NUVO-3616VR Environmental Test

Neousys Technology

Date: 2015/3/23
Rev. 1.0
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NUVO-3616VR Environmental Test

Product Information:

System Core	Specification
Product	NUVO-3616VR
Motherboard Version	Rev. A1
Processor Type	Intel ® Core ™ i7-3610QE CPU@2.30GHZ
Memory	2x SO-DIMM socket for DDR3-1333 8GB (Wide Temp.)
Storage	SATA SSD 64GB
Graphic	Integrated Intel® HD Graphics
Operating System	Windows7 Ultimate Edition build 7600 (32bit)
BIOS Version	NV36A001Build150213

Test Item:

- High Temperature/ Humidity Burn-In Test
- Low Temperature Cold-Boot Test
- Temperature Cycle Test

Test Equipment:

Chamber Configuration	
Name	Programmable Temperature & Humidity Chamber
Brand	KSON
Model	THS-A6T-150
Serial No.	A0420

A. High Temperature/Humidity Burn-In Test

- **Description:**

  Test DUT in high temperature and humidity environment, verify if there is any BSOD, reboot, or hang observed during testing.

- **Test Method/ Specification:**

  Operating: Execute "BurnIn Test V7.1 Pro"

Condition	
Temperature	65°C
Humidity	90%RH
Airflow	0.5 m/s
I/O Function	
POE*	1. IPC: IVIS-200 2. IP-Camera: ZAVIO-F731E 3. IP-Camera: ZAVIO-F731E 4. IP-Camera: ZAVIO-F521E 5. IP-Camera: ZAVIO-F521E 6. Switch: HP PS1810-8G Switch
COM Port 1~2	RS232 Loopback
USB Port 1~2	Keyboard & Mouse

- **Test Procedure:**

  1. Run BurnIn Test to stress all I/O, including CPU.

Loading	
CPU	100%
2D Graphic	100%
3D Graphic	100%
COM Port	100%
Video	100%

  2. Check DUT after test:

     Examine the appearance of DUT by visual check and perform functional check (examine whether of specified test items could work normally or not) after test.

- **Expected Result:**

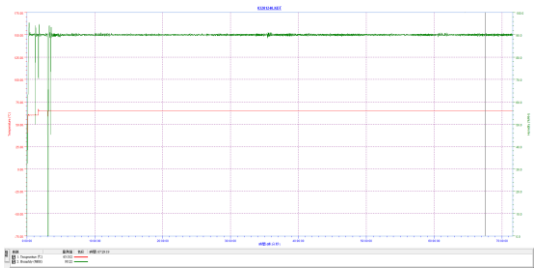
  ER2. Appearance check: No visible damage.

  ER2. Functional check: No BSOD, Reboot, hang is observed. Each I/O interface

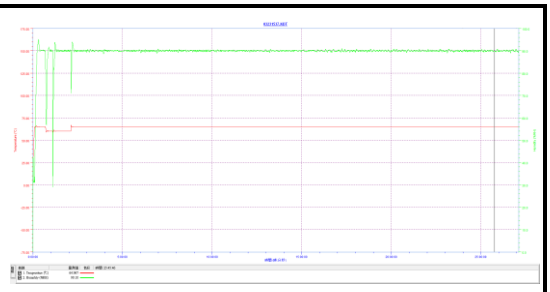
works properly.

Test	Result	Date	Comments
1.High Temperature/Humidity Test Input Voltage: 32VDC in Duration: 65 hours	Pass	2015/03/23	
2.High Temperature/Humidity Test Input Voltage: 8VDC in Duration: 24 hours	Pass	2015/03/24	

- **Test Photos:**

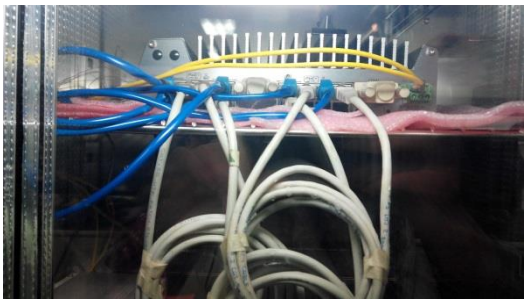


1. **Test Curve(Duration: 65Hours)**



2. **Test Curve(Duration: 24Hours)**

3. **High Temperature/Humidity Burn-In Test**



4. **High Temperature/Humidity Burn-In Test**

B. Low Temperature Cold-Boot Test

- **Description:**

  This test will use relay card to switch DUT on/off and check boot or not by serial port in low temperature environment.

