

Mainline Allwinner Support Status Update

Paul Kocialkowski

paulk@sys-base.io

[sys-base]

ELCE 2026
2026-10-09



Speaker & Company Introduction

Paul Kocialkowski:

- Free software contributor since 2013
- **linux-sunxi** member since 2013
- Previously worked at Bootlin and Intel
- Previous contributions on Allwinner:
 - Video decode support, **cedrus** V4L2 driver
 - DE-FE support, **sun4i-drm** DRM driver
 - Major driver rework, **sun6i-csi** V4L2 driver
 - V3s/A83T CSI-2 V4L2 support

sys-base:

- French company founded in 2024
- Provides system-level software development services:
 - Focus on ARM, RISC-V embedded SoCs
 - Focus on mainline software projects
 - Multimedia and graphics expertise
 - Kernel driver and userspace library
- Current topics of interest:
 - Allwinner A133 mainline support
 - V4L2 stateless video encode uAPI
 - DRM and userspace 2D acceleration

Allwinner A133 work funded by **MEC electronics** (<https://www.mec.at>)

Allwinner Introduction

- Company founded in 2007, based in Zhuhai, China
- Fabless chip provider, usually produced by TSMC
- X-Powers subsidiary for analog (PMIC, audio codec)
- Designs a number of units in-house (especially pixel-related)
- Uses existing designs from various unit providers:
ARM, Imagination, Verisilicon, Synopsys, Mentor Graphics, Innosilicon, Cadence, T-Head
- Various market segments, low-end and high-end
- Documents and code for customers only (some release them)
- Progressive engagement with the community:
 - <https://github.com/allwinner-zh> first release, 2015
 - <https://docs.aw-ol.com/> in recent years
 - https://gitlab.com/tina5.0_aiot since around 2025
 - Positive signs and good hope for the future!

Prefix	Segment
A	Tablet, General
T	Industrial
H	Media Box
V	Video
TV	Projector
MR	Robotics
F	Low-Power IoT
R	Audio IoT
B	E-Book

linux-sunxi Community Introduction

- Founded around 2012 with members of the arm-netbook mailing list
- Made possible by low-cost development boards, tablets and media boxes
- Maintains wiki at <https://linux-sunxi.org/>
 - Linux mainlining effort, U-Boot
 - Allwinner SoC Family, AXP PMICs
- Maintains repositories at <https://github.com/linux-sunxi/>
 - `sunxi-tools`: FEL and FEX tools
 - `sunxi-boards`: FEX extracts
 - `meta-sunxi`: Yocto layer
- Maintains and contributes to mainline software projects
- Discussions, code review:
 - IRC: `#linux-sunxi` on OFTC
 - Mailing list: `linux-sunxi@lists.linux.dev`

Allwinner Chips (First Generation)

Chip	A10	A13	A20	A31	A23	A33	A80	F1C200s
Clones		A10s, R8, GR8		A31s		R16	A80T	F1C100s
Year	2011	2011	2013	2012	2013	2014	2014	2015
Codename	sun4i	sun5i	sun7i	sun6i	sun8iw4	sun8iw5	sun9i	sun3i
PMIC	AXP209			AXP221	AXP223		AXP80x	N/A
CPU	Cortex-A8		Cortex-A7				Cortex-A7, Cortex-A15	ARM926- EJS
	x1		x2	x4	x2	x4	x4, x4	x1
CPUS	N/A			OR1200				N/A
DRAM	DDR2/3-Lite MCTL			uMCTL	uMCTL2			Memctl
	DDR2/3-Lite PHY			DDR Multi- PHY		wrapper		
Ethernet	EMAC		EMAC, GMAC	GMAC	N/A		GMAC	N/A

Allwinner Chips (First Generation)

Chip	A10	A13	A20	A31	A23	A33	A80	F1C200s
GPU	Mali-400			SGX544	Mali-400		G6230	N/A
	MP		MP2	MP2	MP2			
2D	G2D MP	N/A	G2D MP		N/A		G2D MP	N/A
VPU	VE (Phoenix 3.0)							
Display	DE, TCON							
	HDMI, TVE		HDMI, TVE	DSI			HDMI, DSI, EDP	
Capture	A10 CSI			A31 CSI				A10 CSI
				CSI-2			CSI-2	
ISP	CSI FE	N/A		Hawkeye	(Hawkeye)		Hawkeye	N/A

Allwinner Chips (Second Generation)

Chip	A83T	H3	V3s	A64	H5	R40
Clones	H8, R58	H2+	V3, S3	H64		V40, A40i
Year	2014	2014	2014	2015	2016	2016
Codename	sun8iw6	sun8iw7	sun8iw8	sun50iw1	sun50iw2	sun8iw11
PMIC	AXP80x	N/A	N/A, AXP209	AXP803	N/A	AXP221
CPU	Cortex-A7			Cortex-A53		Cortex-A7
	x8	x4	x1	x4		x4
CPUS	OR1200		N/A	OR1200		N/A
DRAM	uMCTL2 wrapper					
Ethernet	(G)EMAC					
		EPHY			EPHY	

Allwinner Chips (Second Generation)

