PS3 SYSCON UART CONNECTION GUIDE

Disclaimer:

I can not be held responsible for any damage made to you ps3 motherboard or issues that occur when following this guide! - At owners own risk!

Why do this?

- Diagnose YLOD issues commonly found on these old PS3 boards
- Adjust default fan speed policies
- Understand the workings of this machine
- Many other good reasons..

PS3 Motherboards

The guide is for the FAT PS3 motherboards, other type of PS3 boards can use this guide but will require knowledge of where to interface the serial connections!

Also note that not all revisions of syscon can be accessed or have all of the commands required!

COK-001

COK-002

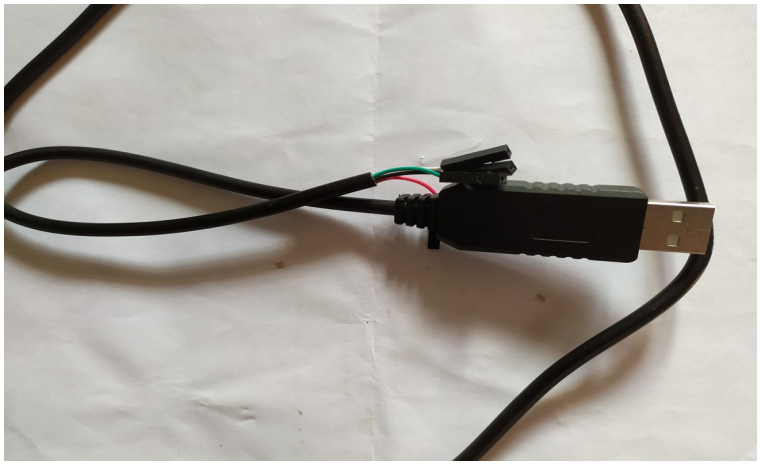
DIA-001

DIA-002

DYN-001

SEM-001

Required equipment



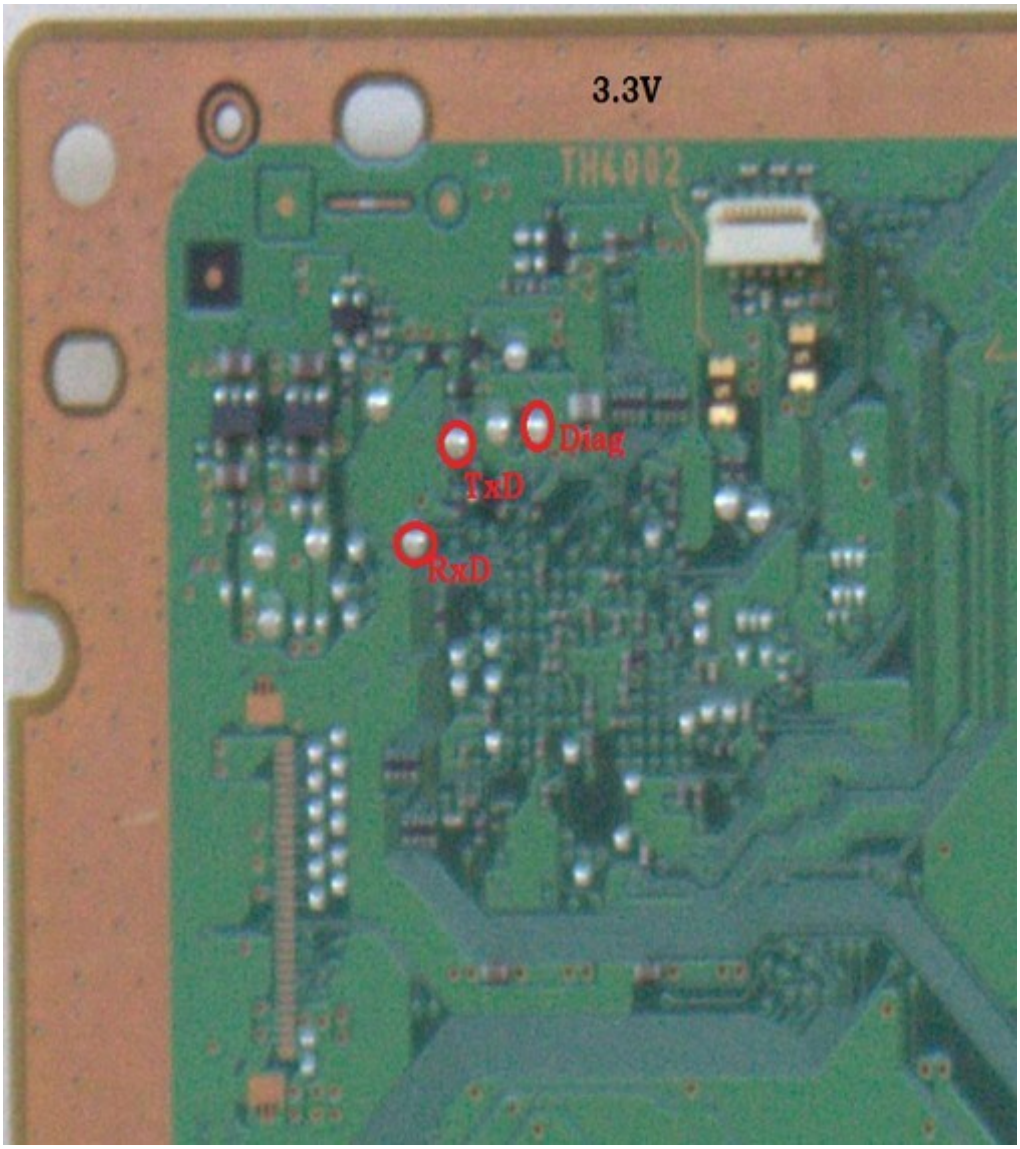
- **1x USB to TTL v3.3 Serial Converter Cable**
- **4x AWG 30 single core wire (keep length short)**
- **Soldering iron and solder**
- **Wire cutters**
- **Electrical tape (for insulation afterwards)**

