MediaTek

MTK 平台开机流程应用指南

Power-On Procedure Application Note

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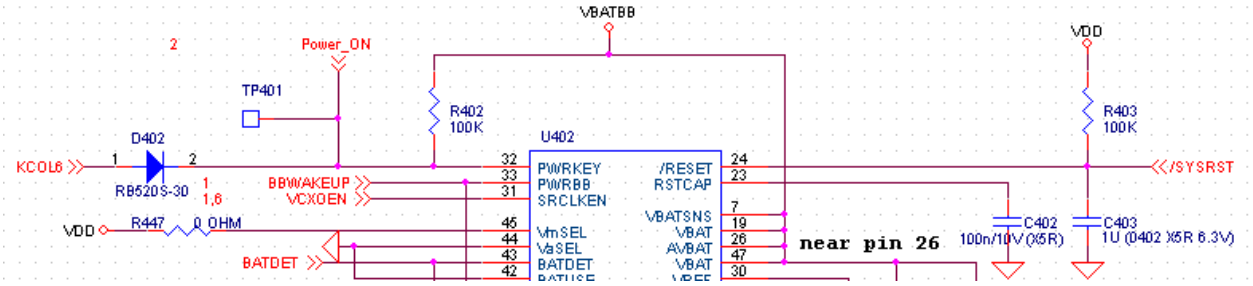
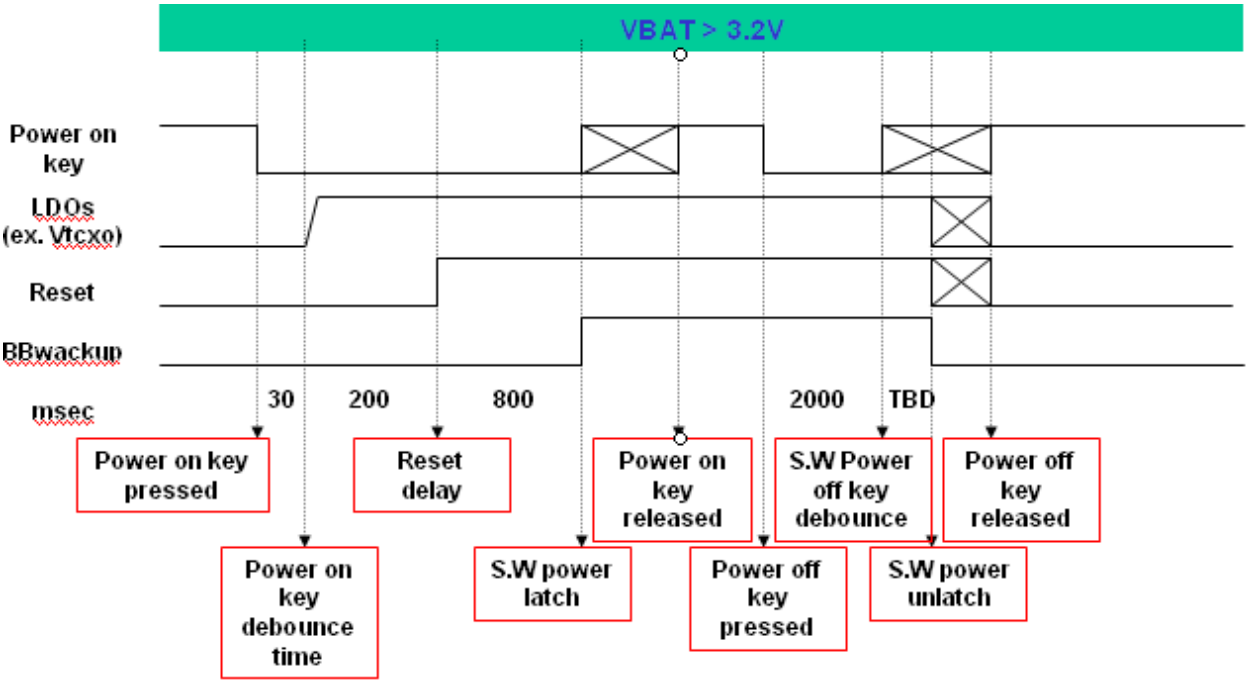
1. 开机方式及硬件实现方法

1.1 正常开关机



手机开机硬件电路图



正常开机过程

开机过程：按下 power key 后，二极管导通，PWRKEY 检测到低电平,驱动 PMIC 打开 LDOs，之后 PMIC 使 BB 复位，随之 BB 起来进入软件开机程序，完成开机，按 power key 关机时，首先执行软件关机程序，随后复位及 LDOs 也被关闭，完成关机。

