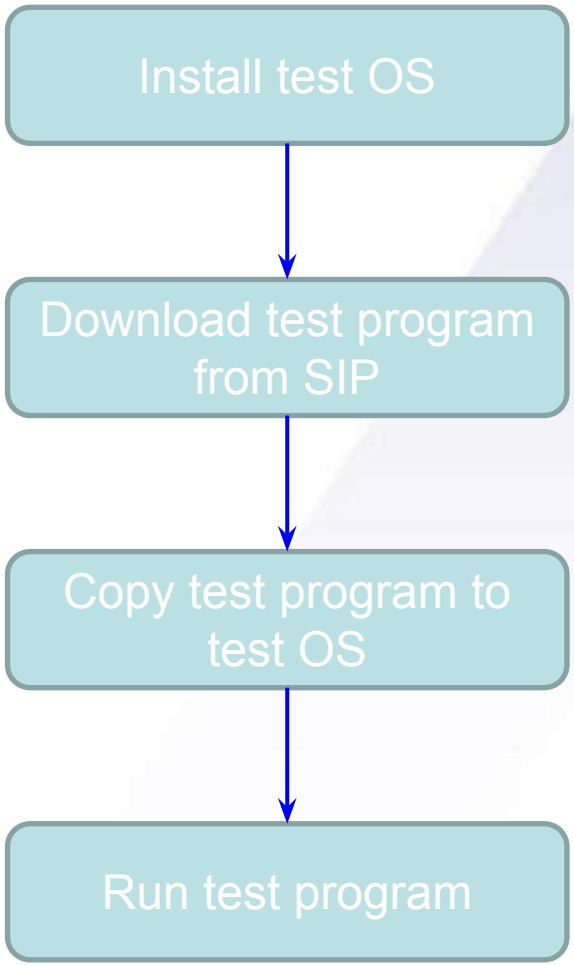
VGA Test 2019

By Maico
2019.07

Agenda

1. *Install OS*
2. *SIP Download*
3. *Test Process*
4. *Flash VBIOS& Memory Test*
5. *Test Result Upload*
6. *Notice& Common Problem*

Process Flow



Install OS

a. For Nvidia VGA card need install Tiny_linux 18.07 OS.
b. For AMD VGA card need install Ubuntu 64bit_linux 14.04 OS.

***Please refer to SOP for how to install OS.**

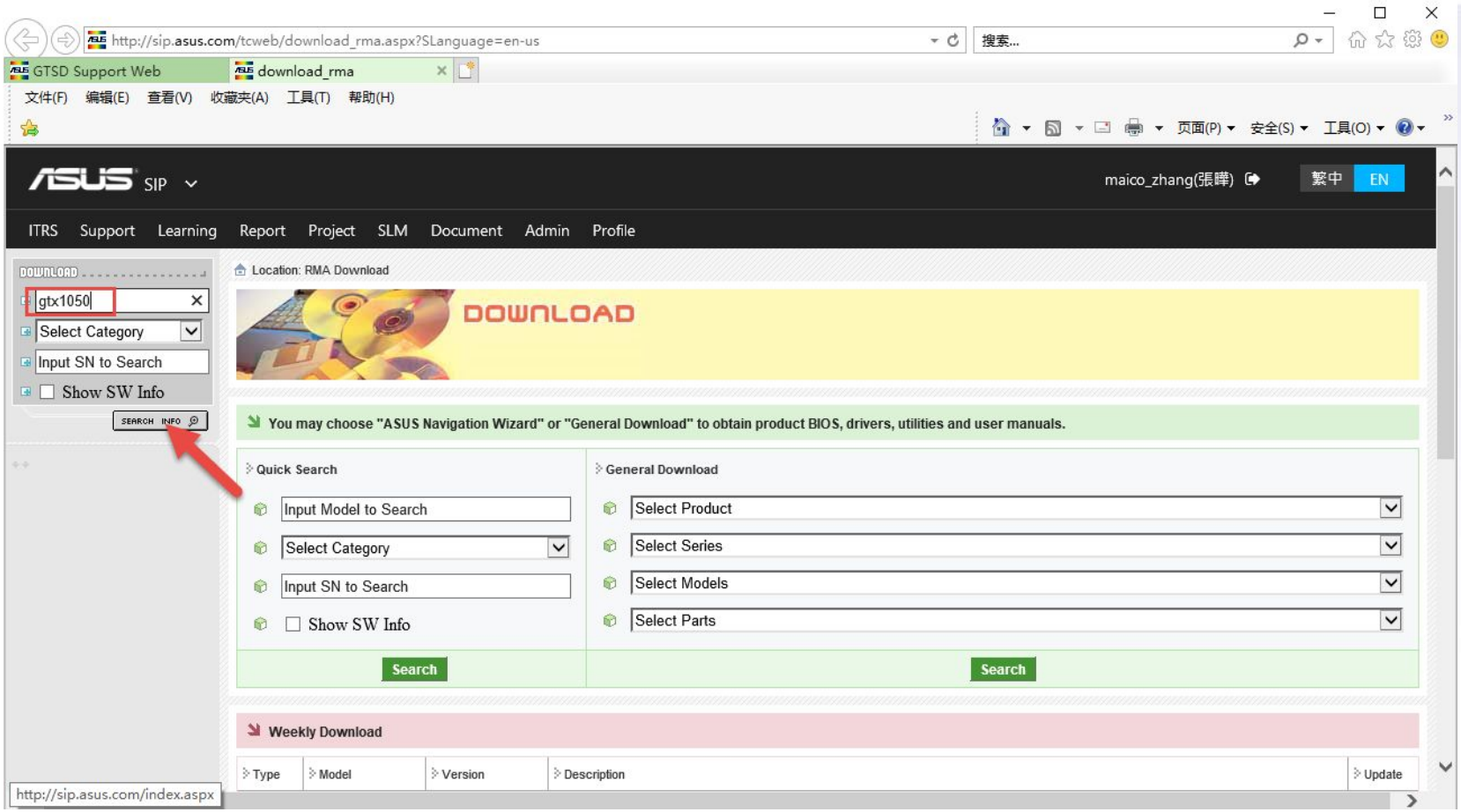
OS&SOP Download Path:

***AMD**
http://sip.asus.com/document/DisplayDocument.aspx?folder_type=PUB&doc_id=87276#

***Nvidia**
http://sip.asus.com/document/DisplayDocument.aspx?folder_type=PUB&doc_id=95893#

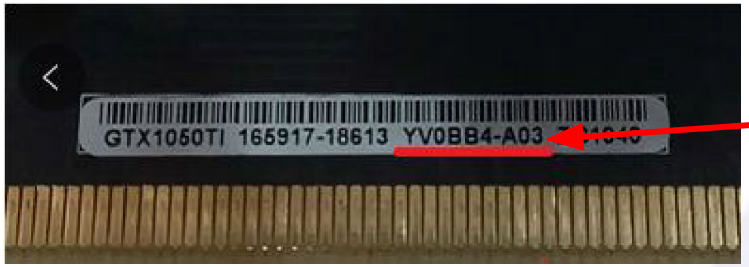
SIP download

Input Model as GTX1050,GTX1060…, Click SEARCH INFO from SIP->GTSD Support Web->Support Download.