- **Test requirement:**

  - Server: PC with relay card and software Boot_DVT.
  - DUT: DOS bootable USB flash (outside the chamber).
    Edit "autoexec.bat" to start command RS232.exe automatically after booting up.
    RS232.exe: send out "I am good!" from COM1 & COM2

- **Test Method/ Specification:**

  Operating: Continuous execute Power ON/ OFF (execute diagnostic software "Boot_DVT")

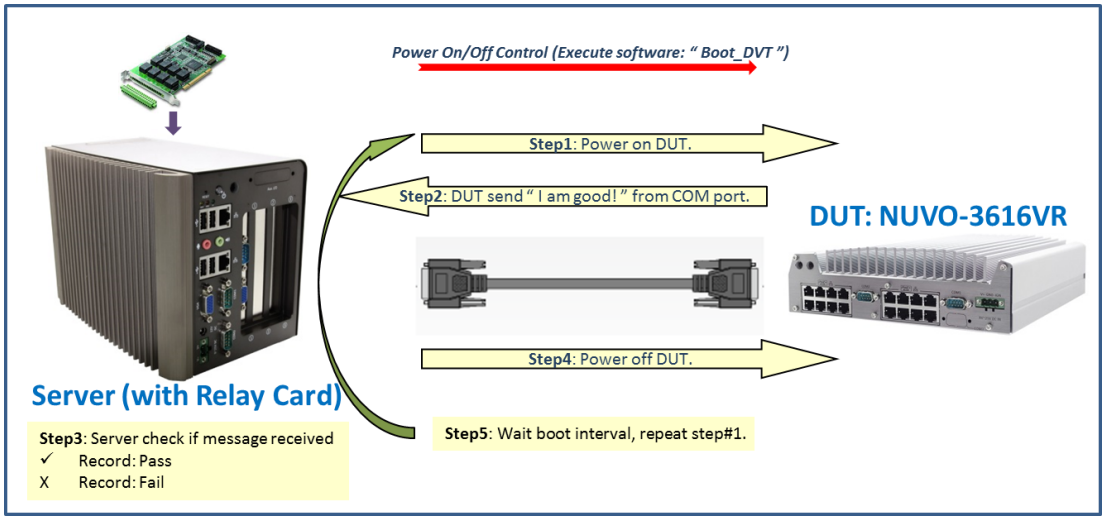
Condition	
Temperature	-33°C
Humidity	--%RH
Airflow	0.5 m/s

- **Test Procedure:**

  1. Execute software "Boot_DVT".

Setting	
Boot wait	30 seconds (Power on DUT, wait 30 seconds, and then power off DUT)
Boot interval	300 seconds (Power off DUT, wait 300 seconds, and then power on DUT.)

  2. Power on DUT via relay card.
  3. DUT boot up and send out message" I am good! " from COM port.
  4. Server check if message received and power off DUT. And Server records Pass or Fail.
  5. Power off DUT via relay card.
  6. Wait for a specified time, repeat Step#2 ~ 5.
  7. Check DUT after test:
     Examine the appearance of DUT by visual check and perform functional check (examine whether the booting function Power ON/ OFF of DUT could work normally or not) after test.



- **Expected Result:**

  ER7. Appearance check: No visible damage.

  ER7. Functional check: There is no fail record after test.

Test	Result	Date	Comments
Low Temperature Test Input Voltage: 12VDC in Duration: 24 hours	Pass	2015/03/25	ON/ OFF Cycle: 260

- **Test Photos:**

1. Test Curve(Duration: 24Hours)

2. Low Temperature Cold-Boot Test

3. Low Temperature Cold-Boot Test

4. Low Temperature Cold-Boot Test

C. Temperature Cycle Test

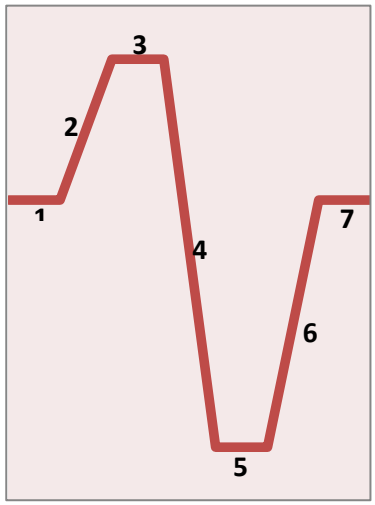
- **Description:**

  This test will use relay card to switch DUT on/off and verify DUT can boot in specified temperature range.

