Linux Features WG

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ELISA
ENABLING LINUX IN SAFETY APPLICATIONS

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LFCS Mission Statement

This working group aims to **investigate Linux kernel features** which may be leveraged for use in safety critical systems. We aim to **bring together kernel developers and producers** of safety critical systems to enable use of such features in real systems, and to learn from these experiences together as a community. This repository will contain the peer-reviewed materials produced by and for this group. Additional collaborative work-in-progress (topic suggestions, notes, etc.) in the project wiki.

Planned activities: To identify existing Linux Kernel features which may be leveraged for use in safety critical systems. For example,

- Mechanisms for protections of various memory types;
- Dynamic analysis for multi-threaded systems;
- Kernel profiling using ebpf-based tools;
- AER (Advanced Error Reporting) for fault handling;
- Safety extensions to Linux drivers.

To bring together kernel developers and producers of safety critical systems.

To propose enhancements and work together as a community.

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2023 Major milestones and achievements

RT Linux in Safety Critical Systems

- Documentation, Analysis of Linux Real Time in Safety Critical Systems / WIP
  - Integration guidelines
  - Considerations for kernel configuration to support system safety
  - Challenges, enhancements and features
- Usage in Mobileye products
- Presentation at Safety-Critical Software Summit EU, June 2023
  - Features and configurations (Elana)
  - Experiments and results (Shuah Khan, Linux Foundation)
  - Attempts to follow up

What's coming up?

1. Partners and collaboration

2. Working with business partners, win-win

3. Areas of interest, safety vs functional architecture

4. Facing reality

5. No safety claims, but aligning with ELISA charter

*The mission of the Project is to **define and maintain a set of elements**, processes and tools that can be incorporated into Linux-based, safety-critical systems **amenable to safety certification**.*

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Links and references

- [ELISA](#) project
- [LFSCS](#) on github
- [Bi-weekly](#) meetings
- [Mission statement](#)
- [Meeting minutes](#)
- To [subscribe](#)

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