

Time Trials for Lertap 5.10.9

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The last update of this document was on: 1 February 2018

Computers:

Lenovo **Yoga 920** (92013IKP), Intel i5-8250U, 8GB / 256GB SDD
Dell **XPS-13**, Intel i7-7560U, 8GB / 256GB SDD
HP Spectre x360, Intel i5-6200U, 8GB / 256GB SDD

Software:

On the **Yoga 920**:

Windows 10 Home, Excel 2016 (16.0.8827.2131, 64-bit),
Excel 2010 (14.0.7192.5000, 64-bit)

On the **XPS**:

Windows 10 Pro, Excel 2016 (16.0.8827.2131, 64-bit).

On the **HP**:

Windows 10 Home; Excel 2016 (16.0.8827.2131, 64-bit).

Notes:

The three machines were laptop computers designed to provide good battery life and cool running, something they do at the expense of processor speed. Note they were running 64-bit versions of Excel. *The 32-bit versions of Excel 2013 and 2016 are quite likely to run into memory restrictions when Lertap 5 is run with N=5,000 or more.*

Times below are shown in minutes:seconds. A time of 1:02, for example, means 1 minute 2 seconds. N is number of students. Subs is number of subtests in use.

The datasets may be found at, and downloaded from, [this site](#).

No.	Dataset Name	N	Items	Subs	HP Excel 2016	XPS Excel 2016	Yoga Excel 2016	Yoga Excel 2010
1	Cook's Tour	60	35	3	0:12	0:09	0:07	0:05
2	HalfTime	424	100	1	0:22	0:17	0:14	0:09
3	MNursing	1,769	60	1	0:19	0:16	0:13	0:09
4	Zmed	2,470	100	1	0:31	0:24	0:20	0:14
5	LenguaBIg	5,504	50	1	0:30	0:23	0:20	0:13
6	LenguaBIg	5,504	50	3	1:01 ¹	0:46 ²	0:41	0:27

¹ Was 8:09 in the previous version of Lertap.

² Was 2:28 in the previous version.

A larger dataset was also put through time trials. With N=35,000 / Items=44 / Subs=1, times with HP 2016, XPS 2016, and Yoga 2016 were: 2:09, 1:39³, and 1:36⁴. Using the same N=35,000 dataset with Excel 2010 on the Yoga took 1:03 – this dataset was half of an original dataset having 70,000 data records – Excel 2010 processed the whole 70,000 in 2:19⁵.

Production mode

The figures above were derived by using a stopwatch to time Lertap version 5.10.9 as it ran in "[Production mode](#)". I put "yes" in row 35 of the System worksheet, and "no" in rows 36, 37, and 38. The result was equivalent to running the "[Interpret](#)" option followed immediately by the "[Elmillion](#)" option.

A check was made by running through each dataset twice.

Running times will be lowest when Excel is the only program running on the computer and when there are only two Excel workbooks open: Lertap5.xlsm and the workbook with test results (such as HalfTime, MNursing, and so on).

Running time may also be reduced by turning off a couple of Lertap 5's options. The [Stats1ul](#) report takes a lot of time to create; it may be turned off by putting "no" in row 10 of the [System](#) worksheet.

Another (very) time consuming activity concerns getting Excel to adjust its page breaks so that quantile / [quintile plots](#) do not get split in the middle when they're printed. Adjusting page breaks may be turned off by putting "no" in row 92 of the [System](#) worksheet.

Excel 2010? It's the fastest version of Windows Excel I currently know of; its performance advantage is obvious in the figures above. As of January 2018, Excel 2010 was still actively supported by Microsoft and could still be purchased (unlike Excel 2007).

Note on 32-bit Excel

Users should note the comments made above regarding 32-bit versions of Excel 2013 and 2016: they're subject to memory management limitations which are very likely to impede the application of Lertap when N exceeds 5,000. This is true even on computers with 8GB and more of memory; 32-bit Excel 2016 is constrained to operate in just 2GB of memory. Refer to [this webpage](#) for related comments.

Updates Summary

As mentioned above, version 5.10.9 was used in these time trials. It was released in late January 2018.

This is by far the fastest version of Lertap 5 to emerge thus far, at least when it comes to Excel 2016. The running times reported above represent, by and large, a better than 50% reduction when compared to those found when using the previous version,

³ Excel at times said "not responding" during this run, but nonetheless all results were as expected.

⁴ Excel evidenced the same "not responding" notice at times, but results were not affected.

⁵ Excel 2010 displayed the "not responding" notice at times when N=70,000 but all was okay.

5.10.8. The reduction is mostly due to changes in the way Lertap gets Excel to display information – for example, the status bar at the base of the screen is now static when data records are being read – the status bar simply reports “... reading data records ...” – in version 5.10.8 the status bar said “Now reading record number ...” with a running number to indicate progress. In Excel 2010, a running display did not cause Excel to slow down all that much, but in Excel 2016 it makes a very big difference, and things go much faster, and a bit smoother too, with static status bar messages.

Visit [this document](#) to track Lertap 5 developments. Also, see [this webpage](#).