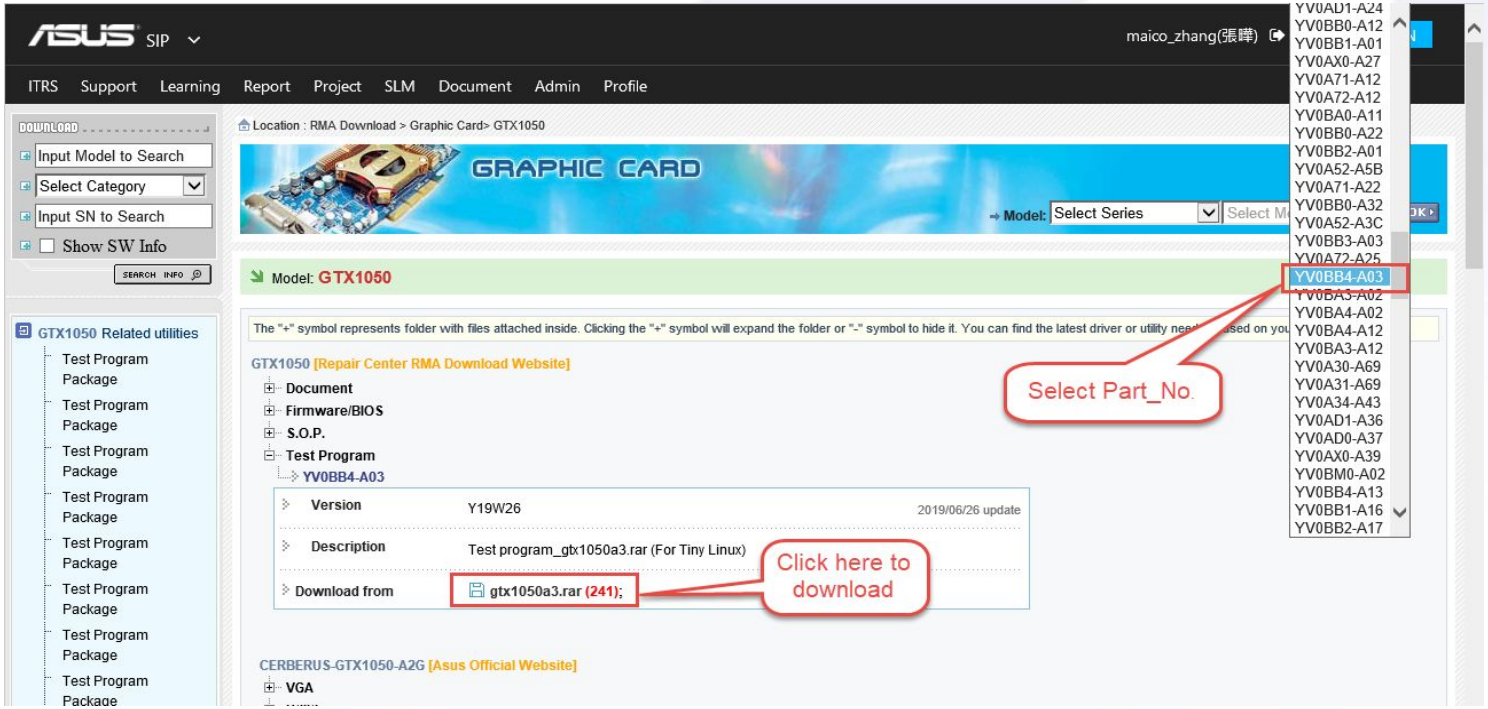


SIP download

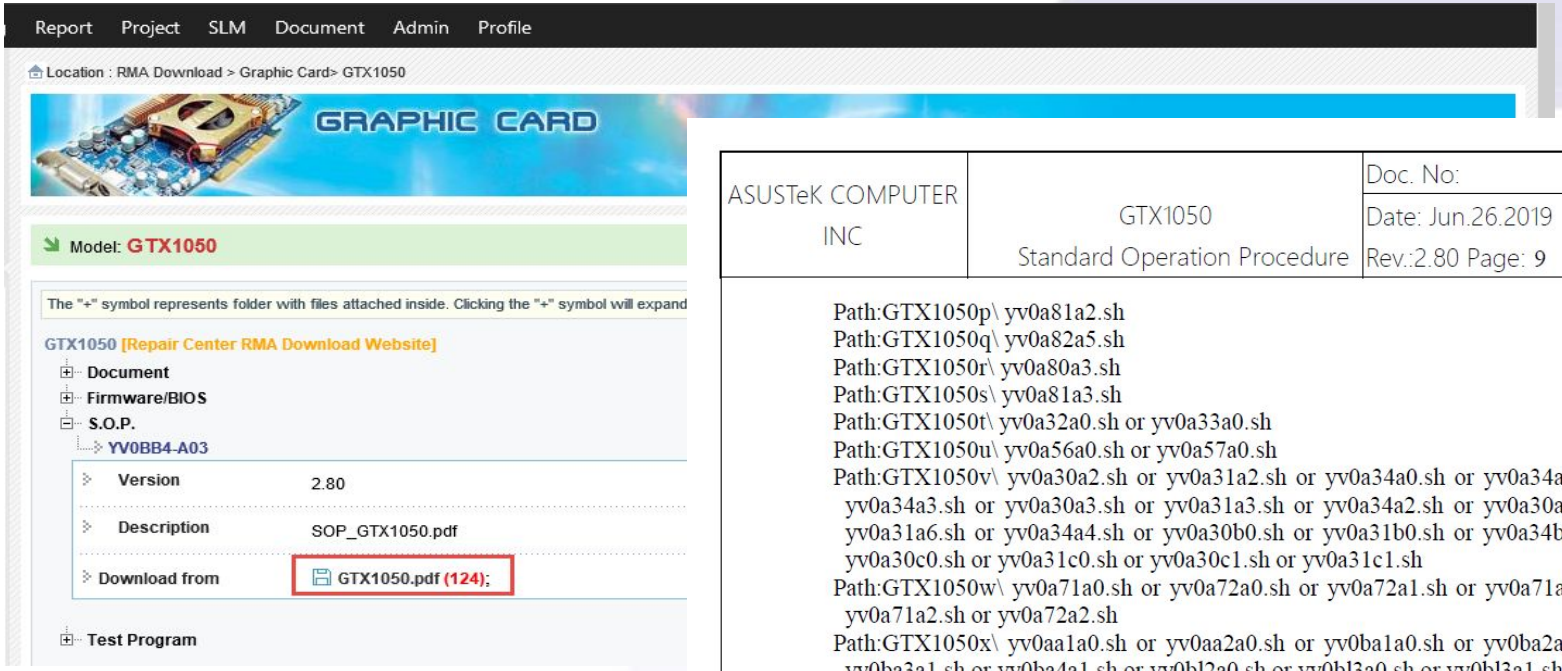
Down load test program in SIP by Part_No.



Check Part_No. with VGA card



SIP download



You can also download by model SOP and check which test program for usage. For example, the file named *yv0bb4a0.sh* could be used for VGA with PN from 60YV0BB4-A01 to 60YV0BB4-A0Z.

ASUSTeK COMPUTER INC	GTX1050 Standard Operation Procedure	Doc. No: Date: Jun.26.2019 Rev.:2.80 Page: 9

Path:GTX1050p\ yv0a81a2.sh
Path:GTX1050q\ yv0a82a5.sh
Path:GTX1050r\ yv0a80a3.sh
Path:GTX1050s\ yv0a81a3.sh
Path:GTX1050t\ yv0a32a0.sh or yv0a33a0.sh
Path:GTX1050u\ yv0a56a0.sh or yv0a57a0.sh
Path:GTX1050v\ yv0a30a2.sh or yv0a31a2.sh or yv0a34a0.sh or yv0a34a1.sh or yv0a34a3.sh or yv0a30a3.sh or yv0a31a3.sh or yv0a34a2.sh or yv0a30a6.sh or yv0a31a6.sh or yv0a34a4.sh or yv0a30b0.sh or yv0a31b0.sh or yv0a34b0.sh or yv0a30c0.sh or yv0a31c0.sh or yv0a30c1.sh or yv0a31c1.sh
Path:GTX1050w\ yv0a71a0.sh or yv0a72a0.sh or yv0a72a1.sh or yv0a71a1.sh or yv0a71a2.sh or yv0a72a2.sh
Path:GTX1050x\ yv0aa1a0.sh or yv0aa2a0.sh or yv0ba1a0.sh or yv0ba2a0.sh or yv0ba3a1.sh or yv0ba4a1.sh or yv0bl2a0.sh or yv0bl3a0.sh or yv0bl3a1.sh
Path:GTX1050y\ yv0a70b2.sh
Path:GTX1050z\ yv0bb0a0.sh or yv0bb0a1.sh or yv0bb0a2.sh or yv0bb0a3.sh or yv0bm0a0.sh or yv0bb0a4.sh or yv0bm0a1.sh or yv0bb0a5.sh or yv0bb0a6.sh or yv0bb0a7.sh or yv0bm0a2.sh or yv0bm0a3.sh or yv0bm0a4.sh or yv0bm0a6.sh or yv0bm0a7.sh or yv0bm0a8.sh
Path:GTX1050a1\ yv0ax1a1.sh or yv0ax2a1.sh
Path:GTX1050a2\ yv0ad0a2.sh or yv0ad1a2.sh
Path:GTX1050a3\ yv0bb1a0.sh or yv0bb2a0.sh or yv0bb3a0.sh or yv0bb4a0.sh or yv0bb1a1.sh or yv0bb2a1.sh or yv0bb3a1.sh or yv0bb5a0.sh or yv0bb5a1.sh or yv0bb4a2.sh or yv0bb3a2.sh or yv0bb3a3.sh or yv0bb4a3.sh or yv0bb4a4.sh or yv0bb5a3.sh or yv0bb5a4.sh or yv0bb3a5.sh or yv0bb4a8.sh or yv0bm1a0.sh or yv0bm2a0.sh or yv0bm3a0.sh or yv0bb5a5.sh or yv0bb4a7.sh or yv0bb5a8.sh or yv0bm1a1.sh or yv0bm2a1.sh or yv0bm3a1.sh or yv0bm1a2.sh or yv0bm2a2.sh or yv0bm3a2.sh or yv0bm1a3.sh or yv0bm2a3.sh or yv0bm3a3.sh or

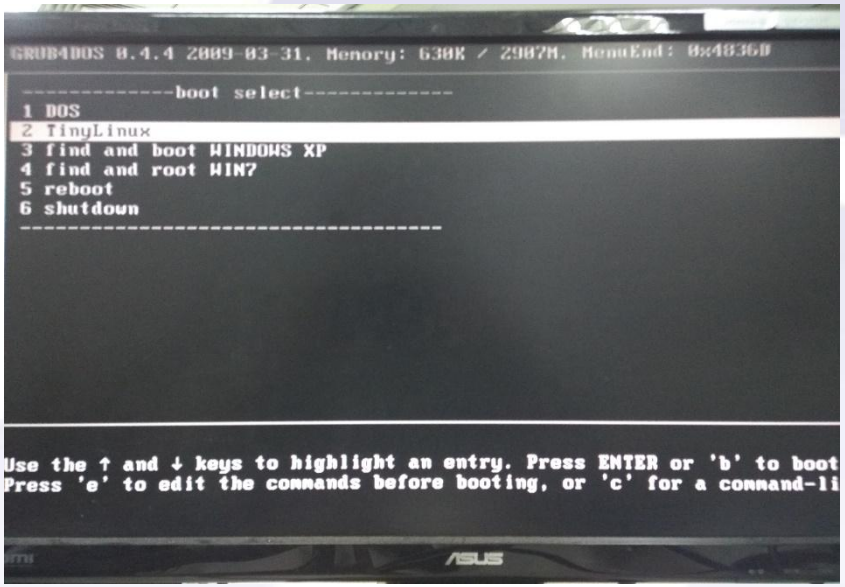
Test Process

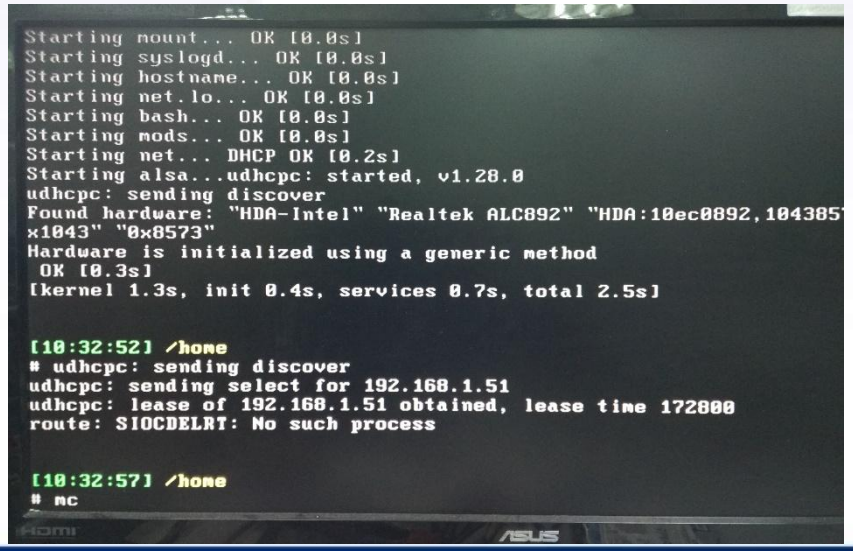
Nvidia VGA card test process

a. Download test program from SIP and unpack, copy test program to flash disk.

b. Power on the test platform, Select “TinyLinux” go into Tinylinux.

c. Type “mc” for go to MC interface.