Chip	A83T	H3	V3s	A64	H5	R40
GPU	SGX544 MP1	Mali-400 MP2	N/A	Mali-400 MP2	Mali-450 MP4	Mali-400 MP2
2D	N/A					G2D MP
VPU	VE (Phoenix 3.0)					
Display	DE2, TCON					
	HDMI, DSI	HDMI, TVE		HDMI, DSI	HDMI, TVE	HDMI, DSI, TVE
Capture	A31 CSI					
	CSI-2		CSI-2			
ISP	Hawkeye	(Hawkeye)	Hawkeye	N/A	(Hawkeye)	N/A

Allwinner Chips (Third Generation)

Chip	H6	H616	A133	D1	A523	A733
Clones		H618, H313	A100, R818	D1s, T113, T113-S3	A527, T527, H728, R828	
Year	2017	2019	2020	2021	2023	2024
Codename	sun50iw6	sun50iw9	sun50iw10	sun20iw1	sun55iw3	sun60iw2
PMIC	AXP805	AXP313A, AXP305	AXP707, AXP717	N/A, AXP221	AXP717, AXP323	AXP31W
CPU	Cortex-A53			C906	Cortex-A55	Cortex-A76, Cortex-A55
	x4			x1	x8	x2, x6
CPUS	OR1200			N/A	OR1200	OR1200/E902?
DRAM	uMCTL2			?	uMCTL2	LPDDR5/4 DDRCTL
	DDR4 MultiPHY?	LPDDR4 InnoPHY		?	?	LPDDR5/4 PHY?
Ethernet	(G)EMAC					GMAC210
s-base]	EPHY	AC EPHY			GMAC200	9

Allwinner Chips (Third Generation)

Chip	H6	H616	A133	D1	A523	A733
GPU	Mali-T720	Mali-G31	GE8300	N/A	Mali-G57	BXM-4-64
	MP2	MP2			MC1	MC1
2D	N/A	G2D v2 flip		G2D v2 blend	G2D v2 flip	G2D v2 blend
VPU	VE (Phoenix 3.0)					
	G2 VP9					
Display	DE3	DE3.3	DE2		DE3.5	
	TCON, HDMI, TVE		TCON, DSI	TCON, HDMI, DSI, TVE	TCON, HDMI, DSI, EDP	
Capture	CSIC					
			CSI-2		CSI-2	
ISP	N/A		ISP522	N/A	ISP600	
NPU	N/A				VIP9000	
DSP	N/A			HiFi4		N/A
MCU	N/A				E906	E902

U-Boot

Maintainers	Andre Przywara, Samuel Holland
Repository	https://source.denx.de/u-boot/custodians/u-boot-sunxi.git
Paths	<code>arch/arm/mach-sunxi</code> , <code>board/sunxi</code> , <code>drivers/...</code>
Supported	All other
Progress	A733

Operation:

- Loaded by BootROM from MMC, NAND, SPI NOR or USB
 - **eGON** image format for non-secure
 - **TOCO** image format for secure, signed with private key
- DRAM, PMIC, clocks, serial initialization
- TF-A (AArch64), or PSCI handlers (ARMv7) loading
- SCP (Crust) firmware loading when available
- Loading from MMC, NAND, SPI NOR, USB host/gadget, Ethernet
- Video console, USB HID, LED, PWM backlight

U-Boot

Maintainers	Andre Przywara, Samuel Holland
Repository	https://source.denx.de/u-boot/custodians/u-boot-sunxi.git
Paths	<code>arch/arm/mach-sunxi</code> , <code>board/sunxi</code> , <code>drivers/...</code>
Supported	All other
Progress	A733

Support status, ongoing work:

- A733 base support and DRAM initialization
- SPI support progress for A523, missing for A133
- A523 Ethernet GMAC1 in progress, H616 GMAC1 missing
- Display progress for V3s, missing on A80, A83T, R40, H616, D1, A133, A523
- NAND support only for A10, A13, A20, A23, A33 and H616, SLC only
- USB support (PHY) missing for A80
- Device-tree passing (idle states, reserved memory)

Trusted Firmware-A

Maintainers	Andre Przywara, Samuel Holland
Repository	https://review.trustedfirmware.org/TF-A/trusted-firmware-a
Paths	plat/allwinner/ , drivers/allwinner/ , drivers/mentor/i2c/
Supported	A64, H5, H6, H616, A133, R329
Progress	A523, A733

Operation:

- Sitting in SRAM or DRAM (H616, A133)
- PSCI CPU hotplug, restart (watchdog), power off (PMIC)
- SCPI CPU hotplug, suspend and reset with SCP when available
- Using (and patching) U-Boot device-tree

As of v2.16

Crust

Maintainers	Samuel Holland
Repository	https://github.com/crust-firmware/crust/
Supported	A23, A33, A64, A83T, H3, H5, H6
Progress	A133
Missing	A31, A80, H616, A527, A733

Operation:

- CPU hotplug, cluster sleep (CSS)
- Suspend to RAM (Self-Refresh), depth: `S2R`, `OSC24M`, `AVCC`, `VDD_SYS`
- Wakeup sources poll (including CIR)
- Restart (watchdog), power off (PMIC)
- Device-specific config