Required software (tested on Linux OS only)

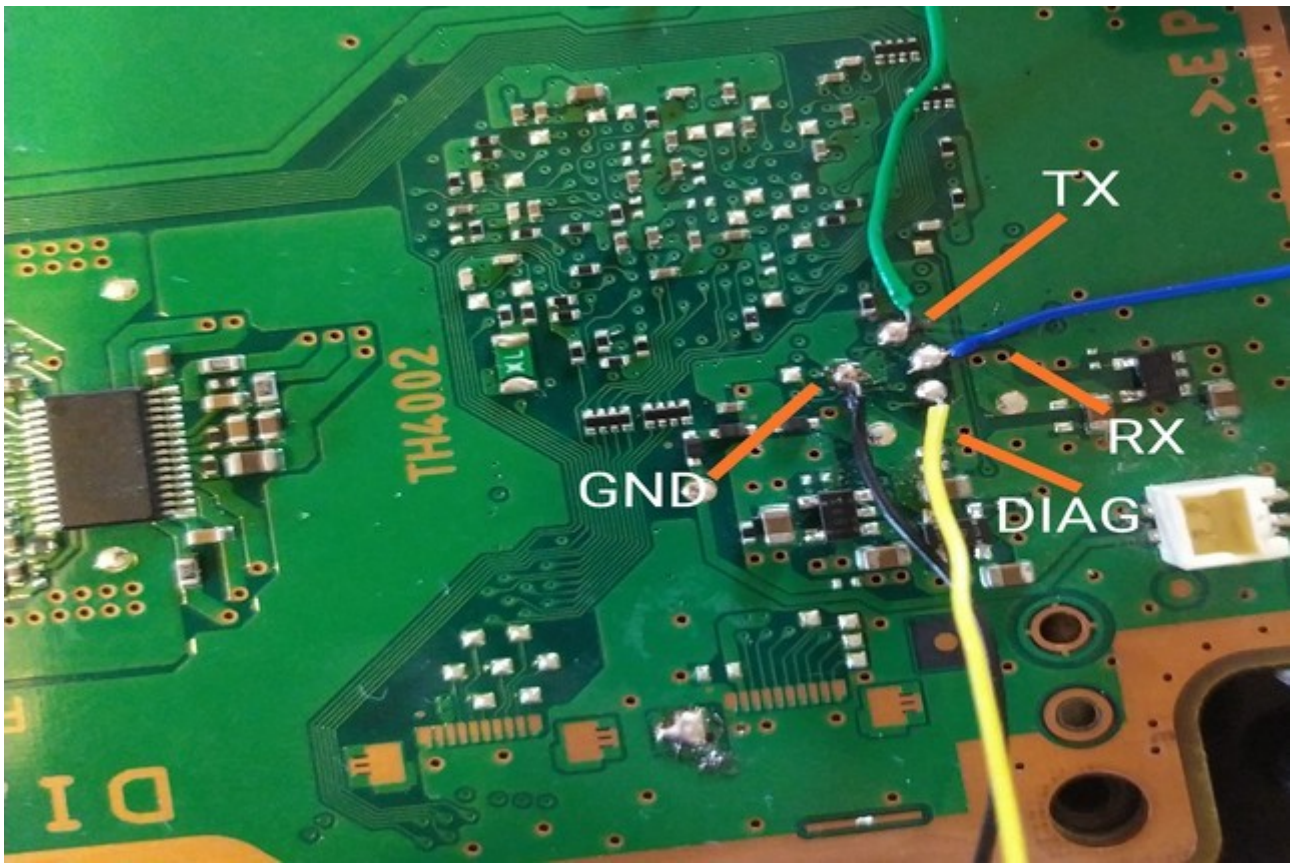
- **Python 2 +3 (python-serial, python-crypto and pycryptodome modules needed)**
- **Serial communication program to check output is happening – putty, minicom, screen etc**
- **Syscon python communication script (used to action syscon commands) – ps3_syscon_uart_script.py (python 2 only) Support CXR and CXRF syscons**
- **ps3_syscon_uart_script23.py (python 2,3) Supports SW syscons**

