

MAD24-320

Qualcomm Kernel upstreaming BoF

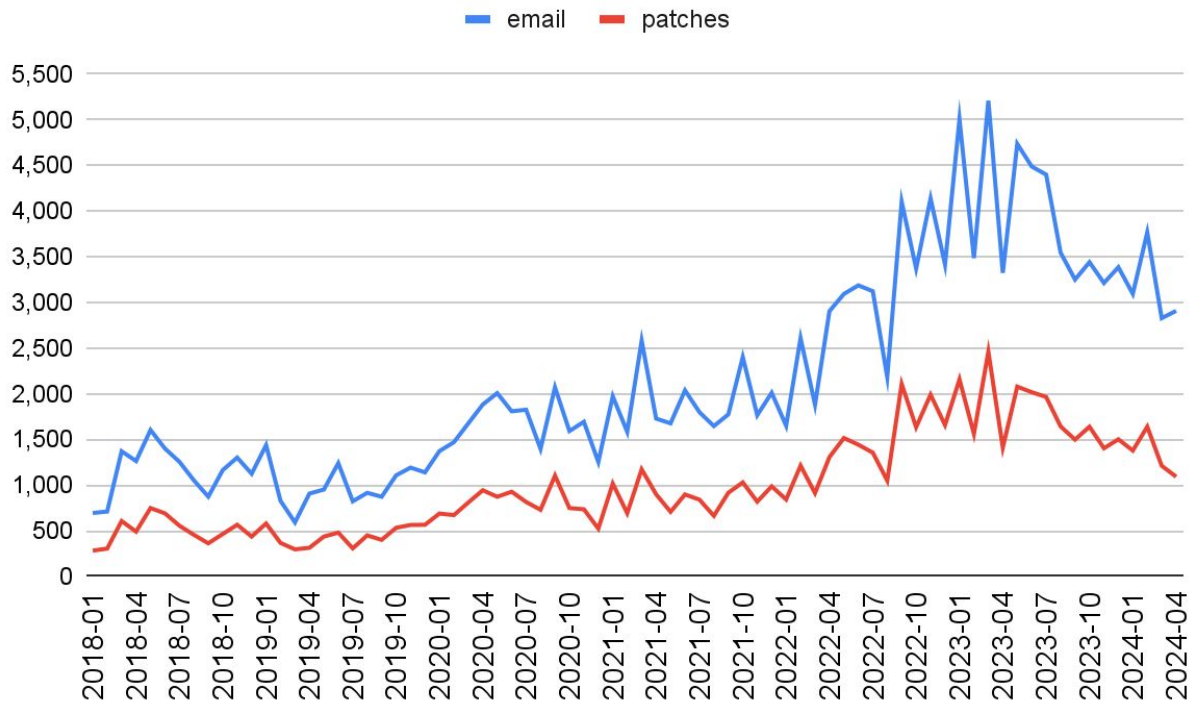
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Agenda

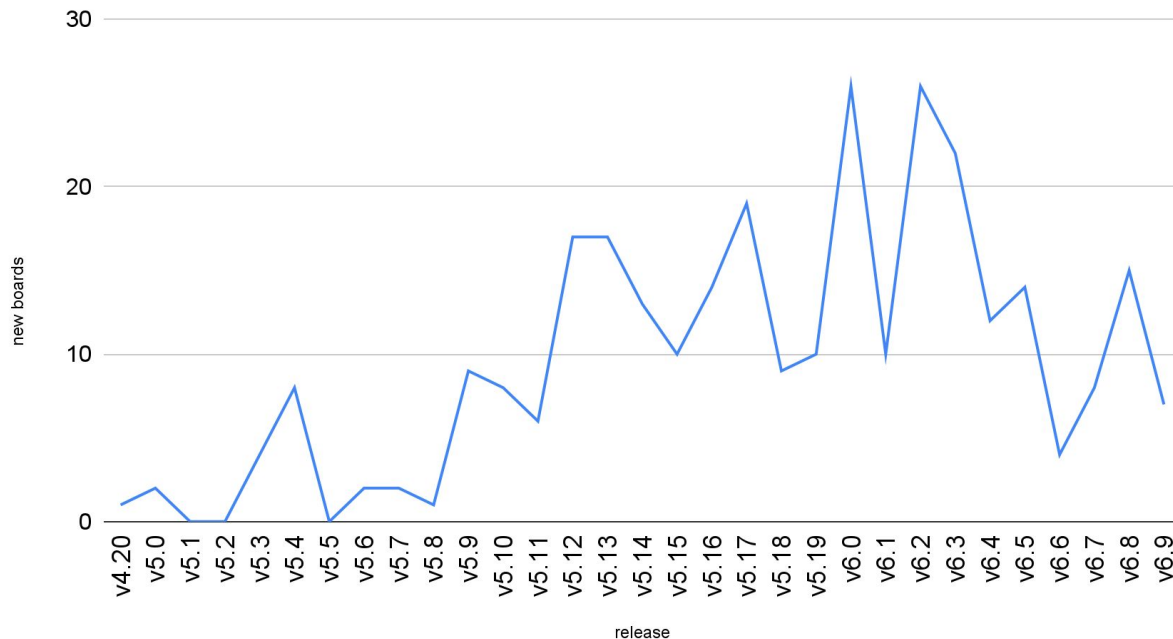
- Kernel upstreaming
 - Baseport
 - Memory Management/SMMU
 - Power/Thermal
 - Peripherals
 - Display
 - GPU
 - Video
 - Networking
 - Audio
- How things are going