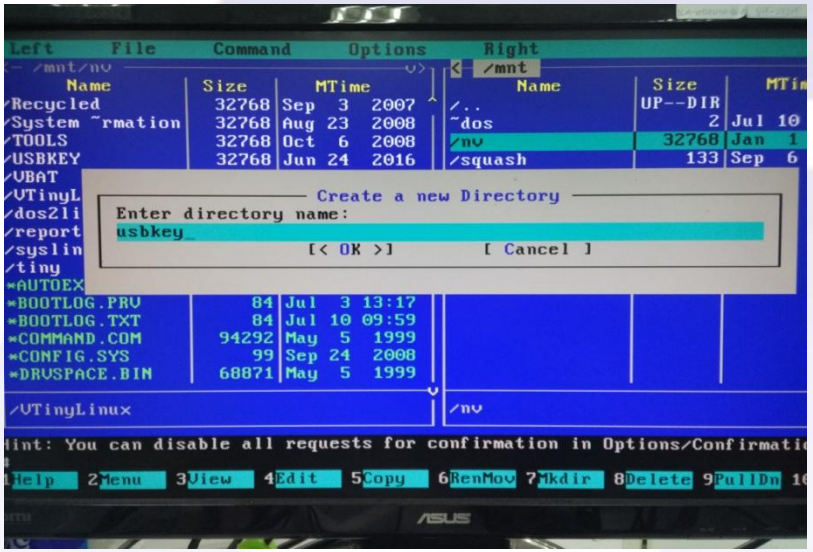


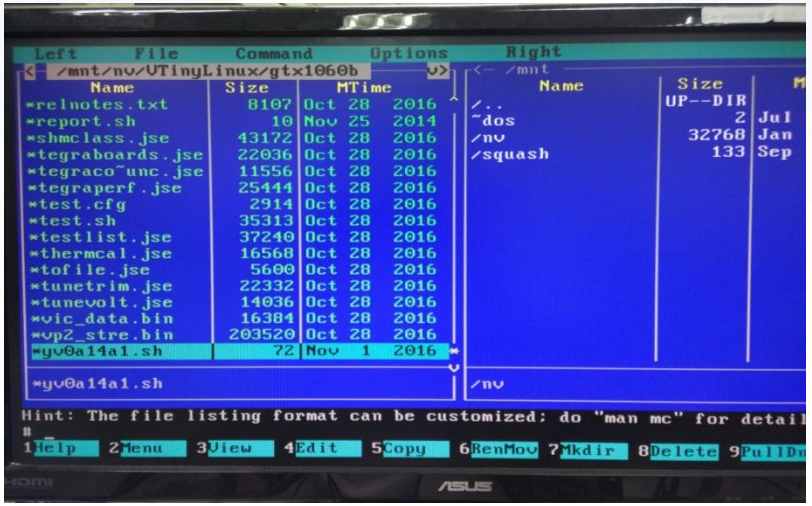
Test Process

d. Plug flash disk into USB port of Motherboard. Move cursor to right side. Go to “/mnt” folder. Press “F7” key and create “usbkey” folder.

e. Type “mount /dev/sdb1 /mnt/usbkey” to mount USB flash.

f. Copy test program into test HDD and run the executable file which named with PN* of your testing card to test. Test result will save to mods.log .





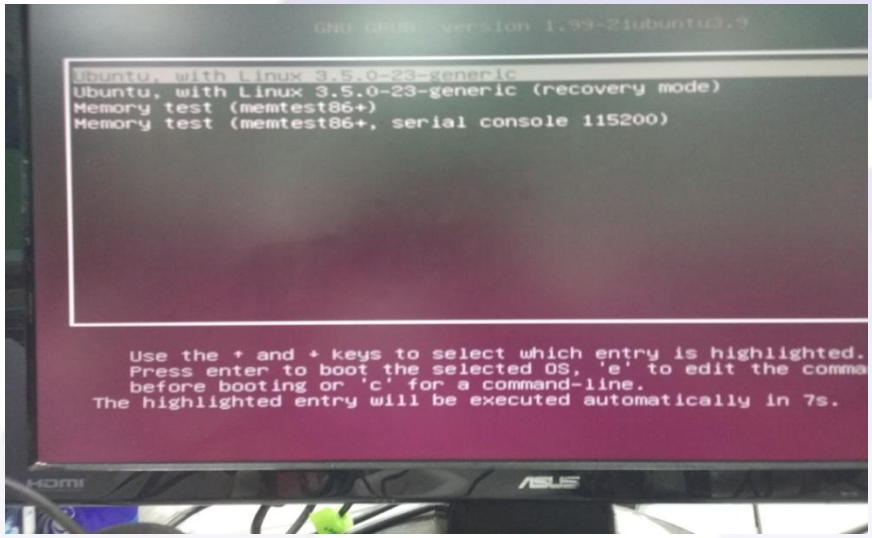
Test Process

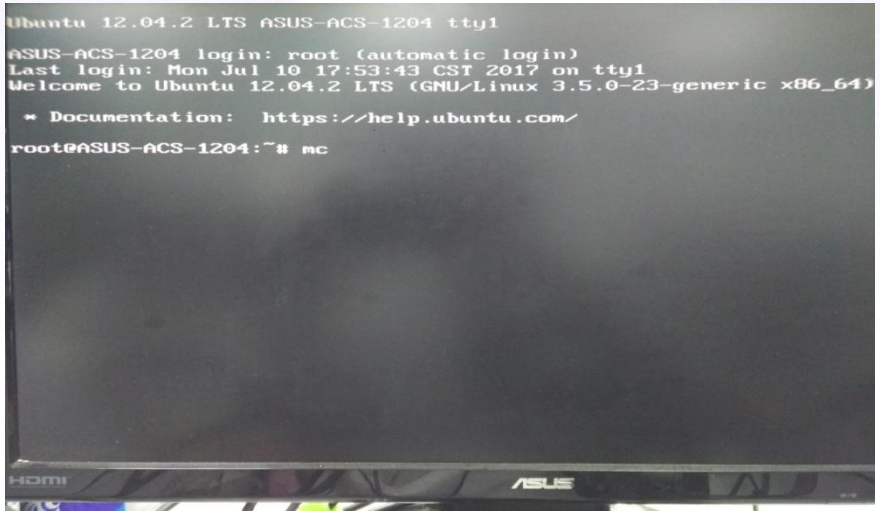
AMD VGA card test process

a. Download test program from SIP and unpack, copy test program to flash disk.

b. Power on the test platform into system and select first item go into Ubuntu OS.

c. Type “mc” for go to MC interface.



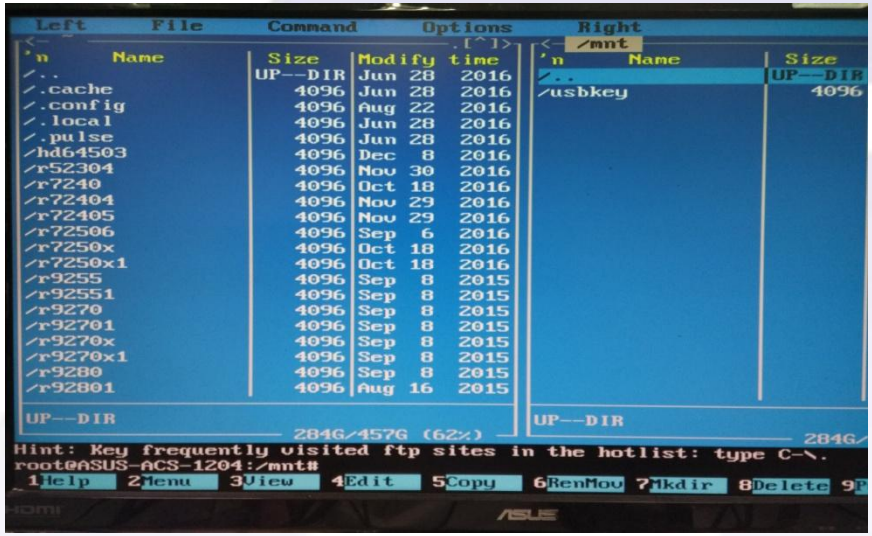


Test Process

d. Plug flash disk into USB port of Motherboard. Move cursor to right side. Go to“/mnt” folder.

e. Type “mount /dev/sdb /mnt/usbkey” to mount USB flash.

f. Copy test program into test HDD and run the executable file which named with PN of your testing card to test. Test result will save to log.txt .



Flash VBIOS& Memory Test

Flash VBIOS -- AMD Card

1. Please sure the *atiflash.exe* or *amdvbflash.exe* file is in your folder.
2. If the *atiflash.exe* or *amdvbflash.exe* file can't flash your card ,please find the newest version to try.
3. If the VBIOS was locked, please use command "./atiflash –unlockrom 0" to unlock, and use command "./atiflash –lockrom 0" to lock after flash.
4. You can use command "./atiflash –ai 0 " to show VBIOS version.

./atiflash -p -f 0 *.rom ---- ***Flash BIOS***

- -p ; *Write BIOS image*
- -f ; *Force flashing, used while writing eeprom*

./atiflash -unlockrom 0 --- *Unlock*

./atiflash -lockrom 0 --- *Lock*

./atiflash -ai 0 --- *Show version*

./atiflash -s *.rom --- *Save BIOS*

Flash VBIOS& Memory Test

Memory Test (For Debug) -- AMD Card

- Runs the memory failure analysis tool on the graphics board under test. Please check with PCB repair to find the fail chip.

 ./tserver -boardtest=memfa

 Log file: memfa.log

```
Memory Failure Analysis

nChannels: 4
channelByteWidth: 4
nRankBits: 0
current MCLK: 300
MCLK step: 0.00
current SCLK: 214
SCLK step: 0.00


Basic analysis

        00000000 00111111 11112222 22222233
Mclk    01234567 89012345 67890123 45678901
====    ======== ======== ======== ========
   ChB0
300     ........ ........ ........ ........
   ChB1
300     ........ ........ ........ ........
   ChA0
300     ........ ........ ........ ........
   ChA1
300     ........ ........ ........ ........
```

```
LEGEND

"." - no error
"1" - error count < 10
"2" - error count < 100
"3" - error count < 1000
"4" - error count < 10000
"5" - error count >= 10000
```

Flash VBIOS& Memory Test

Flash VBIOS -- NVIDIA Card

1. Please sure the *nvflash.exe* file is in your folder.
2. If the *nvflash.exe* file can't flash your card ,please find the newest version to try.
3. If the VBIOS was locked, please use command "nvflash –r" to unlock, and use command "nvflash –w" to lock after flash.
4. You can use command "nvflash –v" to show VBIOS version.

nvflash *.rom -6 -A ---- ***Flash BIOS***

- -6 ; *Ignore PCI device SSID mismatch*
- -A ; *Run without user intervention*

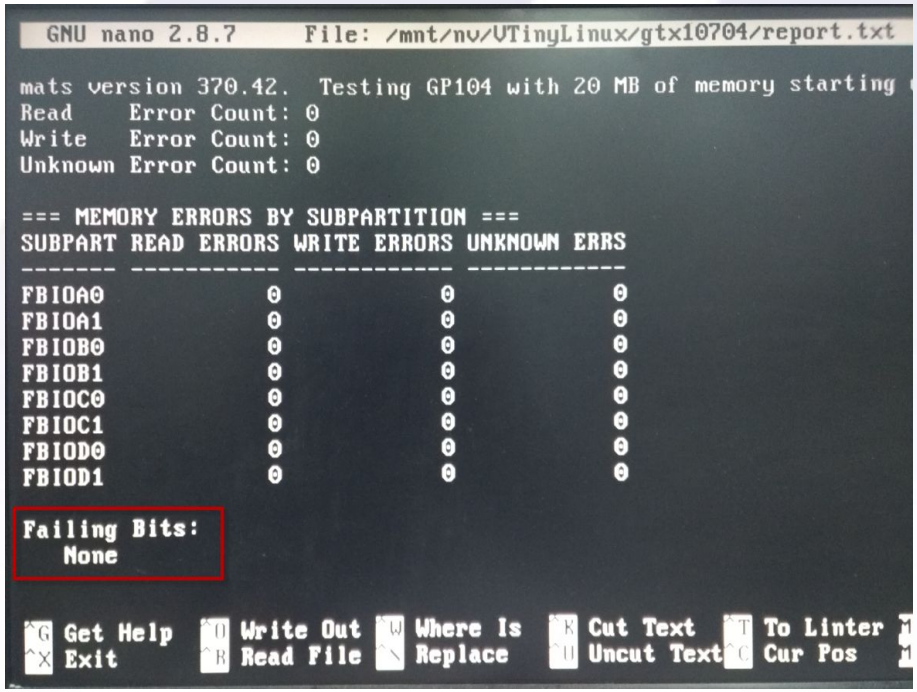
nvflash -r	---	*Unlock*
nvflash -w	---	*Lock*
nvflash -v	---	*Show version*
nvflash -a	---	*List all NVIDIA display adapters*
nvflash -b *.rom	---	*Save BIOS*
nvflash -k *.rom	---	*Compare BIOS*

Flash VBIOS& Memory Test

Memory Test (For Debug) -- NVIDIA Card

mats.exe – **Stand-alone memory test**

- This utility will do a rudimentary test of the framebuffer.
- It prints its results to a file named “report.txt“.
- You need check with PCB repair to find the fail chip.



