Report NO: 15E010008

PICO-IMX6

Freescale iMX6 platform

RISC Main Board Product

Compatibility Test Report

Summary	☒ Pass ☐ Fail ☐ Pass with Deviation (Comment: _____)			
Test Results Category				
	Critical	Major	Minor	Enhancement
Defect Found	0	0	0	0
Defect Unsolved	0	0	0	0

Issue date	Approval	Test Engineer
07/08/2015	KJ Wang	Louie Lee

Version Released Records

Date	Version	Change History	Note
5/26/2015	A0	1. First release	

Note :

For all test items in this report, 3 results have been defined and described as following:

Pass:	Functionality work perfectly
Fail:	Functionality failed and must be resolved in the next version
N/A:	Functionality Not Applicable or Not Available

This test report would be updated when re-test completed in product next change version.

Specification Validation

Main Specification

Item	Specification	Result			Note
		Pass	Fail	N/A	
Form Factor	PICO-ITX Board	☒	☐	☐	
Processor	Onboard Freescale i.MX6 Dual Lite Commercial / Quad Automotive ARM Cortex A9 processor	☒	☐	☐	
System Memory	Onboard DDR3 1GB (up to 2GB, ODM only)	☒	☐	☐	
Chipset	Freescale® i.MX6	☒	☐	☐	
Super I/O	Freescale® i.MX6	☒	☐	☐	
Network	1 Gigabit Ethernet by Micrel® KSZ9021RNI	☒	☐	☐	
BSP	Android 4.4 Linux Kernel 3.0.35 (Ubuntu)	☒	☐	☐	
Wake on LAN	No	☒	☐	☐	
Watchdog Timer	Integrated Watch Dog Timer	☒	☐	☐	
H/W Status Monitoring	Support CPU temperature monitoring	☒	☐	☐	
Expansion Interface	8-bit DIO	☒	☐	☐	
Battery	Lithium Battery connector x 1 (RTC)	☒	☐	☐	
Display					
Chipset	Freescale® i.MX6	☒	☐	☐	
Resolution	Supports 18bit up to 1024x768	☒	☐	☐	
LCD Interface	Supports 18bit LVDS x1	☒	☐	☐	
LCD power	PWM only (default) DC Mode: Require custom app (reserved function)	☒	☐	☐	
I/O					
Storage	SATA II x 1 (option), uSD card slot, onboard eMMC	☒	☐	☐	
Serial Port	4-wire UART x1; wafer, can be used for debug port 4-wire UART x1; DB9 connector, COM1	☒	☐	☐	
USB	USB 2.0 x5 (Two USB type A connectors, Two USB wafer, One shared to USB OTG : micro USB connector)	☒	☐	☐	
Digital I/O	8-bit DIO	☒	☐	☐	
Audio	I2S Audio, WM8962B (speaker out, Microphone in)	☒	☐	☐	
eMMC	4GB (8GB/16GB optional)	☒	☐	☐	
Micro SD slot	1 (optional, reserved only)	☒	☐	☐	
I2C BUS	1 (PIN HEADER)	☒	☐	☐	

Platform Information

Item	Device Information	Note
Product of department	ECD	
PCB Model / Version	PICO-IMX6 A0.3	
CPU Board	N/A	
Carrier Board	N/A	
CPU	Onboard Freescale™ i.MX6 Quad 1.0GHz Processor	
Memory Type	Onboard DDR3 1GB	
eMMC	Onboard eMMC 4GB	
SATA HDD	WD WD5000LPVX 500GB	
SATA DVD-ROM	N/A	
USB DVD-ROM	N/A	
HDMI Monitor	Dell U2713HM	
LVDS	AUO LED backlight G121XN01-V0 1024*768 18bit	
SD card	Transcend 64GB	
Daughter Board	N/A	
Expansion Board	N/A	
	N/A	
Operating System	☒ Linux Ubuntu 11.10 Kernel 3.0.35-2508-g54750ff	
	☒ Android4.4.2 kernel 3.0.35-06522-g0a3529b-dirty	
Power Supply	ATX Power Supply : Cooler Master RS-350PCAR-I3	
	AT Power Supply: N/A	
	DC Adapter : N/A	
Battery Model	N/A	
Chipset	Freescale® i.MX6	
Ethernet	1 Gigabit Ethernet by Micrel® KSZ9021RNI	
Audio	I2S(please refer above customer pin-out define)	

Summary Table of contents:

1. Android - Basic Function and Image Test

1.1. Image boot Test

Process Step:

H/W jumper set boot from eMMC or SD card.