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SoCs and Platforms

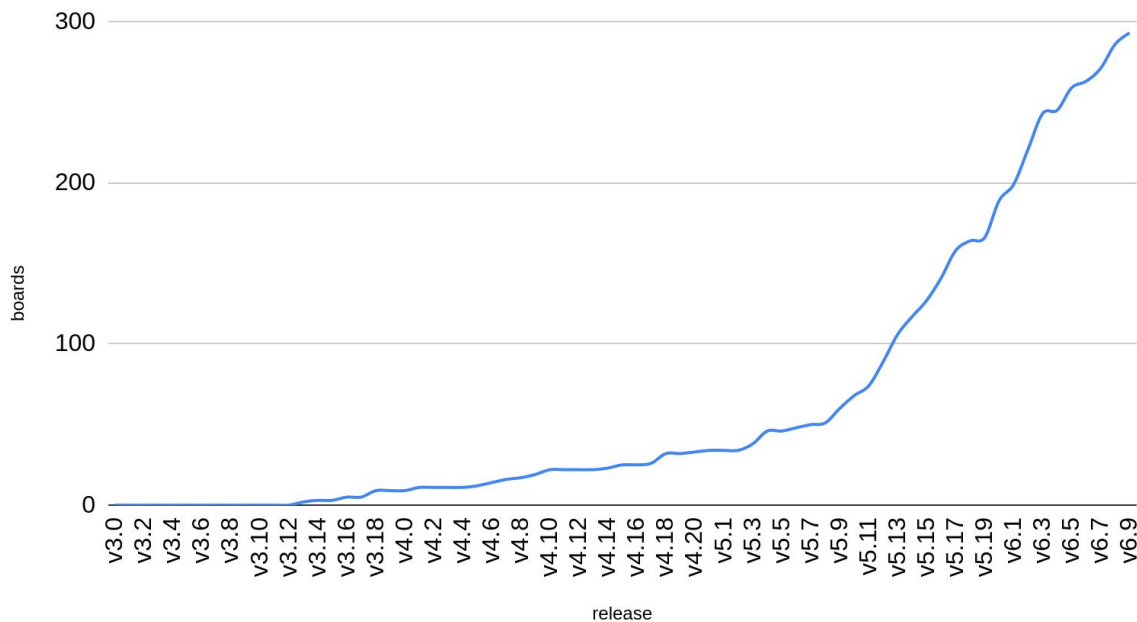
DT boards (differential)



```
for id in $(git tag | grep -E "^v[0-9].[0-9]+$" | sort -V); do echo -n $id, ; BOARDS=$(git ls-tree --name-only -r $id | grep -E "arch./boot/dts/*qcom.*.dts$");  
diff -u <(git ls-tree --name-only -r $PREREV | grep -E "arch./boot/dts/*qcom.*.dts$") <(git ls-tree --name-only -r $id | grep -E "arch./boot/dts/*qcom.*.dts$")  
| grep "\+arch" | wc -l; PREREV=$id; done
```

SoCs and Platforms

DT boards (cumulative)



```
for id in $(git tag | grep -E "^v[0-9].[0-9]+$" | sort -V); do echo -n $id, ; git ls-tree --name-only -r $id | grep -E  
"arch/.*/boot/dts/*qcom*.dts$" | wc -l; done
```

