Kernel: DRM-Next, Per Thread Queues and PGO

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- Intel's Early Linux 5.10 Graphics Driver Changes Include Tiger Lake HOBL [2]

While the Linux 5.9 kernel cycle is still young and not seeing its formal release until early October or so, Intel's open-source team has already submitted to DRM-Next their first batch of feature changes desired for Linux 5.10.

This is just the first of several pull requests expected of graphics/display updates for Intel hardware expected for Linux 5.10.

- Linux Per Thread Queues Aim For Traffic Isolation, Higher Performance Networking [3]

The newest Linux networking feature to get excited about that's in development is PTQ, or Per Thread Queues.

Per Thread Queues is about allowing application threads to be assigned dedicated network queues for transmit/receive. By having dedicated network queues and also employing busy polling, PTQ aims to offer higher performance networking and better traffic isolation. PTQ should be able to provide some nice uplift on high-end networking hardware in the data center as well as offering finer-grained network packet steering.

- Microsoft Is Exploring LTO+PGO For A Faster Linux Kernel [4]

While more and more software vendors are employing link-time optimizations (LTO) and profile-guided optimizations (PGO) for leveraging the compiler to squeeze out performance, it
may surprise many that Microsoft engineers are exploring LTO+PGO for the Linux kernel in their own quest of achieving greater Linux performance.

[...]

While LTO'ing the Linux kernel isn't a new concept, we haven't heard as much about PGO'ing the kernel. With profile-guided optimizations relying upon, well, profiles for feeding back into the compiler for assisting its optimization heuristics, it's vital that the profiles be accurate for real-world usage. Given the very diverse workloads seen on Linux and on the wide range of hardwares and drivers, it'd be a huge task generating profiles useful enough for PGO that can be used at large and would help the vast majority of users. Thus for PGO'ing the kernel it's likely on more of a niche basis to individual users/organizations that can employ PGO and cater it to their precise use-cases.

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