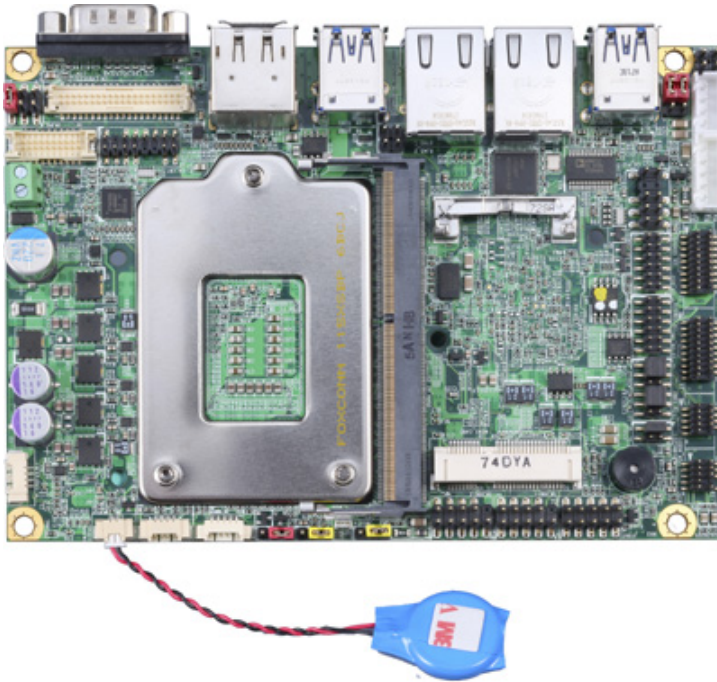


Product Test Report



Product Name	LS-37K
Product Version	B
Issued Date	2019.11.05
Report Edition	1.0
BIOS Version	3.0
Testing Engineer	Rick
Check Engineer	Daniel

REVISION HISTORY

DATE	REVISION NO.	PAGE	DESCRIPTONS
2019.11.05	Ver. 1.0	40	Initial Release

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1. Function test

1.1 Hardware functions

Base Function Test

Item	Description	Result
1	Power Button	PASS
2	Reset	PASS
3	Power LED	PASS
4	HDD LED	PASS
5	CPUFAN	PASS
6	SYSFAN	PASS
7	CN_AUDIO	PASS
8	LAN1	PASS
9	LAN2	PASS
10	DDR4	PASS
11	SATA1/2	PASS
12	USB2.0 1/2/3/4	PASS
13	USB3.0 1/2/3/4	PASS
14	COM 1/2/3/4/5/6	PASS
15	CN_PS2	PASS
16	DVI	PASS
17	HDMI	PASS
18	Display Port	PASS
19	CN_CRT	PASS
20	LVDS	PASS
21	MINI_CRAD	PASS

Jumper

Item	Description	Result
1	JRTC	PASS
2	JAT	PASS
3	JCSEL1	PASS
4	JCSEL2	PASS
5	JVUSB	PASS
6	JVLCD	PASS
7	JMSATA	PASS

1.2 BIOS function

Item	Description	Result	Remark
1	Press 'Del' to run Setup Utility	PASS	
2	Ctrl-Alt-Del – Soft-Reboot	PASS	
3	Save & Exit Setup	PASS	
4	Date & Time Setting	PASS	
5	Selection Language	PASS	
6	Num Lock	PASS	
7	Quick Boot	PASS	
8	Diagnostic Splash Screen	PASS	
9	Diagnostic Summary Screen	PASS	
10	Serial Port	PASS	
11	Watch Dog Timer	PASS	
12	SATA Controller(s)	PASS	
13	Power Control	PASS	
14	PS2 Keyboard and Mouse	PASS	
15	HD Audio	PASS	
16	Set Supervisor Password	PASS	
17	Set User Password	PASS	
18	HDD Password	PASS	

1.3 Driver

CD edition : IPCLi1-1.8

1. Windows 7 32 bit Driver Test (VGA Driver only supports Skylake CPU)

Item	Description	Result	Version
1	Chipset Driver	PASS	10.1.1
2	VGA Driver	PASS	20.19.15.4352
3	Audio Driver	PASS	6.0.1.7541
4	LAN Driver	PASS	12.13.17.4

2. Windows 7 64 bit Driver Test (VGA Driver only supports Skylake CPU)

Item	Description	Result	Version
1	Chipset Driver	PASS	10.1.1
2	VGA Driver	PASS	21.20.16.4627
3	Audio Driver	PASS	6.0.1.8036
4	LAN Driver	PASS	12.13.17.4