Summary

- ARM Laptop!!!
 - Lenovo X1 Elite
- Flagship SoCs
 - Snapdragon 8 Gen 3 (SM8650) upstream, Launched end'23
 - Snapdragon Automotive Ride Platform SA8775P
- Community Enabling
 - Huge number of devices
 - Growing community support

Clocks

General:

- Add helpers for for setting SLEEP/WAKE/retain bits, + others and use them in drivers
- Update the .pwrsts for most of GCC drivers
- Still PCIe PIPE clocks handling fixes...
- Venus CLK resets in most of GCC drivers
- PLL cleanup & fixups

Clock Controllers:

- GCC: X1E80100, SM8650, IPQ5018, IPQ9574, MSM8917, SDX75, SM4450, SM7150
- GPUCC: X1E80100, SA8775P, SM6115, SM6125, SM6375, SM8450, SM8550, SM8650

Clock Controllers (cont.):

- DISPCC: X1E80100, SM8650
- CAMCC: X1E80100, MSM8917, SM8550,
- TCSRCC: X1E80100, SM8650
- VIDEOCC: SM8350, SM8550, SM8450
- LPASSCC: SC8280
- ECPRICC: QDU1000/QRU1000

Power & Performance

- Regulators support
 - PMM8654au
 - MP5496 S1
 - PM8909
 - PM8019
 - PMA8084
 - PMC8380
 - PM8937
 - PM8010
- RPMh PDs
 - SM7150 clock
 - SM8650
 - SC8380XP
 - SA8540P gfx.lvl fix
- RPM PDs
 - MSM8917
 - QM215
 - MSM8974+PM8841
 - MSM8974PRO+PMA8084

Providers

- Interconnects
 - Set ACV enable_mask over most of interconnect drivers
 - Define RPM bus clocks
 - Enable sync_state over most of interconnect drivers
 - SM7150
 - MSM8909
 - SM6115
 - X1E80100
 - SM8650
 - SDX75
- LLCC
 - Add LLCC support for multi channel DDR
 - SM7150
 - QDU1000 and QRU1000
 - SM8650
 - X1E80100
 - Support polling mode for ECC handling
- SocInfo
 - SA8775P, QCM2290/QRB2210, IPQ9574, QRB4210, SM7150, IPQ5018, IPQ5312 and IPQ5302, IPQ5300, SM4450, IPQ5019, SM7125, SM7150P, QCM6490, IPQ8174, SM8650, PM8937, QCM8550 and QCS8550, PM4125, SM8475
- RSC
 - Support v3 minor versions
- PDC
 - Add support for v3.2 HW

Pinctrl

- TLMM driver
 - SM7150, IPQ9574, SDX75, IPQ5018, LPASS, SM6115, SM8650, X1E80100, SM4450
 - Support OUTPUT_ENABLE
- GPIOs
 - PMI632, PM8953, pm7550ba, pmx75, pmm8654au-gpio
- LPASS-LPI Pinctrl
 - SM8350, SM8650, X1E80100

Geni

- Mostly fixes
- I2C: Correct I2C TRE sequence

PMIC

- SPMI dual-bus for v7 X1E80100 merged !
- A lot of fixes for the PMIC Glink UCSI implementation
- PMIC Glink & UCSI for SM8450, SM8550, SM8650, qcm6490

IPA

- IPA v5.0 (sdx65)
- IPA v5.5 (SM8550 & SM8650)

FastRPC

- Mostly fixes
- Work In Progress:
 - PD support.
 - Invoke V2 support
 - DSP and FastRPC config
 - Enhancing FastRPC Lib support.
 - Test Matrix.

Audio

General:

- Quad Speaker support
- Sc7180, SM8450, SM8550, SM8650 and x1e80100 machine driver.
- Shared reset gpio support
- Mute_unmute_on_trigger reduce click and pops.

Codecs (TX, RX, WSA, VA Macro):

- WCD939x
- WSA884X
- V11.0, V10.0 and V9.2, Lpass codec support

Patches on List:

- DP audio support.
- WCD937X

Work In progress:

- Audioreach calibration support
- VI Feedback and Speaker Protection.
- Soundwire PCM Port support
- Echo and Noise Cancellation support.
- Pipewire related issues.

Known Issues:

- Pipewire related issues.