Test result:

Test item	Criteria	Result			Note
		Pass	Fail	N/A	
Boot from eMMC.	Boot to OS should work properly	☒	☐	☐	
Boot from SD card.	Boot to OS should work properly	☒	☐	☐	

1.2. CPU Function Test

Process Step:

Install and execute test APP "CPU-z.apk".

Test result:

Test item	Criteria	Result			Note
		Pass	Fail	N/A	
CPU information: CPU-z.	CPU information should show correct.	☒	☐	☐	

1.3. Video Resolution and Function Test

Process Step:

a. In U-boot, execute command to boot with LVDS.
b. Adjust the brightness with 0~100%.
c. In U-boot, execute command to boot with 1080p HDMI.

Test result:

Test item	Criteria	Result			Note
		Pass	Fail	N/A	
1x LVDS (1x 18 bit) 1024*768.	Dual LVDS display should work properly.	☒	☐	☐	
LVDS brightness control icon	Brightness should work properly by OS ICON control.	☒	☐	☐	DC mode default is not support.
1920x1080(HDMI)	Support 1920x1080 display include audio function	☒	☐	☐	

1.4. Audio Function Test

Process Step:

a. Set display from LVDS and broadcast music.
b. Connect Microphone and record the sound.
c. Set display from HDMI and broadcast music.

Test result:

Test item	Criteria	Result			Note
		Pass	Fail	N/A	
Onboard Audio Line out	Line out action and function should work properly	☒	☐	☐	
Microphone Test	Microphone action and function should work properly.	☒	☐	☐	
HDMI Audio Line out	HDMI line out action and function should work properly	☒	☐	☐	

1.5. LAN Function Test

Process Step:

a. Connect 1GB LAN switch.
b. Connect 100MB LAN switch.
c. Click " Browser" icon.
d. Install and execute test APP "iperf.apk".

Test result:

Test item	Criteria	Result			Note
		Pass	Fail	N/A	
1GB connection	a. Speed LED color should show orange. b. Link LED color should show yellow and blink.	☒	☐	☐	
100MB connection	a. Speed LED color should show green. b. Link LED color should show yellow and blink.	☒	☐	☐	
Internet Browser (DHCP Server)	Visit the website should work properly	☒	☐	☐	
Iperf test.	1. Confirm function whether properly and have not loss. 2. Gigabit LAN max bandwidth is 250~300Mbps.	☒	☐	☐	-c 192.168.XX.XX –t 1000 –i 10

1.6. USB Function Test

Process Step:

a. Connect USB keyboard / mouse to USB ports.
b. Connect USB flash to USB ports.
c. Connect USB keyboard / mouse / flash to USB OTG port.

Test result:

Test item	Criteria	Result			Note
		Pass	Fail	N/A	
USB Mouse and Keyboard	Keyboard and mouse should work properly.	☒	☐	☐	
USB 2.0 Removable Devices	USB flash should be detected and read / write work properly.	☒	☐	☐	
USB OTG	Keyboard / mouse / flash should work properly	☒	☐	☐	
USB OTG connect Host PC	Confirm there is a new storage device SABRESD-MX6DQ.in PC side.	☒	☐	☐	

1.7. UART (debug port) Function Test

Process Step:

a. Connect Null cable between DUT and Host.
b. Install "Tera Term" to Host PC for UART control.

Test result:

Test item	Criteria	Result			Note
		Pass	Fail	N/A	
UART	U-boot and OS root should be controlled by Host PC.	☒	☐	☐	

1.8. UART Function Test

Process Step:

a. Install APP " serial port".
b. Run loopback test.
c. Connect Null cable between DUT and Host, transmission the data.

Test result:

Test item		Criteria	Result			Note
			Pass	Fail	N/A	
loopback	9600bps	No error or loss	☐	☐	☒	Android default is not support
	115200bps	No error or loss	☐	☐	☒	
Transmission	9600bps	No error or loss	☐	☐	☒	
	115200bps	No error or loss	☐	☐	☒	

1.9. SPI Flash Test

Process Step:

Execute SPI Flash Read/Write command under U boot.