Identify the serial connections

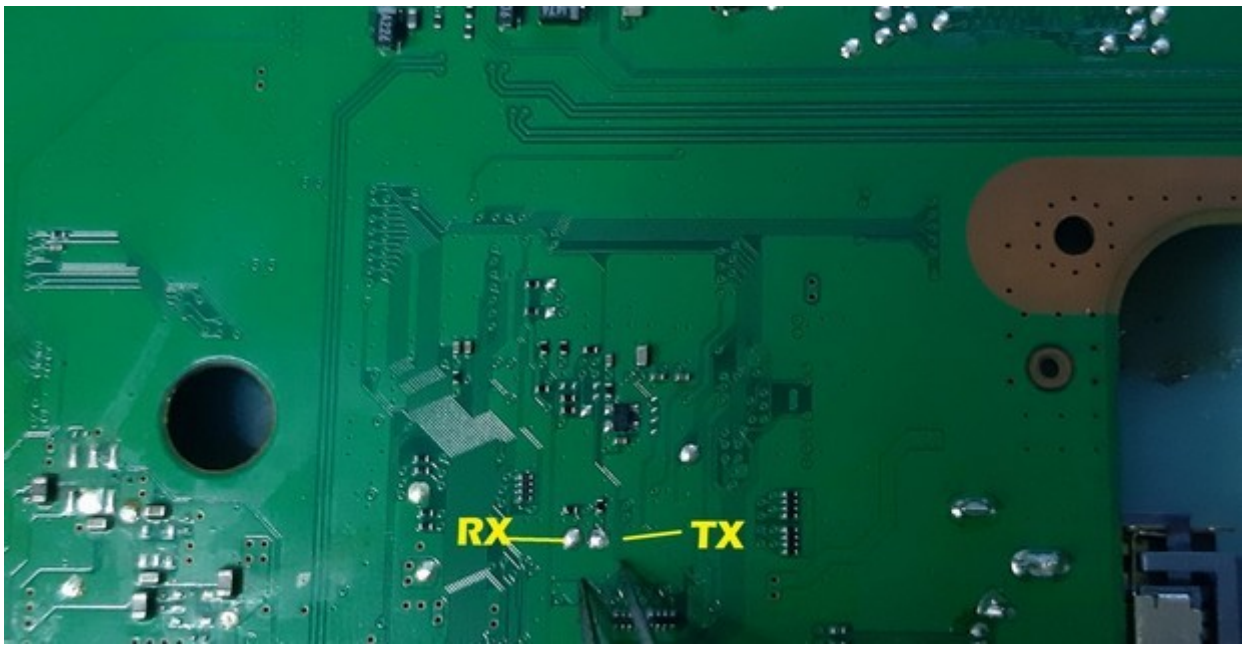
COK-001 and COK-002:



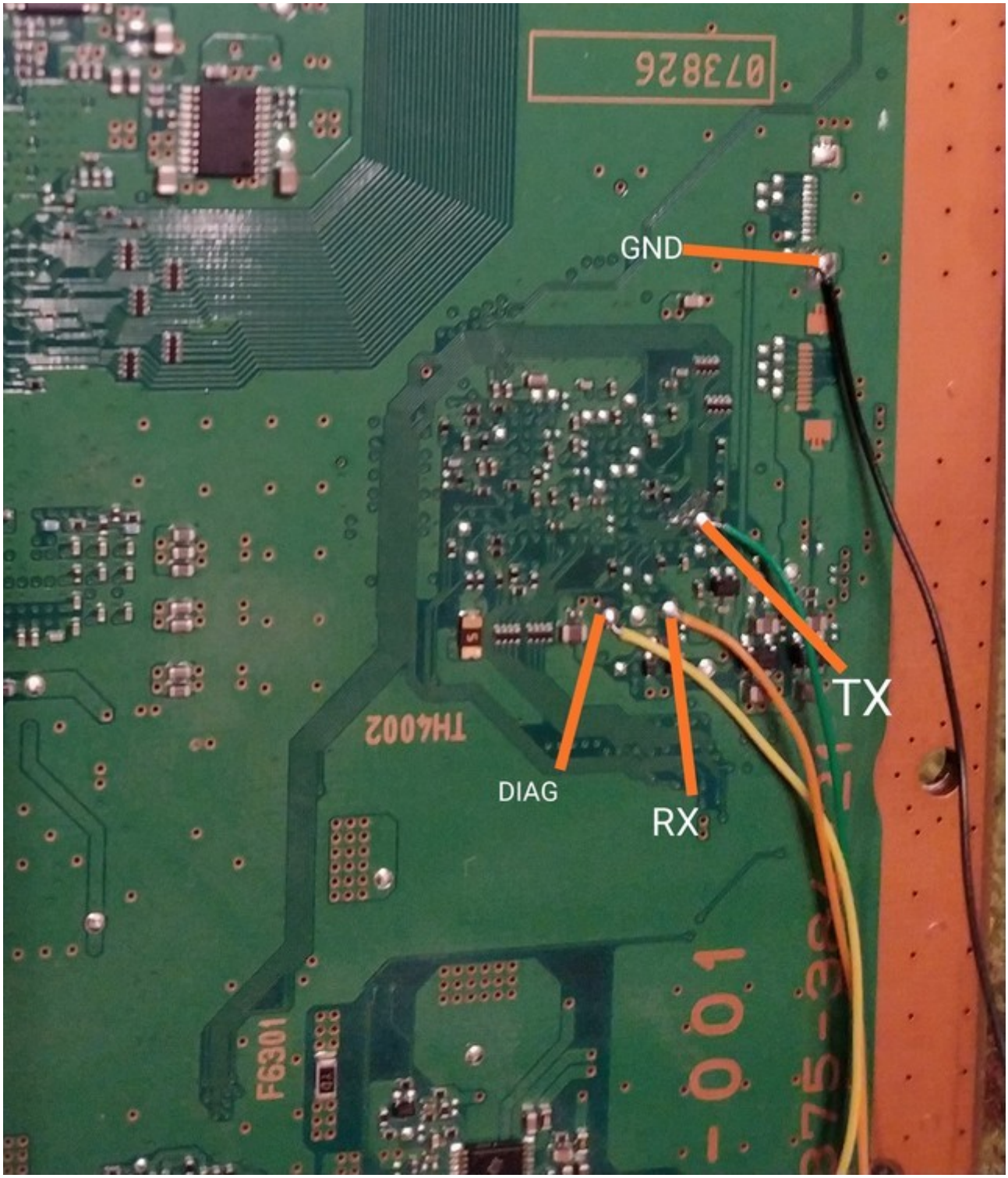
DIA-001 and DIA-002:



DYN-001:



SEM-001:



Connecting the serial connection

4x Jumper wires will be needed – 1x Rxd, 1x TxD, 1x Diag and 1x GND

These jumper leads will need to be cut and stripped on one end to solder onto the motherboards points.