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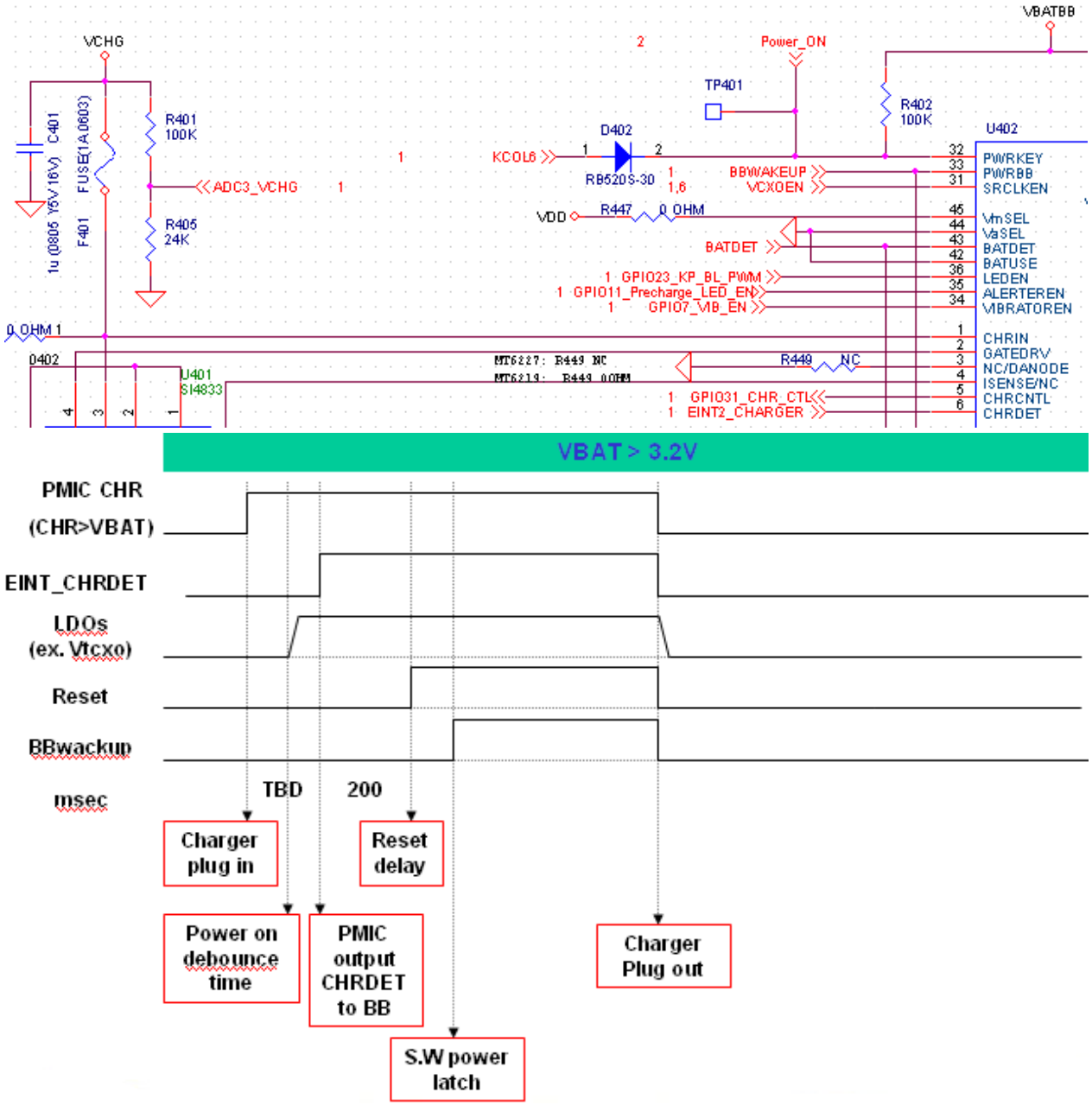
1.2 充电开机



开机过程：当插充电器给手机充电时，CHRIN 检测到高电平，驱动 PMIC 打开 LDOs，如果此时电池的电压>3.2V,PMIC 产生 EINT 中断(高电平)，（如果此时电池的电压<3.2v，先小电流充电使电池电压>3.2v） PMIC 使 BB 复位，BB 起来执行软件开机程序，完成充电开机。