Test result:

Test item	Criteria	Result			Note
		Pass	Fail	N/A	
SPI Flash	In U-boot mode, write a value into flash then read back from Flash and the value should match.	☒	☐	☐	sf probe 0 sf erase 0 0x10000 mw.l 0x12000000 0x54612354 0x100000 sf write 0x12000000 0x0 0x1000 sf read 0x13000000 0x0 0x1000 md 0x13000000

1.10. Mini PCI-Express Function Test

Process Step:

a. Connect WIFI and 3G card.
b. Run the browser to visit website.

Test result:

Test item	Criteria	Result			Note
		Pass	Fail	N/A	
WIFI card	WIFI function should work properly.	☐	☐	☒	Android default is not support
3G card	3G function should work properly.	☐	☐	☒	

1.11. Camera Function Test

Process Step:

a. To connector Camera module..
b. To run the APP "Camera".
c. Take a picture and record test.

Test result:

Test item	Criteria	Result			Note
		Pass	Fail	N/A	
Camera	Take picture and record function should work properly.	☐	☐	☒	

1.12. S/W & Jumper Function Test

Process Step:

Test each jumper function.

Test result:

Test item	Criteria	Result			Note
		Pass	Fail	N/A	
SW1 Boot Configuration Select	SW setting as below 1. Boot from Micro SD → 0010 2. Boot from eMMC → 1111	☒	☐	☐	
CN30 Boot Mode Select	1-2&3-4 Boot from fuses 3-4 Serial Downloader 1-2 Internal Boot (Default)	☒	☐	☐	
CN41 Power Button & Reset	1-2 VIA power button 2-3 AUTO power button	☒	☐	☐	
CN42 Buzzer	Beep when system boot up	☒	☐	☐	
JP44 auto power button	1-2 Auto power button	☒	☐	☐	
CN34 LVDS Inverter Voltage setting	1-2 +12V 2-3 +5V (Default)	☒	☐	☐	
CN35 LVDS Backlight Control setting	1-2 AD5247 (Voltage control) 2-3 PWM control (Default)	☒	☐	☐	
CN36 LVDS Operating Voltage setting	1-2 +5V 2-3 +3.3V (Default)	☒	☐	☐	

1.13. Android Image Test

Process Step:

Click following ICON for function test.

Test result:

Test item	Criteria	Result			Note
		Pass	Fail	N/A	
Alarms icon	Alarms function should work properly.	☒	☐	☐	
Google search icon	Search function should work properly.	☒	☐	☐	
Return icon	Return function should work properly.	☒	☐	☐	
Home icon	Home function should work properly.	☒	☐	☐	
Recent Apps icon	Recent function should work properly.	☒	☐	☐	
Default APP: Browser icon	Browser function should work properly.	☒	☐	☐	
Default APP: Calculator	Calculator function should work properly.	☒	☐	☐	
Default APP: Calendar	Calendar function should work properly.	☒	☐	☐	
Default APP: Camera	Camera function should work properly.	☐	☐	☒	
Default APP: Clock	Clock function should work properly.	☒	☐	☐	
Default APP: Downloads	Downloads function should work properly.	☒	☐	☐	
Default APP: Email	Email function should work properly.	☒	☐	☐	
Default APP: File Manager	File manager function should work properly.	☒	☐	☐	
Default APP: Gallery	Gallery function should work properly.	☒	☐	☐	
Default APP: Messaging	Messaging function should work properly.	☒	☐	☐	
Default APP: Movie Studio	Movie studio function should work properly.	☒	☐	☐	

Default APP: Music	Music function should work properly.	☒	☐	☐	
Default APP: Notepad v3	Notepad function should work properly.	☒	☐	☐	
Default APP: People	People function should work properly.	☒	☐	☐	
Default APP: Search	Search function should work properly.	☒	☐	☐	
Default APP: Sound Recorder	Sound recorder function should work properly.	☒	☐	☐	
Default APP: System Profile	System profile function should work properly.	☐	☐	☒	
Default APP: Settings	Setting function should work properly.	☒	☐	☐	
Sound Volumes icon	Volumes function should work properly.	☒	☐	☐	
Stand by	Standby function should work properly.	☒	☐	☐	
Shutdown	Shutdown function should work properly.	☒	☐	☐	

2. Android - Hardware Periphery Compatibility Test

2.1. Hardware Periphery Compatibility

Process Step:

Connect following periphery devices for compatibility test.

