TPS360 FAQ

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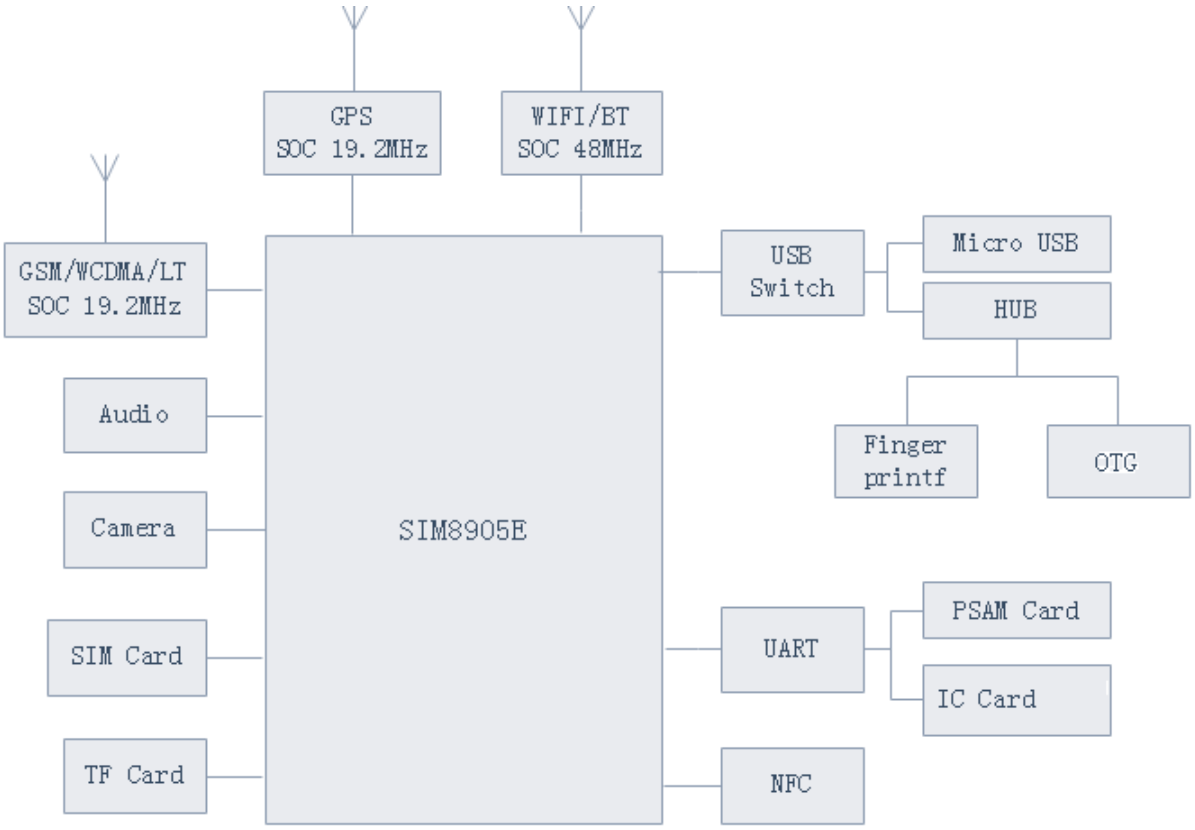
1、Brief

The TPS360 uses the SIM5905 (3G) or SIM8905E (4G) intelligent module with the Qualcomm MSM8909 solution. Hardware features include: touch screen, color screen, mobile network, fingerprint reader, IC card (optional), front and rear camera (optional) , Bluetooth, WIFI, GPS, speaker, NFC (optional), PSAM (optional). Can be understood as adding a fingerprint device on an Android phone.

2、Block diagram

TPS360 motherboard mainly uses MSM8909 solution, integrated 4 cores, frequency up to 1.1GHz, chip can support GSM, WCDMA, TD-SCDMA, CDMA2000, LTE system; equipped with 5-inch IPS capacitive touch screen, rear 5 million camera design , NFC sensor, IC card, SIM card, PSAM card and fingerprint device.