Display

- **Display controller**

- SM6125, SDM670, SM8650, X1E80100

- **DisplayPort Support**

- SM8450, SM8550, SM8650
- Enable PM runtime
- YUV420 over DP

- **DSI Support**

- MSM8226, SM6125, SM8650
- Enable burst mode for new platforms
- Enable PM runtime

- **Misc Changes**

- Start migration from MDP5 to DPU1
- support AR30 in addition to XR30 format
- Split the HW catalog into individual per-SoC files
- Enable missing features (DSPP, DSC, split display) on sc8180x, sc8280xp, sm8450, sc7280
- Support for DSC 1.2 blocks found on sm8350 and later

Remoteprocs

- SM8650 adsp, cdsp & mpss
- Sc7180 ADSP
- SM6375 ADSP & CDSP
- SM6375 MPSS
- SC7280 ADSP, CDSP & WPSS
- X1E80100 ADSP/CDSP

PCIe

- Host Controllers:
 - SDX55
 - SM8550 (+SM8650)
 - Sa8775p
 - X1E80100
 - Do not advertise hotplug when HW doesn't support
 - Async probe
 - Disable ASPM L0s for sc8280xp, sa8540p and sa8295p
 - Enable ASPM for platforms supporting it
- EP
 - Add eDMA support
 - Add ICC bandwidth voting support

PHYs

- PCIe

- SDX55
- SDX65
- Sa8775p
- SM8150
- SM8650
- X1E80100

- USB

- SA8775P
- IPQ9574
- SDX75
- X1E80100
- SDM630

- USB3/DisplayPort Combo

- Fix DP for Sm8550
- SM8150
- SM8650
- X1e80100
- Orientation switching support
- DRM Bridge support for Altmode

DT Binding

- DT binding cleanup (dtbs_check)
- Various new platforms and SoCs

UFS

- Switch to the new ICE API
- Add support for scaling interconnects
- Support Gear 5 starting from SM8550
- Support multiple clocks for each OPP
- UFS device version & maximum supported gear detection

Firmware

- QCA firmware updates:
 - WCN685x, QCA2066
 - Dragonboard 410c WiFi
- New firmware
 - WCN3988
- Platform firmware updates
 - SDM845 (remoteproc, RB3 sensors)
 - SC8280XP (Audio)
 - QCM2290 / QRB2210 (GPU, WiFi, DSPs)
 - QRB4210 (GPU, DSPs)
 - SM8250 (DSP)
 - SM8550 (Audio tplg firmware)
 - SM8650 (Audio tplg firmware)
 - Adreno A630 GPU
 - Venus (v6.0, v5.4)

Platforms

- Qualcomm
 - SA8775P Ride
 - SC8180x Primus
 - IPQ5018/AP-RDP432.1-C2
 - IPQ5332 MI01.2
 - IPQ5332 MI01.3
 - IPQ5332 MI01.6
 - IPQ5332 MI01.9
 - IPQ9574/AP-AL02-C2
 - IPQ9574/AP-AL02-C6
 - IPQ9574/AP-AL02-C7
 - IPQ9574/AP-AL02-C8
 - IPQ9574/AP-AL02-C9
 - QCM6490 IDP
 - QRB4210 RB2
 - Robotics RB1
 - Robotics RB3gen2
 - SDX75 IDP
 - SM4450 QRD
 - SM8550 HDK
 - SM8550 QRD
 - SM8650 MTP
 - SM8650 QRD
 - X1E80100 CRD
 - X1E80100 QCP
- Acer Aspire 1
- BQ Aquaris M5 (Longcheer L9100)
- F(x)tec Pro1X (QX1050)
- Fairphone 5
- Google Kingoftown
- Google Lazor + Limozeen (rev9, rev10+)
- Huawei Honor 5X / GR5 (2016)
- Lenovo Flex 5G
- Samsung Galaxy A7 (2015)
- Samsung Galaxy Core Prime LTE
- Samsung Galaxy Grand Prime
- Sony Xperia M4 Aqua
- Square, Inc. T2 Devkit
- Xiaomi Mi A3
- Xiaomi Mi Pad 5 Pro
- Xiaomi Pad 6
- Xiaomi Redmi Note 9 Pro (Global)
- Xiaomi Redmi Note 9S
- Alcatel Idol3
- apq8039-square-sndcard
- bq-paella
- Samsung a2015
- Samsung gmax
- Samsung gt510
- uz801 v3.0 4G Modem Stick
- wt88047