- **Test requirement:**
  - Server: PC with relay card and software Boot_DVT.
  - DUT: DOS bootable USB flash (outside the chamber).
    Edit "autoexec.bat" to start command RS232.exe automatically after booting up.
    RS232.exe: send out "I am good!" from COM1 & COM2

- **Test Method/ Specification:**

  Operating: Continuous execute Power ON/ OFF (execute diagnostic software "Boot_DVT")

Condition				
Temperature Curve	**Interval**	**Temperature (°C)**	**Humidity (%RH)**	**Time**
	**1**	25	25	5min
	2	25→60	25→90	14hr30min
	3	60	90	5min
	4	60→-40	--	42hr
	5	-40	--	5min
	6	-40→-10	--	13hr
	7	-10	--	5min

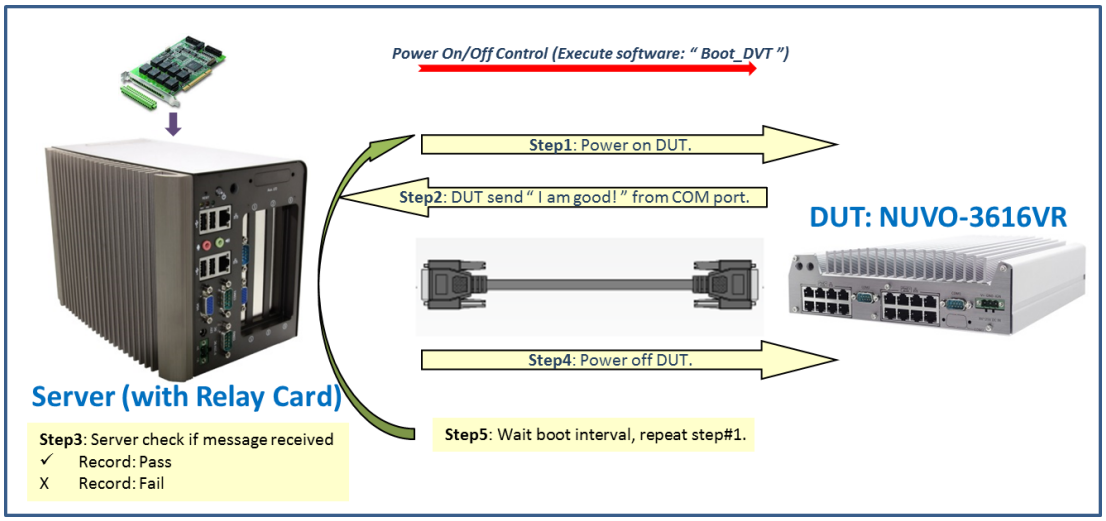
- **Test Procedure:**

  1. Execute software "Boot_DVT".

Setting	
Boot wait	30 seconds (Power on DUT, wait 30 seconds, and then power off DUT)
Boot interval	240 seconds (Power off DUT, wait 240 seconds, and then power on DUT.)

  2. Power on DUT via relay card.

3. DUT boot up and send out message" I am good! " from COM port.
4. Server check if message received and power off DUT. And Server records Pass or Fail.
5. Power off DUT via relay card.
6. Wait for a specified time, repeat Step#2 ~ 5.
7. Check DUT after test:
   Examine the appearance of DUT by visual check and perform functional check (examine whether the booting function Power ON/ OFF of DUT could work normally or not) after test.



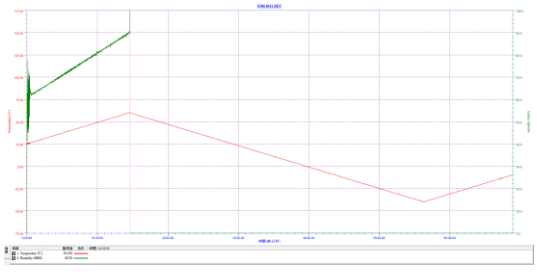
- **Expected Result:**

  ER7. Appearance check: No visible damage.

  ER7. Functional check: There is no fail record after test.

Test	Result	Date	Comments
Temperature Cycle Test Input Voltage: 8V Duration: 69.8Hr	Pass	2015/03/06	ON/ OFF Cycle: 917

- **Test Photos:**



1. Test Curve(Duration: 69.8Hours)

2. Temperature Cycle Test

	
3. Temperature Cycle Test	**4. Temperature Cycle Test**