- Usage

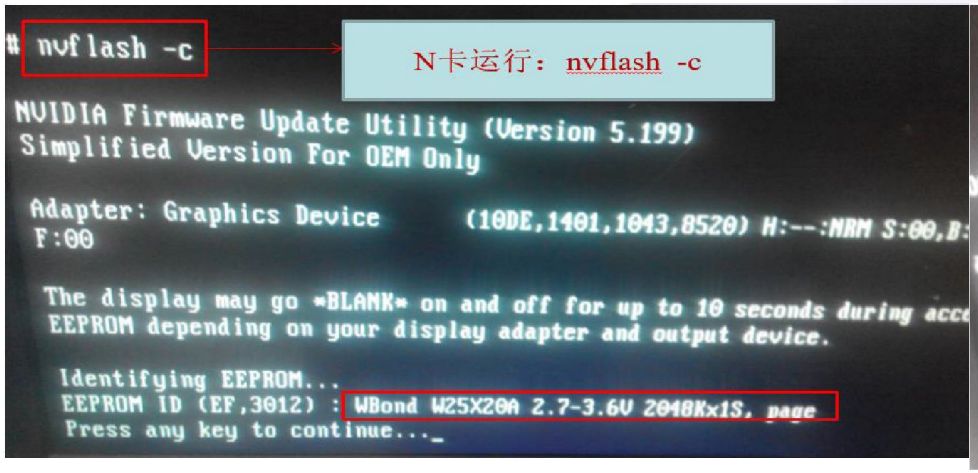
  mats -e xx

  -e xx —— forces endpoint of test to megabyte xx .

Flash VBIOS& Memory Test

How to flash VBIOS when VGA card can't display?

- Please use onboard VGA for display and flash BIOS.
- For AMD card, Please run ./atiflash -i to check BIOS first.
  For Nvidia card, Please run nvflash -c to check BIOS first.
  It couldn't be flashed when the BIOS spec can't be checked.



Flash VBIOS& Memory Test

For Nvidia RTX series, you can use diag test for debug memory.

- If the diagnostic could be executed, run it (you need add “-run_on_error” at the end of the *.arg* file) and check mods.log, you can find GPU or memory fails.
- If test cannot get the directional result, use the below commands for test, and you can disable or hold one partition or more partition at a time. The command below are for disable or hold FB partition with Diag, it can help you identify this channel is pass or fail.

Disable partition

Disable partition FB_A: -floorsweep fbio_disable:0x01:fbp_disable:0x01
Disable partition FB_B: -floorsweep fbio_disable:0x02:fbp_disable:0x02
Disable partition FB_C: -floorsweep fbio_disable:0x04:fbp_disable:0x04
Disable partition FB_D: -floorsweep fbio_disable:0x08:fbp_disable:0x08
Disable partition FB_E: -floorsweep fbio_disable:0x10:fbp_disable:0x10
Disable partition FB_F: -floorsweep fbio_disable:0x20:fbp_disable:0x20

Flash VBIOS& Memory Test

Hold partition

Hold partition FB_A: -floorsweep fbio_disable:0x3E:fbp_disable:0x3E
Hold partition FB_B :-floorsweep fbio_disable:0x3D:fbp_disable:0x3D
Hold partition FB_C: -floorsweep fbio_disable:0x3B:fbp_disable:0x3B
Hold partition FB_D :-floorsweep fbio_disable:0x37:fbp_disable:0x37
Hold partition FB_E :-floorsweep fbio_disable:0x2F:fbp_disable:0x2F
Hold partition FB_F: -floorsweep fbio_disable:0x1F:fbp_disable:0x1F
Hold partition FB_A/B:-floorsweep fbio_disable:0x3C:fbp_disable:0x3C
Hold partition FB_C/D:-floorsweep fbio_disable:0x33:fbp_disable:0x33
Hold partition FB_E/F: -floorsweep fbio_disable:0x0F:fbp_disable:0x0F

You can use disable or hold partition flexibly by yourself for reference.

Flash VBIOS& Memory Test

***For example**:*

First please check PN.sh in diag like yv0c90a0.sh as your test model.

./mods -mle_nv gputest.js -readspec gp104_pg411_sku10_cr.spc @std.arg || exit $?
./mods -a -mle_nv gputest.js @t275.arg -bg_int_temp_flush 5000 1000 || exit $?

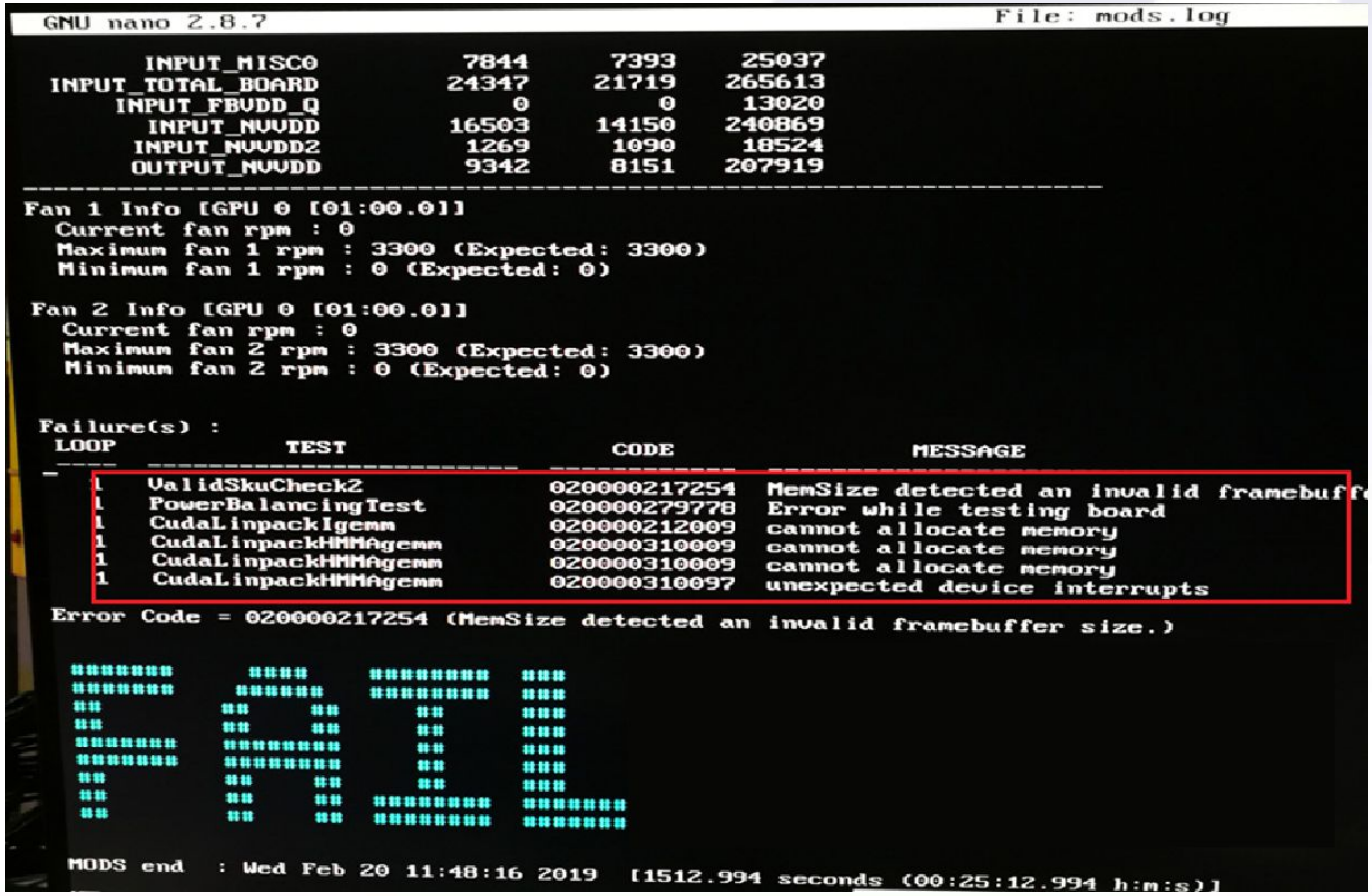
So if you want to hold partition A , please edit std.arg as below, add two command lines at the end :

-adc_cal_check_ignore
-nvlink_force_disable
-timeout_ms 5000
-power_cap_policy 3 74000
-power_cap_policy 4 93000
-power_cap_policy 5 167000
-power_cap_tgp_mw 258000
-dramclk +2pct,0.all
-dramclk +2pct,3.all
-testarg 0 FailIfCapped false
-testarg 1 IgnoreRgbMcuFwCheck true
-testarg 171 SkipSerialNumCheck 1
-skip 78
-floorsweep fbio_disable:0x3E:fbp_disable:0x3E
-run_on_error