Crust

Maintainers	Samuel Holland
Repository	https://github.com/crust-firmware/crust/
Supported	A23, A33, A64, A83T, H3, H5, H6
Progress	A133
Missing	A31, A80, H616, A527, A733

Support status, ongoing work:

- A83T support is minimal and not useful (no CSS, no DRAM)
- A23 and A33 support lacks DRAM Self-Refresh
- A133 work in progress supports CSS and DRAM
- DRAM frequency scaling is missing

As of v0.6

Linux

Maintainers	Chen-Yu Tsai, Jernej Skrabec, Samuel Holland, (driver maintainers)
Repository	https://git.kernel.org/pub/scm/linux/kernel/git/sunxi/linux.git
Paths	<code>arch/{arm,arm64,riscv}/boot/dts/allwinner/, arch/arm/mach-sunxi/, drivers/...</code>

Ongoing and recent work:

- A523 and D1 support from the community
- H616 features from **Bootlin** (NAND, PWM)
- A133 features from **sys-base** (sponsored by **MEC electronics**) and the community
- A733 support from **Baylibre** and the community
- B288, T536, V853, R329, V831 initial support

As of v7.2

Linux: System

Driver	Allwinner CCU clock driver
Kconfig	<code>CONFIG_SUNXI_CCU=y</code>
Path	<code>drivers/clk/sunxi-ng/</code>
Supported	All other
Progress	A733
Notes	Legacy driver <code>CONFIG_CLK_SUNXI</code> is deprecated

Driver	Allwinner A10 timer
Kconfig	<code>CONFIG_SUN4I_TIMER=y</code>
Path	<code>drivers/clocksource/timer-sun4i.c</code>
Supported	All other
Missing	A523, A733

Driver	ARM arch timer
Kconfig	<code>CONFIG_ARM_ARCH_TIMER=y</code>
Path	<code>drivers/clocksource/arm_arch_timer.c</code>
Supported	All other
Progress	A733
Notes	Clockevent is switched when all CPUs are down, clocksource is not!

Driver	Allwinner A13 timer
Kconfig	<code>CONFIG_SUN5I_HSTIMER(=y)</code>
Path	<code>drivers/clocksource/timer-sun5i.c</code>
Supported	All other
Progress	A133
Missing	A523, A733

Linux: System

Driver	Allwinner pin control
Kconfig	CONFIG_PINCTRL_SUNXI=y
Path	drivers/pinctrl/sunxi
Progress	A733

Driver	Allwinner A10 INTIC
Kconfig	CONFIG_SUN4I_INTIC=y
Path	drivers/irqchip/irq-sun4i.c
Supported	A10, A13, F1C200s
Notes	Used with Cortex-A8 and earlier

Driver	ARM GIC
Kconfig	CONFIG_ARM_GIC=y
Path	drivers/irqchip/irq-gic.c
Supported	All other
Progress	A733

Driver	SiFive PLIC
Kconfig	CONFIG_SIFIVE_PLIC=y
Path	drivers/irqchip/irq-sifive-plic.c
Supported	D1

Linux: System

Driver	Allwinner NMI INTC
Kconfig	CONFIG_SUNXI_NMI_INTC=y
Path	drivers/irqchip/irq-sunxi-nmi.c
Supported	All other
Missing	A733
Notes	Needed for R_INTC since H616?

Driver	Allwinner R_INTC
Kconfig	CONFIG_SUN6I_R_INTC=y
Path	drivers/irqchip/irq-sun6i-r.c
Supported	All other
Progress	A133
Missing	H616, A523, A733
Notes	Used for wakeup sources, needs NMI since H616?

Driver	Allwinner A10 DMA
Kconfig	CONFIG_DMA_SUN4I
Path	drivers/dma/sun4i-dma.c
Supported	A10, A13, A20, F1C200s

Driver	Allwinner A31 DMA
Kconfig	CONFIG_DMA_SUN6I
Path	drivers/dma/sun6i-dma.c
Supported	All other
Progress	A733

Linux: System

Driver	Allwinner H6 IOMMU
Kconfig	CONFIG_SUN50I_IOMMU
Path	drivers/iommu/sun50i-iommu.c
Supported	H6, H616
Progress	A133, D1
Missing	A523, A733

Driver	Allwinner SRAM
Kconfig	CONFIG_SUNXI_SRAM
Path	drivers/soc/sunxi/sunxi_sram.c
Supported	All other
Missing	A31, A523, A733
Notes	Required for VE and Ethernet

Driver	ARM CCI-400
Kconfig	CONFIG_ARM_CCI400_PORT_CTRL=y
Path	drivers/bus/arm-cci.c
Supported	A80, A83T

Driver	Allwinner MBUS interconnect
Kconfig	CONFIG_SUNXI_MBUS
Path	drivers/soc/sunxi/sunxi_mbus.c
Notes	Legacy driver for DMA offset, slowly migrated to device-tree <code>interconnects</code> property.

