

BFX-UA300 (K18X001.00) CH-Down Key Function Fail Report

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Review by: Michael

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D1. Establish the Team

Team Leader

Foxconn

- MFG Director: David Yin
- QA Manager : CB Lin, Toney

Team Member

PE: Michael, Phuong

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QA: Ken, Rachel

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D2. Description

1. Issue Description

- On 05/05/2022, ALT customer complaint 1pcs CH_down key function failure.
- Failure status: Plug HDMI port, Ethernet port then see NG product already login SKB and CH-down key always works (push channel back)

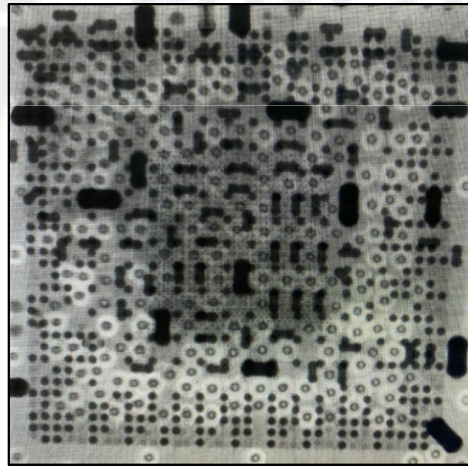
Failure information:

Fox_SN	Cus_SN	MAC	ERROR CAUSE
YW61SCP	2149695001202109001335	A8934AFE8191	CH_down key function failure

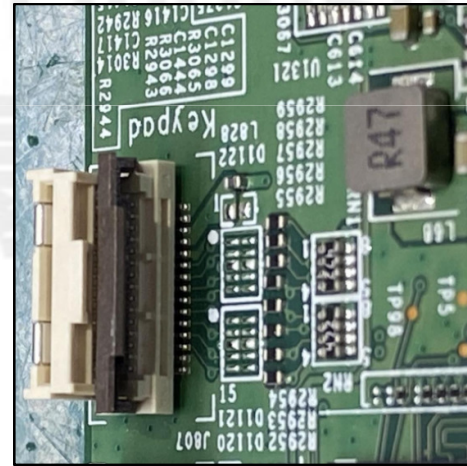
D3: Containment

1. OBA checking, Take X-ray and VI PCBA

1. OBA checking → CH-down key always works (push channel back).
2. Baking PCBA with 70°C in 24 hours. → Re check boot up normal.
3. Recheck OBA → CH-down key still always works (push channel back).
4. Take X-ray and VI PCBA focus on button block → Did not find out any abnormality.



X-ray SoC(U1)



Button keypad block

D3. Containment

1. Check FATP and OBA record data

➤ FATP: NG product tested pass at FATP

SERIAL_NUMBER	MO_NUMBER	GROUP_NAME	IN_STATION_TIME	WIP_GROUP
A8934AFE8191	2639001581	ASSY	11/2/2021 7:59:27 AM	BT
A8934AFE8191	2639001581	BT	11/2/2021 8:00:24 PM	PT
A8934AFE8191	2639001581	PT	11/2/2021 8:08:41 PM	UP
A8934AFE8191	2639001581	UP	11/2/2021 8:13:28 PM	ASSY2
A8934AFE8191	2639001581	ASSY2	11/4/2021 2:11:54 AM	ASSY3
A8934AFE8191	2639001581	ASSY3	11/4/2021 2:17:44 AM	ASSY4
A8934AFE8191	2639001581	ASSY4	11/4/2021 2:22:32 AM	FT1
A8934AFE8191	2639001581	FT1	11/4/2021 2:42:46 AM	FT2
A8934AFE8191	2639001581	FT2	11/4/2021 4:17:07 AM	FT3
A8934AFE8191	2639001581	FT3	11/4/2021 4:29:23 AM	RC
A8934AFE8191	2639001581	RC	11/4/2021 4:31:13 AM	RC1
A8934AFE8191	2639001581	RC1	11/4/2021 4:38:59 AM	VI
A8934AFE8191	2639001581	VI	11/4/2021 10:51:25 AM	RC2
A8934AFE8191	2639001581	RC2	11/4/2021 10:55:57 AM	VI1
A8934AFE8191	2639001581	VI1	11/4/2021 10:59:42 AM	PACK_BOX
A8934AFE8191	2639001581	PACK_BOX	11/4/2021 11:02:07 AM	CHECK_WEIGHT
A8934AFE8191	2639001581	CHECK_WEIGHT	11/4/2021 11:04:51 AM	PACK_CTN
A8934AFE8191	2639001581	PACK_CTN	11/4/2021 11:05:16 AM	PACK_PALT
A8934AFE8191	2639001581	PACK_PALT	11/4/2021 2:01:33 PM	FQA
A8934AFE8191	2639001581	FQA	11/4/2021 2:45:18 PM	CHK_PALT
A8934AFE8191	2639001581	STOCKIN	11/4/2021 4:23:33 PM	FG