Hold partition FB_A

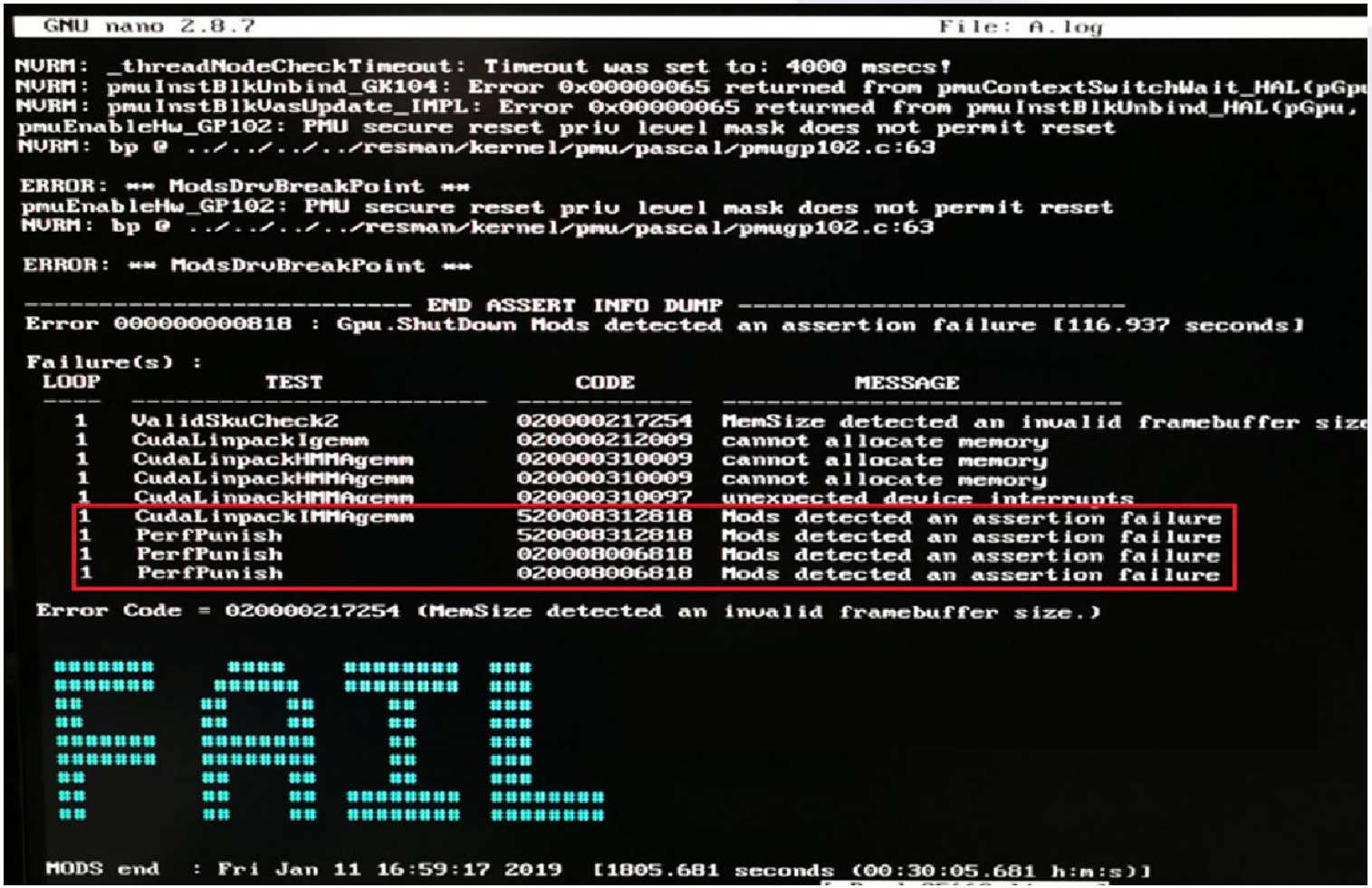
Flash VBIOS& Memory Test

It's normal if the screen could be black after this partition selecting diagnostic .You can restart system to check test log. It's normal to show below error message in log because some partitions have been closed.

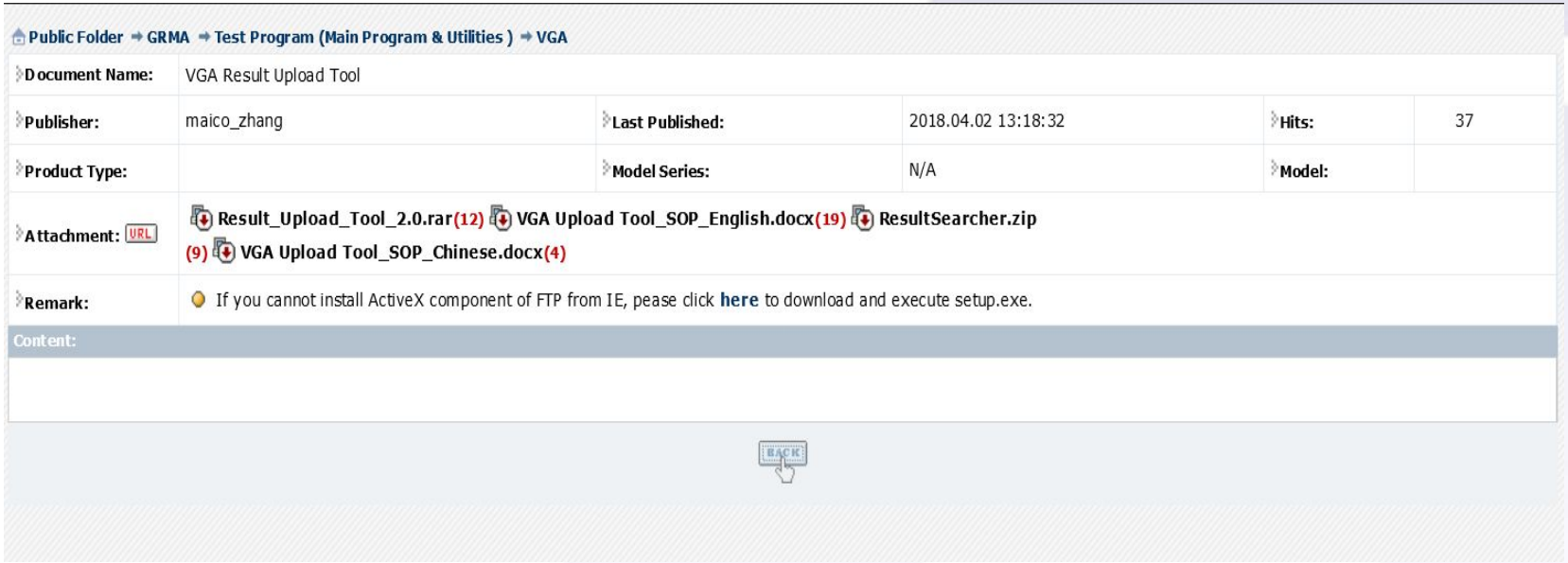


Flash VBIOS& Memory Test

*It's could be show other error, example error code "***** 818". It's means the selected partition could be failure.*



Test Result Upload



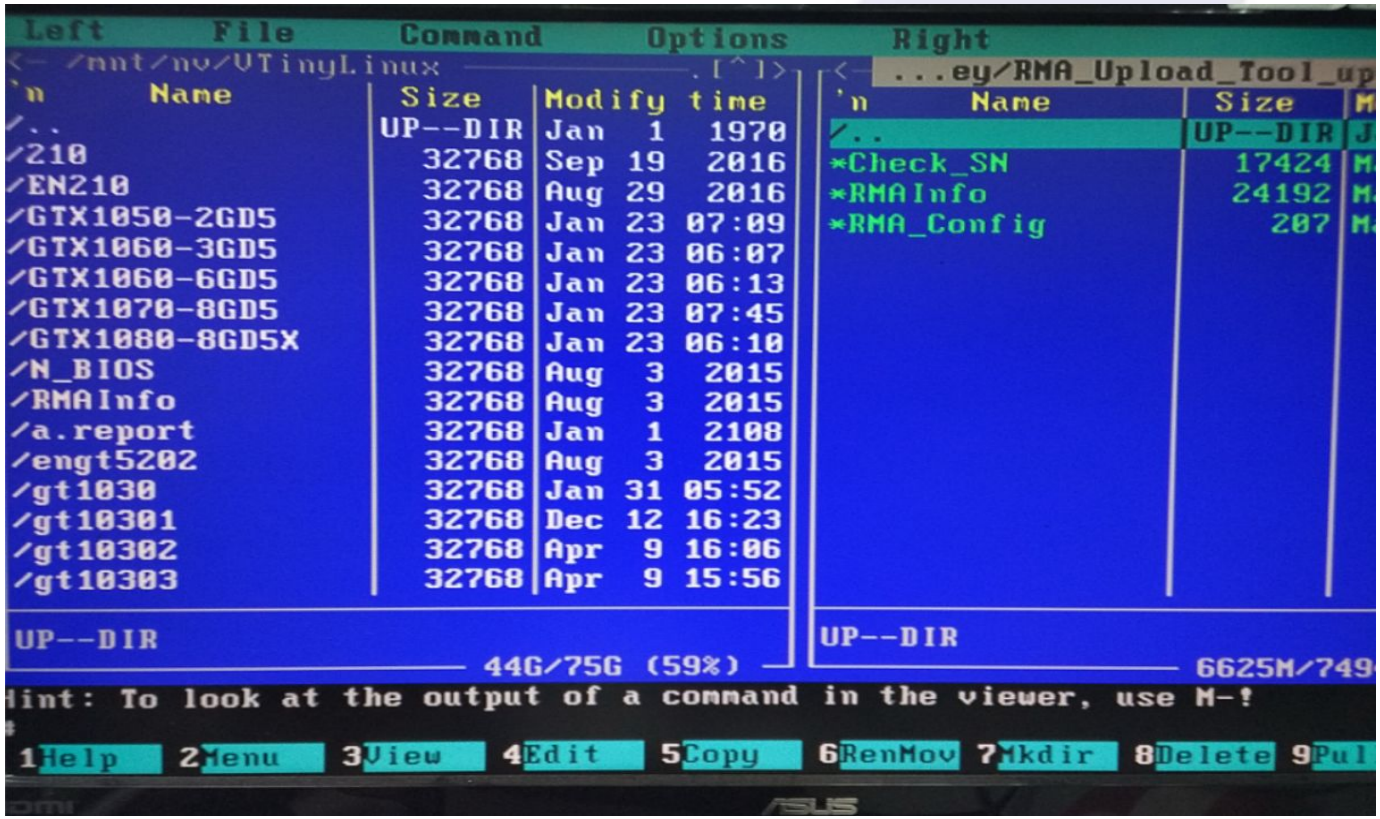
1. Download VGA Upload Tool from SIP and unpacked. Copy to USB flash. Download site：http://sip.asus.com/document/DisplayDocument.aspx?folder_type=PUB&doc_id=208968#