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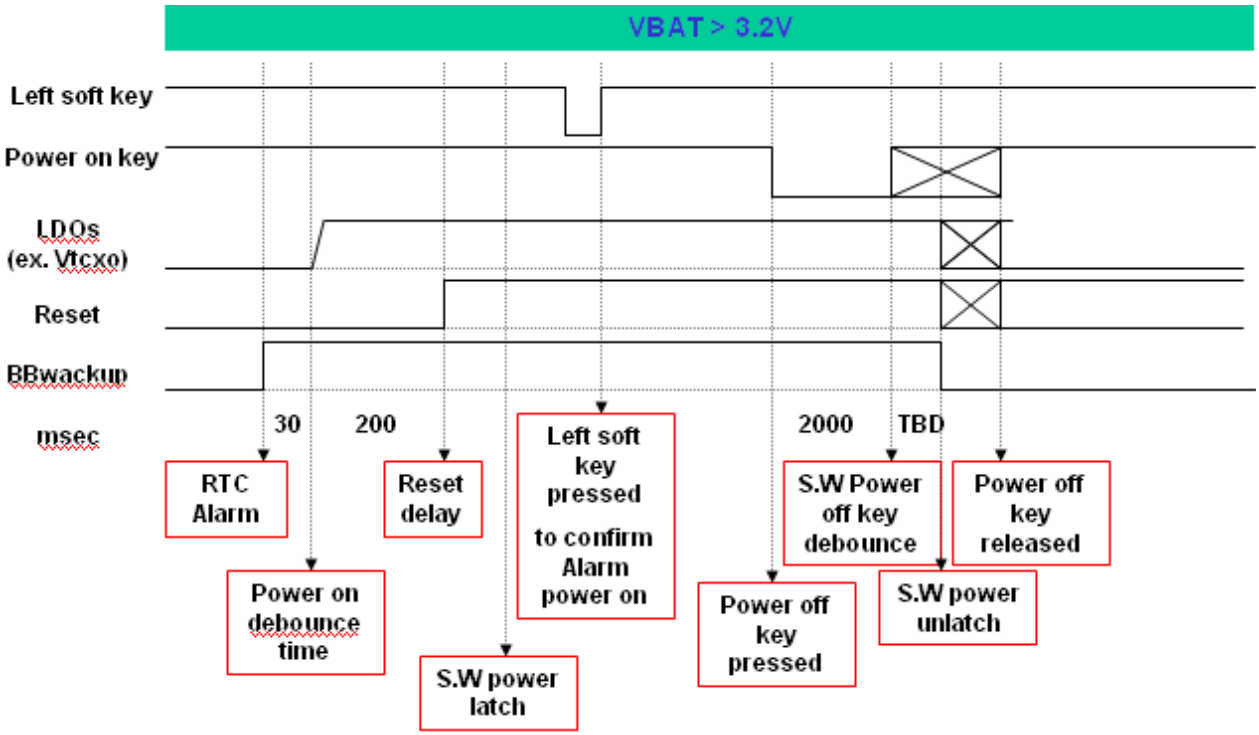
1.3 闹钟开机



闹钟开机过程

开机过程：闹钟醒来时，BBwakeup 先起来由低电平变高电平,然后 PMIC 的所有 LDO 后起来，过 200ms 后 PMIC 使 BB 复位，执行软件开机程序，当按下左键停止闹钟，完成开机。其关机过程同正常关机一样。

