



## Wait less for the web

The ASUS® ZenPad™ S 8.0 powered by Intel® delivered faster page loads at a lower cost.

ASUS ZenPad S 8.0 *Intel Atom™ Z3580* 435.3s



Apple® iPad mini™ 3 *Apple A7* 530.4s

Total page load time for 75 websites

UP TO  
**17.9%**  
LESS TIME  
TO LOAD PAGES

ASUS ZenPad S 8.0 \$299



Apple iPad mini 3 \$499

Retail price

**40%**  
LOWER  
COST

Good news for tablet buyers: If you want a tablet that's fast for web browsing, you don't necessarily have to pay a premium. At Principled Technologies, we compared the web browsing experience of an Intel Atom processor-powered ASUS ZenPad S 8.0 to that of the Apple iPad mini 3. When loading 75 of the most popular websites, the ASUS ZenPad S 8.0 powered by Intel reduced load time by 17.9 percent (when adding all times together), which can make for a more pleasant browsing experience. The ASUS ZenPad S 8.0 also had better website functionality, experiencing 80 percent fewer issues than the Apple iPad mini 3, which had problems rendering 10 pages correctly. The Intel Atom processor-based ZenPad S 8.0 cost 40 percent less than the Apple iPad mini 3, so you can get more value out of the money you spend. If you're in the market for a tablet, consider giving the ASUS ZenPad S 8.0 with Intel Atom processor a look. With a speedy web browsing experience at an affordable price, it could be the right fit for you.

## ASUS + INTEL = FAST WEB EXPERIENCE FOR A BETTER VALUE

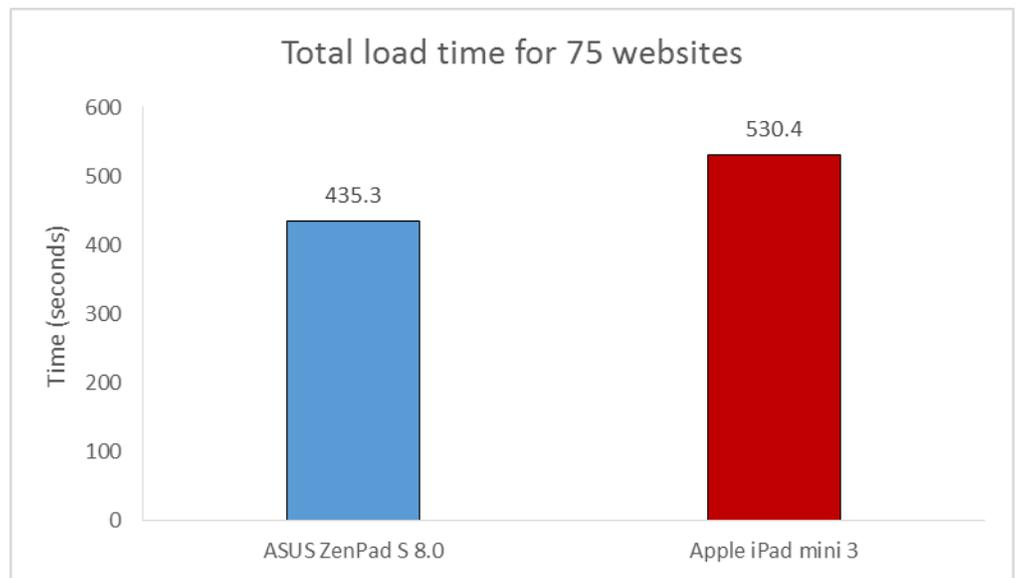
Tablets are a popular choice for people who want to pack the computing power of a light laptop system into a highly mobile, easily transportable package. The processor that's in a tablet can have a big impact on the kind of performance you see when completing day-to-day tasks on your device. The ASUS ZenPad S 8.0 is powered by the quad-core 64-bit Intel Atom Z3580 processor, which pairs computing power and power efficiency in a way that is ideal for the tablet form factor.

For our web browsing comparison, we used the top 75 Web sites from Alexa's Top Sites. Not only are these sites popular, but they cover a range of content and topics. To visit these sites, we used Google Chrome on both the ASUS ZenPad S and Apple iPad mini 3. For details about the tablets, see [Appendix A](#) and [Appendix B](#). For step-by-step testing details, visit [Appendix C](#).