➤ OBA: Product wasn't tested at OBA station

Note: OBA station only test random 10% production quantity

D4. Root Cause

1. Check log test at FATP

➤ Check log test is normal



- Connect to DUT
- Check MFG FW
- Check AMP version
- Check IR Remote UP Key
- Check USB2.0 R/W
- Check AUX, MIX audio
- Check LED (white, off)
- **Check Front Panel buttons**
- Set 4KP60 Resolution
- Check 4K TV
- Play 4KP60 Video
- Check HDMI 4KP60 Resolution/FPS

Test plan FT1 station

```

Buttons Test
Button 1 Test
02:41:00 Send: adb shell fac check_button BUTTON_0
02:41:02 adb shell fac check_button BUTTON_0
02:41:02 Start GPIO Button
02:41:02 ==> press BUTTON_0 key in 10 seconds...
02:41:02 0001 0074 00000001
02:41:02 GOT BUTTON_0
02:41:02 SUCCESS
02:41:02 D:\K18X001>

Button 2 Test
02:41:02 Send: adb shell fac check_button BUTTON_1
02:41:03 adb shell fac check_button BUTTON_1
02:41:03 Start GPIO Button
02:41:03 ==> press BUTTON_1 key in 10 seconds...
02:41:03 0001 0193 00000001
02:41:03 GOT BUTTON_1
02:41:03 SUCCESS
02:41:03 D:\K18X001>
  
```

Log test of product at FT1 station: Pass

➤ Summary:

- NG product test pass normal at FT1 station, Didn't find out any abnormal related to button function.

D4. Root Cause

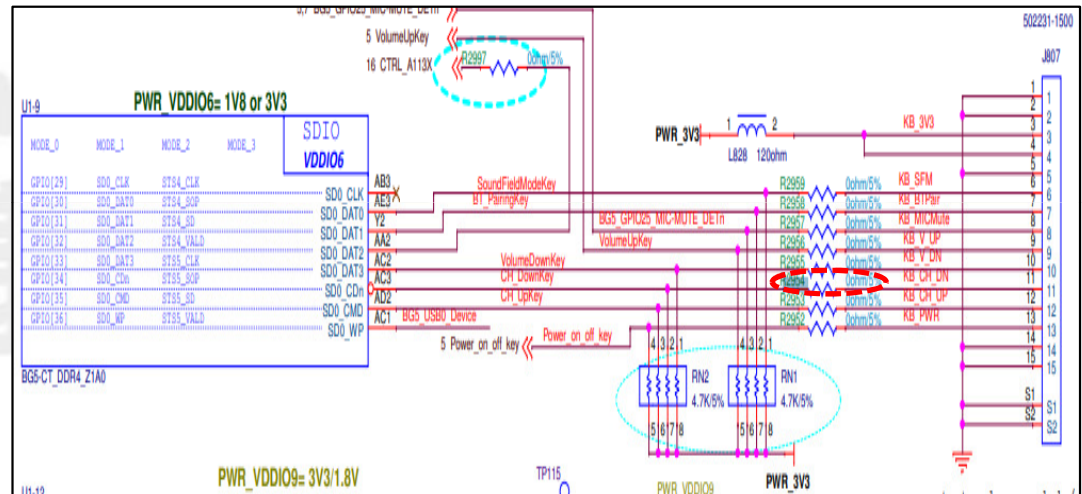
2. Check button block on main board

➤ Check impedance on button block → No abnormality

- Follow circuit diagram at button block, The remote signal from SoC to keypad jack (J807 location) go through resistor R2954 (0 ohm) with pulled resistor RN1 (4.7K ohm).
- Measure impedance at R2954 location and compare with OK product(OK product has impedance~4.8K). → **Normal**



Measure impedance at R2954 location



circuit diagram of Button block

➤ Summary:

- Check impedance of NG product is normally

D4. Root Cause

3. Check button block on main board

Remark: On theory, The remote signal of keypad is set to “0”_Press button ($\sim 0.0V$) – keypad is enabled,
“1”_ No press button ($\sim 3.3V$) – Keypad is disabled.

