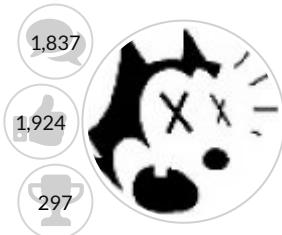


KNF - TECH, TUTORIALS, DOWNLOADS AND OTHER PERSONAL STUFF.



RIP-Felix
Senior Member

Joined:	Oct 4, 2020
Messages:	1,837
Likes Received:	1,924
Trophy Points:	297
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@botakompong's Pulse CLK method of troubleshooting PS3's.

normal pulse



The video above shows how a normal "Pulse CLK" behaves. Note, you need an analog volt meter to follow this method. Alternatively you could use an Oscilloscope with a time scale set to record around 20s worth of data. When you watch the video notice that the first pulse raises the voltage. That's the "first Kick." About 2s in, it fluctuates and raises a bit more, at around the 5-6s mark in the video. That's the "second Kick." And just before the video appears on screen the "third kick" occurs. The whole process takes about 20s.

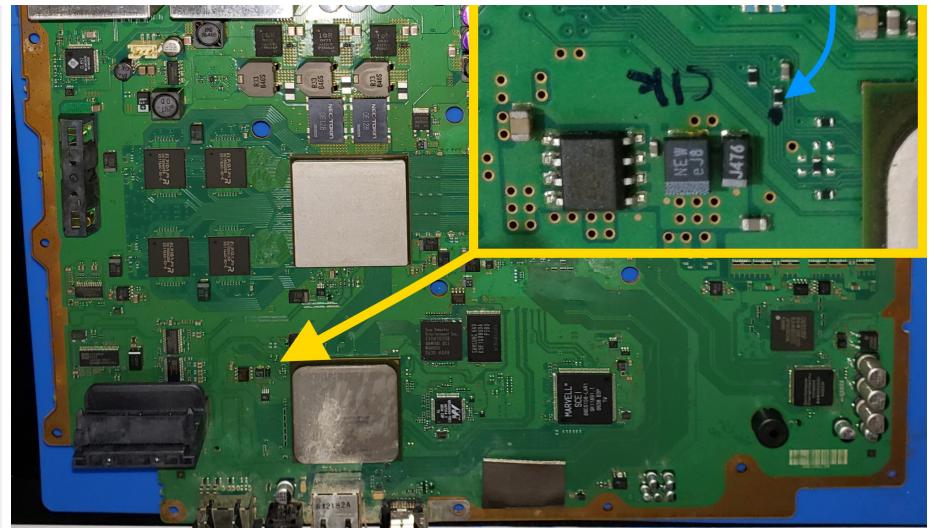
Below I have re-written @botakompong's previous posts into one place. It shows what's happening during each "Kick" and how a console with each type of fault will look. Hopefully this makes it easier to follow his method of troubleshooting/diagnosing consoles.

"Pulse CLK" Testpoint Locations:

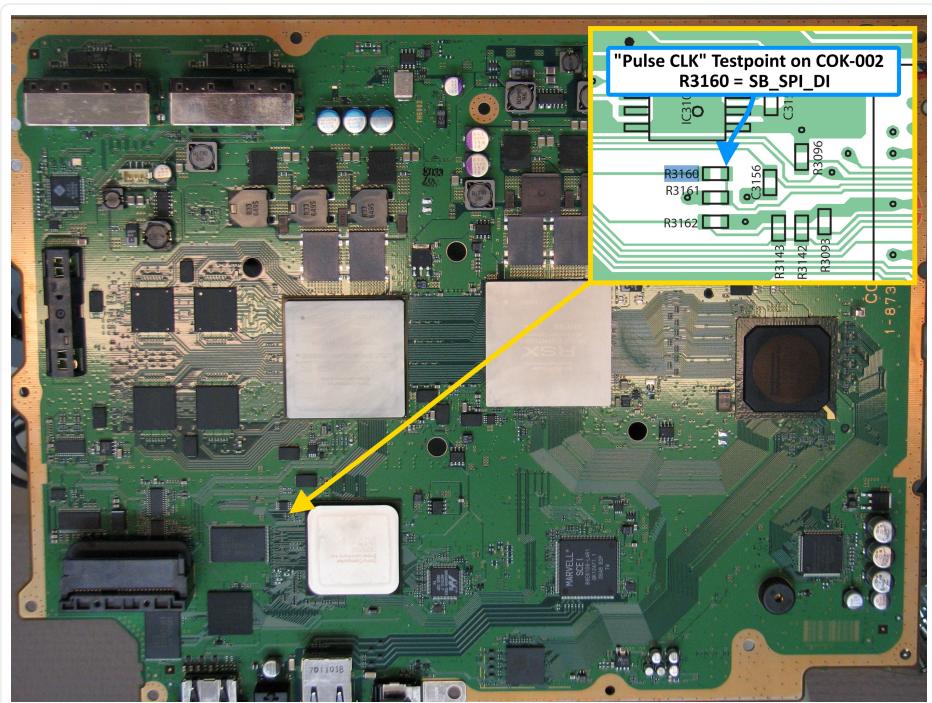
Spoiler: A & B models (COK-001)