## WHAT WE FOUND

### Time to load websites

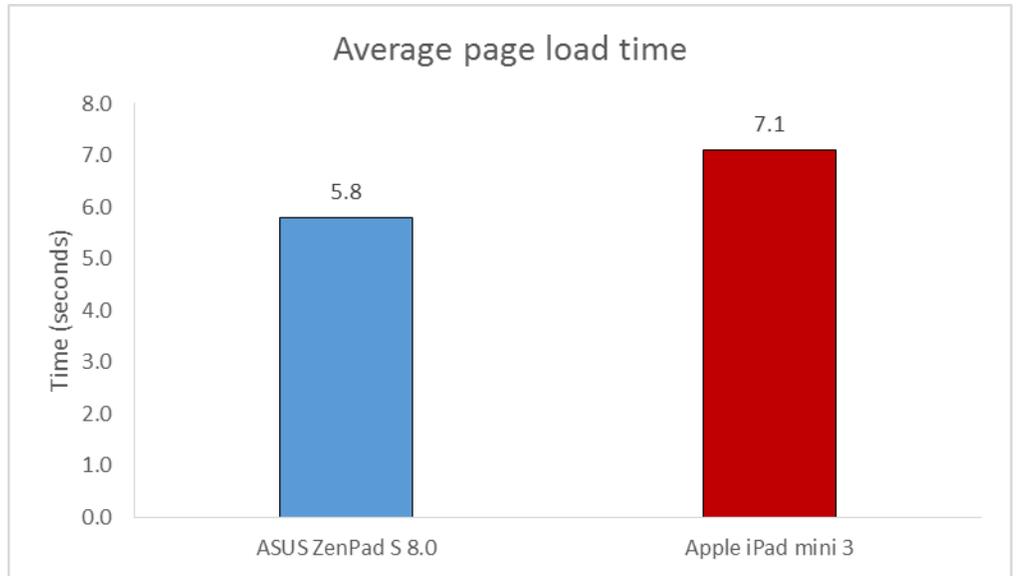
Both the tablets performed similarly on our tests: some websites loaded faster on the ASUS ZenPad S 8.0, and some loaded faster on the Apple iPad mini 3. When we added up the times it took all 75 websites to load, we found that the ASUS ZenPad S 8.0 reduced total load times by 17.9 percent compared to the Apple iPad mini 3 (see Figure 1).



**Figure 1: The Intel Atom processor-powered ASUS ZenPad S 8.0 reduced the cumulative time it took to load the 75 websites by 17.9 percent compared to the Apple iPad mini 3.**

We averaged the median times that the tablets took to load each of the 75 Web sites we visited. As Figure 2 shows, the average time it took the ASUS ZenPad S 8.0 to load the sites was 18.3 percent less than the average time of the Apple iPad mini 3.

**Figure 2: The Intel Atom processor-powered ASUS ZenPad S 8.0 reduced the average time to load a website by 18.3 percent compared to the Apple iPad mini 3.**

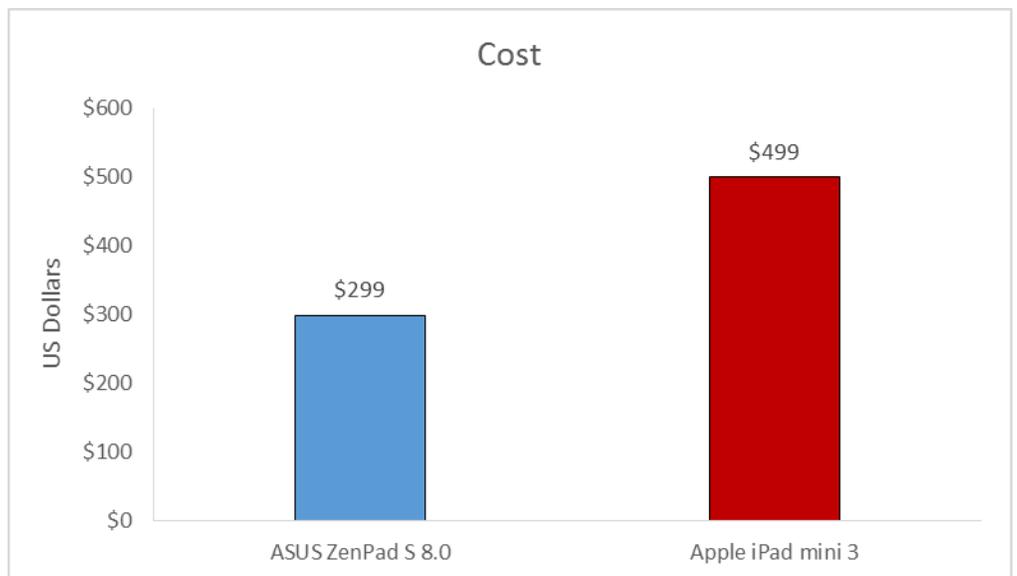


For detailed information about how fast each website loaded, visit [Appendix D](#).