Heat Map

Platform	Clocks		Pinctrl	Interconnects	UART	SPMI	I2C	SPI	PCIe	SMMU	Storage			CPU			Remoteproc	Connectivity			GNSS (GPS)	Audio				USB	Display				Camera	Video		
	GCC	RPM(hy)CC									NAND	UFS	SD/eMMC	CPU/freq (DVFS)	CPUidle	SMP		Bluetooth	WLAN	IPA		Analog Codec	DMIC	Soundwire	ADSP (AudioReach)		DSI	HDMI	DisplayPort	GPU		Venus	Watchdog	
APQ8064	3.18	4.6	3.18	N	5.18 []	3.18 []	5.18	4.6	4.5	4.1	N/A	N/A	3.18	WIP	4.1	3.18	4.7	4.11 []	4.11 []	N/A					4.2	4.1	4.1	N/A	4.1			5.19		
MSM8916	4.1	4.6	4.1	5.0	4.1	4.2	4.3	4.3	N/A	3.14	N/A	N/A	4.3	4.17	4.0	4.9	4.1	4.11	4.11	N/A					4.3	4.9	N/A	N/A	4.14	5.0	4.14			
MSM8939	5.12	5.11	5.9	5.12	4.1	4.2	4.3	4.3	N/A	3.14	N/A	N/A	4.3	WIP	N	WIP []	4.1	4.1	4.11	N/A					4.3	4.9	N/A	N/A	4.14	WIP	WIP			
MSM8996	4.6	4.15	4.6	6.0	4.6	4.6	4.8	4.8	4.15	4.21	N/A	4.18	4.8	5.14 []	5.3	4.9 []	4.12	4.18	4.18	N/A					4.14	5.14	5.2	N/A	5.2	4.21	5.4			
MSM8998	4.18	5.0	4.18	N	4.19	4.19	4.8	6.4	5.2	5.15	N/A	5.1	4.2	N	5.2	4.19	5.5	N	N	N					4.3	4.5	N	N	5.15	N	N			
QCM2290 / QRB2210	4.4	4.4	4.4	4.8	5.4	5.4	5.4	5.4	N/A	6.4	N/A	N/A	5.4	6.5	6.4	N/A	N/A	5.4	6.4	N/A	N/A	N/A	N/A	N/A	5.4	6.6	N/A	N/A	WIP	N/A	N/A	6.4		
QDU1000 / QRU1000	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3		4.3	N/A	N/A	4.5	4.3	4.3	4.3	WIP	N/A	N/A	N/A		N/A	N/A	N/A	N/A	WIP	N/A	N/A	N/A	N/A	N/A	N/A		
SA8775P	4.3	4.3	4.3	4.3	4.4	4.4	4.4	4.4	4.6	4.4	N/A	4.5	N/A	4.4		4.4	N	N	N	N	N	N	N	N	4.5						N	4.5		
SC7180	4.6	5.6	5.6	5.7	5.6	5.6	5.6	5.6		5.6	N/A	4.9	5.7	5.6	5.8	5.6	5.6		5.9	5.6					5.6	5.1	N/A	5.15	5.8		5.7	5.6		
SC7280	5.13	5.13	5.13	5.14	5.13	5.13	5.18	5.18	5.19	5.13	N/A	4.8	5.15	5.14	5.13	5.13	5.18		5.19	5.13			4.1	4.1		5.15	5.14	N/A	5.19	5.18		5.17	5.13	
SC8180X	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	N/A	4.5	N/A	4.5	4.5	4.5	4.5	N/A	4.5	N/A	N/A	N/A	N/A	N/A	4.5	4.5	N/A	4.5	4.5	N/A	N/A	N/A		
SC8280XP / SA8540P	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.3	4.0	4.0	N/A	4.0	4.5	4.0	4.0	4.0	4.0	WIP				4.3	4.3	4.3	4.0			N/A	4.3	4.5	4.9		4.0	
SDM845	4.18	4.19	4.18	5.7	4.19	4.19	4.19	4.19	5.7	5.1	N/A	5.1	5.1	5.1	5.3	4.18	5.2	4.19	5.1	5.7		5.7			5.7	4.2	5.1	N/A	4.2	5.3	5.15	5.4	5.5	
SDX65	5.17	5.17	5.17	5.19	5.17	5.19	N/A	N/A	4.5	5.19	4.0	N/A	5.19	4.0		N/A	4.0	N/A	N/A	4.4	N/A	N/A	N/A	N/A	N/A	4.0	N/A	N/A	N/A		N/A	N/A	4.0	
SM4450			4.7		4.6				[]		N/A		N/A		4.6	4.6					N/A	N/A	N/A	N/A		[]	N/A	N/A				N/A		
SM6115 / QRB4210	4.2	4.2	4.2	4.8	N/A	4.2	4.2	4.2	N/A	4.2	N/A	4.2	4.2	4.2	4.5	4.2	4.4	N/A	4.2	N/A	N/A	N/A	N/A	N/A	4.2	4.2	N/A	N/A	4.6	N/A	N/A	4.3		
SM6150	4.4	4.4	4.4	5.1	4.4	4.4	5.19	5.14	5.19	5.11	N/A	4.6	5.19	4.6	5.12	4.4	4.6		5.11						4.9	4.3	N/A	4.9	4.9			4.6		
SM8250	4.7	4.7	4.8	5.1	4.7	4.7	4.9	4.9	5.12	5.11	N/A	4.8	5.9 / 5.11	5.1	5.19	4.7	4.8				4.12	5.12	5.12			5.11	5.12	N/A	4.7	4.9	5.18	5.13	4.9	
SM8350	5.12	5.12	5.12	5.13	5.12	5.12	5.17	5.17	4.3	5.13	N/A	5.13	4.2	5.13	5.16	5.12	5.13			5.14						5.13	4.2	N/A	4.4	4.2				
SM8450	5.17	5.17	5.17	5.17	5.17	4.3	5.17	5.19	5.18 []	5.17	N/A	5.17	4.1	5.17	5.17	5.17	5.18				4.2		4.2	4.2		5.18	4.3	N/A	4.4	4.8	WIP	N	N	4.2
SM8550	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.4 []	4.3	N/A	4.3	4.3	4.3	4.3	4.3	4.3	4.6		4.6				4.6		4.3 []	4.3	N/A	4.5	4.8	N	N	WIP	
SM8650	4.8	4.8	4.8	4.8	4.3	4.3	4.3	4.3	4.8	4.3	N/A	4.8	4.3	4.6	4.3	4.8	4.8	4.6		4.8		4.9-next		4.9	4.9-next	4.8	4.8	N/A	4.8	WIP	N	N	WIP	
X1E80100	4.8	4.8	4.8	4.8	4.8	WIP	4.8	4.8	4.9	4.8	N/A	N	N	WIP	4.8	4.8	4.9	N	WIP	N		WIP		4.9	WIP	4.9	N/A	N/A	6.10-next	WIP	N	N	N	