privacy

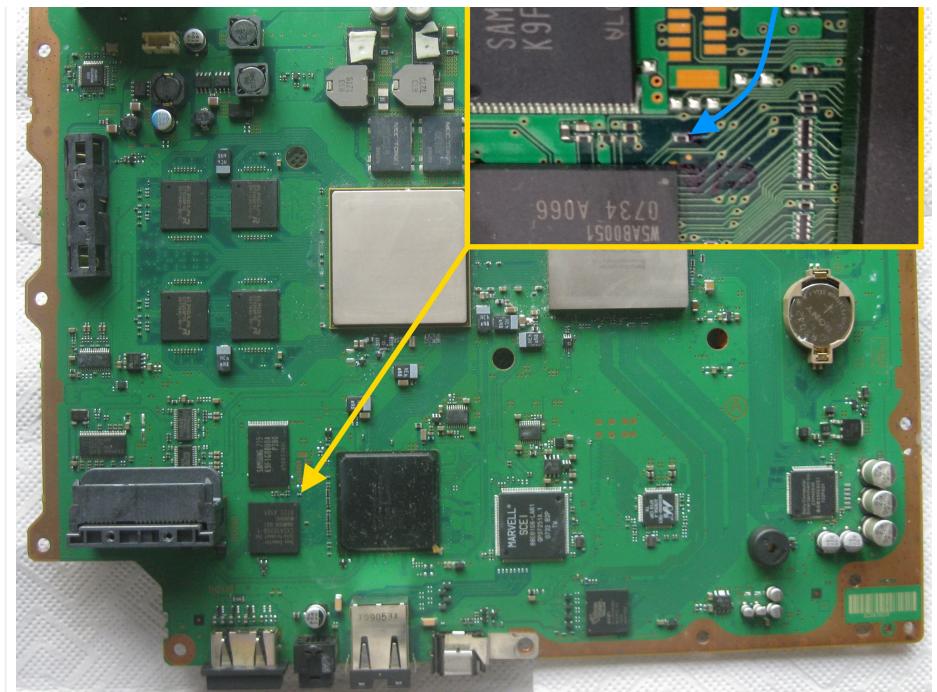




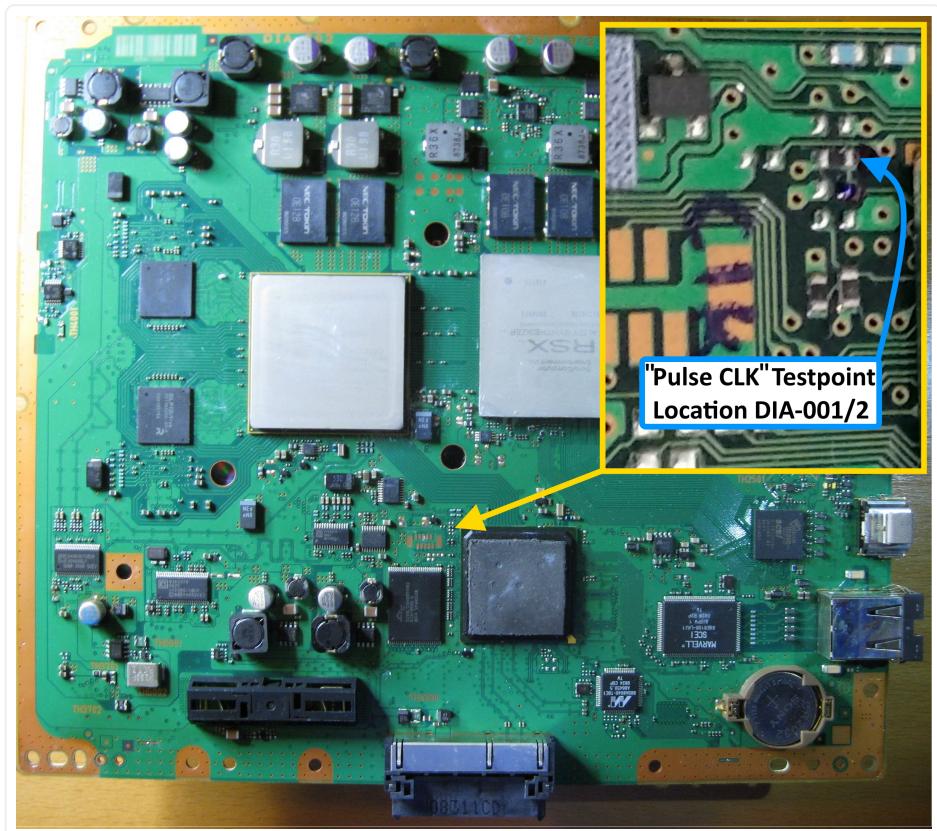
Spoiler: C & E Models (COK-002)



Spoiler: G Models (SEM-001)



Spoiler: H-K Models (DIA-001 & 2)



Spoiler: All Slim Models

Spoiler: All Super Slim Models



Spoiler: Rule 1: CPU --> SYSCONSymptoms: YLOD

- Pulse CLK fails Kick 1. Rises to 1.5v or less and drops back to 0v followed by an instant YLOD (>1s).
- 1x beep after pressing reset.

Possible Cause:

- Incorrect CPU input voltage (4 of them)
 - C1 = 1.2v VDDC. No kick pwr. Pulse CLK will not kick = Instant YLOD (<1s).
 - If that's the case, then check resistors around IC6103 with a known good board and replace any bad ones.
 - Damaged NEC/TOKINs cause noisy PWR. Tokins can cause a YLOD that, in order of most to least common, occurs only in intense games, normal stress, delayed 10s – 5 mins, and non-instant (3 - 7s). The SYSCON code will be a 1002. However, if severely damaged they can cause a cause an instant YLOD (<1s) with a 3004 SYSCON error. But that is rare!
 - C2 = 1.2v_YC_RC_VDDIO
 - C3 = 1.2v_YC_RC_VDDIO
 - C4 = 1.5v_YC_RC_VDDA
- CPU BGA defect
- Damaged CPU

Spoiler: Rule 2: RSX --> SYSCONSymptoms: YLOD

- Pulse CLK fails Kick 1. Rises to only 1.5v and drops back to 0v followed by an instant YLOD (<1s).
- 1x beep after pressing reset.

Possible Cause:

- Incorrect RSX input voltage (5 of them)
 - R1 = 1.3v VDDC. No kick pwr. Pulse CLK will not kick = Instant YLOD (<1s).
 - For 90nm and 65nm RSX: If that's the case, then NEC/TOKINs are the issue. Damaged NEC/TOKINs cause noisy PWR. Tokins can cause a YLOD that, in order of most to least common, occurs only in intense games, normal stress,

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(<1s) with a 3004 SYSCON error. But that is rare!