## Better value

The big win for the Intel Atom-processor powered ASUS ZenPad S 8.0 comes when you factor in the cost of the devices. As our tests showed, the ZenPad S performed as good as or better than the Apple iPad mini 3 when it came to browsing our large selection of websites. Additionally, the cost of the ASUS ZenPad S 8.0 is significantly lower than that of the iPad mini 3. Choosing the Intel Atom processor-powered device can not only deliver a speedy browsing experience, it can also keep \$200 in your pocket. As Figure 3 shows, the ASUS ZenPad S 8.0 cost 40 percent less than the Apple iPad mini 3 (see [Appendix B](#) for details).

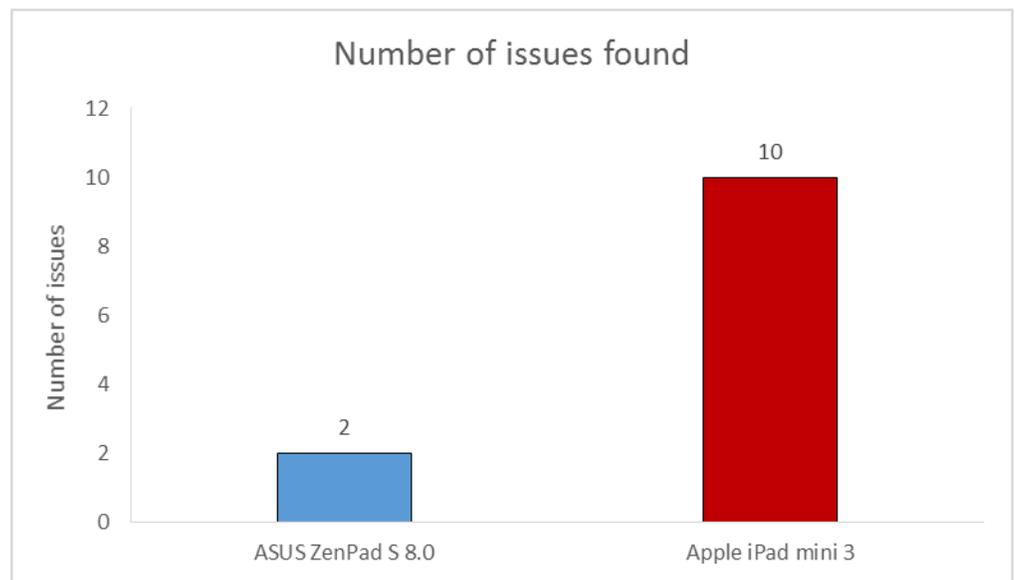
**Figure 3: The Intel Atom processor-powered ASUS ZenPad S 8.0 costs 40.0 percent less compared to the Apple iPad mini 3, a savings of \$200.**



## Experience while browsing

In addition to page load speed and value, we also had an overall better web browsing experience with the Intel Atom processor-powered ASUS ZenPad S 8.0 than we did with the Apple iPad mini 3. With the iPad mini 3, we experienced 10 minor issues loading the sites, which mostly consisted of device detection problems (desktop versions loaded) or visual/presentation problems. With the ASUS ZenPad S 8.0, we noticed only two discrepancies (an ad didn't render properly), a 40 percent decrease in web-related issues (see Figure 4).

Figure 4: The Intel Atom processor-powered ASUS ZenPad S 8.0 had 40 percent fewer issues loading websites than did the Apple iPad mini 3.



## CONCLUSION

The tablets on the market today are varied in ability and price, and it can be hard to know if you're getting one that you'll love using. In our tests, the Intel Atom processor-powered ASUS ZenPad S 8.0 had speedy web browsing performance on 75 of the most popular websites compared to the Apple iPad mini 3. Just as important, the ASUS ZenPad S 8.0 had fewer issues loading the sites and cost 40 percent less than the iPad mini 3—facts that you should not overlook when considering which tablet to purchase.