Linux: System

Driver	ARM CPUidle
Kconfig	CONFIG_ARM_CPUIDLE
Path	drivers/cpuidle-arm.c
Supported	All
Notes	WFI only

Driver	ARM PSCI CPUidle
Kconfig	CONFIG_ARM_PSCI_CPUIDLE
Path	drivers/cpuidle/cpuidle-psci.c
Supported	With Crust
Notes	Idle states dynamically set by TF-A, not copied by U-Boot!

Driver	Device-Tree CPUfreq
Kconfig	CONFIG_CPUFREQ_DT
Path	drivers/cpufreq/cpufreq-dt.c
Supported	All other
Progress	D1, A523
Missing	A80, A23, V3s, F1C200s, A733

Driver	Allwinner NVMEM CPUfreq
Kconfig	CONFIG_ARM_ALLWINNER_SUN50I_CPUFREQ_NVMEM
Path	drivers/cpufreq/sun50i-cpufreq-nvmem.c
Supported	H6, H616, A133
Progress	D1, A523
Missing	A733
Notes	Sets OPPs from SID NVMEM

Linux: System

Driver	Allwinner A33 DRAM devfreq	Driver	Allwinner mailbox
Kconfig	<code>CONFIG_ARM_SUN8I_A33_MBUS_DEVFREQ</code>	Kconfig	<code>CONFIG_SUN6I_MSGBOX</code>
Path	<code>drivers/devfreq/sun8i-a33-mbus.c</code>	Path	<code>drivers/mailbox/sun6i-msgbox.c</code>
Supported	A64, H5	Supported	A83T, H3, A64, H5, H6
Missing	All other	Progress	A133, A523
Notes	Not always possible from CPU	Missing	A31, A23, A33, A80, A83T, H616, A733

Driver	Allwinner hardware spinlock	Driver	Allwinner watchdog
Kconfig	<code>CONFIG_HWSPINLOCK_SUN6I</code>	Kconfig	<code>CONFIG_SUNXI_WATCHDOG</code>
Path	<code>drivers/hwspinlock/sun6i-hwspinlock.c</code>	Path	<code>drivers/watchdog/sunxi_wdt.c</code>
Supported	None	Supported	All other
Progress	A83T, H3, A64, D1	Missing	A733
Missing	A80, H5, H6, A523, A733		

Linux: System

Driver	Allwinner A10 RTC
Kconfig	<code>CONFIG_RTC_DRV_SUNXI</code>
Path	<code>drivers/rtc/rtc-sunxi.c</code>
Supported	A10, A20

Driver	Allwinner A31 RTC
Kconfig	<code>CONFIG_RTC_DRV_SUN6I</code>
Path	<code>drivers/rtc/rtc-sun6i.c</code>
Supported	All other
Progress	A133, A733

Driver	Allwinner SID NVMEM
Kconfig	<code>CONFIG_NVMEM_SUNXI_SID</code>
Path	<code>drivers/nvmem/nvmem_sunxi_sid.c</code>
Supported	All other
Progress	R40
Missing	A31, A23, A33, A80, F1C200s, V3s, A733
Notes	Not always possible from CPU

Driver	Allwinner THS (thermal sensor)
Kconfig	<code>CONFIG_SUN8I_THERMAL</code>
Path	<code>drivers/thermal/sun8i_thermal.c</code>
Supported	All other
Progress	A80, A523
Missing	F1C200s, A733

Linux: System

Driver	ARMv7 PMU
Kconfig	CONFIG_ARM_V7_PMU
Path	drivers/perf/arm_v7_pmu.c
Supported	A10, A23, A33, R40, H3, T113-S3
Missing	A13, A80, A83T, V3s

Driver	ARM PMUv3
Kconfig	CONFIG_ARM_PMUV3
Path	drivers/perf/arm_pmu3.c
Supported	A64, H5, H6, H616, A133, A523
Progress	A733

Driver	RISC-V PMU
Kconfig	CONFIG_RISCV_PMU
Path	drivers/perf/riscv_pmu.c
Progress	D1

Driver	ARM CCI PMU
Kconfig	CONFIG_ARM_CCI_PMU
Path	drivers/perf/arm-cci.c
Supported	A80, A83T

Linux: System

Driver	Allwinner H6 PPU
Kconfig	CONFIG_SUN50I_H6_PRCM_PPU
Path	drivers/pmdomain/sunxi/ sun50i-h6-prcm-ppu.c
Supported	H616
Missing	H6 (no user)

Driver	ARM PCK-600 (A523)
Kconfig	CONFIG_SUN55I_PCK600
Path	drivers/pmdomain/sunxi/sun55i-pck600.c
Supported	A523
Progress	A733

Driver	Allwinner D1 PPU
Kconfig	CONFIG_SUN20I_PPU=y
Path	drivers/pmdomain/sunxi/sun20i-ppu.c
Supported	D1, A523
Missing	A133
Notes	Used to power big pixel

Driver	Allwinner D1 LDO
Kconfig	CONFIG_REGULATOR_SUN20I
Path	drivers/regulator/sun20i-regulator.c
Progress	D1

