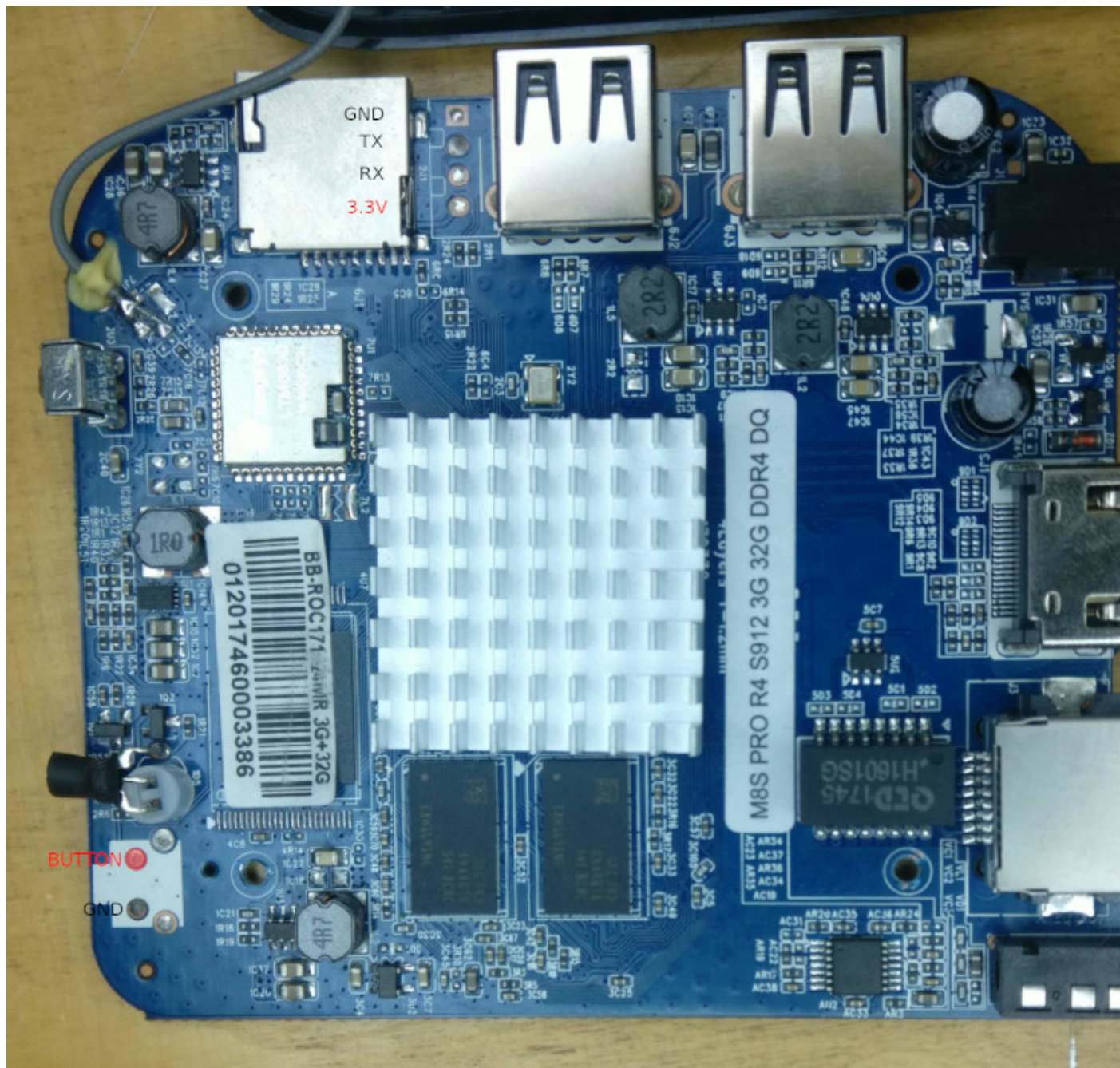


Board sticker: M8S PRO R4 S912 3G 32G DDR4 DQ

te=0x04f5f280 [0,0]

Contents: [Dobrica PavlinuÅ;jiÄ 's random unstructured stuff]

