# A Big Little Hypervisor for IoT Development

Today's connected devices are increasingly expected to support a range of hardware resources, operating systems, and software tools/applications. Virtualization is key to meeting these broad needs, however, existing solutions don't offer the right size and flexibility for IoT. Data center hypervisor code is too big, doesn't offer safety-critical capabilities, and requires too much overhead for embedded development. Proprietary solutions are expensive and make it difficult to deliver long-term product support.

Clearly there's need for a reference hypervisor that meets the unique needs of embedded development. ACRN™ is the answer.

ACRN™ is a flexible, lightweight reference hypervisor, built with real-time and safety-criticality in mind, optimized to streamline embedded development through an open source platform

The hypervisor's total number of lines of code is well below 40,000. With its small code base and flexible configurations options, Project ACRN addresses a wide variety of use cases that require different levels of isolation, real-time support, and device sharing capabilities.
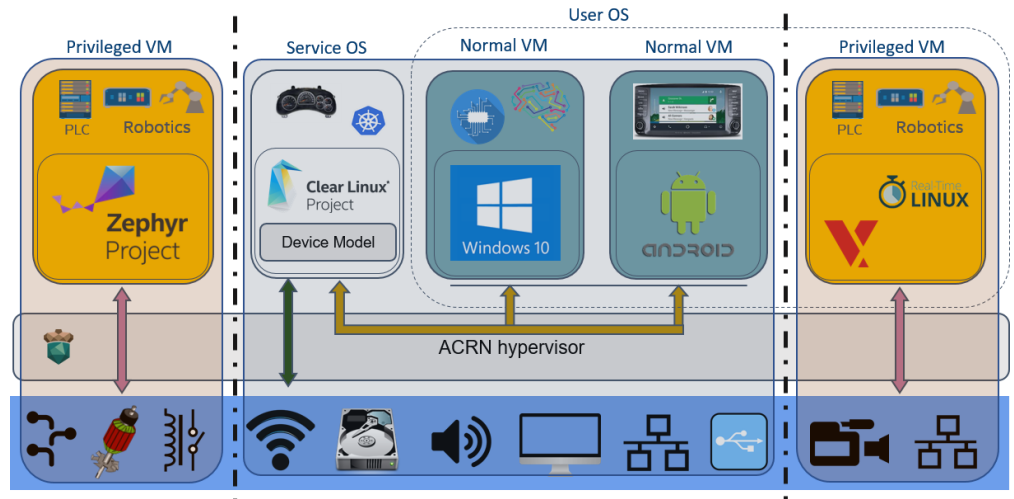
ACRN has a Linux*-based Service OS and runs guest operating systems simultaneously, providing a powerful software platform to build complex computing systems. A guest OS can be Linux*, an RTOS, Android*, or other operating system.

Project ACRN encourages collaboration and code contributions from the open source and embedded developer communities. Learn more about project ACRN at www.projectacrn.org and join the effort providing an open source hypervisor for the embedded IoT community.

https://projectacrn.org

ACRN™

A Big Little Hypervisor for IoT Development

Join the Community

Project ACRN is an open source community producing code under the BSD license. Anyone is welcome to join and contribute code, documentation, and use cases.

Mailing list: acrn-users@lists.projectacrn.org

projectACRN   @projectACRN   github.com/projectacrn   weibo.com/acrn   projectACRN

ACRN™ Features:

Small footprint

- Optimized for resource-constrained devices
- Small codebase: less than 40,000 vs. >156,000 lines of code for datacenter-centric hypervisors

Built for Embedded IoT

- Virtualization beyond the "basics"
- Includes virtualization of embedded IoT device functions
- Rich set of I/O mediators to share devices across multiple VMs

Adaptability

- Multi-OS support for guest operating systems such as Linux* and Android*
- Applicable across many use cases

Built with Real Time in Mind

- Low latency
- Fast boot time
- Responsive hardware communication

Safety Criticality

- Safety-critical workloads have priority
- Isolates safety-critical workloads
- Project is built with safety-critical workloads in mind

Truly Open Source

- Scalable support
- Shared research and development costs
- Code transparency
- SW development with industry leaders
- Permissive Open Source BSD Licensing

projectACRN.org