Linux: System

Driver	AXP PMIC	Kconfig	CONFIG_INPUT_AXP20X_PEK
Kconfig	CONFIG_MFD_AXP20X	Path	drivers/input/misc/axp20x-pek.c
Path	drivers/mfd/axp20x.c	Kconfig	CONFIG_REGULATOR_AXP20X
Supported	AXP192, AXP202, AXP209, AXP221, AXP223, AXP717, AXP813	Path	drivers/regulator/axp20x-regulator.c
Progress	AXP318W	Kconfig	CONFIG_BATTERY_AXP20X
Kconfig	CONFIG_EXTCON_AXP288	Path	drivers/power/supply/axp20x_battery.c
Path	drivers/extcon/extcon-axp288.c	Kconfig	CONFIG_CHARGER_AXP20X
Kconfig	CONFIG_PINCTRL_AXP209	Path	drivers/power/supply/axp20x_ac_power.c
Path	drivers/pinctrl/pinctrl-axp209.c	Kconfig	CONFIG_AXP288_FUEL_GAUGE
Kconfig	CONFIG_AXP20X_ADC	Path	drivers/power/supply/axp288_fuel_gauge.c
Path	drivers/iio/adc/axp20x_adc.c	Kconfig	CONFIG_AXP288_CHARGER
Kconfig	CONFIG_AXP288_ADC	Path	drivers/power/supply/axp288_charger.c
Path	drivers/iio/adc/axp288_adc.c		

Linux: Simple Interfaces

Driver	Allwinner A10 PWM	Driver	Allwinner A10 GPADC MFD
Kconfig	<code>CONFIG_PWM_SUN4I</code>	Kconfig	<code>CONFIG_MFD_SUN4I_GPADC</code>
Path	<code>drivers/pwm/pwm-sun4i.c</code>	Path	<code>drivers/mfd/sun4i-gpadc.c</code>
Supported	All other	Supported	A10, A13, A20, A31
Progress	R40, H616, A133, D1	Notes	Used for binding iio-hwmon
Missing	A80, A31, A523, A733		No longer needed with device-tree node
Driver	Allwinner A10 GPADC	Driver	Allwinner D1 GPADC
Kconfig	<code>CONFIG_SUN4I_GPADC</code>	Kconfig	<code>CONFIG_SUN20I_GPADC</code>
Path	<code>drivers/iio/adcsun4i-gpadc-iio.c</code>	Path	<code>drivers/iio/adcsun20i-gpadc-iio.c</code>
Supported	A10, A13, A20, A31, A33	Supported	H616, D1, A523
Progress	R40	Missing	A133, A733
Missing	A80		
Notes	Used for temperature sensor		

Linux: Simple Interfaces

Driver	Allwinner A10 LRADC keys
Kconfig	<code>CONFIG_KEYBOARD_SUN4I_LRADC</code>
Path	<code>drivers/input/keyboard/sun4i-lradc-keys.c</code>
Supported	All other
Missing	A80, H3, H5, R40, A133, A523, A733

Driver	Allwinner A10 PS/2
Kconfig	<code>CONFIG_SERIO_SUN4I_PS2</code>
Path	<code>drivers/input/serio/sun4i-ps2.c</code>
Supported	A10, A20
Missing	R40

Driver	Allwinner A10 touchscreen
Kconfig	<code>CONFIG_TOUCHSCREEN_SUN4I</code>
Path	<code>drivers/input/touchscreen/sun4i-ts.c</code>
Supported	A10, A13, A31, A20
Progress	R40
Missing	A80, F1C200s, D1

Driver	Allwinner A10 keypad
Kconfig	<code>CONFIG_KEYBOARD_SUN4I_KEYPAD</code>
Path	<code>drivers/input/keyboard/sun4i-keypad.c</code>
Progress	A10, A20
Missing	R40

Linux: Simple Interfaces

Driver	Allwinner A100 LEDs
Kconfig	CONFIG_LEDS_SUN50I_A100
Path	drivers/leds/leds-sun50i-a100.c
Supported	A133, D1, T113-S3, A523
Missing	A733

Driver	Allwinner CIR
Kconfig	CONFIG_IR_SUNXI
Path	drivers/media/rc/sunxi-cir.c
Supported	All other
Progress	A523
Missing	A733
Notes	Tx missing

Linux: General Interfaces

Driver	Synopsys DesignWare 8250	Driver	Mentor Graphics Inventra MI2CV
Kconfig	CONFIG_SERIAL_8250_DW	Kconfig	CONFIG_I2C_MV64XXX
Path	drivers/tty/serial/8250/8250_dw.c	Path	drivers/i2c/busses/i2c-mv64xxx.c
Supported	All other	Supported	All other
Progress	A733	Progress	A733

Driver	Allwinner P2WI	Driver	Allwinner RSB
Kconfig	CONFIG_I2C_SUN6I_P2WI	Kconfig	CONFIG_SUNXI_RSB=y
Path	drivers/i2c/busses/i2c-sun6i-p2wi.c	Path	drivers/bus/sunxi-rsb.c
Supported	A31	Supported	All other
Notes	Custom PMIC interface	Missing	F1C200s
		Notes	Variation of SMBUS and I2C, PMIC interface

Linux: General Interfaces

Driver	Generic OHCI
Kconfig	CONFIG_USB_OHCI_HCD_PLATFORM
Path	drivers/usb/host/ohci-platform.c
Supported	All other
Missing	A733
Notes	USB 1 host

