

# Qualcomm upstream update

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# Agenda

- Who are we?
- What have we done?
- Where are we going?
- Want to join us?

**Who are we?**

# linux-arm-msm

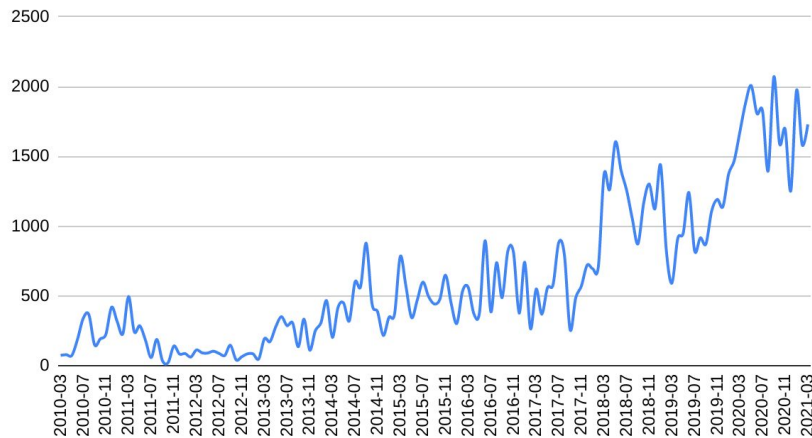
Biggest contributors, same as before:

- Linaro
- Qualcomm
- Google

Lots of recent activity from individuals and hobbyists:

- PostmarketOS
- SoMainline
- Jonathan Marek

email per month to linux-arm-msm@vger



**What have we done?**

# MSM8974 (Snapdragon 800)

## Progress since SAN19:

- Interconnect provider
- OCMEM
- Krait CPUfreq
- Lots of DT updates

## Boards:

- Fairphone 2
- LGE Nexus 5 (Hammerhead)
- Samsung Galaxy S5
- Sony Xperia Z1
- Sony Xperia Z1 Compact
- Sony Xperia Z2 Tablet

# MSM8916 (Snapdragon 410)

## Progress since SAN19:

- Cluster idle
- Interconnect provider
- RPM power-domains (corners)
  - Remoteproc drivers cleaned up
- FastRPC enabled
- CCI
- DT cleanup

## Boards:

- db410c
- Alcatel OneTouch Idol 3
- Asus Zenphone 2 Laser
- Longcheer L8150
- BQ Aquaris X5
- Samsung Galaxy A3U
- Samsung Galaxy A5U

# MSM8996 (Snapdragon 820)

## Progress since SAN19:

- CPU errata
- GPU power supply
- CCI
- Deprecated UFS phy
- DT cleanup

## Boards:

- db820c
- ifc6640



# MSM8998 (Snapdragon 835)

## Progress since SAN19:

- SMMU fixes
- GPUcc
- I2C dma
- remoteprocs
- WiFi
- Bluetooth

## Boards:

- MTP
- HP Envy x2
- Lenovo Miix 630

CPR/CPUfreq on LKML

# QCS404

## Progress since SAN19:

- Interconnect provider
- CPR
- CPUfreq
- USB
- Watchdog
- wcnss remoteproc
- remoteproc debug (qcom)

# SDM660

- CPUs, timers
- GCC, Regulators, Corners, TLMM
- UART, I2C
- SDHCI (including ICE)
- Interconnect providers
- USB
- SMMU\*
- Display
- GPU
- Tsens and thermal profiles
- Remoteprocs
- Camera

## Boards:

- Xiaomi Redmi Note 7
- Sony Xperia X10
- Sony Xperia X10 Plus
- Sony Xperia XA2
- Sony Xperia XA2 Plus
- Sony Xperia XA2 Ultra

# SDM845 (Snapdragon 845)

## Progress since SAN19:

- SMMU
  - TLB invalidate errata
  - Stream mapping handoff
  - Per-process page tables
- Wakeup-capable GPIOs
- PCIe
- Soundwire
- Audio codecs
- IPA
- Crypto
- Camera
  - CCI adapter
  - Capture
- WLED

- LT9611 HDMI bridge
- Renesas XHCI
- DDR clock scaling
- GPI
- PDR

## Boards:

- MTP
- DB845c
- OnePlus 6/6T
- Xiaomi Pocophone F1
- Lenovo Yoga C630

# SC7180 (Snapdragon 7c)

- CPUs, timers, CPUfreq, Suspend
- Clocks, Regulators, Corners, TLMM
- Interconnect (incl clients and path tag)
- USB
- SDHCI
- GENI, QSPI
- DPU, GPU, DSI
- Audio
- Modem & IPA
- Thermal, Coresight, Watchdog
- Video encode/decode