Motherboard pin	USB TTL Cable pin	Pin type
RxD	RX	Receive transmission
TxD	TX	Transmit transmission
GND	Ground	Ground connection
Diag	Connect to GND to activate	Diagnose mode – connects to a Ground point to set low
	3.3v	3.3v – DO NOT CONNECT!

Setup software and usage

This guide will be using an Ubuntu OS to action the commands – Any OS can be used as it just requires Python 2 or 3 and the supplied ‘**ps3_syscon_uart_script.py’ and** serial terminal program to work.

Copy the supplied python script and open up a terminal:

(make sure your user has permissions to use *“/dev/ttyUSB0” - add user to the dialout group)*

Plug in your USB TTL cable and make sure its connected as described in the above table!

Do a dmesg command to verify what port its on

$# dmesg

Usually it will be the first ttyUSB0

$# python ps3_syscon_uart_script.py

ps3_syscon_uart_script.py <serial port> <sc type ["CXR", "CXRF"]>

This help will show you the options. So to explain each option:

<serial port> = “/dev/ttyUSB0” - serial device to use to connect to

<sc type> = The SYSCON mode to use:

CXR (57600 baud rate) will be External command mode

CXRF (15200 baud rate) will be Internal command mode – activated by shorting the DIAG jumper cable to the GND pin and clearing offset 0x3961 01 to 00 from FF

The following tables will show you what commands are available for each mode:

If the commands dont work they most likely need a patch to make them work!

External commands

Address	Command	Subcommand	Permission
0x32959	BOOT	MODE	0x000080D6
0x329D5	BOOT	CONT	0x000080D5
0x342D7	SHUTDOWN	-	0x0000C0D5
0x32A51	HALT	-	0x0000C0D5
0x32A85	BOOTENABLE	-	0x0000809A
0x33491	AUTH1	-	0x0000C0EF
0x33525	AUTH2	-	0x0000C0EF
0x33619	AUTHVER	SET	0x0000C0DF
0x335BF	AUTHVER	GET	0x0000C0FF
0x32AC3	EEP	INIT	0x000080DA
0x32C51	EEP	SET	0x0000C0DF
0x32D3D	EEP	GET	0x0000C0DF
0x32EA7	PDAREA	SET	0x0000C0DF
0x32E3B	PDAREA	GET	0x0000C0DF
0x330C5	CSAREA	SET	0x0000C0DF
0x33057	CSAREA	GET	0x0000C0DF
0x33169	VID	GET	0x0000C0D5
0x331D7	CID	GET	0x0000C0D5
0x3321D	ECID	GET	0x0000C0D5
0x3325D	REV	SB	0x0000C0D5
0x3328D	SPU	INFO	0x0000C0D5
0x332E1	KSV	-	0x0000C0D5

0x33685	FAN	SETPOLICY	0x0000C0D7
0x33717	FAN	GETPOLICY	0x0000C0D7
0x33781	FAN	START	0x0000C0D7
0x33781	FAN	STOP	0x0000C0D7
0x33951	FAN	SETDUTY	0x0000C0D7
0x339C3	FAN	GETDUTY	0x0000C0D7
0x33A27	R8	-	0x0000C0DF
0x33AD1	W8	-	0x0000C0DF
0x33B71	R16	-	0x0000C0DF
0x33C19	W16	-	0x0000C0DF
0x33CBB	R32	-	0x0000C0DF
0x33E49	W32	-	0x0000C0DF
0x33EE9	RBE	-	0x0000C0D5
0x33F91	WBE	-	0x0000C0D5
0x34049	PORTSTAT	-	0x0000C0DF
0x332BF	VER	-	0x0000C0FF
0x341C5	BUZ	-	0x00008096
0x342D7	SERVFAN	-	0x0000C0D7
0x341F9	ERRLOG	START	0x0000C0DF
0x34221	ERRLOG	STOP	0x0000C0DF
0x34249	ERRLOG	GET	0x0000C0FF
0x342B3	ERRLOG	CLEAR	0x0000C0DF

Internal commands

Command	Address	Perms	SubCommands	Description
becount	0xCA7D	0xDD0C0000	-	Display bringup/shutdown count + Power-on time
bepgoff	0xA4E7	0xD00C0000	-	BE power grid off
bepkt	0x2435D	0xDC0C0000	show/set/unset/mode/debug/	Packet permissions

