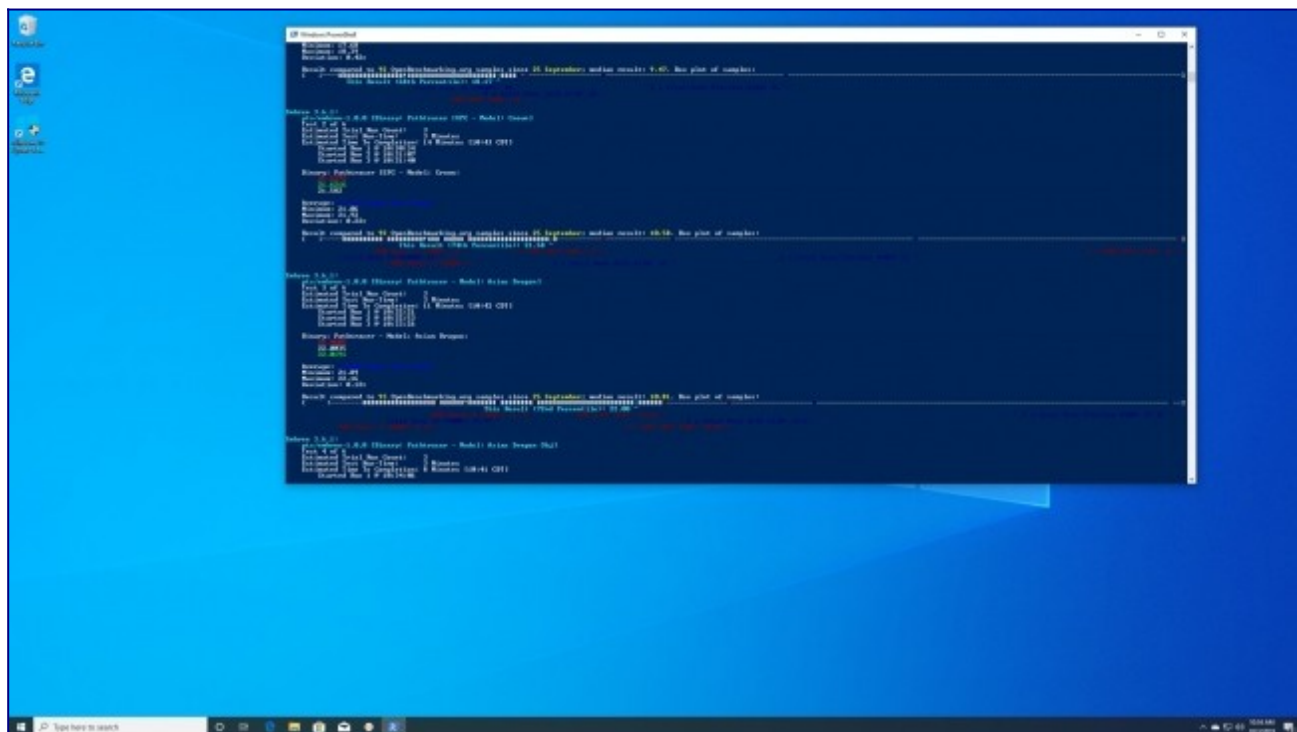


For those wondering about the current performance of desktop Linux distributions against Microsoft Windows 10 with the latest updates as we embark upon fall update season, here is a look at the performance of eight different Linux distributions compared to Windows 10. While a larger set of cross-platform tests are currently being worked on, for this article we are focusing on different "creator" workloads from video/audio encoding, render workloads, and related software prior to the larger comparison in the next week or two.



Besides looking at creator-focused workloads for this article, some of the tests being done are the first time we are running them in a Windows vs. Linux comparison. In particular, some new [OpenBenchmarking.org](https://openbenchmarking.org) / [Phoronix Test Suite](https://phoronix-test-suite.com) test profiles around Intel oneAPI rendering toolkit components like Embree and Open Image Denoise.

