Update on AMD DRM modifiers

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Why modifiers?

- Image imports on Vulkan
  - Compositors using Vulkan
    - Gamescope needs hacks currently :(
  - Zero-copy video playing
- Compression for non-fullscreen windows
- Overlay/underlay planes
  - Compositors uncertain without modifiers
Implementation

Modifier: injection uint64_t -> texture layout

Typically use ~3 texture layouts on AMD
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#define DRM_FORMAT_MOD_LINEAR 0
#define DRM_FORMAT_MOD_AMD_DISPLAYABLE 1
#define DRM_FORMAT_MOD_AMD_NON_DISPLAYABLE 2

Done?
GPU, driver differences

- Texturing layout changes in every new chip …
- Some driver only data in texture memory

- Add Chip ID as parameter?
  - Chips with same texture layout will result in duplicate modifiers …

- Add parameters to completely identify texture layout?
  - Gets quite detailed & complicated
Approach

- Sent first RFC 1+ years ago
- Got a bunch of pushback
  - Total modifier info was almost 40 bits
  - Some people questioned my source data on parameters.

- New approach: Only GFX9+ (RX Vega, Raven APUs)
  - Clean break in texture layouts (simpler!)
    - Can iterate quickly
  - More interesting with compression
  - Have almost complete HW collection to test
Status

Complete implementation:
- GL: https://gitlab.freedesktop.org/mesa/mesa/-/merge_requests/6176
  - In good shape
- Kernel: https://patchwork.freedesktop.org/series/80262/
  - Could use more feedback

To do:
- Publish Vulkan support
- Add IGT tests
- Add names to drm_info

Personal repo for issues/ideas: https://gitlab.freedesktop.org/bnieuwenhuizen/mesa/-/issues/4