

PERIPERI EDI

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Core Group Status

Overview

- ▶ New SoC and board support for Linux
 - ▶ Upporting, rewriting, or writing from scratch
- ▶ U-Boot and ATF
- ▶ OpenOCD
- ▶ Virtualization prototype



Core Group Status

High Level "What Happened Since Last F2F Meeting?"

Linux: New SoC support (clock, pinctrl, ...)

- ▶ R-Car M3N, V3H, E3
- ▶ RZ/A2M
- ▶ RZ/G1N, RZ/G1C, and RZ/G2M, RZ/G2E
- ▶ RZ/N1D

→ One new SoC per month!



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U-Boot and ATF

- ▶ R-Car Gen3 boards, SDHI HS200
- ▶ R-Car Gen2 DM conversion (ongoing)
- ▶ ATF parameter passing (ongoing)
- ▶ PCIe recovery



Core Group Status

Is Everyone Happy?



Virtualization Status

What Have We Done?

- ▶ rcar-gpio pass-through PoC
- ▶ i2c pass-through PoC
- ▶ sh-sci pass-through PoC
- ▶ rcar-sata pass-through, with DMA/IPMMU
- ▶ GPIO virtualization PoC
- ▶ Investigation and documentation
<https://elinux.org/index.php?title=R-Car/Virtualization>



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→ Slow progress

- ▶ Upstream still mainly focussed on server virtualization
- ▶ Limited and buggy ARM support



Virtualization Status

Upstreaming

Linux

- ▶ VFIO PM Domain support (v4.18)
- ▶ Type-1 IOMMU instantiation for IPMMU (v4.20)
- ▶ Generic reset support (soon?)



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- ▶ Dynamic VFIO-platform devices (v3.0.1)
- ▶ Generic DT device instantiation
(needs more safeguards against misuse)



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+ Small bug fixes and enhancements all over the place: VFIO, reset, IPMMU, SATA Runtime PM, QEMU, ...



Virtualization Status

Others?



Virtualization Status

Next Steps

- ▶ Rework/resubmit generic reset support
- ▶ Add safeguards to QEMU Generic DT device instantiation
- ▶ GPIO paravirtualization: design protocol, implement Linux & QEMU side
- ▶ DMA virtualization for SYS-DMAC
 - ▶ Follow "dmas" properties if no `iommu_group` is found. Device may be tied to multiple DMACs?
 - ▶ Para-virtualization
- ▶ ...