- If not above or for 40nm and 28nm RSX: Check resistors around IC6201 with a known good board and replace any bad ones.
 - R2 = 1.2v_VDDR
 - R3 = 1.5v_VDDA
 - R4 = 1.5v_VDDIO
 - R5 = 1.8v_VDDQ
- CPU BGA defect
- Damaged CPU

Spoiler: Rule 3: CPU <-> RSX

Symptoms: YLOD

- Pulse CLK goes high and stalls. It does not fluctuate. Does not enter kick 2. Or it goes high and falls back down. Both cases cause YLOD.
- 1x beep after pressing reset.
- No bad CPU or RSX voltages.
- 3034 and associated 40xx SYSCON error. Use a **bringup** command to start the console and log the startup sequence. It's possible to get "RSX: Bit training error" or "BE: Bit training error."

Possible Cause:

- BGA (most likely) or Die Bumps (less likely) on either the CPU (less likely) or RSX (most Likely).
- Damaged FlexIO traces between CPU-RSX.
- Manufacturing defect, or corrosion from poor environment.
- Shorting RSX and/or CPU internal pins (electromigration). Accumulated heat damage that cannot be repaired. It can be temporarily revived by heating, but it will not last. It needs replaced.
- The usual repair attempts (in order) are to reball the RSX. If that does not work, then reball the CPU. If neither work, then replace the RSX (same model) with a working chip. Beyond that it is too difficult to continue. The console is dead.

Spoiler: Rule 4: CPU --> CPU_RAM

Symptoms: GLOD

- Pulse CLK passes Kick 1. Attempts kick 2 but fails and retries in an endless loop.
- No display / Black screen.
- No beep after pressing reset.



- Incorrect CPU_RAM input voltage (2 of them)
- CPU BGA defect
- Damaged CPU or RAM

Example Video:

cell be problem



Spoiler: Rule 5: CPU --> NOR/NAND (BootOS)

Kick 2 = is quicker and smaller, but noticeable. During this time, Bootup Sequence 6 occurs

Spoiler: Rule 6: RSX --> RSX_RAM

Symptoms: GLOD

- Pulse CLK passes kick 1. Kick 2 is weak and stalls. No looping.
- No display / Black screen.
- 1 beep after pressing reset.
- HDD LED blinks briefly, ruling out a problem in #4.

Possible Cause:

- Incorrect RSX_RAM input voltage
- RSX BGA defect
- Damaged RSX or RAM

Kick 3 = is weak. During this time, Bootup Sequence 7 occurs.

Spoiler: Rule 7: AV / HDMI Output

RSX Chips:

YLOD Causes: A problem with any of the following will cause a YLOD

1. Cell BE Issue
2. RSX Issue
3. RSX<-->CELL issue not related to voltages or BGA Defects.
4. BootOS Issue

GLOD Causes: A problem with any of the following will cause a GLOD

1. CPU RAM Issues
2. RSX RAM Issues
3. AV / HDMI Issues
4. OS Software Issues
5. HDD Issues

Last edited: Aug 4, 2021

READ THIS - Links to super useful information (Schematics, pinouts, SYSCON and Frankenstein Tutorials, Tantalizer, Statistical Analysis of what really cause the YLOD, etc.)

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1,837

1,924

297

RIP-Felix
Senior Member

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botakompong said: ↑

Ok friends, later I will take a photo of the measurement area from C1,C2,C3,C4 and R1,R2,R3,R4,R5, I did separate the video specifically for C1 and R1. For C2, C3, C4 videos, I did combine them into 1 video, where the measurements of each area took turns, from C2 to C3 to C4 then back again to C2 to C3 to C4

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Thanks for that. Please have a look at my above post and let me know if I got all that right! It took most of the day to figure out...lol! I'd like to add to it if we can make the method better or you find anything I should add to it.

For example, where exactly is the "Pulse CLK" test point? Or is it C1-4 and R1-5?

READ THIS - Links to super useful information (Schematics, pinouts, SYSCON and Frankenstein Tutorials, Tantalizer, Statistical Analysis of what really cause the YLOD, etc.)

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