Test Result Upload

- **The tool of RMA info upload tool include 3 files:**

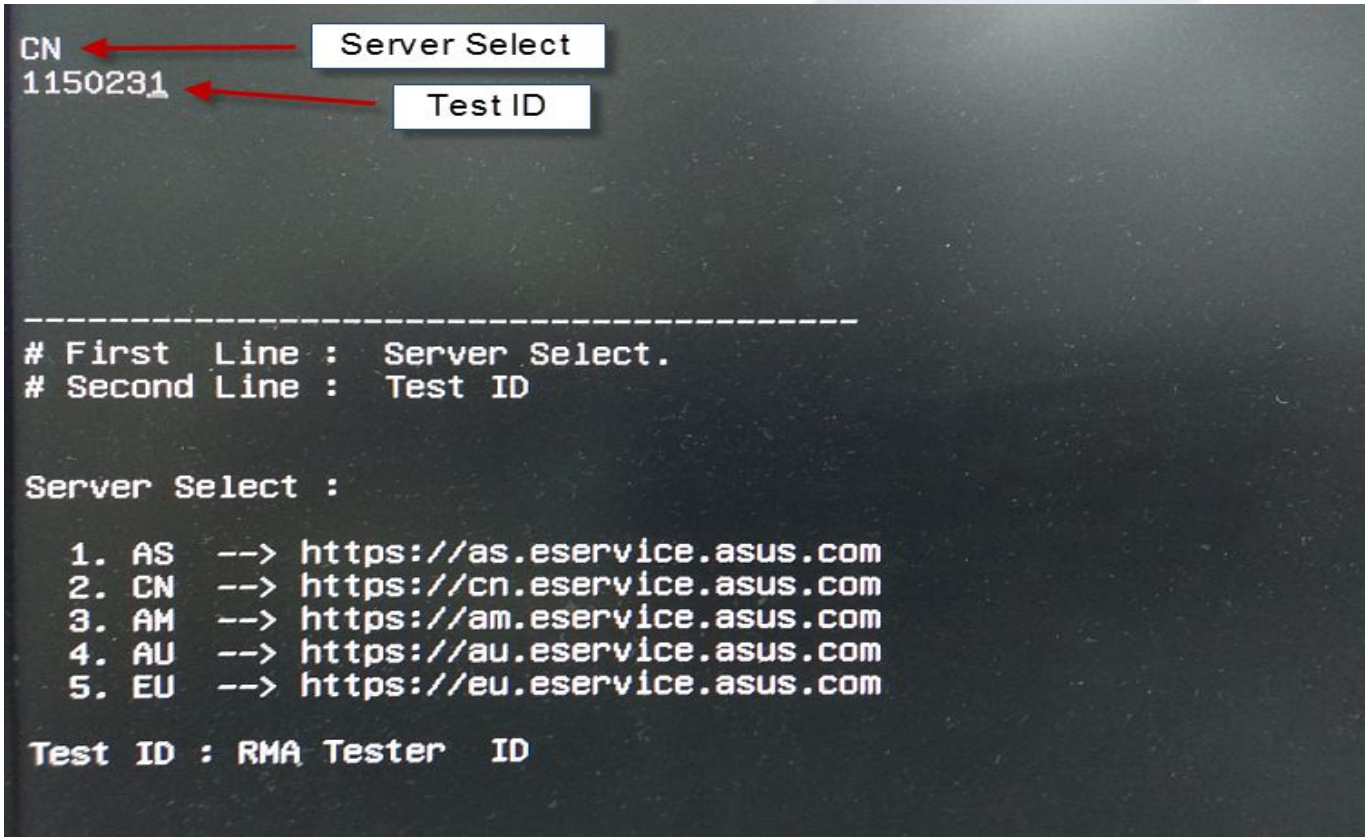
Test Result Upload

2. Power on the test platform. And into Linux OS. Type “mc“ go to MC interface. Plug USB flash Into USB port, then mount USB flash.



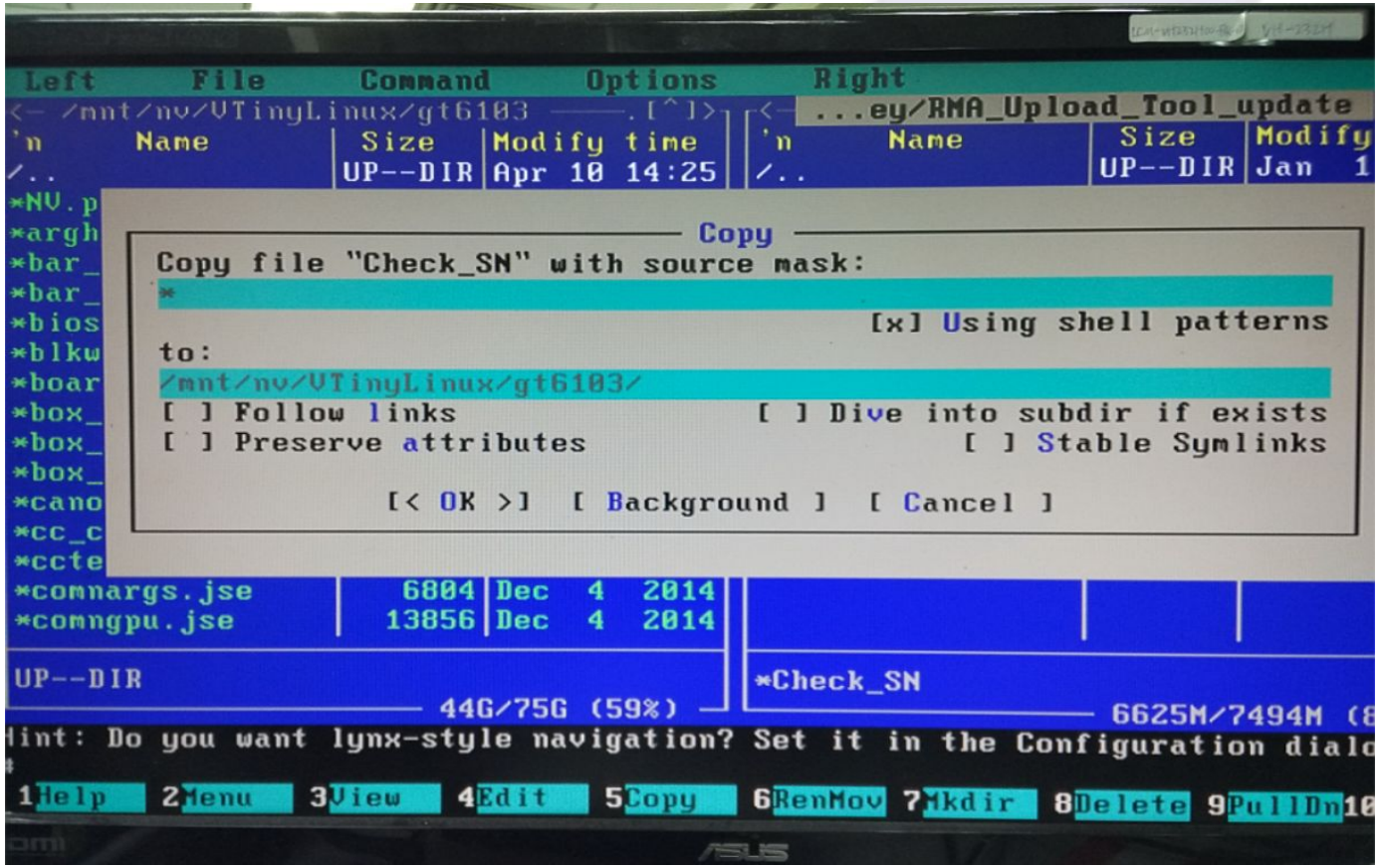
Test Result Upload

3. Press “F4” to edit the **RMA_Config** file when using the tool first time. First line confirms the address of local sever, Second line is Tester ID. The **RMA_Config** only need modify once.