Test result:

USB OTG	Devices should work properly.	Result			Note
		Pass	Fail	N/A	
Keyboard:	Microsoft 1366	☒	☐	☐	
Keyboard:	Logitech K200	☒	☐	☐	
Mouse:	Microsoft 1113	☒	☐	☐	
Mouse:	Logitech M-U0003	☒	☐	☐	
8G Flash	Sandisk Cruzer 8GB	☒	☐	☐	
16G Flash	Kingston Ultimate USB3.0 16GB	☒	☐	☐	
128G Flash	PNY USB3.0 128GB	☐	☐	☒	System can't support NTFS or exFAT
USB	**Devices should work properly.**	**Result**			**Note**
		Pass	**Fail**	**N/A**	
Keyboard:	Microsoft 1366	☒	☐	☐	
Keyboard:	Logitech K200	☒	☐	☐	
Mouse:	Microsoft 1113	☒	☐	☐	
Mouse:	Logitech M-U0003	☒	☐	☐	
8G Flash	Sandisk Cruzer 8GB	☒	☐	☐	(support FAT only)
16G Flash	Kingston Ultimate USB3.0 16GB	☒	☐	☐	(support FAT only)
128G Flash	PNY USB3.0 128GB	☐	☐	☒	System can't support NTFS or exFAT
HUB	i-ROCKS 4 ports USB2.0 HUB	☒	☐	☐	
SD Card (support FAT only)	**Devices should work properly.**	**Result**			**Note**
		Pass	**Fail**	**N/A**	
8G	ADATA 8GB (10)	☒	☐	☐	
16G	SP 16GB (10)	☒	☐	☐	
32G	Transcend SDHC Premium 300x 32GB	☒	☐	☐	
64G	Transcend SDXC Premium 300x 64GB	☒	☐	☐	
128G	Sandisk SDXC Ultra 128GB	☐	☐	☒	System can't support NTFS or exFAT
LAN Switch	**Devices should work properly.**	**Result**			**Note**
		Pass	**Fail**	**N/A**	
1G switch	D-Link DGS-1210-16	☒	☐	☐	
1G switch	D-Link DGS-1008D	☒	☐	☐	
100M switch	D-Link DES-1008A	☒	☐	☐	
100M switch	Accton Desktop-3005 Link 100MB	☒	☐	☐	
Mini PCI-e	**Devices should work properly.**	**Result**			**Note**

		Pass	Fail	N/A	
WIFI card		☐	☐	☒	
3G card		☐	☐	☒	

3. Android - Performance Test

3.1. System Performance Test

Process Step:

a. Install and execute following performance program.
b. Check program can be finished testing.
c. Record program test score.

Test result:

Testing Software		Score		Note
		AAEON	Ref.	
Antutu Benchmark (V5.7)				Android
Benchmark		13641	-	
benchmark				
Graphic		482.0451	-	
CPU		2977.4573	-	
Memory		422.45682	-	
Filesystem		215.56845	-	
An3D Benchmark				
Fillrate ST/MT:		11.47 MP/sec	-	
Higt object count		41.04 fps	-	
Multiple lights		60.09 fps	-	
High polygon count		60.08 fps	-	
keyframe animation		60.13 fps		
Game level		60.02 fps		
Total score		7540		
Speed Test_2.0.9(LAN)				
Onboard LAN	PNG	5ms	-	
	DOWNLOAD	91644kbps	-	
	UPLOAD	54000kbps	-	

3.2. Video Test

Process Step:

Play each format of video

Test result:

Test item		Criteria	Result			Note
			Pass	Fail	N/A	
Android	AVI	Play movie should not lag / hang up / blue screen / garbage screen)	☐	☐	☒	
	MPEG		☐	☐	☒	
	MP4		☒	☐	☐	Default support MP4 only
	Mov		☐	☐	☒	

4. Power Consumption

4.1. Power Consumption

Process Step:

Boot to OS and use ammeter to measure power consumption of each status.

