, we chose configurations representative of typical purchases of those systems. We concluded hands-on testing on August 1, 2018.

Our results

The table below presents our findings in detail. We report the median score of three runs for each test.

Microsoft Surface Go	Apple iPad (6th Gen)	Apple iPad Pro	HP x2 210 G2	Lenovo Yoga Book	Samsung Galaxy Tab S3
WebXPRT 3 v2.93					
79	79	95	45	52	59
TabletMark v3.0.2.141					
1,745	1,510	1,808	915	1,127	NA - Benchmark failed to provide results
Geekbench 4					
2,062	3,517	3,905	942	925	1,726
Battery charge (Watt hours after 30 minutes of charging)					
10.26	4.86	4.26	16.25	8.00	7.50

System configuration information

The table below presents detailed information on the systems we tested.

System	Microsoft Surface Go	Apple iPad (6th Gen)	Apple iPad Pro	HP x2 210 G2	Lenovo Yoga Book	Samsung Galaxy Tab S3
Processor						
Vendor	Intel	Apple	Apple	Intel	Intel	Qualcomm
Name	Pentium Gold	Fusion	Fusion	Atom	Atom	Snapdragon
Model number	4415Y	A10 + M10 coprocessor	A10x + M10 coprocessor	x5-Z8350	x5-Z8550	820
Core frequency (GHz)	1.60	2.34	2.38	1.44-1.92	1.44-2.40	2.15
Number of cores	2	4	6	4	4	4
Memory						
Amount (GB)	4	2	4	4	4	4
Type	LPDDR3	LPDDR4	LPDDR4	DDR3L	LPDDR3	LPDDR4
Graphics						
Vendor	Intel	Imagination Technologies	Imagination Technologies	Intel	Intel	Qualcomm
Model number	HD Graphics 615	PowerVR Series 7XT Plus	PowerVR Series 7XT	HD Graphics 400	HD Graphics 400	Adreno 530
Storage						
Amount	64 GB	128 GB	256 GB	128 GB	128 GB	128 GB
Type	eMMC	Flash	NAND Flash	eMMC	eMMC	Flash
Connectivity/expansion						
Bluetooth	4.1	4.2	4.2	4.0	4.0	4.2
USB	1 x USB 3.1 Type-C	N/A	N/A	1 x USB 3.0 1 x USB 3.1 Type-C	1 x microUSB	1x USB 3.1 Type-C
Video	N/A	Lightning + adapter	Lightning + adapter	1 x micro HDMI	1 x micro HDMI	N/A
Battery						
Type	Lithium-ion	Lithium-polymer	Lithium-polymer	2 Cell Lithium-ion polymer	4 cell Lithium-ion polymer	Lithium-ion
Rated capacity (Wh)	27	32.4	30.4	32.5	32	30
Display						
Size (in.)	10	9.7	10.5	10.1	10.1	9.7
Type	IPS LED (PixelSense)	IPS LED (Retina)	IPS LED (Retina)	WLED eDP	IPS LED	Super AMOLED
Resolution	1,800 x 1,200	2,048 x 1,536	2,224 x 1,668	1,280 x 800	1,920 x 1,200	1,536 x 2,048

System	Microsoft Surface Go	Apple iPad (6th Gen)	Apple iPad Pro	HP x2 210 G2	Lenovo Yoga Book	Samsung Galaxy Tab S3
Operating system						
Vendor	Microsoft	Apple	Apple	Microsoft	Microsoft	Android
Name	Windows 10 Home	iOS	iOS	Windows 10 Pro	Windows 10 Pro	Oreo
Build number or version	17134	11.4.1	11.4.1	17134	17134	8.0.0
BIOS						
BIOS name and version	Microsoft Corporation 1.0.03	N/A	N/A	American Megatrends Inc. F.30	LENOVO 04WT22WW	N/A
Dimensions						
Height (in)	0.33	0.29	0.24	0.93	0.38	0.24
Width (in)	9.65	9.4	9.8	10.43	10.1	9.34
Depth (in)	6.9	6.6	6.8	6.81	6.72	6.65
Weight (lbs.)	1.15	1.03	1.03	2.65	1.52	0.95

How we tested

Testing performance

We tested each of the six systems using three benchmarks: WebXPRT, Geekbench, and TabletMark. For the browser-based benchmark WebXPRT, we used the Chrome browser to conduct tests and made sure each version of Chrome was updated to the most recent version. Though TabletMark ran on the Samsung Galaxy Tab S3, we were unable to get any results output.

