

drm/i915 Updates

Daniel Vetter, Intel OTC
FOSDEM 2013

bug squashing

- bugs fixed by the truckload
- especially regressions!

intel-gpu-tools kernel tests

- no testsuite is worse than having none
- debugfs knobs for tricky cases
- started with automake testrunner, now piglit

i-g-t kernel tests: future

- modeset coverage still really spotty
- gpu hang&reset code is tricky
- unified kernel tests for other gpus?

dear gfx bug reporter

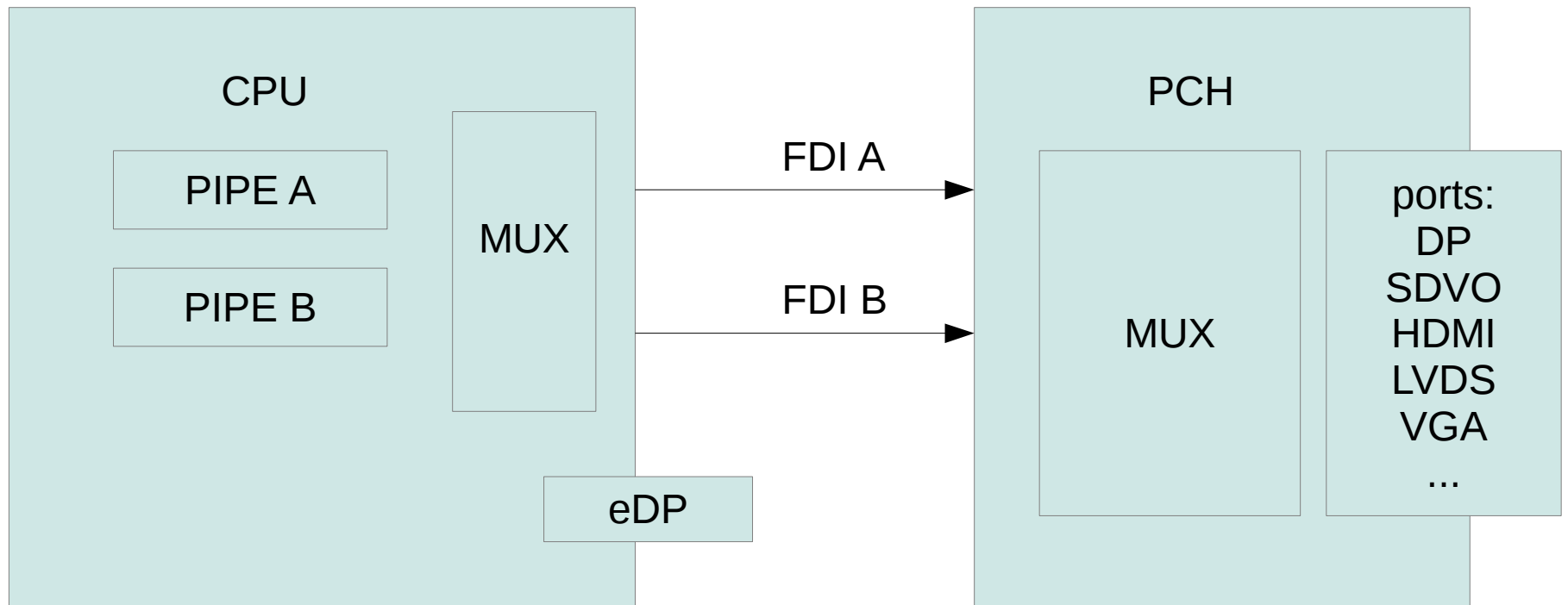
please file duplicates

srly

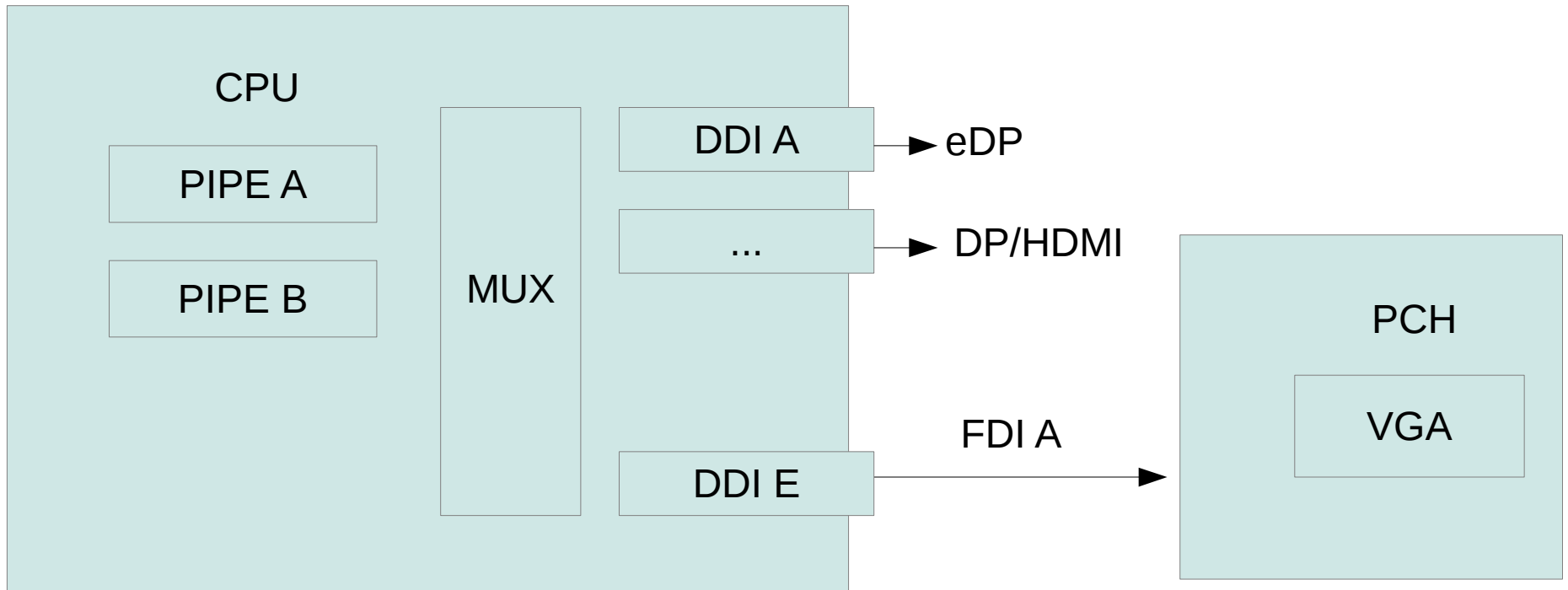
haswell display

- LVDS, SDVO gone, VGA marginalised
- ports on CPU, not PCH

old: PCH-split



new: DDI ports



modeset rework

- haswell DP DDI like old cpu eDP
- „wrong“ enable/disable sequence

crtc helpers

- too flexible: independant encoders
- not flexible enough:
simple encoder enable/disable sequence

new i915 modeset code

- dpms simplified
- modeset sequence driven by crtc

new modeset: code tools

- output state staging
- hw state read-out

new modeset: results

- simplified modeset state space
- paranoid modeset state checker
- enabled haswell DP support
- drm helpers are in rather good shape

new modeset: future

- atomic modeset
- fastboot

minor modeset stuff

- EDID improvements
- hotplug is a mess

drm modeset locking rework

- per-crtc locking for pageflip/cursor/fb ops
- required proper framebuffer refcounting

drm modeset locking rework

- per-crtc locking for pageflip/cursor/fb ops
- required proper framebuffer refcounting

GEM

- little bits of tuning all over
- hw context support
- cachability control

GEM: no more flushing list

- GEM: per-cache GPU domains
- complex and delayed flushing caused stalls
- completely ripped out (almost)

GEM: tuning

- unbound tracking
- reduce mappable pressure
- no-reloc optimization

GEM: the future

- real per-process address spaces
- userptr, maybe ...
- more than One Lock to Rule Them All

dma_buf: fences & reservations

- Maarten Lankhorst & Rob Clark
- essentially ttm, trimmed down
- currently just for synchronization

dma_buf: opens

- needs review of mutex changes
- android sync_points, SoC adoption
- integration with i915/GEM will be fun
- better i915 OOM handling

summary

- fewer bugs & better QA tools
- improved modeset infrastructure
- fastboot & atomic modeset in the future
- tuned GEM
- big changes around dma_buf ahead