Interrupts in User Space Drivers

Drivers use interrupts to reduce the system’s power consumption during time of low loads. Interrupts are known to be slow on modern systems, so drivers focusing on performance either do not use interrupts at all or disable them dynamically when a high load is applied.

Many modern user space drivers do not implement support for interrupts at all as they are interested in the highest possible performance. Our own network driver ixy is no exception here.

Main goal of this thesis is to implement interrupt support in ixy via the Linux vfio subsystem and to compare the performance with the existing polling implementation.

Motivation

- Implement support for interrupts in the ixy driver (C or Rust)
- Quantify the performance characteristics of interrupts

Your Task

- [https://github.com/emmericp/ixy](https://github.com/emmericp/ixy)
- [https://github.com/ixy-languages/ixy.rs](https://github.com/ixy-languages/ixy.rs)

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