- Dobrica PavlinuÅ;jiÄ 's random unstructured stuff (Android info)
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- Dobrica PavlinuÅ;jiÄ 's random unstructured stuff (2020-10 status for amlogic)



It doesn't have button soldered, it works like power button in android

Serial port is marked on bottom of board (tx/rx are from cpu perspective)

probably:

<https://www.geekbuying.com/item/MECOOL-M8S-PRO-S912-KODI-17-0-4K-HDR10-3GB-DDR4-32GB-eM>

Android info

Android 7.1 bootlog from serial: [m8s-android-bootlog.txt.gz](#)

U-Boot 2015.01-g9331ff1-dirty (Mar 15 2018 - 16:16:24)

DRAM: 3 GiB

...

aml_dt soc: gxm platform: q20xrmii variant: 3g
dtb 0 soc: gxm plat: q20xrmii vari: 2g
dtb 1 soc: gxm plat: q20xrmii vari: 3g
Find match dtb: 1

...

parts: 10

00:	logo	0000000002000000	1
01:	recovery	0000000002000000	1
02:	rsv	0000000000800000	1
03:	tee	0000000000800000	1
04:	crypt	0000000002000000	1
05:	misc	0000000002000000	1
06:	boot	0000000002000000	1
07:	system	0000000080000000	1
08:	cache	0000000020000000	2
09:	data	ffffffffffffffffffff	4

M8SPRO:/ # uname -a

Linux localhost 3.14.29 #46 SMP PREEMPT Thu Apr 12 19:43:12 CST 2018 armv8l

M8SPRO:/ # cat /proc/cmdline

rootfstype=ramfs init=/init console=ttyS0,115200 no_console_suspend earlyprintk=aml-uart,0xc81004

M8SPRO:/ # cat /proc/cpuinfo

Processor : AArch64 Processor rev 4 (aarch64)
processor : 0
processor : 1
processor : 2
processor : 3
processor : 4
processor : 5
processor : 6
processor : 7
Features : fp asimd evtstrm aes pmull sha1 sha2 crc32 wp half thumb fastmult vfp edsp neon
CPU implementer : 0x41
CPU architecture: 8
CPU variant : 0x0
CPU part : 0xd03
CPU revision : 4

Hardware : Amlogic

Serial : 220a82006da41365fedf301742726826

M8SPRO:/ # free

	total	used	free	shared	buffers
Mem:	2876604416	2210639872	665964544	0	31326208
-/+ buffers/cache:		2179313664	697290752		
Swap:	524283904	0	524283904		

M8SPRO:/ # df

filesystem	1K-blocks	Used	Available	Use%	Mounted on
mpfs	1404592	504	1404088	1%	/dev
tmpfs	1404592	0	1404592	0%	/mnt
/dev/block/system	2031440	973788	1057652	48%	/system
/dev/block/data	26969964	3050864	23919100	12%	/data
/dev/block/cache	507848	2860	504988	1%	/cache
/dev/block/tee	5115	45	5070	1%	/tee
/dev/fuse	26969964	3050864	23919100	12%	/mnt/runtime/default/emulated
/dev/fuse	26969964	3050864	23919100	12%	/mnt/runtime/read/emulated
/dev/fuse	26969964	3050864	23919100	12%	/mnt/runtime/write/emulated

recovery sd

<https://www.cnx-software.com/2016/11/19/how-to-create-a-bootable-recovery-sd-card-for-amlogic-tv-boxes/>

amlogic info

<http://www.linux-meson.com/doku.php>

armbian

<https://forum.armbian.com/topic/12162-single-armbian-image-for-rk-aml-aw-aarch64-armv8/>

```
dpavlin@nuc:~/Downloads$ xzcat Armbian_20.09_Arm-64_bullseye_current_5.8.5.img.xz | dd iflag=full
dpavlin@nuc:~/Downloads$ sudo mount /dev/sdb1 /mnt/sdb1/
dpavlin@nuc:~/Downloads$ cd /mnt/sdb1/
```

```
root@nuc:/mnt/sdb1# cp u-boot-s905x-s912 u-boot.ext
```

```
root@nuc:/mnt/sdb1# vi extlinux/extlinux.conf
```

```
root@nuc:/mnt/sdb1# grep -v '^#' extlinux/extlinux.conf
LABEL Armbian
LINUX /zImage
INITRD /uInitrd
```

```
FDT /dtb/amlogic/meson-gxm-q201.dtb
```

```
APPEND root=LABEL=ROOTFS rootflags=data=writeback rw console=ttyAML0,115200n8 console=tty0 no_con
```