Driver	Generic EHCI
Kconfig	CONFIG_USB_EHCI_HCD_PLATFORM
Path	drivers/usb/host/ehci-platform.c
Supported	All other
Missing	A733
Notes	USB 2 host

Driver	Mentor Graphics MUSB
Kconfig	CONFIG_USB_MUSB_SUNXI
Path	drivers/usb/musb/sunxi.c
Supported	All other
Progress	R40
Notes	USB 2 dual-role

Driver	Synopsys DesignWare DWC3
Kconfig	CONFIG_USB_DWC3_OF_SIMPLE
Path	drivers/usb/dwc3/dwc3-of-simple.c
Supported	H6
Progress	A523
Missing	A80?, A733
Notes	USB 3 dual-role

Linux: General Interfaces

Driver	Allwinner A10 USB PHY	Driver	Allwinner A80 USB PHY
Kconfig	CONFIG_PHY_SUN4I_USB	Kconfig	CONFIG_PHY_SUN9I_USB
Path	drivers/phy/allwinner/phy-sun4i-usb.c	Path	drivers/phy/allwinner/phy-sun9i-usb.c
Supported	All other	Supported	A80
Missing	R40		
Driver	Allwinner H6 USB PHY	Driver	Allwinner A523 USB/PCIe PHY
Kconfig	CONFIG_PHY_SUN50I_USB3	Kconfig	CONFIG_PHY_SUN55I_USB3_PCIE
Path	drivers/phy/allwinner/ phy-sun50i-usb3.c	Path	drivers/phy/allwinner/ phy-sun55i-usb3-pcie.c
Supported	H6	Progress	A523
		Missing	A733?
		Notes	Combo PHY with USB 3 and PCIe.

Linux: General Interfaces

Driver	Allwinner A10 SPI
Kconfig	<code>CONFIG_SPI_SUN4I</code>
Path	<code>drivers/spi/spi-sun4i.c</code>
Supported	A10, A13, A20

Driver	Allwinner A31 SPI
Kconfig	<code>CONFIG_SPI_SUN6I</code>
Path	<code>drivers/spi/spi-sun6i.c</code>
Supported	All other
Progress	A133, D1, A733
Missing	A23, A33, A80, A83T

Driver	Allwinner PCIe
Missing	H6, A523, A733
Notes	Unsuitable for Linux support due to access wrapping.

Linux: Storage Interfaces

Driver	Allwinner MMC
Kconfig	<code>CONFIG_MMC_SUNXI</code>
Path	<code>drivers/mmc/host/sunxi-mmc.c</code>
Supported	All other
Progress	A733
Notes	HS200 supported, HS400 missing

Driver	Allwinner NAND
Kconfig	<code>CONFIG_MTD_NAND_SUNXI</code>
Path	<code>drivers/mtd/nand/raw/sunxi_nand.c</code>
Supported	A10, A13, A20, A23, A33, H616
Missing	All other
Notes	SLC supported, MLC missing

Driver	Allwinner AHCI
Kconfig	<code>CONFIG_AHCI_SUNXI</code>
Path	<code>drivers/ata/ahci_sunxi.c</code>
Supported	A10, A20, R40
Notes	SATA

Linux: Network Interfaces

Driver	Allwinner A10 EMAC	Driver	Synopsys DesignWare Ethernet (A20)
Kconfig	CONFIG_SUN4I_EMAC	Kconfig	CONFIG_DWMAC_SUNXI
Path	drivers/net/ethernet/allwinner/ sun4i-emac.c	Path	drivers/net/ethernet/stmicro/stmmac/ dwmac-sunxi.c
Supported	A10, A13, A20	Supported	A20, A31, A80

Driver	Synopsys DesignWare Ethernet (A83T)	Driver	Synopsys DesignWare Ethernet (A523)
Kconfig	CONFIG_DWMAC_SUN8I	Kconfig	CONFIG_DWMAC_SUN55I
Path	drivers/net/ethernet/stmicro/stmmac/ dwmac-sun8i.c	Path	drivers/net/ethernet/stmicro/stmmac/ dwmac-sun55i.c
Supported	A83T, H3, V3s, A64, H5, R40, H6, H616, A133, A523	Supported	A523 (GMAC1/GMAC200)
Notes	Internal EPHY supported	Progress	A733 (GMAC210)

Linux: Network Interfaces

Driver	Allwinner CAN
Kconfig	CONFIG_CAN_SUN4I
Path	drivers/net/can/sun4i_can.c
Supported	A10, A20, R40, D1
Missing	F1C200s, A523

Linux: Display Interfaces

Driver	Allwinner DE
Kconfig	<code>CONFIG_DRM_SUN4I</code> ,
Path	<code>drivers/gpu/drm/sun4i/</code>
Supported	All other
Progress	A133, H616, A523
Missing	F1C200s, A733
Notes	Writeback missing, RGB missing on R40, H6,

Driver	Allwinner DE2 bus
Kconfig	<code>CONFIG_SUN50I_DE2_BUS=y</code>
Path	<code>drivers/bus/sun50i-de2.c</code>
Supported	A64, H6
Missing	H616?, A133?, A523?, A733?
Notes	Used to claim SRAM