The eight Linux distributions tested included:

- CentOS Stream
- Clear Linux 31140
- Debian 10.1
- Fedora Workstation 30
- Manjaro Linux 18.1
- openSUSE Tumbleweed
- Ubuntu 19.04
- Ubuntu 19.10 20190930

Windows 10 Professional and all of these Linux distributions were run with all available updates as of test time. This round of testing was done on an Intel Core i9 7980XE with ASUS PRIME X99-A motherboard, 4 x 4GB DDR4-3200 memory, Samsung 970 EVO 500GB NVMe SSD, and NVIDIA GeForce GTX TITAN X graphics. The Core i9 7980XE was chosen as the latest Core i9 HEDT CPU I

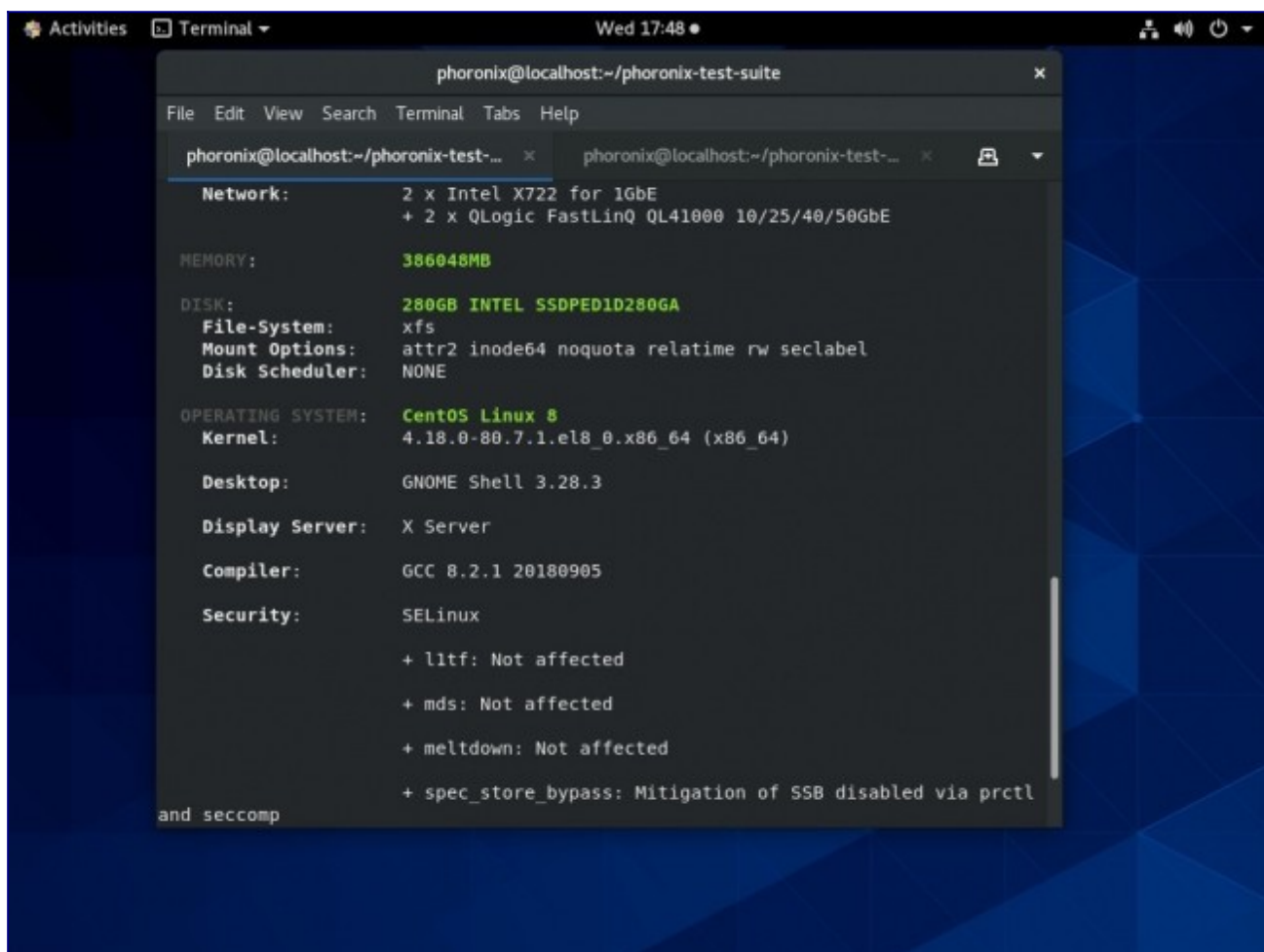
have available currently. Similar AMD Windows vs. Linux tests with their latest updates are coming down the pipeline soon.