# SM8150 (Snapdragon 855)

## Progress since SAN19:

- Interconnect provider
- SMMU
- UFS
- USB
- remoteproc
- WiFi
- GPU
- thermal profiles
- coresight
- Cluster idle
- Display\*

## Boards:

- MTP
- HDK

# SC8180x (Snapdragon 8cx)

- CPUs, timers, UART
- GCC, Regulators, Corners, TLMM
- CPUfreq, Cluster idling
- UFS
- USB\*
- remoteprocs
- WiFi

## In flight:

- DispCC, GPUCC
- DPU
- Adreno
- Interconnect providers

## Boards:

- Primus
- Lenovo Flex 5G
  - EFIFB, keyboard, touchpad
  - Debian installer

# SM8250 (Snapdragon 865)

- CPUs, timers, CPUfreq
- Clocks, Regulators, Corners, TLMM
- uart, i2c, spi
- UFS, SDHCI
- USB
- IPCC & remoteprocs
- DPU, GPU, DSI
- PCIe
- Audio & codecs
- ADC TM5, tsens and thermal zones
- FastRPC
- Watchdog, RNG, Crypto\*

## Boards:

- MTP
- HDK
- RB5
  - LT9611uxc HDMI bridge
  - Ethernet
  - CAN



# SM8350 (Snapdragon 888)

Announced December 2020

- CPUs, timers, UART
- GCC, Regulators, Corners, TLMM
- CPUfreq
- PMICs\*
- USB
- remoteprocs

## In flight:

- interconnect provider

## Boards:

- MTP
- HDK
  - Storage
  - USB
  - Ethernet

# SDX55 (Snapdragon X55)

- CPUs, timers, UART
- GCC, Regulators, Corners, TLMM
- Interconnect provider
- USB
- SDHCI
- NAND

## In flight:

- remoteprocs
- IPA

# MHI

MHI is a mechanism for dealing with multi-function PCI devices.

- ath11k
- QRTR integration
- MHI net
  - MBIM support
- libqmi integration\*
- qrtr-ns migrated to kernel space

**Where are we going?**

# Connectivity

## **libqmi/modemmanager:**

Patches on review for both integrated and external modems.

## **IPA:**

SDX55, MSM8998, SC7280 support  
pm\_runtime and performance states  
Checksum offload

## **ESOC:**

Power sequence et al mechanism for PCIe  
attached modems

# Power/performance

## **Cluster idle:**

Integrate cluster idling on newer SoCs

## **Suspend/resume:**

Get upstream to power down during suspend

## **Interconnect consumers:**

Expand interconnect integration to more drivers and boards

## **bwmon:**

Finish up patches for profiling based bandwidth scaling

## **DTPM:**

Migration of downstream solution

## **qmi cooling:**

Introduce support for cooling devices on remote processors

# SM8250

## **Displayport:**

Type-C and displayport support

## **LPG:**

LED driver needs a respin

## **PCI power sequence:**

WiFi/Bluetooth chip sits on PCIe and UART, needs power on sequence

## **RB5 mezzanines:**

Navigation and Communication mezzanines

# Laptops

## **SC8180x DTS:**

Send and land the pending SC8180x DT patches

## **SC8180x ACPI support**

## **SC8180x (e)DP support:**

Clock drivers, DPU, Adreno, Type-C handling and (e)DP PHY

## **sn65dsi86 backlight:**

Pending pwm\_chip patches need to be reworked to handle cyclic loop with panel

## **Lenovo Yoga C630 battery driver:**

Cleanup and attempt to upstream?

## **SDM845 suspend/resume:**

Laptop does suspend, but doesn't seem to reduce power consumption

## **SC8180x PCIe:**

SDX55 5G modem



# Moar ongoing things

## **SDX55 modem support:**

Remoteproc, IPA support in the works

## **SC7280 support:**

Recently started upstreaming

## **SM8350 base support:**

Interconnect, tsens, crypto, rng in the works.

## **SDX55 PCIe RC and EP:**

SDX55 supports RC and EP

## **SM8250 venus:**

Patches on LKML for a6xx

## **SDM660 upstreaming:**

CPR/CPUfreq needs review, SMMU regression

## **SM8350 charging/Type-C:**

USB handling implemented in firmware

## **DT (schema) cleanup:**

qcom #1 in “make dtbs\_check” warnings

**Want to join us?**

# Contribute

- Try out the upstream kernel on your board
- Subscribe to [linux-arm-msm@vger.kernel.org](mailto:linux-arm-msm@vger.kernel.org)
- Help improve upstream drivers
- Upstream new drivers
- Review patches
- ##linux-msm at freenode

# Thank you

Accelerating deployment in the Arm Ecosystem