➤ Check Voltage at R2954 location when disconnect internet

Case 1: Press CH-down key button → The voltage $\sim 0.0V$ _ keypad is enabled. → **Normal**

Case 2: No press CH-down key button → The voltage $\sim 3.3V$ _ Keypad is disabled. → **Normal**

➤ Check Voltage at R2954 location when connect internet

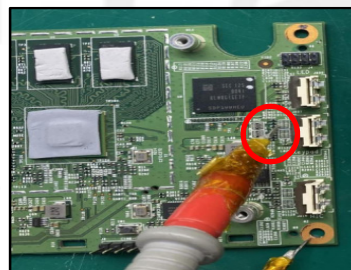
Case 1: Press CH-down key button → The voltage $\sim 0.0V$ _ keypad is enabled. → **Normal**

Case 2: No press CH-down key button → **Figured out the voltage at this location is unstable (has 2 status: 0.0V and 3.3V) while voltage of OK board is always 3.3V).**



OK
sample

Kept only 1 status



NG
sample



Status 1



Status 2



Check voltage at R2954 location when connect internet_Case 2.

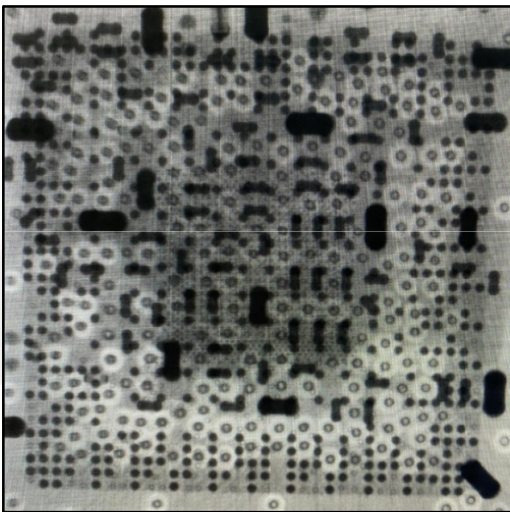
➤ Summary:

- This issue happen when product already login SKB and connect internet.

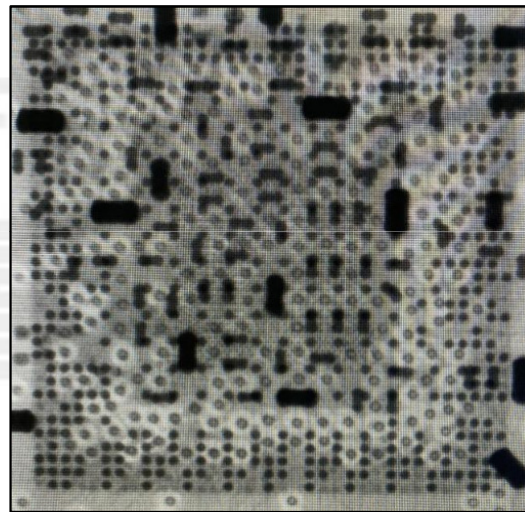
D4. Root Cause

4. Re-solder SoC(U1)

- Re solder SoC (U1)
- After re-solder SoC (U1), X-ray SoC (U1) location, check boot up and voltage at R2954 when connect internet and no press CH_down key button → **Normal**



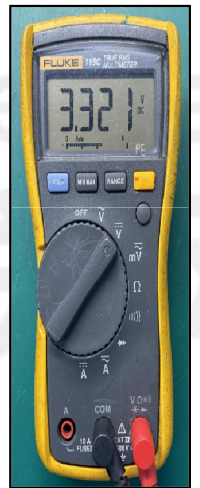
Before re-solder SoC(U1) location



After re-solder oC(U1) location



Check power at R2954 location when connect internet



➤ Summary:

- Re-solder SoC (U1) measure voltage at R2954 when connect internet and no press CH_down key button is 3.321V → Normal

D4. Root Cause

5. Re-test NG product

- Test NG product at OBA station (**connect internet, open channel 990 and power on 24 hours**)
- Test product from 05/15,8:00 AM to 05/16, 8:00 AM
- ➔ Result: Channel 990 is kept for 24H power on



Time	Result
8:00	Channel 990
10:00	Channel 990
12:00	Channel 990
14:00	Channel 990
16:00	Channel 990
18:00	Channel 990
20:00	Channel 990
22:00	Channel 990
0:00	Channel 990
2:00	Channel 990
4:00	Channel 990
6:00	Channel 990
8:00	Channel 990

- **Summary:**
- Channel 990 is kept for 24H power on

Conclusion

1. Summary for root cause

➤ Root cause:

- This issue happen when product already login SKB and connect internet.
 - As an analysis above ***suspect SoC(U1) pin cracked***
- ➔ Fii will keep monitoring this issue on FATP.



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