Virt/RK: A Real-Time Virtualization Framework for Multi-Core Platforms

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• **Real-time virtualization** with resource kernel approach
  – CPU reservation for VCPUs + Memory reservation for VMs

- **VM Resource Reservation**
  - VCPU1/2: 50% of physical CPU
  - VM1: 25% of host memory with cache & DRAM bank partitioning
  
  *Prevents inter-VM interference*

- Current implementation: Virt/RK::KVM-x86, Virt/RK::KVM-ARM
- Virt/RK::L4 under development
Demonstration

• Virtualization of the driving context of an autonomous car*

† J. Wei et al., “Towards a Viable Autonomous Driving Research Platform”, In IEEE Intelligent Vehicles Symposium (IV), 2013.