Command	Address	Perms	SubCommands	Description
			help	
bestat	0xD413	0xFD0F0000	-	Get status of BE
boardconfig	0x99C7	0xDC0C0000	-	Displays board configuration
bootbeep	0x1EA67	0xF0000000	stat/on/off	Boot beep
bringup	0xD597	0xFD0F0000	-	Turn PS3 on
bsn	0xD805	0xF00F0000	-	Get board serial number
bstatus	0x24269	0xDD0C0000	-	HDMI related status
buzz	0xA4FF	0xDC0C0000	[freq]	Activate buzzer
buzzpattern	0xA8B7	0xDC0C0000	[freq] [pattern] [count]	Buzzer pattern
clear_err	0x2595B	0xDD0C0000	last/eeprom/all	Clear errors
clearerrlog	0xB8CB	0xDD0C0000	-	Clears error log
comm	0x9919	0xDC0C0000	-	Communication mode
commt	0x24907	0xDC0C0000	help/start/stop/send	Manual BE communication
cp	0x1E077	0xF0000000	ready/busy/reset/beepremote/ beep2kn1n3/beep2kn2n3	CP control commands
csum	0xD687	0xFF0F0000	-	Firmware checksum
devpm	0xD053	0xDD0C0000	ata/pci/pciex/rsx	Device power management
diag	0x9AAD	0xD00C0000	...	Diag (execute without param to show help)
disp_err	0x25911	0xDD0C0000	-	Displays errors
duty	0x9B23	0xDD0C0000	get/set/getmin/setmin/getmax/ setmax/getinmin/setinmin/ getinmax/setinmax	Fan policy
dve	0x2995D	0xDC0C0000	help/set/save/show	DVE chip parameters
eepcsum	0xAA65	0xDD0C0000	-	Shows eeprom checksum
eepromcheck	0x9A1D	0x000C0000	[id]	Check eeprom
eeprominit	0x9A65	0x000C0000	[id]	Init eeprom
ejectsw	0xD611	0xFD0F0000	-	Eject switch
errlog	0xB7ED	0xFF0C0000	-	Gets the error log
fancon	0xD26D	0x0D000000	-	Does nothing
fanconautotype	0xC075	0xDD0C0000	-	Does nothing
fanconmode	0xBF35	0xDD0C0000	get	Fan control mode
fanconpolicy	0xBBC9	0xDD0C0000	get/set/getini/setini	Fan control policy
fandiag	0x1E91B	0xF0000000	-	Fan test
faninictrl	0xD3D9	0x0D000000	-	Does nothing
fanpol	0xCA31	0xDD0C0000	-	Does nothing
fanservo	0xBF29	0xDD0C0000	-	Does nothing
fantbl	0xC087	0xDD0C0000	get/set/getini/setini/gettable/ settable	Fan table
firmud	0xD61D	0xFDFF0000	-	Firmware update
geterrlog	0xB84F	0xDD0C0000	[id]	Gets error log
getrtc	0xA6F3	0xDD0C0000	-	Gets rtc
halt	0x1E107	0xF0000000	-	Halts syscon

Command	Address	Perms	SubCommands	Description
hdmi	0x29F39	0xDD0C0000	...	HDMI (various commands, use help)
hdmiid	0x29D1D	0xDC0F0000	-	Get HDMI id's
hdmiid2	0x29D81	0xDC0F0000	-	Get HDMI id's
hversion	0x2422F	0xDD0C0000	-	Platform ID
hyst	0xAEF5	0xDD0C0000	get/set/getini/setini	Temperature zones
lasterrlog	0xB7FF	0xDD0C0000	-	Last error from log
ledmode	0xA80B	0xDC0C0000	[id] [id]	Get led mode
LS	0x2421B	0xDD0C0000	-	LabStation Mode
ltstest	0xCB97	0xDD0C0000	get/set be/rsx	?Temp related? values
osbo	0x1EA3F	0xF0000000	-	Sets 0x2000F60
patchcsum	0xD9F7	0xDD0C0000	-	Patch checksum
patchvereep	0xD9B1	0xDD0C0000	-	Patch version eeprom
patchverram	0xD965	0xDD0C0000	-	Patch version ram
poll	0x240E3	0xDD0C0000	-	Poll log
portscan	0xDA0D	0xDD0C0000	[port]	Scan port
powbtnmode	0xB911	0xDC0C0000	[mode (0/1)]	Power button mode
powerstate	0xCE6F	0xDD0C0000	-	Get power state
powersw	0xD5F9	0xFD0F0000	-	Power switch
powupcause	0xB621	0xDD0C0000	-	Power up cause
printmode	0x99D9	0xDC0C0000	[mode (0/1/2/3)]	Set printmode
printpatch	0xD94F	0xDD0C0000	-	Prints patch
r	0x8CA5	0xDD0C0000	[offset] [length]	Read byte from SC
r16	0x8ED5	0xDD0C0000	[offset] [length]	Read word from SC
r32	0x9191	0xDD0C0000	[offset] [length]	Read dword from SC
r64	0x935D	0xDD0C0000	[offset] [length]	Read qword from SC
r64d	0x948F	0xDD0C0000	[offset] [length]	Read ?qword data? from SC
rbe	0x96F9	0xDD0C0000	[offset]	Read from BE
recv	0x24135	0xDD0C0000	-	Receive something
resetsw	0xD605	0xFC0F0000	-	Reset switch
restartlogerrtoeep	0xB903	0xDD0C0000	-	Reenable error logging to eeprom
revision	0xD7E1	0xFFFF0000	-	Get softid
rrsxc	0xD313	0xDD0C0000	[offset] [length]	Read from RSX
rtcreset	0xA7BB	0x000C0000	-	Reset RTC
scagv2	0xE24F	0xFF000000	-	Auth related?
scasv2	0xE207	0xDD000000	-	Auth related?
scclose	0xE1EF	0xFF000000	-	Auth related?
scopen	0xE121	0xFF000000	-	Auth related?
send	0x2416F	0xDD0C0000	[variable]	Send something
shutdown	0xD5C5	0xFD0F0000	-	PS3 shutdown
startlogerrtsk	0xB8E7	0xDD0C0000	-	Start error log task
stoplogerrtoeep	0xB8F5	0xDD0C0000	-	Stop error logging to eeprom