Heat Map

SA8775P	6.3	6.3	6.3	6.3	6.4	6.4	6.4	6.4	6.6	6.4	N/A	6.5	N/A	6.4		6.4
SC7180	5.6	5.6	5.6	5.7	5.6	5.6	5.6	5.6		5.6	N/A	6.9	5.7	5.6	5.8	5.6
SC7280	5.13	5.13	5.13	5.14	5.13	5.13	5.16	5.16	5.16	5.13	N/A	6.8	5.15	5.14	5.13	5.13
SC8180X	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	N/A	6.5	N/A	6.5	6.5	6.5
SC8280XP / SA8540P	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.3	6.0	6.0	N/A	6.0	6.5	6.0	6.0	6.0
SDM845	4.18	4.19	4.18	5.7	4.19	4.18	4.19	4.19	5.7	5.1	N/A	5.1	5.1	5.1	5.3	4.18
SDX65	5.17	5.17	5.17	5.19	5.17	5.19	N/A	N/A	6.5	5.19	6.0	N/A	5.19	6.0		N/A
SM4450			6.7		6.6				(*)		N/A		N/A		6.6	6.6
SM6115 / QRB4210	6.2	6.2	6.2	6.8	N/A	6.2	6.2	6.2	N/A	6.2	N/A	6.2	6.2	6.2	6.5	6.2
SM8150	5.4	5.4	5.4	5.1	5.4	5.4	5.13	5.14	5.19	5.11	N/A	5.6	5.19	5.6	5.12	5.4
SM8250	5.7	5.7	5.8	5.1	5.7	5.7	5.9	5.9	5.12	5.11	N/A	5.8	5.8 / 5.11	5.1	5.19	5.7
SM8350	5.12	5.12	5.12	5.13	5.12	5.13	5.17	5.17	6.3	5.13	N/A	5.13	6.2	5.13	5.16	5.12
SM8450	5.17	5.17	5.17	5.17	5.17	6.3	5.17	5.19	5.18 (*)	5.17	N/A	5.17	6.1	5.17	5.17	5.17
SM8550	6.3	6.3	6.3	6.3	6.3	6.3	6.3	6.3	6.4 (*)	6.3	N/A	6.3	6.3	6.3	6.3	6.3
SM8650	6.8	6.8	6.8	6.8	6.3	6.3	6.3	6.3	6.8	6.3	N/A	6.8	6.3	6.6	6.3	6.3
X1E80100	6.8	6.8	6.8	6.8	6.8	WIP	6.8	6.8	6.9	6.8	N/A	N	N	WIP	6.8	6.8
Platform	Clocks		Pinctrl	Interconnects	UART	SPMI	I2C	SPI	PCIe	SMMU	Storage			CPU		
	GCC	RPM(h)CC									NAND	UFS	SD/eMMC	CPUfreq (DVFS)	CPUidle	SMP