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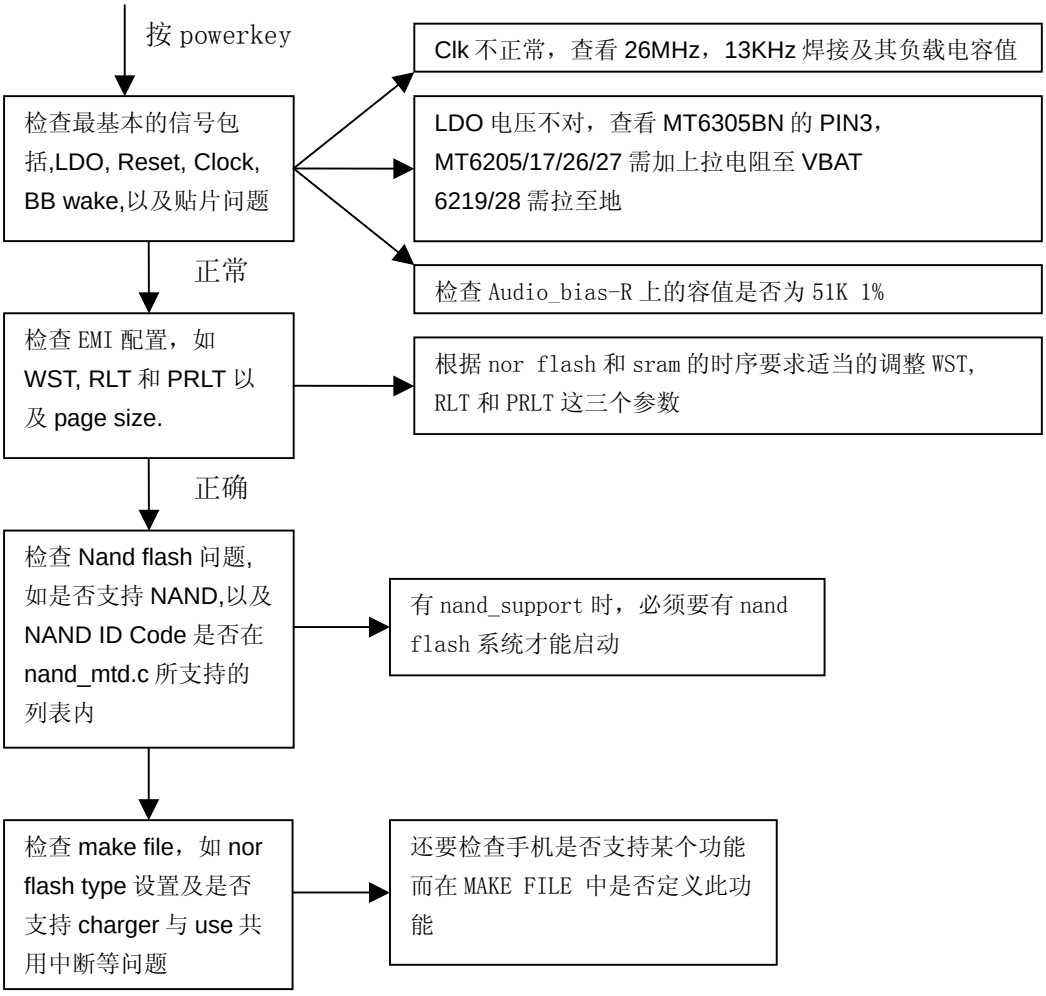
1.4 开机 debug 流程图如下：



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2. 常见问题分析与解答

1. 按 powerkey 手机不能开机
   检查硬件电路发现
   a) 漏掉 Audio_bias-R 的 51KR
   b) 32Khz 焊接不良
2. 手机不能正常开机(MT6226)
   a) 量测信号发现 VCORE=1.2V,(MT6226 VCORE=1.8V),发现 MT6305BN 的 PIN3 悬浮，未上拉至地
   b) 更换 MCP,而相关软件设定为相应修改
3. Download 完毕不能开机，电流一直在 50mA 到 20mA 左右摆动
   a) EMI 配置的问题，可以根据 nor flash 和 sram 的时序要求适当的调整 WST, RLT 和 PRLT 这三个三个参数，另外还要注意 page size 设置是否正确；
4. 从 S71PL127JB0BAW9U 切换到 QB 之后不能开机
   a) 这两颗 MCP 的 SRAM Die 是不同的，所以就会有 SRAM 部分的 timing, page size 是不一样
      1. S71PL127JB0BAW9U 使用 Toshiba SRAM, 16B page size, Toe is 25ns, Twp is 50ns;
      2. S71PL127JB0BAWQB 使用 Samsung utRAM, 16B page size, Toe < 35ns, Twp > 55ns;
   b) 从上面可以看到 QB 系列的 SRAM 读写时间都比较慢，需要适当调整 RLT 和 WST 两个参数才能正常开机；对 QB 的正确配置应该是：

```
/* 4MB SRAM: Spansion PL127JB0BAWQB0 */
  {EMI_CS1, EMI_BURST_MODE, EMI_4_WAIT_STATE, EMI_4_WAIT_STATE,
    EMI_16B_PER_PAGE, EMI_1_WAIT_STATE, EMI_16BIT_DEVICE, EMI_RBLN_ENABLE,
  EMI_SETUP_TIME_1, EMI_SETUP_TIME_1, EMI_HOLD_TIME_0}
```

   c) 另外还需要特别注意 page size 设置是否正确；

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