Command	Address	Perms	SubCommands	Description
stoplogerrtsk	0xB8D9	0xDD0C0000	-	Stop error log task
syspowdown	0xB6E9	0xDD0C0000	3 params 0 0 0	System power down
task	0x15005	0xDD0C0000	-	Print tasks
thalttest	0xD813	0x000F0000	-	Does nothing
thermfatalmode	0xCA3B	0xDD0C0000	canboot/cannotboot	Set thermal boot mode
therrclr	0xD3E5	0xDD0C0000	-	Thermal register clear
thrm	0xBF1D	0xDD0C0000	-	Does nothing
tmp	0xAA69	0xDD0C0000	[zone]	Get temperature
trace	0xB951	0xDD0C0000	...	Trace tasks (use help)
trp	0xAB2F	0xDD0C0000	get/set/getini/setini	Temperature zones
tsensor	0xA279	0xDD0C0000	[sensor]	Get raw temperature
tshutdown	0xB2A1	0xDD0C0000	get/set/getini/setini	Thermal shutdown
tshutdowntime	0xC95D	0xDD0C0000	[time]	Thermal shutdown time
tzone	0xB5E1	0xDD0C0000	-	Show thermal zones
version	0xD65F	0xFFFF0000	-	SC firmware version
w	0x8BF9	0xDD0C0000	[offset] [value]	Write byte to SC
w16	0x8E2D	0xDD0C0000	[offset] [value]	Write word to SC
w32	0x8FED	0xDD0C0000	[offset] [value]	Write dword to SC
w64	0x92A9	0xDD0C0000	[offset] [value]	Write qword to SC
wbe	0x9665	0xDD0C0000	[offset] [value]	Write to BE
wmmto	0xCB3B	0xDC0C0000	get	Get watch dog timeout
wrsxc	0xD279	0xDD0C0000	[offset] [value]	Write to RSX
xdrdiag	0x1E711	0xF0000000	start/info/result	XDR diag
xiodiag	0x1E875	0xF0000000	-	XIO diag
xrcv	0x25313	0xDC0C0000	-	Xmodem receive

Now that the commands are established lets start getting the PS3 into the correct mode:

External Command mode usage:

Note: Not all boards have external mode, the default mode is internal mode but patched to prevent access from sony.

Without grounding the DIAG lead the default mode is ‘external mode’

1. Before switching on the PS3, make sure the USB TTL lead is connected – **Rxd, Txd and GND**
2. Turn on the PS3, and open up a terminal shell
3. Execute the python script - ‘**python ps3_syscon_uart_script.py /dev/ttyUSB0 CXR’**

4. Some commands can be used with requiring the higher privilage mode (auth) and a patched syscon based on your model of board!

   An error on the terminal ‘F000005’ will show saying that you have not authenticated (decrypted master key and signed in).

5. To sign in you need to ‘auth’, then run those higher privilege commands, for example:

   > AUTH

   > Auth successful

   If you get ‘Auth1 response invalid’, swap the RX and TX wires!, if same check wiring and connection.

   Make sure to exit script, switch off PS3 and back on again, then load the script again!

6. Now you can run high level commands – **EEP SET**

To gain access to the internal commands you need to set offset 0x3961 01 value to 00 (originally FF – not set)

External commands are limited in use and will be using a couple of limited commands to allow internal command mode to be activated.

Before attempting this please be aware that setting the offset will temporarily prevent the PS3 from booting when turned off then on again – as this invalidates the eeprom checksum for the syscon This will be fixed in the later steps!

So to allow internal command we will need to set the offset:

1. On the terminal already loaded the python script and run ‘**auth**’
2. Check current offset value for 0x3961 01 – this should be value ‘**FF**’

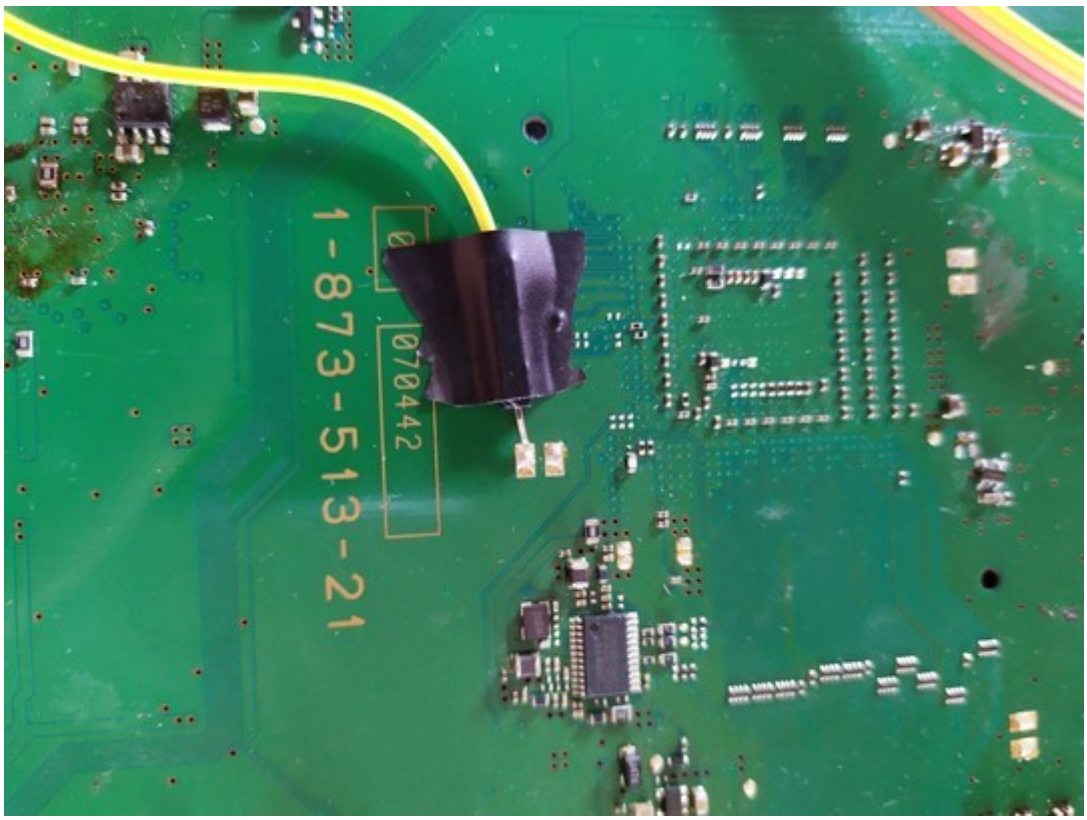
EEP GET 3961 01
00000000 FF

3. We need now change this value – **EEP SET 3961 01 00**

4. Verify that it is changed before switching to internal mode –

EEP GET 3961 01
00000000 00

Now you can switch off the PS3.
Now we ground the DIAG pin cable to a GND or the GND pin on the usb cable



Internal Command mode usage:

(Not all revisions of boards have all of the commands)

Now that the diag pin is grounded we can turn the PS3 on.