Test result:

Test Equipment						
Equipment	Digital Multimeter					
Manufacturer	Hola					
Model name	DM-1240					
Test Environment						
Power supply / Adapter	Cooler Master RS-350-PCAR-I3					
Keyboard	Microsoft 1366					
Mouse	Microsoft 1113					
OS:	Android4.4.2 kernel 3.0.35-06522-g0a3529b-dirty					
Status		**Power Consumption**				**Note**
(Full Loading Mode) Android with Stability Test V2.5. Full Loading Test	(+12V)	0.63	A	7.56	W	
	(+5V)	N/A		N/A		
	(+3.3V)	N/A		N/A		
	(-12V)	N/A		N/A		
	(5VSB)	N/A		N/A		
Full Loading Total Watt	7.56(W)					
Sleep mode.	(+12V)	0.03	A	0.36	W	
	(+5V)	N/A		N/A		
	(+3.3V)	N/A		N/A		
	(-12V)	N/A		N/A		
	(5VSB)	N/A		N/A		
Suspend Total Watt	0.36(W)					
Idle mode:	(+12V)	0.23	A	2.76	W	
	(+5V)	N/A		N/A		
	(+3.3V)	N/A		N/A		
	(-12V)	N/A		N/A		
	(5VSB)	N/A		N/A		
Idle Total Watt	2.76(W)					

4.2. CMOS Battery Test

Process Step:

a. Unconnected power source, use meter to measure voltage of CMOS battery

b. Use a mmeter to measure current of CMOS battery.

Test result:

Check item	**Measured Voltage**		**Measured Current**		**Calculate Result**		**Result**			**Note**
							Pass	**Fail**	**N/A**	
Battery leakage 1. Voltage should be >3V. 2. Calculated result should be > 5 years.	3.26	V	0.8	uA	32	years	☒	☐	☐	

Calculate result=225mA/measured current / 365days/24hours

5. Linux - Basic Function and Image Test

5.1. Image boot Test

Process Step:

H/W jumper set boot from eMMC or SD card.

Test result:

Test item	Criteria	Result			Note
		Pass	Fail	N/A	
Boot from eMMC.	Boot to OS should work properly	☒	☐	☐	sudo su <root>
Boot from SD card.	Boot to OS should work properly	☒	☐	☐	

5.2. Video Resolution and Function Test

Process Step:

a. In U-boot, execute command to boot with LVDS.
b. Adjust the brightness with 0~100%.
c. In U-boot, execute command to boot with 1080p HDMI.

Test result:

Test item	Criteria	Result			Note
		Pass	Fail	N/A	
LVDS (1x 18 bit) 1024*768.	Dual LVDS display should work properly.	☒	☐	☐	
LVDS brightness control icon	Brightness should work properly by OS ICON control.	☒	☐	☐	PWM echo 0 > /sys/class/backlight/pwm-backlight.0/brightness echo 248 > /sys/class/backlight/pwm-backlight.0/brightness
1920x1080(HDMI)	Support 1920x1080 display include audio function	☒	☐	☐	

5.3. Audio Function Test

Process Step:

a. Set display from LVDS and broadcast music.
b. Connect Microphone and record the sound.
c. Set display from HDMI and broadcast music.

Test result:

Test item	Criteria	Result			Note
		Pass	Fail	N/A	
Onboard Audio Line out	Line out action and function should work properly	☒	☐	☐	Set output volume of speaker out in serial console: Command : amixer cset numid=22 100
Microphone Test	Microphone action and function should work properly.	☒	☐	☐	amixer sset 'MIXINR IN3R' on amixer sset 'INPGAR IN3R' on
HDMI Audio Line out	HDMI line out action and function should work proerly	☒	☐	☐	

5.4. LAN Function Test

Process Step:

a. Connect 1GB LAN switch.
b. Connect 100MB LAN switch.
c. Click " Browser" icon.
d. Connect LAN cable between DUT and Host, execute ping test command.

Test result:

Test item	Criteria	Result			Note
		Pass	Fail	N/A	
1GB connection	a. Speed LED color should show orange. b. Link LED color should show yellow and blink.	☒	☐	☐	
100MB connection	a. Speed LED color should show green. b. Link LED color should show yellow and blink.	☒	☐	☐	
Internet Browser (DHCP Server)	Visit the website should work properly	☒	☐	☐	
Ping test 1000 times.	Test result should not any loss.	☒	☐	☐	

5.5. USB Function Test

Process Step:

a. Connect USB keyboard / mouse to USB ports.
b. Connect USB flash to USB ports.
c. Connect USB keyboard / mouse / flash to USB OTG port.

