

1.主题

2.问题背景

产品：扫读笔

硬件：R853 + AXP2101

软件：Tina4.0

3.问题描述

3.1复现步骤

按下原型机板子上的reset按钮，然后系统立马开始重启。但是按下的reset按钮不松手，保持继续长按。

3.2具体表现

在系统重启之后，开始加载内核，加载到一半突然没有任何log看起来像系统卡死，并在再按reset按钮没有反应。

log可如下图所示：

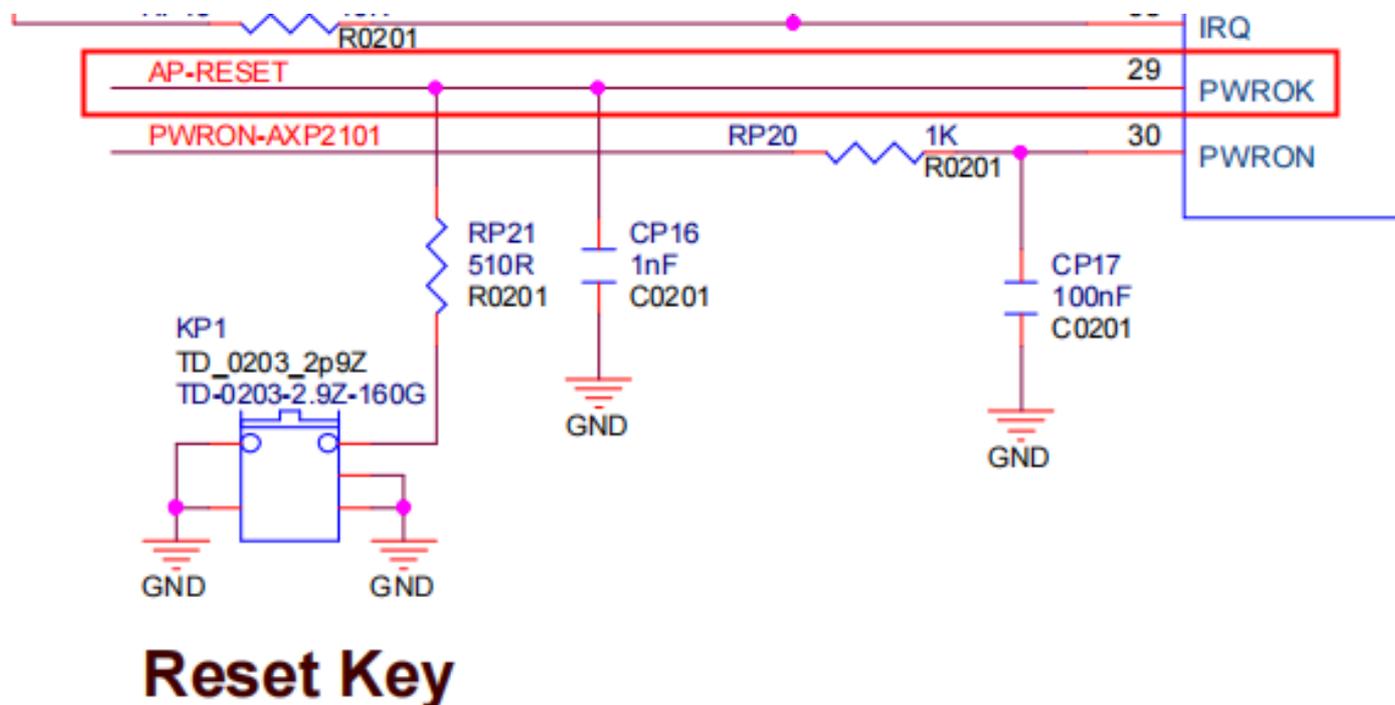
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[ 2.787790] Bluetooth: HCI UART protocol H4 registered
[ 2.793564] Bluetooth: HCI H4 protocol initialized
[ 2.800370] Bluetooth: XRadio Bluetooth LPM Mode Driver Ver 01.00.07
[ 2.808303] [XR_BT_LPM] bluesleep_probe: bt_wake polarity: 1
[ 2.814690] [XR_BT_LPM] bluesleep_probe: host_wake polarity: 0
[ 2.821434] [XR_BT_LPM] bluesleep_probe: uart_index(2)
[ 2.827532] bt_fdi_debugfs_init
[ 2.831998] cpuidle: enable-method property 'psci' found operations
[ 2.841711] sunxi-mmc sdc2: SD/MMC/SDIO Host Controller Driver(v3.59 2022-4-21 13:40)
[ 2.850904] sunxi-mmc sdc2: ****cl-spec-caps*** 398
[ 2.857438] sunxi-mmc sdc2: No vdmcc regulator found
[ 2.863012] sunxi-mmc sdc2: No vd33sw regulator found
[ 2.868761] sunxi-mmc sdc2: No vd18sw regulator found
[ 2.874422] sunxi-mmc sdc2: No vq33sw regulator found
[ 2.880168] sunxi-mmc sdc0: No vq18sw regulator found
[ 2.886295] sunxi-mmc sdc2: set host busy
[ 2.890857] mmc:failed to get gpio
[ 2.895997] sunxi-mmc sdc2: sdc set ios:clk 0Hz bm pp pm UP vdd 22 width 1 timing LEGACY(SDR12) dt B
[ 2.925705] sunxi-mmc sdc2: sdc set ios:clk 400000Hz bm pp pm ON vdd 22 width 1 timing LEGACY(SDR12) dt B
[ 2.965685] sunxi-mmc sdc2: detmode:always in(non removable)
[ 2.965711] sunxi-mmc sdc2: sdc set ios:clk 400000Hz bm pp pm ON vdd 22 width 1 timing LEGACY(SDR12) dt B
[ 2.974083] sunxi-mmc sdc2: sdc set ios:clk 400000Hz bm pp pm ON vdd 22 width 1 timing LEGACY(SDR12) dt B
[ 2.975158] sunxi-mmc sdc2: sdc set ios:clk 400000Hz bm OD pm ON vdd 22 width 1 timing LEGACY(SDR12) dt B
[ 2.985993] sunxi-mmc sdc2: sdc set ios:clk 400000Hz bm OD pm ON vdd 22 width 1 timing LEGACY(SDR12) dt B
[ 2.986066] sunxi-mmc sdc2: sdc set ios:clk 400000Hz bm OD pm ON vdd 22 width 1 timing LEGACY(SDR12) dt B
[ 2.998891] sunxi-mmc sdc2: sdc set ios:clk 400000Hz bm OD pm ON vdd 22 width 1 timing LEGACY(SDR12) dt B
[ 3.043637] sunxi-mmc sdc0: SD/MMC/SDIO Host Controller Driver(v3.59 2022-4-21 13:40)
[ 3.052590] sunxi-mmc sdc0: ****cl-spec-caps*** 8
[ 3.059746] sunxi-mmc sdc0: No vqmmc regulator found
[ 3.065316] sunxi-mmc sdc0: No vdmcc regulator found
[ 3.071424] sunxi-mmc sdc0: set host busy
[ 3.076031] sunxi-mmc sdc0: Got CD GPIO
[ 3.080706] sunxi-mmc sdc0: sdc set ios:clk 0Hz bm pp pm UP vdd 22 width 1 timing LEGACY(SDR12) dt B
[ 3.091223] sunxi-mmc sdc0: no vqmmc,Check if there is regulator
[ 3.125698] sunxi-mmc sdc0: sdc set ios:clk 400000Hz bm pp pm ON vdd 22 width 1 timing LEGACY(SDR12) dt B
[ 3.137402] sunxi-mmc sdc2: sdc set ios:clk 400000Hz bm pp pm ON vdd 22 width 1 timing LEGACY(SDR12) dt B
[ 3.161761] sunxi-mmc sdc2: sdc set ios:clk 400000Hz bm pp pm ON vdd 22 width 8 timing LEGACY(SDR12) dt B
[ 3.172832] sunxi-mmc sdc0: detmode:gpio irq
[ 3.178337] sunxi-mmc sdc2: sdc set ios:clk 400000Hz bm pp pm ON vdd 22 width 8 timing MMC-HS200 dt B
[ 3.188972] sunxi-mmc sdc1: SD/MMC/SDIO Host Controller Driver(v3.59 2022-4-21 13:40)
[ 3.189120] sunxi-mmc sdc1: ****cl-spec-caps*** 8
[ 3.189205] sunxi-mmc sdc1: No vmmc regulator found
[ 3.189211] sunxi-mmc sdc1: No vqmmc regulator found
[ 3.189215] sunxi-mmc sdc1: No vdmcc regulator found
[ 3.189220] sunxi-mmc sdc1: No vd33sw regulator found
[ 3.189224] sunxi-mmc sdc1: No vd18sw regulator found
[ 3.189229] sunxi-mmc sdc1: No vq33sw regulator found
[ 3.189234] sunxi-mmc sdc1: No vq18sw regulator found
[ 3.189634] sunxi-mmc sdc1: set host busy
[ 3.189699] mmc:failed to get gpio
[ 3.190040] sunxi-mmc sdc1: sdc set ios:clk 0Hz bm pp pm UP vdd 21 width 1 timing LEGACY(SDR12) dt B
[ 3.220959] sunxi-mmc sdc1: sdc set ios:clk 400000Hz bm pp pm ON vdd 21 width 1 timing LEGACY(SDR12) dt B
[ 3.248276] sunxi-mmc sdc1: detmode:manually by software
[ 3.250739] usbcore: registered new interface driver usbhid
[ 3.250743] usbhid: USB HID core driver
[ 3.251919] sunxi-rproc e907_rproc@0: can't attach iommu device: -22
[ 3.265460] sunxi-rproc e907_rproc@0: assigned reserved memory node vdev@buffer@0x47000000
[ 3.280726] [sound 1158][DAUID0 snd_sunxi_regulator_init] regulator missing or invalid
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4.问题分析