Heat Map

N	N	N	N	N	N	N	N	N	6.5						N	6.5	SA8775P
5.8		5.9	5.8						5.6	5.7	N/A	5.15	5.8		5.7	5.6	SC7180
5.16		5.19	5.15			6.1	6.1		5.15	5.18	N/A	5.18	5.16		5.17	5.13	SC7280
6.5	N/A	6.5	N/A	N/A	N/A	N/A	N/A	N/A	6.5	6.5	N/A	6.5	6.5	N/A	N/A	N/A	SC8180X
6.0	WIP				6.3	6.3	6.3	6.0			N/A	6.3	6.5	6.9		6.0	SC8280XP / SA8540P
5.2	4.19	5.1	5.7		5.7			5.7	4.2	5.1	N/A	6.2	5.3	5.13	5.4	5.5	SDM845
6.0	N/A	N/A	6.4	N/A	N/A	N/A	N/A	N/A	6.0	N/A	N/A	N/A		N/A	N/A	6.0	SDX65
				N/A	N/A	N/A	N/A		(*)	N/A	N/A				N/A		SM4450
6.4	N/A	6.2	N/A	N/A	N/A	N/A	N/A	N/A	6.2	6.2	N/A	N/A	6.6	N/A	N/A	6.3	SM6115 / QRB4210
5.6		5.11							5.9	6.3	N/A	6.8	5.9			5.6	SM8150
5.8					5.12	5.12	5.12		5.11	5.12	N/A	6.7	5.9	5.19	5.13	5.9	SM8250
5.13			5.14						5.13	6.3	N/A	6.4	6.3				SM8350
5.18					6.2		6.2	6.2	5.18	6.3	N/A	6.4	6.8	WIP	N	N	SM8450
6.3	6.6		6.8				6.6		6.3 (*)	6.3	N/A	6.5	6.8	N	N	WIP	SM8550
6.8	6.6		6.8		6.9-next		6.8	6.9-next	6.8	6.8	N/A	6.8	WIP	N	N	WIP	SM8650
6.9	N	WIP	N		WIP		6.9	WIP	6.9	N/A	N/A	6.10-next	WIP	N	N	N	X1E80100
Remoteproc	Connectivity			GNSS (GPS)	Audio				USB	Display				Camera	Video	Watchdog	Platform
	Bluetooth	WLAN	IPA		Analog Codec	DMIC	Soundwire	ADSP (AudioReach)		DSI	HDMI	DisplayPort	GPU		Venus		

