BoF: Negotiating DMA-BUF Heaps (and other discussions)

Ezequiel Garcia

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Taking some notes

- https://pad.riseup.net/p/bof-dma-buf-heap-lpc-2020

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Current DMA-BUFs exporters

- Subsystem specific
  - Video4Linux2 API (aka Videobuf2)
  - GEM API
- DMA-BUF Heaps
- No mechanism to actually expose device constraints and negotiate mappings parameters.

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Questions

- In-kernel DMA-BUF Heap interface
  - Should this replace subsystem-specific interfaces?
  - Should new subsystems avoid messing with allocating DMA-BUFs?
- Device constraints and heap capabilities
  - aka DMA-BUF “negotiation”

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In-kernel heap interface

- Is this a good idea?
- Should this replace subsystem-specific implementations?
- Should new subsystems avoid messing with allocating DMA-BUFs?

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Negotiating heaps

Daniel Vetter

> *the rough idea is that in sysfs every device lists all the*

> *heaps it can use, and then you pick the common one that*

> *works for all devices.*

https://www.spinics.net/lists/dri-devel/msg267882.html

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Negotiating heaps

Laurent Pinchart

> Devices (would be) exposing constraints, and allocators

> exposing parameters (capabilities?), with a userspace

> library to reconcile the constraints and produce

> allocator parameters from them.

https://www.spinics.net/lists/linux-media/msg175613.html

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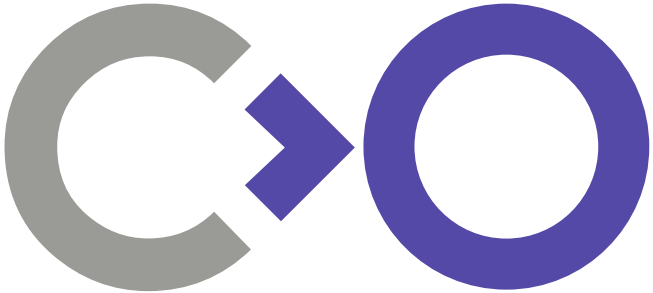
Negotiating heaps

- Constraints (draft)
  - pitch
  - offset alignment
  - cache coherency
  - physical memory bank placement
  - Iommu presence
  - Should these be opaque?
  - How are these exposed?



Thank you!