3、Fault analysis method

 Simple elimination method: Use the replacement method to locate the fault. The cable is mainly checked.

 Current monitoring method: It is better to connect the power supply with the current display to monitor the working condition.

 Temperature judgment method: The fault board with large working current can be energized for a short time, and the key parts of the circuit board are touched by hand to determine whether a certain chip is abnormally overheated.

 Signal tracking method: If it is inferred that a fault may be caused by a fault of a certain signal line, the devices passing through the tracking signal line are checked from the probability of failure.

 Consolidation method: A fault cannot be clearly defined whether it is caused by poor soldering of the device, and can be directly soldered again to eliminate hidden dangers.

4、Detailed case

4.1、Unable to boot into the system (including boot hang)

1. If there is no response by pressing the power button, please confirm whether the battery has power; check if the power button switch (SWP1) is invalid.

2. Connect the ammeter to confirm whether there is current input. If there is no current input, check whether the LCD cable is loose or inserted, or change the LCD screen to eliminate the screen. If it is invalid, rewrite the kernel to confirm; if there is no current input, Check the battery holder for short circuit or damage

3. Connect the current meter to confirm the power-on input current. If the input current is always around 90mA, enter the programming mode, check whether the volume + key (SW+1) circuit is normal, and whether D7 is short-circuited. If the wireless module 46 pin USB_BOOT is normally checked, Power on, it is pulled high, check USB_BOOT trace related circuit

4. Connect the current meter to confirm the startup input current. If the current is abnormally large, exceed 1A, check if the DC/DC circuit connected to VBAT is normal.

5. There is no backlight on the boot, check if the LCD cable is plugged in; whether the pad is offset; whether the wireless module 49~62 has a solder joint, whether the LCD power supply 2.8V and 1.8V are normal; Backlight, but the input current is normal, check the backlight circuit or replace the LCD

6. There is a screen when booting, but you can't enter the system. Check if the power-on button is top-up and cannot be released. If the peripheral is still restarting, re-program the kernel, if you can't replace the module.

7. After powering on, it will automatically shut down, check if the battery has power, check if there is a short circuit on the NTC pin of the battery holder. If it is normal, re-write the kernel to confirm. If it is invalid, replace the wireless module.

8. The firmware is not detected. The device checks whether the USB cable and the Micro USB interface are loose. The Micro USB socket is damaged or soldered. If it is normal, press the SWP1 and SW+1 at the same time to see if the USB_BOOT pin is pulled high. V. If the USB_BOOT is not pulled up to 1.8V, check the SWP1 and SW+1 related circuits. Check USB switching IC (U21) related circuit if USB_BOOT is pulled up to 1.8V

9. Failed in the middle of programming, in the troubleshooting of the computer problem Micro USB interface problem, check whether the button is top not released, SWP1 and SW+1 button and C8 are abnormal, hot air reheat repair welding switch IC (U21) and wireless module Still not valid, replace the wireless module

10. Press and hold the power button to turn it on normally. When it is released, it will be powered off. In this case, you can re-burn the kernel and try it.

4.2、USB can't connect

1. Connect to the computer for observation. If the computer does not check the USB device, check if the Micro USB holder is damaged or soldered.