PLEASE NOTE: The standby led will flash red repeatly and will not turn on – This is normal as now we need to check the eeprom checksum and fix it

1. Run the python command script -
   'python ps3_syscon_uart_script.py /dev/ttyUSB0 CXRF'
2. Authenticate to syscon (decrypt and gain high privilege)

> auth
Auth successful

Now check the eeprom checksum and what needs correction

> eepcsum
Addr:0x000032fe should be 0x528c
Addr:0x000034fe should be 0x7115
sum:0x0100
Addr:0x000039fe should be 0x0038
Addr:0x00003dfe should be 0x00ff
Addr:0x00003ffe should be 0x00ff

Highlighted in yellow is what needs to be fixed as its the correct value that needs to be set

PLEASE NOTE: This is an example, you need to use the value specified for your board that shows on the eepcsum result!

Another way to see the whole table is run:

> **r 3900 100**
r 3900 100
+0 +1 +2 +3 +4 +5 +6 +7 +8 +9 +A +B +C +D +E +F

FF BF FF FF FF FF FF FF FF FF FF FF FF FF FF FF
31 40 11 FF FF FF FF FF FF FF FF FF FF FF FF FF
FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF
FF FF FF 00 FF FF FF FF FF FF FF FF FF FF FF FF
FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF
FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF
02 00 FF FF FF FF FF FF FF FF FF FF FF FF FF FF
FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF
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FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF **02**

As you can see from this table F and E is misaligned (02) and needs to be corrected to fix the checksum.

So as it is an endian byte we need to swap them around when fixing this table.

Now we set the correct checksum using the write command (w) (byte):

> w 39FE 38 00
Remember we are doing the swap as its an endian byte swap.

To validate the change:

> r 39fe 02
+0 +1 +2 +3 +4 +5 +6 +7 +8 +9 +A +B +C +D +E +F
--
38 00

Run eepcsum and '**r**' command to validate correct checksum:

```
> eepcsum
eepcsum
Addr:0x000032fe should be 0x528c
Addr:0x000034fe should be 0x7115
Addr:0x000039fe should be 0x0038
Addr:0x00003dfe should be 0x00ff
Addr:0x00003ffe should be 0x00ff
```

As you can see the sum value is missing meaning that the table is correct
sum:0x0100

r 3900 100

```
+0 +1 +2 +3 +4 +5 +6 +7 +8 +9 +A +B +C +D +E +F
-----------------------------------------------
FF BF FF FF FF FF FF FF FF FF FF FF FF FF FF FF
31 40 11 FF FF FF FF FF FF FF FF FF FF FF FF FF
FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF
FF FF FF 00 FF FF FF FF FF FF FF FF FF FF FF FF
FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF
FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF
02 00 FF FF FF FF FF FF FF FF FF FF FF FF FF FF
FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF
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FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF
FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF
FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF 38
```

The PS3 will now be able to boot normally.

Note: if the value has an extended ffff, then just ignore that and use the last 4 digit values – remember to swap them as endian.

Example below of a fantbl change ignoring the extra ffff

eepcsum
Addr:0x000032fe should be 0x1596

sum:0xf812
Addr:0x000034fe should be 0xffff3aee
Addr:0x000039fe should be 0x7360
Addr:0x00003dfe should be 0x00ff
Addr:0x00003ffe should be 0x00ff

w 34FE ee 3a – to fix the checksum in internal mode

Examples of the **internal commands** as follows:

lasterrlog – Show last known errors since boot
Last Error Code:0xa0801001, Time:0x0bacd69b 2006/03/17 02:08:27

errlog – Show full error log (this example shows issues with the RSX chip)
ofst[48]:err_code:0xffffffff, clock:0x211a31c0 2017/08/06 20:00:00
ofst[52]:err_code:0xa0404412, clock:0x211ba360 2017/08/07 22:17:04
ofst[56]:err_code:0xa0403034, clock:0x211ba361 2017/08/07 22:17:05
ofst[60]:err_code:0xa0404412, clock:0x211f92e6 2017/08/10 21:55:50
ofst[64]:err_code:0xa0403034, clock:0x211f92e6 2017/08/10 21:55:50
ofst[68]:err_code:0xa0404412, clock:0x24da1cd0 2019/08/04 22:46:40
ofst[72]:err_code:0xa0403034, clock:0x24da1cd0 2019/08/04 22:46:40
ofst[76]:err_code:0xa0404412, clock:0x24da1cda 2019/08/04 22:46:50
ofst[80]:err_code:0xa0403034, clock:0x24da1cda 2019/08/04 22:46:50
ofst[84]:err_code:0xa0404412, clock:0x24f32fd9 2019/08/23 23:14:33
ofst[88]:err_code:0xa0403034, clock:0x24f32fd9 2019/08/23 23:14:33
ofst[92]:err_code:0xa0404412, clock:0x24f33013 2019/08/23 23:15:31
ofst[96]:err_code:0xa0403034, clock:0x24f33013 2019/08/23