Note that this board uses **meson-gxm-q201.dtb** which is internal rmii to make ethernet work!

issue reboot update from android shell to boot from sdcard

ath10k wifi sdio firmware

After booting, you will get error message about missing firmware:

```
[ 7.861827] ath10k_sdio mmc2:0001:1: Failed to find firmware-N.bin (N between 2 and 6) from at
[ 7.861838] ath10k_sdio mmc2:0001:1: could not fetch firmware files (-2)
```

Package `firmware-atheros` is installed, so it's a bit puzzeling what file is missing, however, if we go to

<https://github.com/kvalo/ath10k-firmware.git>

we can find sdio firmware at

<https://github.com/kvalo/ath10k-firmware/tree/master/QCA9377/hw1.0/untested>

```
dpavlin@m8s:~/ath10k-firmware$ git remote -v
origin https://github.com/kvalo/ath10k-firmware.git (fetch)
origin https://github.com/kvalo/ath10k-firmware.git (push)
```

```
dpavlin@m8s:~/ath10k-firmware$ sudo cp QCA9377/hw1.0/untested/firmware-sdio-5.bin_WLAN.TF.1.1.1-0
```

After running `nmtui` and configuring wifi it's available but dies after a while under load.

kernel source

https://github.com/150balbes/Amlogic_s905-kernel

currently, I'm using

```
dpavlin@m8s:~/linux$ git remote -v
origin  https://github.com/xdarklight/linux (fetch)
origin  https://github.com/xdarklight/linux (push)
dpavlin@m8s:~/linux$ git branch
  master
  meson-mx-integration-5.11-20210124
  meson-mx-integration-5.13-20210503
* meson-mx-integration-5.13-20210523
dpavlin@m8s:~/linux$ cat mason-build.sh
# https://github.com/SLAzurin/armbian-aml-s8xx-kernel-build-steps

# https://github.com/xdarklight/linux

make -j 8 Image dtbs modules && sudo make modules_install dtbs_install install
```

Installing armbian kernel package doesn't work because `/boot` partition is `vfat` and not `ext2/4`

u-boot source

https://github.com/150balbes/Amlogic_S905-u-boot

balbes150 updates

installing linux image and headers does return error, but works

<https://users.armbian.com/balbes150/>

gpiod

```
sudo apt install gpiod
```

button - gpio 2

```
root@arm-64:~# gpioget gpiochip0 2 # not pressed
1
root@arm-64:~# gpioget gpiochip0 2 # pressed
0
```

led - gpio 9

```
root@arm-64:~# gpioset gpiochip0 9=0 # red  
root@arm-64:~# gpioset gpiochip0 9=1 # blue (default)
```

u-boot

old <https://github.com/endlessm/u-boot-meson>

I wanted serial console which seems to be missing from armbian build above

wiki seems to suggest repository

<https://gitlab.denx.de/u-boot/custodians/u-boot-amlogic>

but we are going to use upstream u-boot

```
dpavlin@m8s:~/u-boot-amlogic$ git remote -v  
github https://github.com/u-boot/u-boot (fetch)  
  
dpavlin@m8s:~/u-boot-amlogic$ librettech-cc_defconfig  
dpavlin@m8s:~/u-boot-amlogic$ make -j 8  
dpavlin@m8s:~/u-boot-amlogic$ cp u-boot.bin /boot/
```

abort u-boot with key press and boot new one with

```
fatload mmc 1 0x1000000 u-boot.bin  
go 0x1000000
```

2020-10 status for amlogic

U-Boot: Porting and Maintaining a Bootloader for a Multimedia SoC Family - Neil Armstrong, BayLibre SAS

<https://youtu.be/u0-swEMDFp0>