



drm/msm: Status Report

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Overview (6.18)

- 36 platforms supported starting from APQ8064 / MSM8960 up to SM8750
- 6 generations of GPUs support, 43 SKUs
- 3 different “core” display drivers
- DSI, DP and HDMI output support
- Writeback support

Display: Core

- soc/qcom/ubwc – database of platform's UBWC capabilities to be used by drm/msm and (in future) venus, iris, camss
- Clearer separation between KMS code and the rest of the driver
- Decouple ties between kms and gpu – `msm.separate_gpu_kms=1`
- IOMMU is required (sorry for MSM8974, MSM8226)
- Support for SA8775P (Lemans), SAR2210P (AR2 Gen1), SM6150 / QCS615 (Talos), SM8750
- All platforms and connectors use `drm_bridge_connector`

Display: MDP/DPU

- MDP4
 - Fixed LVDS panels support for AP8064
- MDP5
 - None?
- DPU
 - New platforms mentioned before
 - Migrating MSM8996, MSM8937, MSM8917 and MSM8953 from the MDP5 driver
 - not enabled by default
 - Cloned output to display + writeback for SM8650 and SM8750
 - Virtual planes (4k planes) landed
 - not enabled by default

Display: Outputs

- DisplayPort
 - Rework in preparation to DP MST support
 - Link-Training Tunable PHY Repaters support
 - DP Audio implemented using HDMI Audio helpers
 - PSR support has rotten ☹
- DSI
 - SM8750 support, causing several major bugfixes
- HDMI
 - Switched to HDMI Connector and HDMI Audio helpers

GPU: New hw support

- v6.11: X1-85, A505
- v6.12: A615, A306, A621
- v6.15: A623
- v6.17: X1-45

GPU: Performance

- v6.12: A642L speedbin support
- v6.14: GMU bandwidth voting for A740, A750
- v6.16: ACD support for X1-85
- v6.17: X1-85 speedbin support
- v6.18:
 - Speedbin support for A663, A623
 - IFPC support for X1-85, A750!

GPU: New UAPI

- v6.11: MSM_PARAM_RAYTRACING
- v6.12: MSM_PARAM_UBWC_SWIZZLE +
MSM_PARAM_MACRO TILE_MODE
 - VK_EXT_host_image_copy
- v6.14: MSM_PARAM_UCHE_TRAP_BASE
 - VK_KHR_shader_clock + GL_ARB_shader_clock
- v6.15: expose syncobj timeline support
- v6.17: VM_BIND!!

GPU: Misc

- Split giant GPU device table into per-gen hw catalog
- GPU memory traces
- A7xx preemption support!
- Improved UAPI error reporting (UERR()) macro
 - Enable with `drm.debug=0x2`
- extend GPU devcoredump with pgtable info
- Remove `MODULE_FIRMWARE()` for GPU fw
- Central UBWC config soc driver – `qcom_ubwc_config_get_data()`

Display: Pending in the pipeline

- Core
 - HDMI PHYs migration to drivers/phy
 - Further separation of KMS and GPU parts inside the single msm.ko
- DPU
 - New platforms support (QCS8300 / Monaco, Kaanapali, Glymur, more to come)
 - Quad-Pipe: 4k resolution support
- DisplayPort
 - DP HPD rework
 - DP MST support
- DSI
 - DSC fixes
- HDMI
 - CEC support (initially posted by Free.fr)

Display: Long-Term plans, might be subject to change

- Core
 - Secure IOMMU contexts for display (see iommu-map-masked)
- DPU
 - Clone to WB enablement for earlier platforms
 - Continue migration of platforms from the MDP5 driver
- DisplayPort
 - DSC support
- DSI
 - DSI PHYs migration to drivers/phy

GPU: Looking Forward

- New UABI for perf counters
- DVCS Improvements
- GMU hwsched
- Protected surface
- LPAC
- And the never ending stream of new hw 😊

GPU: Perf Counter Usage

- “Local” counter collection from cmd stream
 - VK_KHR_performance_query and GL_AMD_performance_monitor
 - Collection is local to a command buffer
- “Global” counter collection from a privileged process/daemon
 - I.e. mesa PPS producer for Perfetto
 - Collection is global across all processes
 - Doesn’t play well with IFPC



Thank you

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