PMIC Status

Platform	GPIO	MPP	Regulators	ADC		temp-alarm	PON	Reset key	RTC	LPG/PWM	WLED (backlight)	Flash LED	USB		Coincell	Fuelgauge/Charging	Haptics	LABIB	Audio Codec	eUSB2 Repeater	Matrix keypad
				Thermal	VADC								OTG	Type-C/DP							
PM3001A	N/A	N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
PM4125	6.1	N/A	5.16	N	N	N	7.4	6.4	6.4	N	N/A	N/A	N/A	6.9	N/A	N	N/A	N/A	N	N/A	N/A
PM4450		N/A		N/A	N/A		N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
PM4450C		N/A		N/A	N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
PM8005	4.19	N/A	5.1 / 4.29	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
PM8009	5.9	N/A	5.4	N/A	N/A	N/A	5.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
PM8010	N/A	N/A	N	N/A	N/A	6.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
PM8150	5.4	N/A	5.4	5.12	5.4	5.9	5.4	5.14	5.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
PM8150B	6.1	N/A	N/A	5.12	6.4	6.9	7.4	N/A	N/A	6.0	N/A	N/A	5.14	6.7	N/A	N	N	N/A	N/A	N/A	N/A
PM8150L	5.4	N/A	5.4	5.12	5.4	5.9	5.4	N/A	N/A	6.0	6.7	6.4	N/A	N/A	N/A	N/A	N	N/A	N/A	N/A	N/A
PM8350	5.19	N/A	5.12	N/A	N/A	5.18	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
PM8350B	5.19	N/A	N/A	N/A	N/A	5.18	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N	N	N/A	N/A	N/A
PM8350C	5.13	N/A	5.11	N/A	N/A	5.13	N/A	N/A	N/A	N	N/A	5.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
PM8450	5.18	N/A	5.17	N/A	N/A	5.18	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
PM8550	6.3	N/A	6.3	N/A	N/A	6.3	N/A	N/A	N/A	6.5	N/A	6.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
PM8550B	6.3	N/A	N/A	N/A	N/A	6.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N	N/A	N/A	6.3	N/A
PM8550VE	6.3	N/A	6.3	N/A	N/A	6.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
PM8550VS	6.3	N/A	6.3	N/A	N/A	6.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
PM8821	N/A	4.31	N/A	N/A	N/A	N/A	N	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
PM8916	4.2	4.2	4.2	N	4.2	4.2	4.2	5.1	4.2	6.0	N/A	N/A	5.16	N/A	N/A	5.8	5.8	N/A	4.1	N/A	N/A
PM8921	4.3	4.3	4.2	4.17	4.12 / 4.17	N/A	3.0 / 4.4	N/A	3.1 / 4.4	N	N/A	N/A	N	N/A	N	N	N/A	N/A	N/A	N/A	3.0
PM8994/96	4.6	4.6	4.10 / 5.6	N	5.11	5.11	4.2	5.14	4.12	6.0	N/A	N/A	N/A	N/A	N	N/A	N/A	N/A	N/A	N/A	N/A
PM8998	4.19	N/A	4.17 / 4.19	4.17	4.2	4.2	4.2	6.2	4.2	N/A	N/A	5.5	N/A	N/A	4.2	N/A	N/A	N/A	N/A	N/A	N/A
???	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
PMC8380	WIP	N/A	WIP	N/A	N/A	N	N/A	N/A	N/A	N	N/A	N	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
PMG1110		N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
PMI632	6.5	N/A	6.1	6.5	6.5	N/A	N/A	N/A	N/A	6.5	N/A	N	N/A	6.2	N/A	N	N	N/A	N/A	N/A	N/A
PMI8994/96	4.14	5.0	4.15 / 5.8	N/A	N	N/A	N	N/A	N/A	6.0	5.14	N	N/A	N/A	N/A	N	N	N	N/A	N/A	N/A
PMI8998	4.2	N/A	4.17 / 4.19	N/A	N/A	N	N	N/A	N/A	6.0	5.16	6.5	N/A	N	N/A	6.5	N	5.9	N/A	N/A	N/A
PMK8350	5.13	N/A	N/A	N	N	N/A	6.2	N	5.13	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
PMK8550	6.1	N/A	N/A	N	N	N/A	6.3	N	6.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
PMMB654AU	6.4	N/A	6.4	N/A	N/A	6.4	6.4	6.4	6.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
PMR735A	5.13	N/A	5.16	N/A	N/A	5.13	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
PMR735B	5.19	N/A	N	N/A	N/A	5.19	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
PMR735D	6.3	N/A	N/A	N/A	N/A	6.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
SMB2360	WIP	N/A	N	N/A	N/A	N/A	N	N/A	N/A	N/A	N/A	N/A	N/A	N	N/A	N/A	N/A	N/A	N	N/A	N/A

Contribute

- Subscribe to linux-arm-msm@vger.kernel.org
- Review patches
- Test the upstream kernel on your board/laptop
- <https://www.linaro.org/blog/let-s-boot-the-mainline-linux-kernel-on-qualcomm-devices/>
- Upstream new drivers, support for new platforms and your board(s)
- #linux-msm and #aarch64-laptops on irc.oftc.net
- <https://linaro.github.io/msm/>
- <https://github.com/Linaro/msm>

Thank you

Qualcomm Ecosystem Team @ Linaro