1. 通过分析log查询得知，并无明显报错，并且报错也不会导致系统加载卡死的状态。此时按下reset按键，并不会让系统进行重启，证明现在系统不在运行的状态。
2. 使用万用表测量原型机板子上VSY和VCC_PL的电压，发现电压为0V，证明此时是掉电的状态，系统是关机的情况。
3. 长按powerkey 1.5s ~ 2s，发现系统开始启动，证明之前是掉电的状态，长按powerkey是可以让系统开机的。

5.根本原因

通过查询AXP2101 datasheet得知，reset按键连接在AXP2101的PWROK引脚上，PWROK Pin为高电平后再被外部按键或者其他原因拉为低，则PMU进行Restart（可通过pwrok_restart_en(REG10[3])配置使能）



Restart指的是PMU先关机、再开机（掉电和上电的时序与正常开机时序相同）

用法图如AXP2101 datasheet：

When application system works normally, if the PWROK pin is driven low by external key or other reasons, the PMU will be restarted. The function can be configured by REG10H[3].

但是，AXP2101同样也做了保护机制，进行Restart时，PMU在各路输出使能有效6s内检测PWROK Pin是否拉高，如果拉高则结束Restart流程，否则自动关机。

6.解决办法

当一直长按着reset按键，PWROK一直为低，所以后续系统才会关机了。

这是属于AXP2101的内部机制，进行系统重启时，不要一直长按reset按键即可。