

## Linux Plumbers Conference 2025



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## Nova GPU Workshop

This workshop will center on Nova, the upstream Rust-based kernel driver for NVIDIA GPUs.

Discussion topics will include the design and evolution of the firmware API exposed by the GPU System Processor (GSP), user-space submission interfaces and compute APIs, and interactions with the core kernel (device / driver APIs; locking and lifetimes; memory management APIs). NVIDIA engineers will share their experience around userspace submission interfaces, compute APIs, and the associated (architectural) challenges. This opens the floor for comparing and discussing design trade-offs across existing and emerging drivers, as well as opportunities afforded by Rust in this context.

Potential key participants are members of the Nova development and maintenance team at NVIDIA and Red Hat, contributors from the DRM and Rust-for-Linux communities, and developers working on parallel efforts such as Tyr, the Rust-based GPU driver initiative from ARM and Collabora.

The workshop aims to ensure that Nova remains closely tied to the needs and expectations of the wider graphics / compute stack in the Linux ecosystem, while fostering collaboration around shared challenges in GPU driver design.

By bringing together diverse stakeholders in an open forum, this workshop will encourage meaningful discussions that can lead to actionable outcomes for the future of GPU drivers in the Linux kernel.

**Presenters:** COURBOT, Alexandre (NVIDIA); KRUMMRICH, Danilo; AIRLIE, David; FERNANDES, Joel (NVIDIA); HUBBARD, John (NVIDIA)

**Session Classification:** Nova GPU Workshop