Driver	Simple Framebuffer
Kconfig	<code>CONFIG_FB_SIMPLE</code>
Path	<code>drivers/video/fbdev/simplefb.c</code>
Supported	All other
Missing	A80, F1C200s, R40, A33, H6, H616, A133, D1, A523, A733

Driver	Allwinner TVE
Path	<code>drivers/gpu/drm/sun4i/sun4i_tv.c</code>
Supported	A13
Progress	H3, H5
Missing	A10, A20, F1C200s, R40, H6, H616, D1
Notes	VGA missing, composite only

Linux: Display Interfaces

Driver	Allwinner A10 HDMI
Kconfig	<code>CONFIG_DRM_SUN4I_HDMI=y,</code> <code>CONFIG_DRM_SUN4I_HDMI_CEC</code>
Path	<code>drivers/gpu/drm/sun4i/</code> <code>sun4i_hdmi_enc.c</code>
Supported	A10, A10s, A20, A31
Missing	A80?
Notes	Audio support in progress

Driver	Synopsys DesignWare HDMI Tx
Kconfig	<code>CONFIG_DRM_SUN8I_DW_HDMI=y</code>
Path	<code>drivers/gpu/drm/bridge/synopsys/</code> <code>drivers/gpu/drm/sun4i/sun8i_dw_hdmi.c</code>
Supported	All other
Progress	D1
Missing	A523, A733

Linux: Display Interfaces

Driver	Allwinner A31 DSI
Kconfig	<code>CONFIG_DRM_SUN6I_DSI=y</code>
Path	<code>drivers/gpu/drm/sun4i/ sun6i_mipi_dsi.c</code>
Supported	A33, A64, D1
Progress	R40, A133
Missing	A31, A80, A83T, A523, A733

Driver	Allwinner A31 CSI-2 D-PHY
Kconfig	<code>CONFIG_PHY_SUN6I_MIPI_DPHY=y</code>
Path	<code>drivers/phy/allwinner/ phy-sun6i-mipi-dphy.c</code>
Support	V3s
Missing	A31, A80?, A133, A523, A733

Linux: Capture Interfaces

Driver	Allwinner A10 CSI
Kconfig	<code>CONFIG_VIDEO_SUN4I_CSI</code>
Path	<code>drivers/media/platform/sunxi/sun4i-csi/</code>
Supported	A10, A20, R40
Missing	A13, F1C200s

Driver	Allwinner A31 CSI
Kconfig	<code>CONFIG_VIDEO_SUN6I_CSI</code>
Path	<code>drivers/media/platform/sunxi/sun6i-csi/</code>
Supported	A83T, H3, V3s, A64, H5
Missing	A31, A23, A33, A80

Driver	Allwinner CSIC
Kconfig	<code>CONFIG_VIDEO_SUN20I_CSI</code>
Path	<code>drivers/media/platform/sunxi/sun20i-csi/</code>
Progress	D1
Missing	H6, H616, A133, A523, A733

Linux: Capture Interfaces

Driver	Allwinner A31 MIPI CSI-2
Kconfig	CONFIG_VIDEO_SUN6I_MIPI_CSI2
Path	drivers/media/platform/sunxi/ sun6i-mipi-csi2/
Progress	V3s
Missing	A31, A80?

Driver	Allwinner A83T CSI-2
Kconfig	CONFIG_VIDEO_SUN8I_A83T_MIPI_CSI2
Path	drivers/media/platform/sunxi/ sun8i-a83t-mipi-csi2/
Supported	A83T

Driver	Allwinner A31 CSI-2 D-PHY
Kconfig	CONFIG_PHY_SUN6I_MIPI_DPHY=y
Path	drivers/phy/allwinner/ phy-sun6i-mipi-dphy.c
Supported	V3s
Missing	A31, A80?

Driver	Allwinner CSI-2 and D-PHY
Missing	A133, A523, A733

Linux: Audio Interfaces

Driver	Allwinner I2S
Kconfig	<code>CONFIG_SND_SUN4I_I2S</code>
Path	<code>soc/sunxi/sun4i-i2s.c</code>
Supported	All other
Missing	A80, F1C200s, H616, A133, A733

Driver	Allwinner S/PDIF
Kconfig	<code>CONFIG_SND_SUN4I_SPDIF</code>
Path	<code>sound/soc/sunxi/sun4i-spdif.c</code>
Supported	All other
Progress	D1
Missing	F1C200s, R40, A733
Notes	Known as OWA (One-Wire Audio)

Driver	Allwinner DMIC
Kconfig	<code>CONFIG_SND_SUN50I_DMIC</code>
Path	<code>sound/soc/sunxi/sun50i-dmic.c</code>
Supported	D1
Missing	A31, H6, H616, A523, A733
Notes	PDM digital microphones

Driver	Allwinner AC97
Missing	A10, A20, R40
Driver	Allwinner Audio Hub
Missing	H6, H616
Notes	Internal crossbar switch