## APPENDIX A – ABOUT THE COMPONENTS

### About the ASUS ZenPad S 8.0

The ASUS ZenPad S 8.0 is an 8-inch tablet with a 74 percent screen-to-body ratio, which means that its bezel width is small. The ZenPad S features an 8" LED backlight screen, 10-finger multi-touch support, and Active Pen Support, and it is powered by the Intel Atom Z3580 or Z3560 quad-core 64-bit processor. You can choose up to 4GB RAM, 64GB for storage, and an 8 MP rear/5 MP front camera. ASUS lists battery life expectancy at approximately 8 hours. For more information about the ASUS ZenPad S 8.0, visit [www.asus.com/Tablets/ASUS\\_ZenPad\\_S\\_80\\_Z580CA/](http://www.asus.com/Tablets/ASUS_ZenPad_S_80_Z580CA/).

### About the Intel Atom Z3580 processor

The 64-bit Intel Atom Z3580 processor is LTE-enabled, with four cores that can reach frequencies of up to 2.33GHz. It has a maximum memory size of 4 GB and maximum memory bandwidth of 12.8 GB/s. Learn more about the Intel Atom Z3580 processor at [ark.intel.com/products/81195/Intel-Atom-Processor-Z3580-2M-Cache-up-to-2\\_33-GHz](http://ark.intel.com/products/81195/Intel-Atom-Processor-Z3580-2M-Cache-up-to-2_33-GHz).

## APPENDIX B – SYSTEM CONFIGURATION INFORMATION

Figure 5 provides detailed configuration information for the test systems.

System	ASUS ZenPad S	Apple iPad mini 3
Screen size (inches)	8	7.9
Screen size (millimeters)	203.2	200.66
Display resolution	2,048 x 1,536	2,048 x 1,536
PPI	324	326
Dimensions (inches)	8 x 5.3 x 0.28	7.8 x 5.3 x 0.29
Dimensions (millimeters)	203.1 x 134.3 x 7.1	200.2 x 134.9 x 7.4
Weight (pounds)	0.647	0.724
Weight (grams)	294	329
CPU	Intel Atom Z3580 Quad-core @ 2.33GHz	Apple A7 dual core @ 1.3GHz
Storage	64 GB	64 GB
Browser	Chrome	Chrome
OS	Android 5.0	iOS 8.4.1
RAM	4 GB	1 GB
Price (USD)	\$299 <sup>1</sup>	\$499 <sup>2</sup>

Figure 5: System configuration information for the test systems.

<sup>1</sup> Price does not include discounts, tax, or shipping. List price from [http://www.bhphotovideo.com/c/product/1168906-REG/asus\\_z580ca\\_c1\\_bk\\_64gb\\_z580ca\\_c1\\_zenpad\\_s.html](http://www.bhphotovideo.com/c/product/1168906-REG/asus_z580ca_c1_bk_64gb_z580ca_c1_zenpad_s.html) as of 9/22/15.

<sup>2</sup> We purchased the Apple iPad mini 3 on 9/04/15 from [www.apple.com](http://www.apple.com) for a base price of \$499, which does not include discounts, tax, or shipping.

## APPENDIX C – HOW WE TESTED

### Web browsing

We timed how long it took each tablet to fully load and render each page. Between each page's launch and timing, we cleared the browser cache to ensure that the site's content loaded from the Internet rather than the tablet's local cache. Starting from the tablet's home screen:

1. Launch Google Chrome.
2. Type the URL of the Web site to be timed into the address bar.
3. Simultaneously press Go and start the timer.
4. Stop the timer when the Web page is fully rendered and the Chrome loading bar has filled and disappeared. Record the result.
5. Open new tab.
6. Close the test site tab.
7. Press the Options button.
8. Select Privacy.
9. Press Clear Browsing Data.
10. Ensure the "Clear the cache" and "Clear cookies, site data" checkboxes are selected.
11. Press Clear.
12. Click the recent apps button and close the browser out of memory.
13. Repeat steps 1 through 12 for each page load time to be collected.

We also looked at how the websites functioned once loaded, looking for any elements that didn't perform correctly or were missing. We specifically looked at videos, special functions, moving parts, and general site behavior during zooming or scrolling. We noted any issues we found, excluded any that appeared on all of the devices, and calculated a percentage failed by comparing the total sites tested to the number of sites with issues on that device.

## APPENDIX D – DETAILED RESULTS

Figure 6 shows the time it took for the tablets to load each of the websites we tested.