eepcsum – Show current eeprom checksum state
Addr:0x000032fe should be 0x1596
Addr:0x000034fe should be 0x3aee
Addr:0x000039fe should be 0x7360

```
Addr:0x00003dfe should be 0x00ff
Addr:0x00003ffe should be 0x00ff
```

r 3900 ff – Read areas of the eeprom (390 hex area to end)

```
+0 +1 +2 +3 +4 +5 +6 +7 +8 +9 +A +B +C +D +E +F
-----------------------------------------------
FF BF FF FF FF FF FF FF FF FF FF FF FF FF FF FF
40 50 11 FF FF FF FF FF FF FF FF FF FF FF FF FF
FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF
FF FF FF 00 FF FF FF FF FF FF FF FF FF FF FF FF
FF 03 C8 78 FF FF FF FF FF FF FF FF FF FF FF FF
FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF
02 00 FF FF FF FF FF FF FF FF FF FF FF FF FF FF
FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF
FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF
FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF
FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF
FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF
FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF
FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF
FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF
FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF 60
```

w – Write to eeprom

```
w 34fe d5 e5
w complete!
```

fanconpolicy get 0 – Show or set fan policy for CELL

```
fancon No:00
policy01: Auto
```

fanconpolicy get 1 – Show or set fan policy for RSX

```
fancon No:01
policy01: Auto
```

tmp 0 – Show current temp for the CELL chip

```
TZone No:00
1st BE Primary  Temperature:43.70(0x2bb5)
```

tmp 1 – Show current temp for the RSX chip

```
TZone No:01
RSX Primary  Temperature:36.75(0x24c0)
```

duty get 0 – Show current running fan mode for CELL

```
CrntDuty(0x0):27%(0x47)
```

duty get 1 – Show current running fan mode for RSX

```
CrntDuty(0x1):27%(0x47)
```

tsensor 0 – Show thermal monitor sensor temp for CELL
Raw:60.00(0x3c00), Offset:0.00(0x0000)
Temperature:60.70(0x3cb5)

tsensor 1 – Show thermal monitor sensor temp for RSX
Raw:56.25(0x3840), Offset:2.00(0x0200)
Temperature:56.25(0x3840)

tsensor 3 – Show thermal monitor sensor temp for Southbridge
Temperature:49.25(0x3140)

tzone – Show thermal zones available
00: 1st BE Primary
01: RSX Primary
14: SB

tshutdown get 0 – View or Set (set) Thermal shutdown mode CELL in hex or percentage value
TZone No:00
1st BE Primary Temperature:91.0(0x5b00)

tshutdown get 1 - View or Set (set) Thermal shutdown mode RSX in hex or percentage value
TZone No:01
RSX Primary Temperature:95.0(0x5f00)

trp get 0 – View or Set (set) Temperature zones CELL in hex or percentage value
TZone No:00
1st BE Primary Temperature:90.0(0x5a00)

trp get 1 - View or Set (set) Temperature zones RSX in hex or percentage value
TZone No:01
RSX Primary Temperature:94.0(0x5e00)

version – Show syscon firmware version
v1.2.3_k1

powerstate – Show current running power states (good for diagnose)
ATA Power   : ON
PCI Power   : OFF
RSX Power   : ON
XDR Power   : ON
Eurus Power   : ON
SB Power   : ON
RSX Thermal Sensor : AVAILABLE

BE Thermal Sensor : AVAILABLE

bringup – Power cycle the board to come on

syspowdown – System power down if running
> syspowdown 0 0 0

shutdown – Power off immediately

There are many more commands, but the examples are the most useful

Offset	Cytology	Cookie (old)	Cookie (new)	Note
0x2600 - 0x27FF	System Info	System Info	System Info	*Encrypted*
0x2800 - 0x28FF	Patch Part 1	Patch Part 1	Patch Part 1	*Encrypted*
0x2C00 - 0x2EFF	*not used*	*not used*	*not used*	
0x2F00 - 0x2FFF	Industry Area	Industry Area	Industry Area	
0x3000 - 0x30FF	Board/Hardware/Platform Config	Customer Service Area	Customer Service Area	
0x3100 - 0x31FF	XDR Config	Platform Config	Platform Config	
0x3200 - 0x32FF	*not used*	Hardware/XDR Config	Hardware/XDR Config	
0x3300 - 0x33FF	Board Config	Fan/Thermal Config	Fan/Thermal Config	
0x3400 - 0x34FF	BE/SB (FlexIO) Config	Fan/Thermal Config	Fan/Thermal Config	
0x3500 - 0x35FF	*not used*	On/Off Count, On-Time	On/Off Count, On-Time	
0x3600 - 0x36FF	On/Off Count, On-Time	On/Off Count, On-Time	On/Off Count, On-Time	
0x3700 - 0x37FF	CP Config/Serial	Errorlog	Errorlog	
0x3800 - 0x38FF	Errorlog	*not used*	*not used*	
0x3900 - 0x39FF	*not used*	Board Config	Board Config	
0x3A00 - 0x3AFF	HDMI/DVE Config	HDMI/DVE Config	HDMI/DVE Config	
0x3B00 - 0x3DFF	Fan/Thermal Config	*not used*	*not used*	
0x3E00 - 0x3FFF	*not used*	*not used*	*not used*	
0x4000 - 0x43FF	*not used*	*not used*	System Software Config	
0x4400 - 0x4FFF	*not used*	*not used*	Patch Part 2	*Encrypted*
0x5000 - 0x6FFF	*not used*	*not used*	*not used*	
0x7000 - 0x73FF	System Software Config	System Software Config	*not used*	
0x7400 - 0x7FFF	Patch Part 2	Patch Part 2	*not used*	*Encrypted*