WebXPRT 3

1. Make sure the power cable is plugged into the system.
2. Open the Chrome browser, and navigate to <http://www.principledtechnologies.com/benchmarkxprt/webxprt/>.
3. Click Run WebXPRT 3.
4. At the Ready to test your browser screen, click Continue.
5. Click Start.
6. When the test completes, record the results.
7. Repeat steps 1 through 6 twice more for each system.
8. Report the median of the three runs.

Geekbench 4

Setting up the test

1. On the Windows systems, install Geekbench 4:
 - a. Download Geekbench 4 from <http://www.primatelabs.com/geekbench/download/>.
 - b. To begin the installation, click Install.
 - c. Setup is complete.
2. On the iOS systems, install Geekbench 4:
 - a. Download Geekbench 4 from the App Store.
 - b. Setup is complete.
3. On the Android system, install Geekbench 4:
 - a. Download Geekbench 4 from the Play Store.
 - b. Setup is complete.

Running the test

1. Make sure the power cable is plugged into the system.
2. To launch Geekbench 4, click the Geekbench 4 icon.
3. Click Run CPU Benchmark.
4. When the test completes, record the results.
5. Repeat steps 1 through 4 twice more for each system.
6. Report the median of the three runs.
7. Click Run Compute Benchmark.
8. When the test completes, record the results.
9. Repeat steps 7 and 8 twice more for each system.
10. Report the median of the three runs.

TabletMark

Setting up the test

1. On the Windows systems, install TabletMark:
 - a. Download TabletMark from the Microsoft Store.
 - b. Setup is complete.
2. On the iOS systems, install TabletMark:
 - a. Download TabletMark from the App Store.
 - b. Setup is complete.
3. On the Android system, install TabletMark:
 - a. Download TabletMark from the Play Store.
 - b. Setup is complete.

Running the test

1. Make sure the power cable is plugged into the system.
2. To launch TabletMark, click the TabletMark icon.
3. Make sure the Web and Email, Photo and Video Sharing, and Video Playback options are all selected.
4. Set a name for the test and set the number of iterations to one.
5. Click Run Benchmark.
6. When the test completes, record the results.
7. Repeat steps 1 through 6 twice more for each system.
8. Report the median of the three runs.

Testing charge rate

Setting up the test

1. Ensure the Windows system displays do not automatically turn off or go to sleep.
2. Go to Control Panel→Hardware and Sound→Power Options→Change Plan Settings.
3. Set Turn off the display to Never for both On battery and Plugged in options.
4. Set Put the computer to sleep to Never for both On battery and Plugged in options.
5. Ensure the Windows systems turn off only when the battery is depleted
 - a. Go to Control Panel→Hardware and Sound→Power Options→Change Plan Settings.
 - b. Click Change advanced power settings.
 - c. In the Advanced Settings menu, click Battery→Low battery action, and set On Battery to Do Nothing.
 - d. Under Critical battery action, set On battery to Shut Down.
6. Set the critical battery level to the zero percent on all Windows systems.
 - a. Open the command prompt as an administrator.
 - b. Run the command: `powercfg -setdcvalueindex SCHEME_CURRENT SUB_BATTERY BATLEVELCRIT 0`
7. Ensure iOS system displays do not automatically turn off or go to sleep.
 - a. Touch the settings icon.
 - b. Select Display & Brightness
 - c. Select Auto-Lock and choose Never

Testing charge rate

1. With each system on, drain each system's battery by running a high resolution video in the background until it is depleted and the system shuts off.
2. Connect the system to its corresponding charger after the system shuts off.
3. Start a timer for 30 minutes.
4. After 30 minutes, disconnect the system from its charger.
5. Turn on the system, and record the battery percentage level.
6. Repeat steps 1 through 5 twice more for each system.
7. Report the median of the three runs.

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