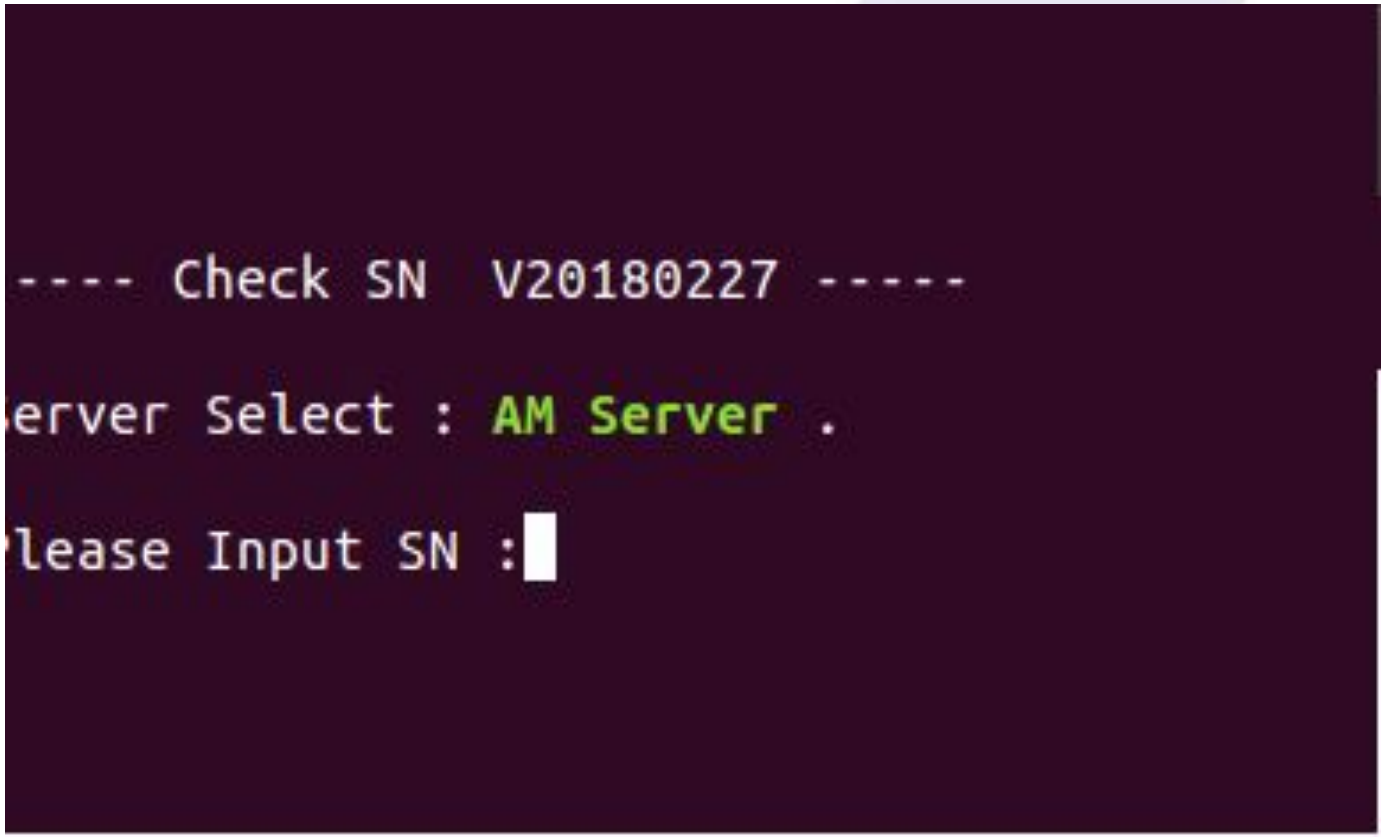
Test Result Upload

4. Press “F5” to copy 3 file of the tool to the test program folder by model.



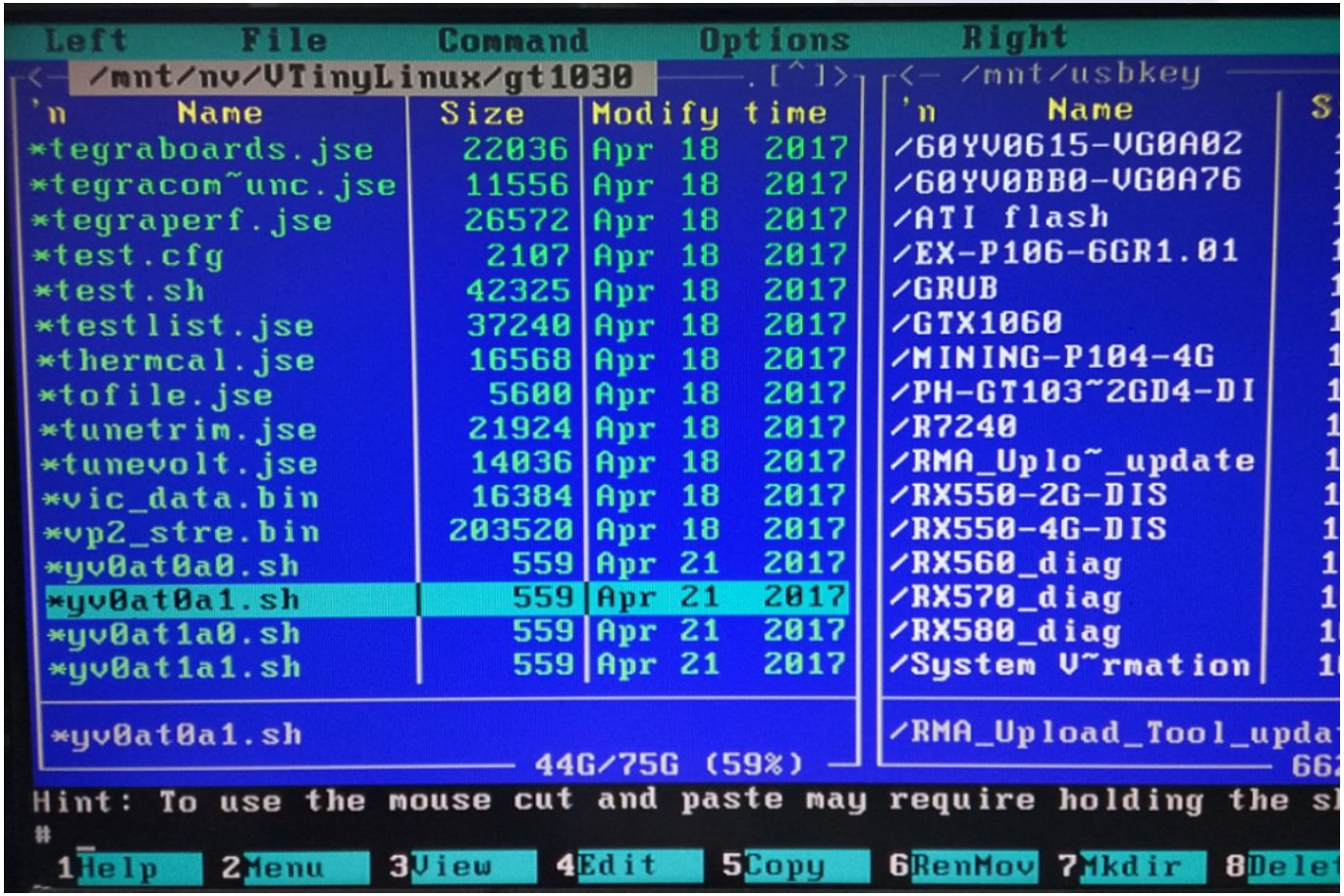
Test Result Upload

5. Run **Check_SN** and type in your VGA SN which need to be testing.
   The SN must be in repair status.



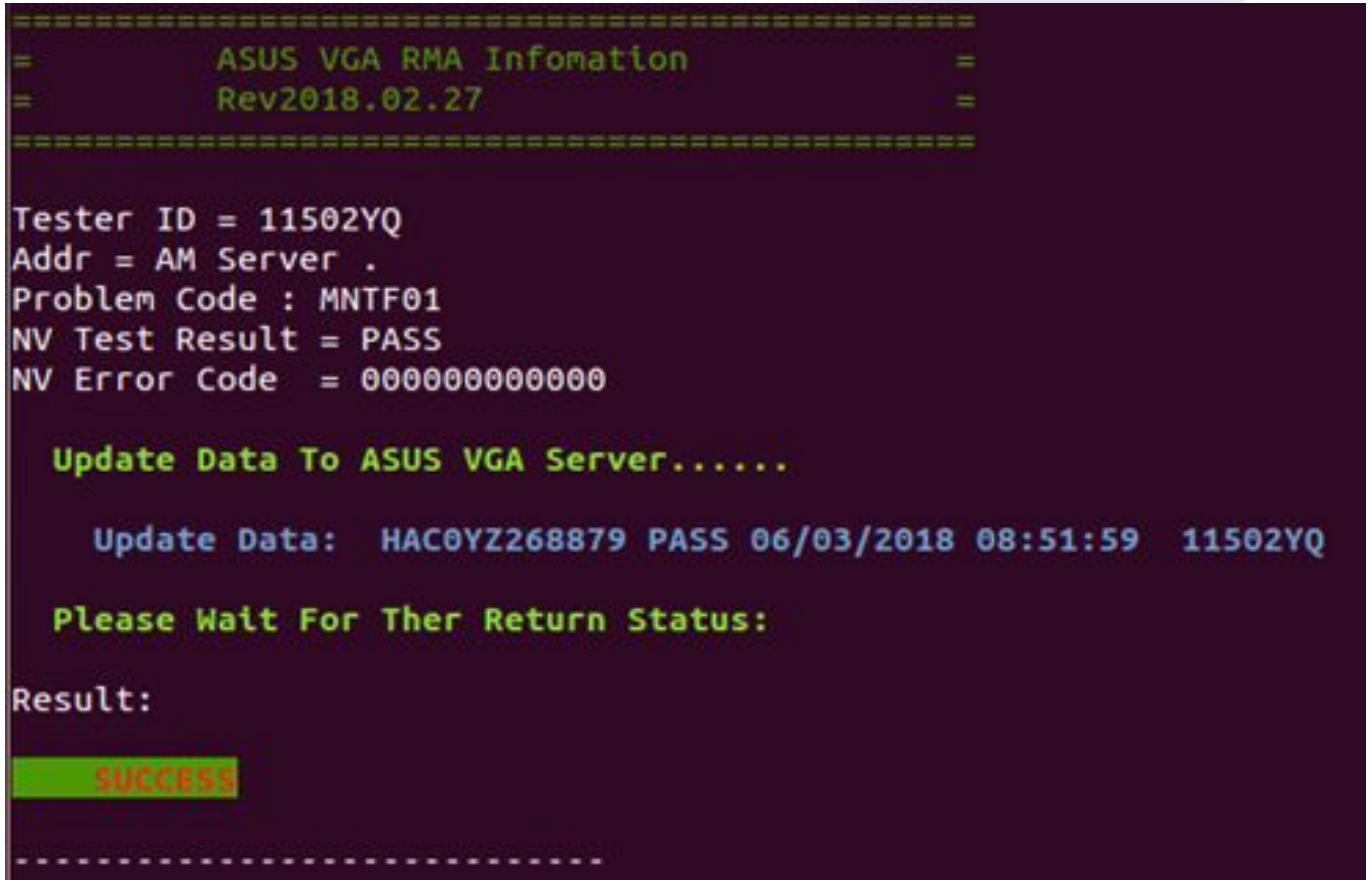
Test Result Upload

6. Run **Diag test** and the diag name is same as the PN of your VGA card.



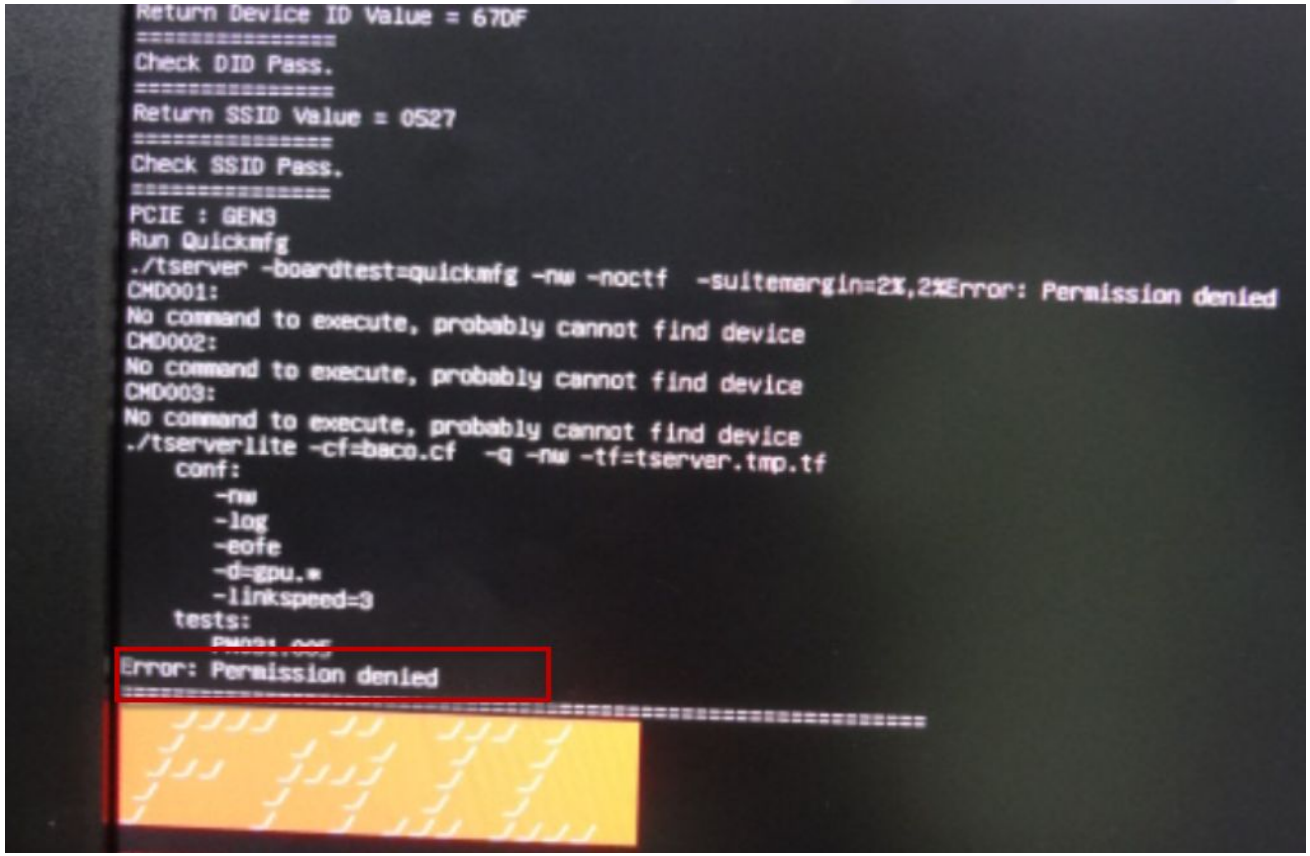
Test Result Upload

7. After Diag test is finished ,run **RMAInfo** and the test result will be sent to server.



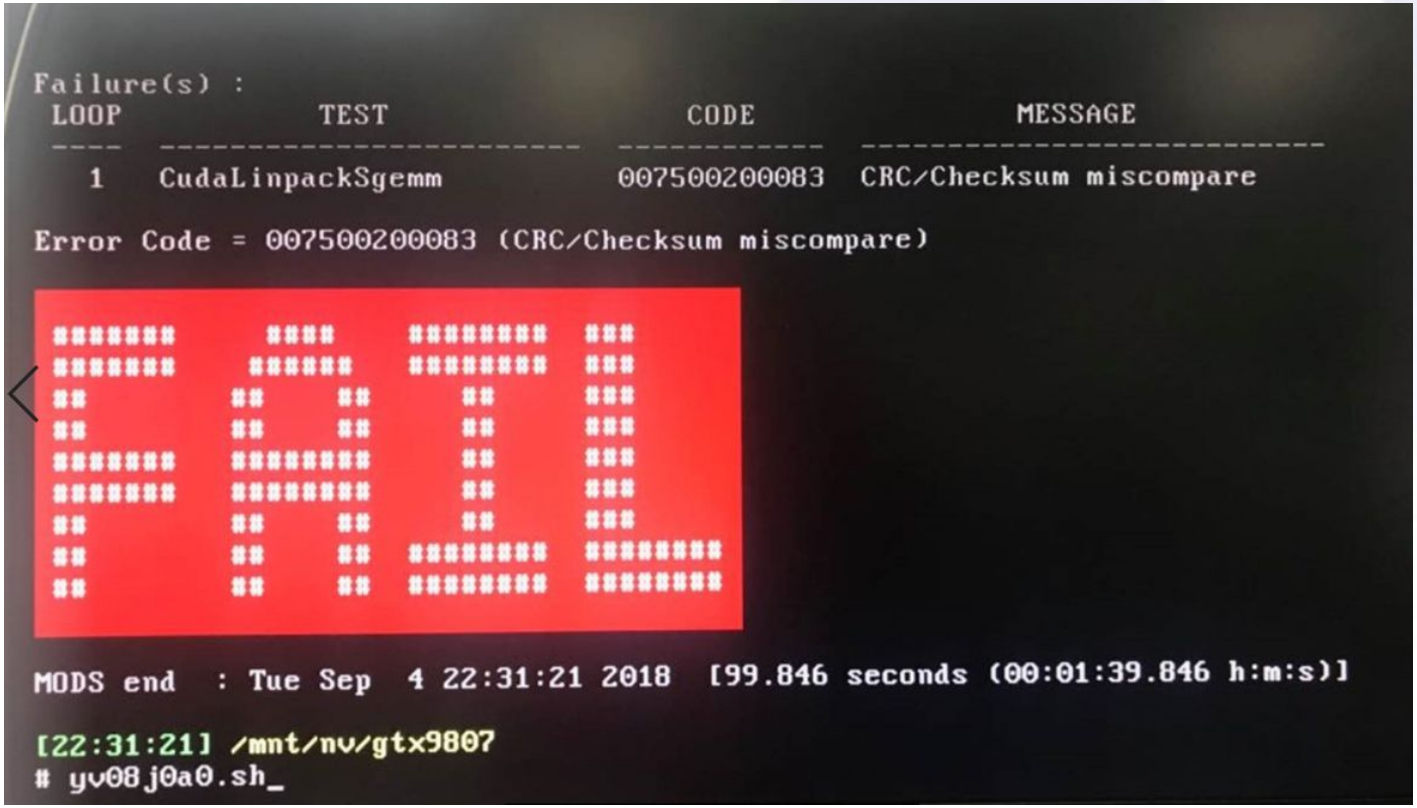
Notice&Common Problem

1. If the screen show “permission denied” error when run AMD diag test, Please check if the Ubuntu OS installation was correct.



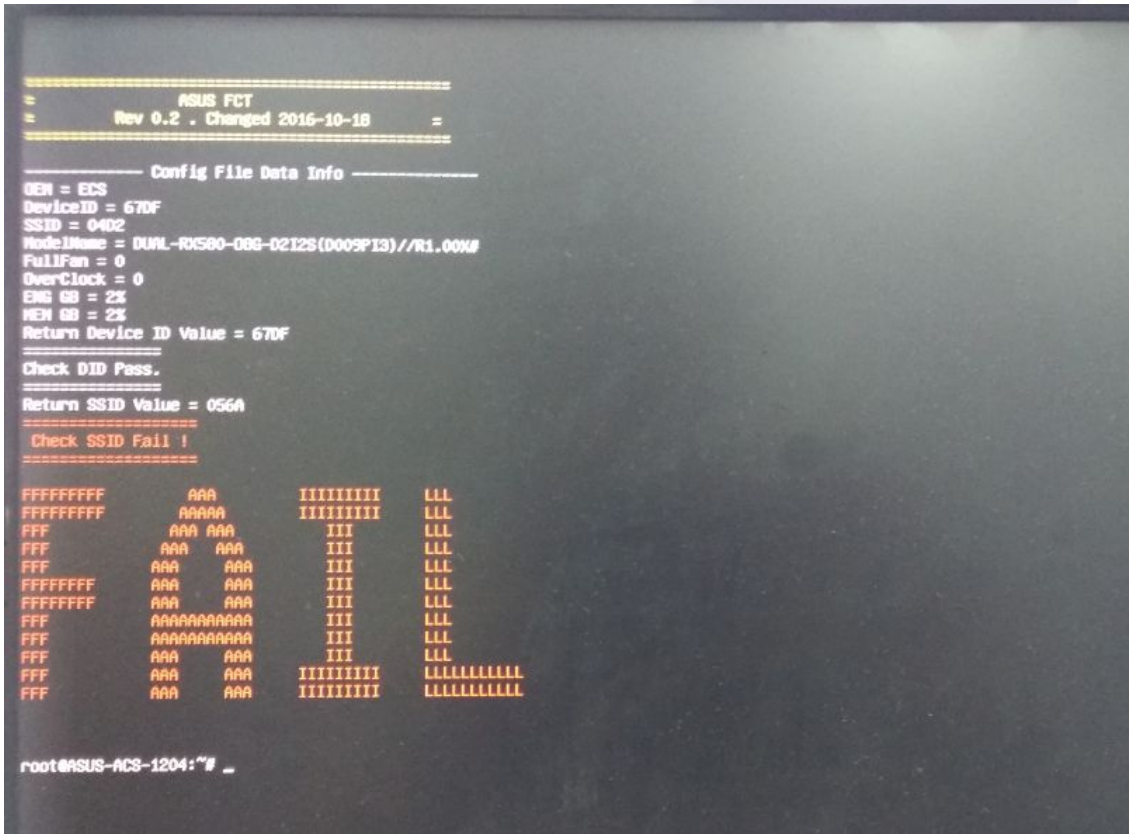
Notice&Common Problem