Test result:

Test item	Criteria	Result			Note
		Pass	Fail	N/A	
USB Mouse and Keyboard	Keyboard and mouse should work properly.	☒	☐	☐	
USB 2.0 Removable Devices	USB flash should be detected and read / write work properly.	☒	☐	☐	
USB OTG	Keyboard / mouse / flash should work properly	☒	☐	☐	

5.6. UART (Debug port) Function Test

Process Step:

a. Connect Null cable between DUT and Host.
b. Install "Tera Term" to Host PC for UART control.

Test result:

Test item	Criteria	Result			Note
		Pass	Fail	N/A	
UART	U-boot and OS root should be controlled by Host PC.	☒	☐	☐	

5.7. UART Function Test

Process Step:

a. Command: stty -F /dev/ttymxc1 115200 and 9600
b. Command: minicom –s

c. Connect Null cable between DUT and Host, transmission the data.

Test result:

Test item		Criteria	Result			Note
			Pass	Fail	N/A	
Transmission	9600bps	No error or loss	☒	☐	☐	
	115200bps	No error or loss	☒	☐	☐	

5.8. Mini PCI-Express Function Test

Process Step:

a. Connect PER-C11L LAN card.
b. Run the browser to visit website.
c. Connect HE910D 3G card.
d. Send message to cell phone.

Test result:

Test item	Criteria	Result			Note
		Pass	Fail	N/A	
AAEON PER-C11L	LAN and USB function should work properly.	☒	☐	☐	
3G card HE910D	3G send message to cell phone function should work properly.	☒	☐	☐	

5.9. SATA Function Test

Process Step:

a. Connect SATA HDD to SATA port.
b. To read / write HDD.

Test result:

Test item	Criteria	Result			Note
		Pass	Fail	N/A	
SATA HDD	SATA HDD should work properly.	☒	☐	☐	

5.10. Can Bus Function Test

Process Step:

a. Connect Can Bus cable between DUT1 and DUT2.
b. Enter command in receive side and transmitter side.

Test result:

Test item	Criteria	Result			Note
		Pass	Fail	N/A	
Can Bus	Receiver side and Transmitter side data should show match.	☒	☐	☐	

5.11. I2C Function Test

Process Step:

a. Boot to U-boot.
b. command: i2c probe.

Test result:

Test item	Criteria	Result			Note
		Pass	Fail	N/A	
I2C	command will show: [Valid chip addresses: 00 08 2E 32 37 50	☒	☐	☐	

5.12. GPIO Function Test

Process Step:

a. Execute AP for DIO test.
b. Measure GPIO pin voltage.

Test result:

Test item	Criteria	Result			Note
		Pass	Fail	N/A	
GPIO	GPIO voltage should meet AP setting.	☒	☐	☐	

5.13. Linux Image Test

Process Step:

Click following icon.

Test result:

Test item	Criteria	Result			Note
		Pass	Fail	N/A	
uname –a	Enter command "uname -a" should work properly.	☒	☐	☐	
Shutdown	Shutdown icon should work properly.	☒	☐	☐	Init 0 pass Default image, shutdown ICON was not be supported.
Restart the Computer	Restart icon should work properly.	☒	☐	☐	Init 6 pass Default image, reset ICON was not be supported
Log out	Logout function should work properly.	☒	☐	☐	
Lock Screen	Lock screen function should work properly.	☒	☐	☐	
Suspend (Stand by)	Suspend should work properly.	☒	☐	☐	
ls / clear ……; cd /dev /ls –l	Enter command " ls / clear ……; cd /dev /ls –l" function should work properly.	☒	☐	☐	
Icon-search	Search function should work properly.	☒	☐	☐	
Icon-Home Folder	Home folder function should work properly.	☒	☐	☐	
Icon-Firefox Web Browser	Browser function should work properly.	☒	☐	☐	
Icon-Ubuntu Software Center	Software center function should work properly.	☒	☐	☐	
Icon-Ubuntu One	Ubuntu one function should work properly.	☒	☐	☐	
Icon-System Settings	System settings function should work properly.	☒	☐	☐	
Icon-Terminal	Terminal function should work properly.	☒	☐	☐	
Icon-Workspaces	Workspaces function should work properly.	☒	☐	☐	

6. Linux - Hardware Periphery Compatibility Test

6.1. Hardware Periphery Compatibility

Process Step:

Connect following periphery devices for compatibility test.

