

Emre Cekanpunar

Versatile graphics developer focused on GPU compilers and drivers

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Open Source Contributions

Mesa

2025 – Present

GPU compilers and Vulkan drivers

- Develop and debug C, C++, and Rust code across Mesa compilers and Vulkan drivers.
- Contribute to Jay from its early stages, helping build Intel's new SSA-based shader compiler for Xe2/Xe3.
- Contribute to Intel's BRW compiler and ANV driver internals.
- Reverse-engineered `iadd_sat` in NAK and helped test related NVK changes.
- Profile compiler and driver internals to identify performance bottlenecks.
- Test changes with Vulkan CTS, Fossilize, targeted reproducers, IR inspection, and sanitizers.
- Participate in upstream design discussions, reviews, and testing.

Linux kernel

2025 – Present

DRM and Platform drivers

- Upstreamed five-patch `hp-wmi`, series for x86 platform support.
- Investigate Linux DRM/GPU internals, with a focus on Intel Xe memory management and scheduling.
- Diagnose low-level system issues using targeted reproducers, tracing, KGDB, and sanitizers.

LLVM

2026 – Present

Backend compilers

- Compare LLVM backend code generation with Mesa shader compilers.
- Merged an Arm/Thumb MC correctness fix.

Apache NuttX

2026

Arm64 SoC bring-up and upstream fixes

- Upstreamed initial Rockchip RK3588S SoC and Orange Pi 5 Pro support. [Project announcement](#).
- Fixed display and EDID handling issues.

Other upstream work

2026

- Merged a `heap-buffer-overflow` fix in NVIDIA `egl-wayland2` and submitted a `use-after-free` fix in Wayland.

Experience

Embedded Software Engineer Intern, Baykar Technologies

Feb 2025 – Jun 2025

T3 Gemstone platform

- Initiated the Apache NuttX port to the TI AM67A SoC.
- Brought up Cortex-R5F core, including early boot and MPU/cache setup.
- Wrote linker scripts and GPIO/UART drivers; debugged ELF loading through Linux remoteproc.

Avionics Software Developer, Atmaca Rocket Team

Sep 2022 – May 2023

University rocketry team · TÜBİTAK competition

- Developed avionics firmware and parachute-deployment logic using Kalman-filtered sensor estimates.
- The avionics technical report received a full score from TÜBİTAK.

Education

B.Sc. Computer Science & Engineering, Akdeniz University

Sep 2022 – Jun 2026