2. Check if the VDD_HUB voltage is normal. If there is no 5V output, check the U1 boost IC peripheral circuit.

3. If the VDD_HUB voltage is normal, check the USB_HUB and USB switching IC related circuits.

4. Check if the HOST_INT pin is pulled low when accessing the OTG peripheral. If there is no pull low, check if the Micro USB socket pin is soldered or damaged. If the HOST_INT pin is pulled low and still cannot connect to the OTG peripheral, check the USB_HUB. And USB switch IC related circuit, if invalid, replace the module to confirm

4.3、Mobile signal problem

1. Confirm that the wireless module and its peripheral devices are soldered normally.

2. Confirm that the antenna base and the feeder head are in good contact.

3. Confirm that the wireless module and SIM card communication line are normal.

4. Check if the antenna thimble and antenna are damaged.

5. Rewrite the kernel to confirm

6. If the above confirmation is invalid, replace the module to confirm (if the comprehensive tester confirms the module problem and then replace it)

4.4、WIFI signal problem

1. Confirm that the WIFI antenna and the feeder head are in good contact.

2. Check if the WIFI antenna is damaged or broken;

3. Replace the new WIFI antenna for testing

(1) If the test is OK, it may be that the WIFI antenna itself is bad;

(2) If testing NG, it may be a motherboard problem, check whether the WIFI connector has a bad solder joint, repair the wireless module WIFI antenna pin

4. Rewrite the kernel to confirm

5. If the above confirmation is invalid, replace the module to confirm.

4.5、GPS signal problem

1. Confirm that the GPS antenna and the feeder head are in good contact.

2. Check if the GPS antenna is damaged or broken.

3. Replace the new GPS antenna for testing

(1) If the test is OK, it may be that the GPS antenna itself is bad.

(2) If the test NG, it may be a motherboard problem, check the GPS connector for solder joint bad soldering, check the motherboard GPS circuit

4. Rewrite the kernel to confirm

5. If the above confirmation is invalid, replace the module to confirm.

4.6、TF card cannot be read

1. Check if the TF card can be read by other normal machines and confirm that the TF card is normal.

2. Check if the contact points of each contact point of the TF card holder are deformed, resulting in poor contact.

3. Check if the pins of the TF card holder are soldered properly, and if there are any solder joints, etc.

4. Check if the pin between the TF card holder and the module is connected normally, and whether the corresponding pin of the module has a bad solder or the like.

5. Remove the ESD tube test to eliminate the ESD tube problem

4.7、Speaker silent

1. Check if the speaker cable is plugged in and check if the horn carrier is soldered.

2. Check if the speaker cable is broken or broken.

3. Replace the OK speaker test

(1) If the test is OK, it may be a bad speaker unit

(2) If testing NG, it may be a motherboard problem, check the motherboard speaker circuit

4.8、LCD display is bad or not displayed

1. There is a screen after booting but it is not possible to enter the system. Check if the power button is topped and cannot be released. If the peripheral is still restarting, replace the module.

2, the LCD screen has no screen to see if the work light and backlight are bright, the backlight is not bright, need to check the backlight circuit

3, the backlight has a bright check LCD screen peripheral voltage 1.8V and 2.8V is normal

4. If the peripheral voltage of the LCD screen is normal, check the LCD screen connection, and replace the LCD screen to check if the screen is damaged.

5. The boot screen display is abnormal, check whether the LCD screen connection and the nest are abnormal, and replace the LCD screen to remove the screen. If the invalid repair welding wireless module 49~62 feet reconfirm

4.9、Touch screen does not respond

1. Check if the touch screen FPC cable is plugged in, and the FPC cable is damaged or damaged.

Replace the OK touch screen to connect to the problem board test

(1) If the test is OK, it may be that the touch screen is defective.

(2) If NG is tested, it may be a motherboard problem. Check if the touch screen connector J13 is damaged or soldered. Check if the touch driver IC has a solder joint

2. Check whether the 1.8V and 2.8V power supply of the touch screen driver IC is normal.

3. Repair welding module 30, 31 and 47, 48 pin reconfirmation

4.10、NFC has no reaction

1. Check if the NFC switch is turned on in the system settings, check if the NFC cable is plugged in.

2. Check if the NFC interface is deformed or broken, and check if the welding of the NFC carrier is soldered.

3, replace the OK NFC board test

(1) If the test is OK, it may be a bad NFC monomer

(2) If testing NG, it may be a motherboard problem, check the module's NFC circuit related pins for solder joints.

