

! **Now we go to modification.** NSP_system_info.xml **need small editing.**
! we need do it using vi editor. After command it open vi editor like here
! and cursor is blinking beginning of file.

! **A1**

/usr/bin/siglent/firmda0 # **vi NSP_system_info.xml**

```
<?xml version="1.0" encoding="UTF-8"?>
```

```
<nsp_system_info_root>
```

```
<device>
```

```
<system_information>
```

```
<serial_number>
```

```
<chip>SDG1YOURSERIAL</chip>
```

```
</serial_number>
```

```
<license><bandwidth_update_license>YOURXXLICENSEKEY</bandwidth_update_license></license></system_information>
```

```
</device>
```

```
</nsp_system_info_root>
```

! -----
! At this time use vi editor:

! you can move cursor using arrow keys. **You need exactly delete there in file text what is highlighted.**

! This is so simple edit that you can do it with these commands

! **r** replace single character under cursor (example if there read abcdef and cursor is blinking position c.

! Now type **r** and then **8**. After then there read ab8def)

! **x** delete single character under cursor

! **Nx** delete **N (numeric value)** characters, starting with character under cursor

! (use arrow keys to position cursor to first character (<) of <licens... row and

! then type 85 (you do not see it) and then press x so text is deleted nearly enough (I do not know if key length is constant)

! and then press x so many times rest is deleted exactly but not </system_information>

! Remember if something goes wrong you can always go out from vi without modifications using vi command **:q!**

! Of course there is many advanced vi editor commands what can use. This is simple bullet proof method for
! peoples who are not at all familiar with linux and vi)

! Final result need look like this:

```
<?xml version="1.0" encoding="UTF-8"?>
```

```
<nsp_system_info_root>
```

```
<device>
```

```
<system_information>
```

```
<serial_number>
```

```
<chip>SDG1YOURSERIAL </chip>
```

```
</serial_number>
```

```
</system_information>
```

```
</device>
```

```
</nsp_system_info_root>
```

! -----
! If all is exactly ok then command inside vi:

! **:wq** <Return> quit vi, writing out modified file to file named in original invocation

! If something is wrong and you want begin again with unmodified

! **:q!** <Return> quit vi even though latest changes have not been saved for this vi call

! After this go back and start vi again as told previously (position after A1).

! After both cases you quit vi and you see this:

/usr/bin/siglent/firmda0 #

! if you are here for repeat editing again then go back to position **A1**

! if you have edited it ok and then you want just check it without vi editor

! (of course vi can also use for only check. Just after reading terminate vi without any changes using :q!)

! This part is not mandatory, it is only example how to check/read file

! For just check it without vi editor then you can use also **cat** like this:

! -----
! /usr/bin/siglent/firmda0 # **cat NSP_system_info.xml**

```
<?xml version="1.0" encoding="UTF-8"?>
```

```
<nsp_system_info_root>
```

```
<device>
```

```
<system_information>
```

```
<serial_number>
```

```
<chip>SDG1YOURSERIAL</chip>
```

```
</serial_number>
```

```
</system_information>
```

```
</device>
```

```
</nsp_system_info_root>
```

```
/usr/bin/siglent/firmda0 #
```

! This next is not mandatory but this I do. If want, just jump over and finish this modification, jump over to **A2** (next page)

! If all is now ok then we can also make some copy files for possible future needs

! for avoid accidental edit or rename if some days need swap between FW versions

! and/or perhaps do some other modifications in system.

```
/usr/bin/siglent/firmda0 # cp NSP_system_info.xml NSP_system_info.xml.mod
```

```
/usr/bin/siglent/firmda0 # cp NSP_system_info.xml NSP_system_info.xml.mod.backup
```

! Next page

! A2

! After then we can go back to / directory

```
/usr/bin/siglent/firmda0 # cd /
```

! Mandatory in some cases and if not still good practice always:
! in most embedded systems, your OS will be running from something like an SD card or flash
! and you may be subject to unexpected power loss. When you're editing files or making changes
! in the filesystem, some of these edits and/or changes are only written to buffer cache,
! not the flash disk (not yet anyways). sync will force the system to commit the buffer cache to the disk.

```
/ # sync
```

! after then exit PuTTY (also can just shut off PuTTY)

```
/ # exit
```

! Now you can power off your SDG1032X, wait 10 secons and then power on.
! Note: tv84 .ADS need install again always after restart if need this telnet connection
! When all is ok you can look
! Utility:System:Page 2:SystemInfo and there you see it is SDG1062X
!
! Happy now?
! Ok -- it works now as SDG1062X, is it possible to do some more?
! Yes, it is. Read **Part II** modifications for limits ;)

!=====

As you see there is not so much.....

! Part I SDG1032X to SDG106X modification for experienced users

! = comment

! Using EEVblog member "tv84" published .ADS what opens

! connection (telnet port number 10101) and this do not need login user and password at all. Using LAN PC<==>SDG1032X

```
/ # mount -o remount,rw ubi2_0 /usr/bin/siglent/firmda0  
/ # cd /usr/bin/siglent/firmda0  
/usr/bin/siglent/firmda0 # cp NSP_system_info.xml NSP_system_info.xml.orig  
/usr/bin/siglent/firmda0 # vi NSP_system_info.xml
```

!
! Using vi, delete just exactly all between " " but nothing else
! "<license><bandwidth_update_license>YOURLICENSEKEY11</bandwidth_update_license></license>"

```
/usr/bin/siglent/firmda0 # cd /  
/ # sync  
/ # exit
```

! after then power off, 10 seconds and then on.