2. Please use Nvidia Graphic card with DVI port when you run Nvidia diag test. If the Graphic Card hasn't DVI port, you can use HDMI port for test. If you haven't use DVI port for test, it could be display error as below.



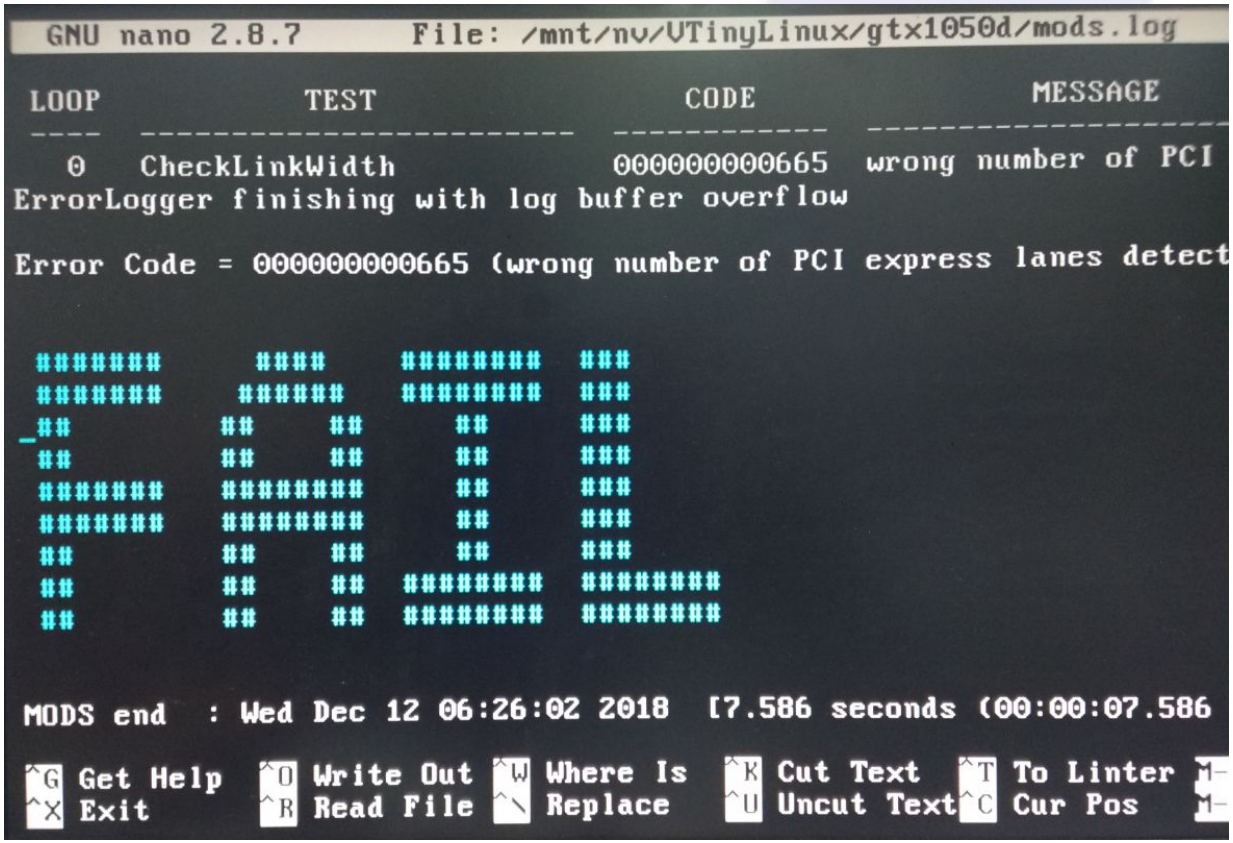
Notice&Common Problem

3. If you see “Check SSID Fail” as below, Please confirm the PN your VGA card is matching test diag.



Notice&Common Problem

4. Please check your MB could support PCIE3.0 standard when test result show PCI express fail .

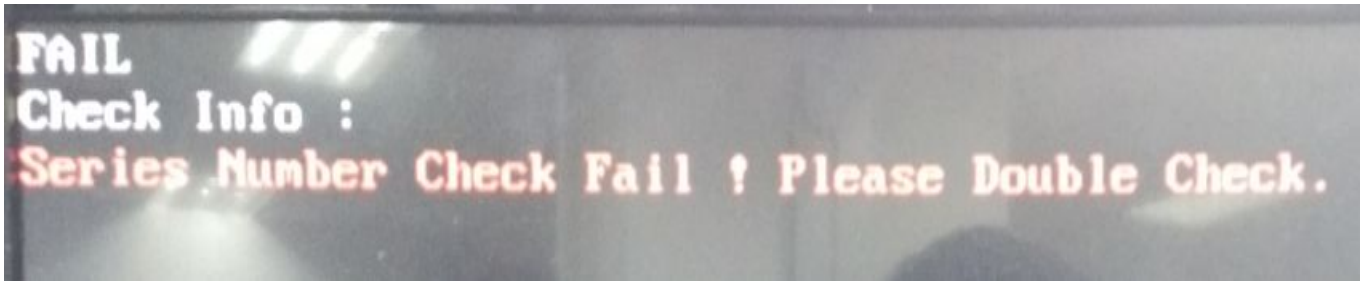


Notice&Common Problem

5. Test result can't be upload to server.

a. Please run ifconfig to check you Linux OS could link to network when you see below screen.

b. Please confirm your VGA SN is in repair status when you see below screen.



Notice&Common Problem

6. Power supply request for VGA test:
   We suggest the power supply spec to follow below list.

Extend Power Port	Power Supply
No	>500W
6PIN	>550W
8PIN	>600W
6+6PIN	>600W
6+8PIN	>800W
8+8PIN	>900W

Extend Power Port

Thank You!