4.11、The camera does not open or displays an abnormality

1. Check if the camera interface is deformed or broken, and check if the welding of the camera holder is soldered.

2. Replace the OK camera test

(1) If the test is OK, it may be that the camera unit is defective.

(2) If the test NG, it may be a motherboard problem, check the module camera circuit related pins for solder joints

3. Check if the power supply (2.8V, 1.8V, 1.2V) of the camera is normal.

4. The camera can be turned on but the display is abnormal. Replace the camera to eliminate the defective camera unit. Check if the relevant pins of the module camera circuit have bad soldering, etc.

4.12、The fingerprint device cannot be opened

1. Check if the fingerprint interface is deformed or broken, and check if the soldering of the fingerprint holder is soldered.

2. Replace the OK fingerprint test

(1) If the test is OK, it may be that the fingerprint device is defective.

(2) If you test NG, it may be a motherboard problem. Check if the fingerprint signal signal is connected to the USB HUB.

3. Check if the fingerprint device has 5V power supply

(1) Check the U1 boost IC peripheral circuit if there is no 5V output

(2) If there is a 5V output, it may be a USB HUB or USB switching IC problem. Check the USB HUB and USB switching IC related circuits.

4.13、PSAM card can not be opened

1. Check if the PSAM deck is deformed or broken, and if there is any solder joint

2. Check if the modules UART2_TX and UART2_RX are well connected to Q6 and Q8.

3. Check if the 5V power supply of the AU9560-GCS control IC is normal.

(1) Check the U29 boost IC circuit if there is no 5V output

(2) If there is a 5V output, it may be an AU9560-GCS control IC problem. Check whether the internal LDO output of the AU9560-GCS control IC is 1.8V and 3.3V. Check the related circuit of the AU9560-GCS control IC connection.

4. The above check has no abnormality and replace the AU9560-GCS control IC to confirm

4.14、IC card can not be opened

1. Check if the IC card holder is deformed or broken, and if there is any solder joint

2. Check if the modules UART1_TX and UART1_RX are well connected to Q9 and Q10.

3. Check if the 5V power supply of the AU9560-GCS control IC is normal.

(1) Check the U28 boost IC circuit if there is no 5V output

(2) If there is a 5V output, it may be an AU9560-GCS control IC problem. Check whether the internal LDO output of the AU9560-GCS control IC is 1.8V and 3.3V. Check the related circuit of the AU9560-GCS control IC connection.

4. The above check has no abnormality and replace the AU9560-GCS control IC to confirm

4.15、Battery is not charging

1. Confirm the battery is bad, check whether the appearance of the battery is deformed or damaged, and whether the battery holder and the battery are in poor contact.

2. Check if the DC head or Micro USB port of the charging connector is deformed or broken, and if there is any solder joint

3. Use a multimeter to measure whether the battery voltage is above 4.2V. If it does not reach 4.2V, put the battery into the normal machine, charge it with OK power for 1 to 2 hours, and then measure whether the battery voltage has increased.

(1) If the battery cannot be charged properly, the battery may be a problem.

(2) If the battery is charging normally, the motherboard may be faulty.

4. Put the OK battery into the problem machine, use the OK power supply to charge the machine, and observe the 5V power input current.

(1) If the charging current device does not display charging, re-burn the firmware and confirm

(2) If there is no charging current, check whether the DC head or Micro USB port is deformed or broken, whether there is solder joint welding, and whether the battery holder and the battery holder are in

good contact. Check if the DC IN pin of the module is broken or soldered or shorted, and the pin bypass capacitor is shorted.

5. The above checks are invalid.

(1) If the DC head is not charged, check if there are any solder joints or short circuits at the legs of modules 141 and 142. Check if D14 is short-circuited or damaged.

(2) If the Micro USB port is not charged, check if U26, B5, and D1 are abnormal, and replace U26 without any abnormality.