Test result:

USB	Devices should work properly.	Result			Note
		Pass	Fail	N/A	
Keyboard:	Microsoft 1366	☒	☐	☐	
Keyboard:	Logitech K200	☒	☐	☐	
Mouse:	Microsoft 1113	☒	☐	☐	
Mouse:	Logitech M-U0003	☒	☐	☐	
8G Flash	Sandisk Cruzer 8GB	☒	☐	☐	
16G Flash	Kingston Ultimate USB3.0 16GB	☒	☐	☐	
128G Flash	PNY USB3.0 128GB	☐	☐	☒	System can't support NTFS or exFAT
HUB	i-ROCKS 4 ports USB2.0 HUB	☒	☐	☐	
SD Card (support FAT only)	**Devices should work properly.**	**Result**			**Note**
		Pass	**Fail**	**N/A**	
8G	ADATA 8GB (10)	☒	☐	☐	
16G	SP 16GB (10)	☒	☐	☐	
32G	Transcend SDHC Premium 300x 32GB	☒	☐	☐	
64G	Transcend SDXC Premium 300x 64GB	☒	☐	☐	
128G	Sandisk SDXC Ultra 128GB	☐	☐	☒	System can't support NTFS or exFAT
LAN Switch	**Devices should work properly.**	**Result**			**Note**
		Pass	**Fail**	**N/A**	
1G switch	D-Link DGS-1210-16	☒	☐	☐	
1G switch	D-Link DGS-1008D	☒	☐	☐	
100M switch	D-Link DES-1008A	☒	☐	☐	
100M switch	Accton Desktop-3005 Link 100MB	☒	☐	☐	
Mini PCIe	**Devices should work properly.**	**Result**			**Note**
		Pass	**Fail**	**N/A**	
AAEON PER-C11L Gigabit LAN card.		☒	☐	☐	
3G card HE910D		☒	☐	☐	
SATA HDD	**Devices should work properly.**	**Result**			**Note**
		Pass	**Fail**	**N/A**	
500G	WD WD5000LPVX 500GB	☒	☐	☐	
1TB	WD WD10SPCX 1TB	☒	☐	☐	
SSD	ADATA SX900 128GB	☒	☐	☐	

7. Linux - Performance Test

7.1. Video Test

Process Step:

Play each format video.

Test result:

Test item		Criteria	Result			Note
			Pass	Fail	N/A	
Linux	AVI	Play movie should not lag / hang up / blue screen / garbage screen)	☒	☐	☐	
	MPEG		☒	☐	☐	
	MP4		☒	☐	☐	
	Mov		☒	☐	☐	

8. Linux Stability Test

8.1. Run in Test

Process Step:

a. Connect to Ethernet.
b. Install stress tool by following commands.
“sudo apt-get install stress”
d. Type command to test.
“stress -c 4”
e. Use System monitor to confirm that CPUs are running at 100%.

Test result:

Test item	Criteria	Result			Note
		Pass	Fail	N/A	
Stress test overnight test	No halt, shutdown, reboot and error message.	☒	☐	☐	

8.2. Cold Boot Test

Process Step:

a. OS: under u-boot
b. To run AC loss on / off for 1000 cycles.

Test result:

Test item	Criteria	Result			Note
		Pass	Fail	N/A	
Cold boot on/off test	Loss: 0/1000 times	☒	☐	☐	

9. Time Accuracy Test

Process Step:

a. Check RTC time deviation after 24 hrs at power on status.
b. Check RTC time deviation after 24 hrs at power off status.
c. Press power button to check system with “beep” sound.
d. Click shutdown icon to check system shutdown time.
e. Run watchdog timer test with SDK under Linux.

Test result:

No.	Test item	Actual		Result			Remark
				Pass	Fail	N/A	
1	RTC Clock in Power On less 2 sec deviation	+1	Sec	☒	☐	☐	# i2c mm 32 10 <Keyin time> # i2c md 32 10 <Read time>
2	RTC Clock in Power Off less 2 sec deviation	-0.5	Sec	☒	☐	☐	# i2c mm 32 10 <Keyin time> # i2c md 32 10 <Read time>
3	System boot on in 7 sec.	3	Sec	☒	☐	☐	
4	System shutdown in 20 sec.	13	Sec	☒	☐	☐	
4	Watch dog time in 6+/-10% sec	10.2	Sec	☒	☐	☐	
5	Watch dog time in 60+/-10% sec	60	Sec	☒	☐	☐	
6	Watch dog time in 255+/-10% sec	128.5	sec	☒	☐	☐	