Linux: Audio Interfaces

Driver	Allwinner A10 Codec
Kconfig	<code>CONFIG_SND_SUN4I_CODEC</code>
Path	<code>sound/soc/sunxi/sun4i-codec.c</code>
Supported	All other
Progress	D1, A523
Missing	R40, H6, A133

Driver	Allwinner A33 Codec
Kconfig	<code>CONFIG_SND_SUN8I_CODEC</code>
Path	<code>sound/soc/sunxi/sun8i-codec.c</code>
Supported	A33, A64

Driver	Allwinner A33 Codec Analog
Kconfig	<code>CONFIG_SND_SUN8I_CODEC_ANALOG</code>
Path	<code>sound/soc/sunxi/sun8i-codec-analog.c</code>
Supported	A23, A33, H3, V3s

Driver	Allwinner A64 Codec Analog
Kconfig	<code>CONFIG_SND_SUN50I_CODEC_ANALOG</code>
Path	<code>sound/soc/sunxi/sun50i-codec-analog.c</code>
Supported	A64

Linux: Accelerators

Driver	ARM Utgard GPU (Lima)
Kconfig	CONFIG_DRM_LIMA
Path	drivers/gpu/drm/lima
Supported	A10, A13, A20, A23, A33, H3, H5, A64, R40

Driver	Allwinner Midgard/Valhall GPU (Panfrost)
Kconfig	CONFIG_DRM_PANFROST
Path	drivers/gpu/drm/panfrost
Supported	H6, H616, A523

Driver	Imagination PowerVR
Kconfig	CONFIG_DRM_POWERVR
Path	drivers/gpu/drm/powervr
Missing	A31, A80, A83T, A133, A733

Driver	Verisilicon Vivante NPU (Etnaviv)
Kconfig	CONFIG_DRM_ETNAVIV
Path	drivers/gpu/drm/etnaviv/
Supported	A523
Missing	A733

Linux: Accelerators

Driver	Allwinner Video Engine (Cedrus)	Driver	Verisilicon Hantro
Kconfig	<code>CONFIG_VIDEO_SUNXI_CEDRUS</code>	Kconfig	<code>CONFIG_VIDEO_HANTRO</code>
Path	<code>drivers/staging/media/sunxi/cedrus</code>	Path	<code>drivers/media/platform/verisilicon</code>
Supported	A10, A13, A20, A33, H3, A64, H5, R40, H6	Supported	H6 (VP9)
Progress	V3s, H616, D1, T113-S3	Driver	Allwinner G2D
Missing	A31, A23, A80, A83T, F1C200s, A523, A733	Missing	A10, A20, A31, A80, R40, H616, A133, D1, A523, A733
Notes	JPEG decode in progress H.264 encode in progress VP9 decode missing H.265, JPEG encode missing	Notes	DRM 2D API missing Initial research from sys-base

Linux: Accelerators

Driver	Allwinner DI
Kconfig	CONFIG_VIDEO_SUN8I_DEINTERLACE
Path	drivers/media/platform/sunxi/ sun8i-di/
Supported	H3, A64, H5, R40
Missing	H6, H616, D1

Driver	Allwinner DE2 rotate
Kconfig	CONFIG_VIDEO_SUN8I_ROTATE
Path	drivers/media/platform/sunxi/ sun8i-rotate/
Supported	A83T
Missing	All other with DE2

Driver	Allwinner Hawkeye ISP
Kconfig	CONFIG_VIDEO_SUN6I_ISP
Path	drivers/staging/media/sunxi/ sun6i-isp/
Supported	V3s
Progress	A83T
Missing	A31, A80, A23, (H3), (H5), (A64)
Notes	Most modules missing

Driver	Allwinner ISP522/ISP600
Missing	A133, A523, A733

Linux: Accelerators

Driver	Allwinner A10 Crypto SS	Driver	Allwinner A80 Crypto SS
Kconfig	<code>CONFIG_CRYPTODEV_SUN4I_SS</code>	Kconfig	<code>CONFIG_CRYPTODEV_SUN8I_SS</code>
Path	<code>drivers/crypto/allwinner/sun4i-ss/</code>	Path	<code>drivers/crypto/allwinner/sun8i-ss/</code>
Supported	A10, A13, A20, A33, V3s	Supported	A80, A83T
Missing	A23		
Driver	Allwinner Crypto CE		
Kconfig	<code>CONFIG_CRYPTODEV_SUN8I_CE</code>		
Path	<code>drivers/crypto/allwinner/sun8i-ce/</code>		
Supported	H3, A64, H5, R40, H6, H616, D1		
Missing	A133, A523, A733		

Linux: Accelerators

Driver	Cadence HiFi4 SoF
Kconfig	<code>CONFIG_SND_SOC_SOF_TOPLEVEL</code>
Path	<code>sound/soc/sof</code>
Missing	D1, A523
Notes	Requires SoF firmware support

Driver	T-Head E906/E902 MCU
Kconfig	<code>CONFIG_SUNXI_REMOTEPROC</code>
Path	<code>drivers/remoteproc/sunxi_rproc.c</code>
Progress	A523
Missing	A733
Notes	Requires firmware support E902 is maybe used as CPUS?

Discussion

Thanks for listening!