So let's continue with this quick comparison looking at "creator" workloads between Windows and Linux.

With this week's release of the much anticipated [CentOS 8.0](#) as the community/free rebuild of Red Hat Enterprise Linux 8 as well as the surprise announcement of [the bleeding-edge, rolling-release CentOS Stream](#), we have begun benchmarking these enterprise Linux distribution releases. Up today are our first tests of CentOS 7.7 against CentOS 8.0 and the early CentOS Stream state on Intel Xeon Cascadelake and AMD EPYC Rome servers.



This is just the first of our CentOS 8.0 benchmarks over the past few days with more performance tests being worked on, including a cross-distribution comparison of the enterprise Linux x86_64 distributions and more. But for ending out the week, here is an initial look at the CentOS 8.0 performance for those that may be using the weekend downtime for upgrading from CentOS 7.

A screenshot of a Linux terminal window titled 'phoronix@localhost:~/phoronix-test-suite'. The window displays the output of a system information command, showing details about the network, memory, disk, operating system, and security. The background of the terminal is dark with light-colored text. The system information is organized into sections: Network, MEMORY, DISK, OPERATING SYSTEM, Desktop, Display Server, Compiler, and Security. The security section lists several mitigations that are not affected or disabled.

```
phoronix@localhost:~/phoronix-test-suite
File Edit View Search Terminal Tabs Help
phoronix@localhost:~/phoronix-test-... x phoronix@localhost:~/phoronix-test-... x
Network: 2 x Intel X722 for 1GbE
+ 2 x QLogic FastLinQ QL41000 10/25/40/50GbE

MEMORY: 386048MB

DISK: 280GB INTEL SSDPED1D280GA
File-System: xfs
Mount Options: attr2 inode64 noquota relatime rw seclabel
Disk Scheduler: NONE

OPERATING SYSTEM: CentOS Linux 8
Kernel: 4.18.0-80.7.1.el8_0.x86_64 (x86_64)

Desktop: GNOME Shell 3.28.3

Display Server: X Server

Compiler: GCC 8.2.1 20180905

Security: SELinux

+ l1tf: Not affected
+ mds: Not affected
+ meltdown: Not affected
+ spec_store_bypass: Mitigation of SSB disabled via prctl
and seccomp
```

My experiences with CentOS 8.0 over the past few days were overall good and just like the Red Hat Enterprise Linux 8.0 experience when it was released back in May. CentOS 8.0 was working well on both the [Gigabyte S451-3R0 Storage Server](#) used for our ongoing Intel Xeon "Cascade Lake" testing as well as the AMD Daytona reference platform for our EPYC 7002 Rome series benchmarking. Not only was the setup experience pleasant, but just the RHEL7 to RHEL8 transition, moving to CentOS 8.0 generally means big performance gains thanks to all the package updates and improvements over the past several years.



This initial round of testing on the Gigabyte server and AMD EPYC Rome reference servers were with the Intel Xeon Platinum 8280 and AMD EPYC 7742 CPUs, respectively, in a dual-socket configuration.

At this point with CentOS Stream having just been announced, it's not too different from CentOS 8.0. The key package versions are all basically the same with CentOS 8.0 at this point but worth highlighting and accounting for some performance change is a newer version of the EL8 Linux 4.18 kernel with its various back-ports and changes. Aside from that, it's a near facsimile of CentOS 8.0 but with time will certainly diverge more as we get further past the RHEL 8.0 launch.

Via the [Phoronix Test Suite](#), various benchmarks were run on these two servers across CentOS 7.7/8.0/Stream. Stay tuned for more enterprise Linux distribution benchmarks next week.