Agenda

- Where are we?
- Where are we going?

Where are we?

APQ8064 & MSM8974

Progress since BKK19:

- GPIO hierarchical IRQ helpers
- Nexus 5 gained/enabled support for:
  - WiFi
  - Display
  - Touch
  - USB OTG
  - Backlight

In-flight patches:

- OCMEM support
- Nexus 5 HDMI support

MSM8916

Progress since BKK19:

- Idle state updates
- Thermal updates
- PM8916 watchdog
- socinfo

Current status of db410c:

- Working Display*, GPU, storage, audio, Bluetooth, USB, Video encode/decode, WiFi*, GPS

New boards:

- Longcheer L8150
- Samsung Galaxy A3U/A5U

MSM8996

Progress since BKK19:

- Audio enabled
  - APR
  - Slimbus
  - WCD9335
- Coresight
- Corners
- Display/GPU enabled
  - HDMI
  - Adreno support
- PSCI based CPU idle
- Thermal updates
- Venus enabled

Current status of db820c:

- Working Display*, GPU, storage, audio, Bluetooth, Ethernet, WiFi, USB, Video encode/decode, GPS

- CPR and CPUfreq missing
- kpti=no

MSM8998

Progress since BKK19:

- UFS
- Idle states
- Corners
- RPM clocks
- PCIe
- Coresight
- USB
- Thermal updates
- Multimedia Clock controller
- Adreno A540 support
- DSI support

New boards:

- Asus Novago TP370QL
- HP Envy X2
- Lenovo Miix 630

SDM845

Progress since BKK19:

- UFS enabled
- Display, gpu and video clock controllers enabled
- WiFi enabled
- CPU idle states
- Audio, Compute and Modem DSP
- FastRPC
- System cache enabled
- Coresight enabled
- Video encode/decode
  - Stream codec API compliance
- IOMMUs enabled

- Display and GPU support
- CPUfreq
- Interconnect
- Corners
- Thermal zones and cooling
- SDHCI enabled
- UFS device reset

New boards:

- Dragonboard 845c
- Lenovo Yoga C630
- Google Cheza

SDM845 (continued)

Current status of db845c:

- Working storage, USB, Bluetooth, FastRPC, micro-SD

Current status of Lenovo Yoga C630:

- Working EFI Framebuffer, storage, keyboard, trackpad, USB, charging, CPUfreq/thermal, Bluetooth

Expected progress in near future:

- PCIe
- Ethernet
- WCD934x slimbus codec
- Soundwire controller and WSA881x codec
- Wakeup capable GPIOs
- SMMU TLB invalidate errata

QCS404

Progress since BKK19:

- Ethernet
- Bluetooth
- PCIe
- PSCI based CPU idle
- Corners
- RPM clocks
- Interconnect
- Compute subsystem
- WiFi enabled
- Thermal zones
- FastRPC

Current status:

- Working storage, Bluetooth, WiFi, PCIe, Ethernet

In-flight patches:

- CPR & CPUfreq
- USB PHYs
- FastRPC in dts

SM8150

Progress since BKK19:

- Global clock controller
- TLMM driver
- RPMH regulators
- RPMH clocks
- Base DTS introduced

Current status:

- Boots to console

In-flight patches:

- UFS
- Remoteproc

Where are we going?

Connectivity

IPA:

Exposes data pipes of (builtin) Qualcomm modems.

- V2 was posted in June
- Modem restart
- RMNET vs WWAN framework

MHI:

Communication layer for PCIe attached modems and WiFi chipsets.

- First patches on LKML 2018
- WWAN framework?

Call management:

- libqmi?

Display/GPU

SMMU handover and late attach:

Boot splash (or EFIFB) is scanned out through the IOMMU, need to retain stream mapping until driver is ready.

Boot constraints:

Resources needed past late initcall.

Per-instance page tables:

Ties multiple page tables to a specific IOMMU context and have Adreno switch the active one as needed.

- V3 posted in May

LT9611 DSI/HDMI bridge:

HDMI bridge used in db845c, not yet posted.

Adreno A6xx preemption support

Displayport:

SDM845 supports DisplayPort

- Initial patches posted 2018

Multimedia

SDM845 camera IP support:

- YUV
- Libcamera
- ISP support
- CCI

Venus:

- Power management
- 10 bit stream support
- UBWC

Protection-domain restart (PDR):

SDM845 audio firmware runs in a domain, PDR is used to signal APR when the domain is available (or restarting).

Performance

Tsens IRQ support

Core Power Reduction (CPR):

Qualcomm's adaptive voltage scaling block.

- QCS404/MSM8916 progress
- MSM8996

DDR scaling:

DDR frequency is scaled using interconnect votes.

- CPUfreq based patches posted
- Support for bwmon

DVFS:

How do we perform voltage (or genpd performance state) scaling upon frequency scaling, without creating a spaghetti monster?

QMI based cooling device:

Cooling implemented on remoteprocs

Low-power

Interconnect:
- Client driver adaption
- Path tagging

CPU cluster idling

Thermal "heating" devices
Hierarchical thermal zones

Regulator active/sleep sets

Suspend/resume

Thank you

Join Linaro to accelerate deployment of your Arm-based solutions through collaboration

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San Diego 2019