! tv84 .ADS need install again always after restart if need this telnet connection

! 2019 @ Li XiuYing

SDG1000Y Modification instructions V33B1 by 2019 @LiYuuYing

```
=====
|SIGLENT SDG project
=====
/ # █
```

! Let's start (use plain txt instruction file and copypaste to cursor.

! note: next mount command is different as used in Part I
! So, please be very careful and do not accidentally make unwanted changes in system, there is no recovery.

```

/ # mount -o remount,rw /
/ # cd /usr/bin/siglent/config

```

! this next cp (copy) is important for keep your original for return back to factory state

```
/usr/bin/siglent/config # cp NSP_limit_data.xml NSP_limit_data.xml.orig
```

! this next cp (copy) is not mandatory, but for safe and for possible future use this is how I do

```
/usr/bin/siglent/config # cp NSP_limit_data.xml NSP_limit_data.xml.orig.backup
/usr/bin/siglent/config # vi NSP_limit_data.xml
```

```
! after this command you see this file for edit.
! Edit it. (if you need insert use command i it add character(s) before cursor position. Command i is terminated pushing <Esc> )
! You can easy find Vi editor commands. Just google "vi editor commands"
! Below is listed original factory made NSP_limit_data.xml
! For some limits there is example !!>values<!! what you can try.
! After all edited ok then inside vi editor command
! :wq<enter>
```

```

/ # sync
/ # exit

```

! Now you can power off and on SDG1000X and after then new limits are in use. Note: FW update overwrite these
! Next page part of original NSP_limit_data.xml and tested example values what can use are between !!>**new value**<!!
! You change **these original** values.

! If you want only look it, just use command cat

```
/usr/bin/siglent/config/ # cat NSP_limit_data.xml
```

Next page original and example values

! About [NSP_limit_data.xml] **FW 33R1** file in directory: /usr/bin/siglent/config/

! When you open it for editing using vi, you can see here is first some text. DO NOT TOUCH! If you cat this file, just do not care

```
<limit_data_root>
  <ch_0>
    <bswv>
      <public>
        <min_frq>0</min_frq>
        <min_amp>2e-3</min_amp>
        <!-- amp -->
        <match_amp_1>20</match_amp_1>
        <match_frq_1>10e6</match_frq_1>
        <match_amp_2>10</match_amp_2>
        <match_frq_2>60e6</match_frq_2>
      </public>
      <sine>
      </sine>
      <square>
        <max_frq>60e6</max_frq>
      </square>
      <ramp>
        <max_frq>500e3</max_frq>
      </ramp>
      <pulse>
        <max_frq>12.5e6</max_frq>
        <min_width>32.6e-9</min_width>
        <min_edge>16.8e-9</min_edge>
        <edge_coef>0.625</edge_coef>
        <width_dev>11.6e-9</width_dev>
      </pulse>
      <noise>
      </noise>
      <dc>
        <max_offset>10</max_offset>
        <min_offset>-10</min_offset>
      </dc>
      <arb>
        <max_frq>6e6</max_frq>
        <max_sample_rate>30e6</max_sample_rate>
      </arb>
    </bswv>
    <burst>
      <min_frq>2e-3</min_frq>
    </burst>
    <sweep>
      <min_frq>1e-6</min_frq>
      <min_sweep_time>1e-3</min_sweep_time>
      <max_sweep_time>500</max_sweep_time>
    </sweep>
    <mod>
      <public>
        <min_frq>1e-3</min_frq>
        <min_mod_frq>1e-3</min_mod_frq>
        <max_mod_frq>20e3</max_mod_frq>
      </public>
      <am>
        <min_am_depth>0</min_am_depth>
        <max_am_depth>120</max_am_depth>
      </am>
      <fm>
      </fm>
      <pm>
      </pm>
      <ask>
        <max_mod_frq>50e3</max_mod_frq>
      </ask>
      <fsk>
        <max_mod_frq>50e3</max_mod_frq>
      </fsk>
      <dsb-am>
      </dsb-am>
      <psk>
      </psk>
      <pwm>
      </pwm>
    </mod>
  </ch_0>
  <frq_counter>
    <min_dc_frq>0.1</min_dc_frq>
    <max_dc_frq>200e6</max_dc_frq>
    <min_ac_frq>10</min_ac_frq>
    <max_ac_frq>200e6</max_ac_frq>
  </frq_counter>
</iq><max_amp></max_amp><min_amp></min_amp><max_sample_rate></max_sample_rate><min_symbol_rate></min_symbol_rate><max_center_frq></max_center_frq><min_center_frq></min_center_frq><max_gain_balance></max_gain_balance><min_gain_balance></min_gain_balance><max_Q_Angle></max_Q_Angle><min_Q_Angle></min_Q_Angle><max_offset></max_offset><min_offset></min_offset></iq></limit_data_root>
```

! Warning: DO NOT change these freq related amplitude level limits
! Higher values may lead permanent internal thermal over stress damage

!!>5e6<!! Triangle/Ramp max 5MHz

!!>11.8e-9<!! Pulse rise/fall minimum limit 11.8ns (note 1)

!!>10e6<!! Arbitrary repeating freq max 10MHz

!!>100000<!! Max sweep time 100ks (over 27 hour)

!!>50e3<!! Max AM, FM, PM internal modulation frequency 50kHz

!!>250e6<!! Max counter frequency 250MHz (small drop in....

!!>250e6<!!sensitivity over 200MHz frequencies)

! IMPORTANT: remember sync before exit PuTTY and boot SDG
! by 2019 @Li XiuYing

note 1: 16.8n is factory optimal limit. More fast may add more rise/fall time jitter (pulse edges angle jitter (ADC clock is only 150MHz))