Site name	Domain	ASUS ZenPad S 8.0	iPad mini 3
Google	<a href="http://google.com">http://google.com</a>	2.19	1.84
Facebook	<a href="http://facebook.com">http://facebook.com</a>	2.65	2.56
Amazon	<a href="http://amazon.com">http://amazon.com</a>	7.96	7.65
YouTube	<a href="http://youtube.com">http://youtube.com</a>	3.47	3.40
Yahoo	<a href="http://yahoo.com">http://yahoo.com</a>	1.57	3.81
eBay	<a href="http://ebay.com">http://ebay.com</a>	5.72	9.19
Wikipedia	<a href="http://wikipedia.org">http://wikipedia.org</a>	1.41	1.84
Twitter	<a href="http://twitter.com">http://twitter.com</a>	3.22	3.00
Craigslist	<a href="http://craigslist.org">http://craigslist.org</a>	2.81	3.06
Reddit	<a href="http://reddit.com">http://reddit.com</a>	3.25	2.78
Netflix	<a href="http://netflix.com">http://netflix.com</a>	4.59	3.41
Live	<a href="http://live.com">http://live.com</a>	2.97	2.09
Bing	<a href="http://bing.com">http://bing.com</a>	3.32	3.00
LinkedIn	<a href="http://linkedin.com">http://linkedin.com</a>	2.22	2.06
Pinterest	<a href="http://pinterest.com">http://pinterest.com</a>	5.40	5.28
Imgur	<a href="http://imgur.com">http://imgur.com</a>	5.56	21.32
Go	<a href="http://go.com">http://go.com</a>	5.56	5.53
Tumblr	<a href="http://tumblr.com">http://tumblr.com</a>	5.97	3.91
ESPN Go	<a href="http://espn.go.com">http://espn.go.com</a>	9.16	7.47
CNN	<a href="http://cnn.com">http://cnn.com</a>	22.78	29.91
PayPal	<a href="http://paypal.com">http://paypal.com</a>	4.31	4.91
Chase	<a href="http://chase.com">http://chase.com</a>	2.96	4.25
Instagram	<a href="http://instagram.com">http://instagram.com</a>	1.81	2.06
Blogspot	<a href="http://blogspot.com">http://blogspot.com</a>	2.53	2.29
MSN	<a href="http://msn.com">http://msn.com</a>	4.34	2.91
IMDB	<a href="http://imdb.com">http://imdb.com</a>	6.81	5.35
Bank of America	<a href="http://bankofamerica.com">http://bankofamerica.com</a>	5.25	4.12
NY Times	<a href="http://nytimes.com">http://nytimes.com</a>	11.56	11.44
Walmart	<a href="http://walmart.com">http://walmart.com</a>	14.00	13.31
Huffington Post	<a href="http://huffingtonpost.com">http://huffingtonpost.com</a>	13.44	10.59
Yelp	<a href="http://yelp.com">http://yelp.com</a>	2.66	4.37
Diply	<a href="http://diply.com">http://diply.com</a>	4.16	3.81
Apple	<a href="http://apple.com">http://apple.com</a>	3.19	2.72
Zillow	<a href="http://zillow.com">http://zillow.com</a>	8.47	7.35
Wells Fargo	<a href="http://wellsfargo.com">http://wellsfargo.com</a>	2.50	3.38

Site name	Domain	ASUS ZenPad S 8.0	iPad mini 3
BuzzFeed	<a href="http://buzzfeed.com">http://buzzfeed.com</a>	4.53	10.97
Weather	<a href="http://weather.com">http://weather.com</a>	11.06	9.13
Microsoft	<a href="http://microsoft.com">http://microsoft.com</a>	4.18	4.25
WordPress	<a href="http://wordpress.com">http://wordpress.com</a>	1.56	2.19
Target	<a href="http://target.com">http://target.com</a>	4.07	4.81
Etsy	<a href="http://etsy.com">http://etsy.com</a>	4.25	4.38
AOL	<a href="http://aol.com">http://aol.com</a>	7.34	6.34
Fox News	<a href="http://foxnews.com">http://foxnews.com</a>	8.03	15.09
Best Buy	<a href="http://bestbuy.com">http://bestbuy.com</a>	6.13	5.35
Home Depot	<a href="http://homedepot.com">http://homedepot.com</a>	1.28	6.59
Wikia	<a href="http://wikia.com">http://wikia.com</a>	6.66	5.6
Outbrain	<a href="http://outbrain.com">http://outbrain.com</a>	4.57	5.19
Comcast	<a href="http://comcast.net">http://comcast.net</a>	6.93	6.37
Washington Post	<a href="http://washingtonpost.com">http://washingtonpost.com</a>	41.97	43.78
Xfinity	<a href="http://xfinity.com">http://xfinity.com</a>	8.62	6.69
Indeed	<a href="http://indeed.com">http://indeed.com</a>	1.66	1.66
USPS	<a href="http://usps.com">http://usps.com</a>	1.78	2.97
Trip Advisor	<a href="http://tripadvisor.com">http://tripadvisor.com</a>	5.47	5.25
Capital One	<a href="http://capitalone.com">http://capitalone.com</a>	3.88	4.62
Ask	<a href="http://ask.com">http://ask.com</a>	2.16	2.22
Groupon	<a href="http://groupon.com">http://groupon.com</a>	4.82	6.81
American Express	<a href="http://americanexpress.com">http://americanexpress.com</a>	3.16	4.06
Pandora	<a href="http://pandora.com">http://pandora.com</a>	2.28	2.38
UPS	<a href="http://ups.com">http://ups.com</a>	1.34	1.47
AT&T	<a href="http://att.com">http://att.com</a>	9.78	10.28
Daily Mail	<a href="http://dailymail.co.uk">http://dailymail.co.uk</a>	5.71	36.40
CNET	<a href="http://cnet.com">http://cnet.com</a>	7.28	14.44
Baidu	<a href="http://baidu.com">http://baidu.com</a>	2.72	7.06
USA Today	<a href="http://usatoday.com">http://usatoday.com</a>	4.60	9.31
Verizon Wireless	<a href="http://verizonwireless.com">http://verizonwireless.com</a>	4.57	4.46
Dropbox	<a href="http://dropbox.com">http://dropbox.com</a>	6.66	7.62
IJ Review	<a href="http://ijreview.com">http://ijreview.com</a>	3.66	3.63
Forbes	<a href="http://forbes.com">http://forbes.com</a>	5.72	5.16
Stack Overflow	<a href="http://stackoverflow.com">http://stackoverflow.com</a>	2.28	2.47
About	<a href="http://about.com">http://about.com</a>	5.41	4.07
Twitch.tv	<a href="http://twitch.tv">http://twitch.tv</a>	3.71	2.28
SlickDeals	<a href="http://slickdeals.net">http://slickdeals.net</a>	8.06	22.41
Hulu	<a href="http://hulu.com">http://hulu.com</a>	5.59	5.03

Site name	Domain	ASUS ZenPad S 8.0	iPad mini 3
Gfycat	<a href="http://gfycat.com">http://gfycat.com</a>	3.19	3.19
Business Insider	<a href="http://businessinsider.com">http://businessinsider.com</a>	18.81	18.41

Figure 6: Times, in seconds, to load websites.

Figure 7 shows websites for which either tablet had issues and presents a brief description of what we experienced. The ASUS ZenPad S had issues with two websites, while the Apple iPad mini 3 had issues with ten.

Site name	Domain	ASUS ZenPad S 8.0	iPad mini 3
CNN	<a href="http://cnn.com">http://cnn.com</a>	Main ad didn't render.	Main ad didn't render.
Chase	<a href="http://chase.com">http://chase.com</a>		Desktop site instead of mobile.
Bank of America	<a href="http://bankofamerica.com">http://bankofamerica.com</a>		Desktop site instead of mobile.
Huffington Post	<a href="http://huffingtonpost.com">http://huffingtonpost.com</a>	Main ad didn't render.	Main ad didn't render.
Yelp	<a href="http://yelp.com">http://yelp.com</a>		Desktop site instead of mobile.
Fox News	<a href="http://foxnews.com">http://foxnews.com</a>		Desktop site instead of mobile.
Home Depot	<a href="http://homedepot.com">http://homedepot.com</a>		Desktop site instead of mobile.
USPS	<a href="http://usps.com">http://usps.com</a>		Desktop site instead of mobile.
CNET	<a href="http://cnet.com">http://cnet.com</a>		Desktop site instead of mobile.
USA Today	<a href="http://usatoday.com">http://usatoday.com</a>		Desktop site instead of mobile.

Figure 7: Issues with the tablets when loading the 75 websites.

## ABOUT PRINCIPLED TECHNOLOGIES



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