3. Windows 8.1 32 bit Driver Test

Item	Description	Result	Version
1	Chipset Driver	PASS	10.1.1
2	Audio Driver	PASS	6.0.1.7541
3	LAN Driver	PASS	12.13.17.4

4. Windows 8.1 64 bit Driver Test (VGA Driver only supports Skylake CPU)

Item	Description	Result	Version
1	Chipset Driver	PASS	10.1.1
2	VGA Driver	PASS	21.20.16.4627
3	Audio Driver	PASS	6.0.1.8036
4	LAN Driver	PASS	12.13.17.4

5. Windows 10 32 bit Driver Test

Item	Description	Result	Version
1	Chipset Driver	PASS	10.1.1
2	Audio Driver	PASS	6.0.1.7541
3	LAN Driver	PASS	12.13.17.4

6. Windows 10 64 bit Driver Test

Item	Description	Result	Version
1	Chipset Driver	PASS	10.1.1
2	VGA Driver	PASS	201.20.16.4627
3	Audio Driver	PASS	6.0.1.8036
4	LAN Driver	PASS	12.13.17.4

2. Compatibility test

2.1 CPU Test

Test environment:

OS: Windows Windows 10 64-bit

Test program : 3D MARK VANTAGE

Spec	CPU Speed	Family	Processor	MAX TDP	Smart Cache	Result
SR2LP	3.40GHz	CORE	i7-6700TE	35W	8 MB	PASS
SR339	3.80GHz	CORE	i7-7700T	35W	8 MB	PASS

2.2 Memory Test

Test environment:

OS: Windows 10 64-bit

Test program : 3D MARK VANTAGE

Manufacturer	Chip	Frequency	Capacity Mbytes	Memory test Source
Acpi CMA6-3FA01AA R01M00	SK hynix H5N4G8NMFR	DDR4 2133	4 GB	PASS
Kingston KVR21SE15D8/8	SK hynix H5AN4G8NAFR	DDR4 2133	8 GB	PASS
Transcend C8507-0080	SEC 446 BCPB K4A8G0B	DDR4 2133	16 GB	PASS
Kingston KVR12S15D8/8	Micro 6JB47 D9TBH	DDR4 2133	16 GB	PASS

2.3 CRT Graphic Quality Test

Test environment:

OS Windows 10 64-bit

Driver version : 21.20.16.4627

Resolution	Refresh Rate	Result	Remark
800 x 600	60p / 75p Hz	PASS	
1024 x 768	60p / 75p Hz	PASS	
1152 x 864	60p Hz	PASS	
1280 x 600	60p Hz	PASS	
1280 x 720	60p Hz	PASS	
1280 x 768	60p Hz	PASS	
1280 x 800	60p Hz	PASS	
1280 x 960	60p Hz	PASS	
1280 x 1024	60p / 75p Hz	PASS	
1360 x 768	60p Hz	PASS	
1366 x 768	60p Hz	PASS	
1400 x 1050	60p Hz	PASS	
1440 x 900	60p / 75p Hz	PASS	
1600 x 900	60p Hz	PASS	
1600 x 1200	60p Hz	PASS	
1680 x 1050	60p / 75p Hz	PASS	
1920 x 1080	60p Hz	PASS	

2.4 DVI Graphic Quality Test

Test environment:

OS Windows 10 64-bit

Driver version : 21.20.16.4627

Resolution	Refresh Rate	Result	Remark
800 x 600	60p Hz	PASS	
1024 x 768	60p Hz	PASS	
1152 x 864	60p Hz	PASS	
1280 x 600	60p Hz	PASS	
1280 x 720	60p Hz	PASS	
1280 x 768	60p Hz	PASS	
1280 x 800	60p Hz	PASS	
1280 x 960	60p Hz	PASS	
1280 x 1024	60p Hz	PASS	
1360 x 768	60p Hz	PASS	
1366 x 768	60p Hz	PASS	
1400 x 1050	60p Hz	PASS	
1440 x 900	60p Hz	PASS	
1600 x 900	60p Hz	PASS	
1680 x 1050	60p Hz	PASS	
1920 x 1080	60p Hz	PASS	

2.5 Display Port Graphic Quality Test

Test environment:

OS Windows 10 64-bit

Driver version : 21.20.16.4627

Resolution	Refresh Rate	Result	Remark
800 x 600	29p / 30p / 60p / 72p / 75p Hz	PASS	
1024 x 768	29p / 30p / 59p / 60p / 70p / 75p Hz	PASS	
1152 x 864	29p / 30p / 75p Hz	PASS	
1280 x 600	29p / 30p Hz	PASS	
1280 x 720	29p / 30p / 59p / 60p Hz	PASS	
1280 x 768	29p / 30p Hz	PASS	
1280 x 800	29p / 30p / 60p Hz	PASS	
1280 x 960	29p / 30p Hz	PASS	
1280 x 1024	29p / 30p / 59p / 60p / 75p Hz	PASS	
1360 x 768	29p / 30p Hz	PASS	
1366 x 768	29p / 30p Hz	PASS	
1400 x 1050	29p / 30p Hz	PASS	
1440 x 900	29p / 30p / 59p / 60p Hz	PASS	
1600 x 900	29p / 30p Hz	PASS	
1600 x 1200	29p / 30p Hz	PASS	
1680 x 1050	29p / 30p / 59p / 60p Hz	PASS	
1792 x 1344	29p / 30p Hz	PASS	
1856 x 1392	29p / 30p Hz	PASS	
1920 x 1080	29p / 30p / 59p / 60p Hz	PASS	
1920 x 1200	29p / 30p Hz	PASS	
1920 x 1440	29p / 30p Hz	PASS	

2048 x 1152	29p / 30p Hz	PASS	
2048 x 1536	29p / 30p Hz	PASS	
2560 x 1440	29p / 30p / 59p / 60p Hz	PASS	
2560 x 1600	29p / 30p Hz	PASS	
2560 x 1920	29p / 30p Hz	PASS	
2560 x 2048	29p / 30p Hz	PASS	
3840 x 2160	29p / 30p Hz	PASS	

2.6 HDMI Graphic Quality Test

Test environment:

OS Windows 10 64-bit

Driver version : 21.20.16.4627

Resolution	Refresh Rate	Result	Remark
800 x 600	23p / 24p / 25p / 29p / 30p / 60p / 72p / 75p Hz	PASS	
1024 x 768	23p / 24p / 25p / 29p / 30p / 60p / 70p / 75p Hz	PASS	
1152 x 864	23p / 24p / 25p / 29p / 30p / 75p Hz	PASS	
1280 x 600	23p / 24p / 25p / 29p / 30p Hz	PASS	
1280 x 720	23p / 24p / 25p / 29p / 30p / 50p / 59p / 60p Hz	PASS	
1280 x 768	23p / 24p / 25p / 29p / 30p Hz	PASS	
1280 x 800	23p / 24p / 25p / 29p / 30p / 60p Hz	PASS	

1280 x 960	23p / 24p / 25p / 29p / 30p Hz	PASS	
1280 x 1024	23p / 24p / 25p / 29p / 30p / 59p / 60p / 75p Hz	PASS	
1360 x 768	23p / 24p / 25p / 29p / 30p Hz	PASS	
1366 x 768	23p / 24p / 25p / 29p / 30p Hz	PASS	
1400 x 1050	23p / 24p / 25p / 29p / 30p Hz	PASS	
1440 x 900	23p / 24p / 25p / 29p / 30p / 60p Hz	PASS	
1600 x 900	23p / 24p / 25p / 29p / 30p Hz	PASS	
1600 x 1200	23p / 24p / 25p / 29p / 30p Hz	PASS	
1680 x 1050	23p / 24p / 25p / 29p / 30p / 59p / 60p Hz	PASS	
1792 x 1344	23p / 24p / 25p / 29p / 30p Hz	PASS	
1856 x 1392	23p / 24p / 25p / 29p / 30p Hz	PASS	
1920 x 1080	23p / 24p / 25p / 29p / 30p / 59p / 60p Hz	PASS	
1920 x 1200	23p / 24p / 25p / 29p / 30p Hz	PASS	
1920 x 1440	23p / 24p / 25p / 29p / 30p Hz	PASS	
2048 x 1152	23p / 24p / 25p / 29p / 30p Hz	PASS	
2048 x 1536	23p / 24p / 25p / 29p / 30p Hz	PASS	
2560 x 1440	23p / 24p / 25p / 29p / 30p / 59p / 60p Hz	PASS	
2560 x 1600	23p / 24p / 25p / 29p / 30p Hz	PASS	
2560 x 1920	23p / 24p / 25p / 29p / 30p Hz	PASS	
2560 x 2048	23p / 24p / 25p / 29p / 30p Hz	PASS	
3840 x 2160	23p / 24p / 25p / 29p / 30p Hz	PASS	

2.7 Audio

Test environment:

OS Windows 7 32-bit

Driver version : 6.0.1.7541

Item	Description	Result	Remark
1	2.1CH	PASS	
2	Microphone	PASS	

OS Windows 7 64-bit

Driver version : 6.0.1.8036

Item	Description	Result	Remark
1	2.1CH	PASS	
2	Microphone	PASS	

OS Windows 8.1 32-bit

Driver version : 6.0.1.7541

Item	Description	Result	Remark
1	2.1CH	PASS	
2	Microphone	PASS	

OS Windows 8.1 64-bit

Driver version : 6.0.1.8036

Item	Description	Result	Remark
1	2.1CH	PASS	
2	Microphone	PASS	

OS Windows 10 32-bit

Driver version : 6.0.1.7541

Item	Description	Result	Remark
1	2.1CH	PASS	
2	Microphone	PASS	

OS Windows 10 64-bit

Driver version : 6.0.1.8036

Item	Description	Result	Remark
1	2.1CH	PASS	
2	Microphone	PASS	

OS Ubuntu 16.04

Item	Description	Result	Remark
1	2.1CH	PASS	

2.8 HDD Test

Test environment:

OS Windows 10 64-bit

HDD Model	Interface	Capacity	HDD Size Detect	HDD Data Transfer	HDD LED Check
Western Digital WD800BEVS-00RST0	SATA	80 GB	PASS	PASS	PASS
Western Digital WD800BEVS-16VAT0	SATA	80 GB	PASS	PASS	PASS
Western Digital WD3200BEKT-00F3T0	SATA	320 GB	PASS	PASS	PASS

HDD Model	Interface	Capacity	HDD Size Detect	HDD Data Transfer	HDD LED Check
TOSHIBA DT01ACA200	SATA	2.0 TB	PASS	PASS	PASS
MemoRight MRSAJ6C064GC125C00	SSD	64 GB	PASS	PASS	PASS
Crucial CT120BX500SSD1	SSD	120 GB	PASS	PASS	PASS
INTEL SSDSC2BW240A4	SSD	240 GB	PASS	PASS	PASS
KINGSTON SV300S37A	SSD	240 GB	PASS	PASS	PASS
Western Digital WDS250G2B0A-00SM50	SSD	250 GB	PASS	PASS	PASS
crucial CT120M500SSD3	mSATA	120 GB	PASS	PASS	PASS
acpi MRSAJ6C064GC125C	mSATA	64 GB	PASS	PASS	PASS

2.9 DVD-ROM Test

Test environment:

OS Windows 10 64-bit

DVD-ROM Model	Interface	DVD-ROM Detect	DVD-ROM Data Transfer	Play DVD
ASUS DRW-24D1ST	SATA	PASS	PASS	PASS
ASUS DRW-1814BLT	SATA	PASS	PASS	PASS

LITE-ON iHES312	SATA	PASS	PASS	PASS
PIONEER DVR-S19LBK	SATA	PASS	PASS	PASS
PIONEER DVR-XD11T	USB	PASS	PASS	PASS

2.10 USB Test

1. Windows 7 32/64-bit

Item	Result	Remark
External USB Keyboard Test	PASS	
External USB Mouse Test	PASS	
Hot plugging test	PASS	
DVD-ROM	PASS	
USB Mass storage	PASS	

2. Windows 8.1 32/64-bit

Item	Result	Remark
External USB Keyboard Test	PASS	
External USB Mouse Test	PASS	
Hot plugging test	PASS	
DVD-ROM	PASS	
USB Mass storage	PASS	

3. Windows 10 32/64-bit

Item	Result	Remark
External USB Keyboard Test	PASS	
External USB Mouse Test	PASS	
Hot plugging test	PASS	
DVD-ROM	PASS	
USB Mass storage	PASS	

4. Ubuntu 16.04

Item	Result	Remark
External USB Keyboard Test	PASS	
External USB Mouse Test	PASS	
Hot plugging test	PASS	
DVD-ROM	PASS	
USB Mass storage	PASS	

2.11 Serial Port Test

1. Windows 7 32/64-bit

Item	Description	Result	Remark
1	Device Manager Check	PASS	
2	RS-232 Mouse Test	PASS	

2. Windows 8.1 32/64-bit

Item	Description	Result	Remark
1	Device Manager Check	PASS	
2	RS-232 Mouse Test	PASS	

3. Windows 10 32/64-bit

Item	Description	Result	Remark
1	Device Manager Check	PASS	
2	RS-232 Mouse Test	PASS	

2.12 PS2 Keyboard 、 Mouse Test

1. Windows 7 32/64-bit

Item	Description	Result	Remark
1	Device Manager Check	PASS	
2	Keyboard Typing Test	PASS	
3	Mouse Detect Test	PASS	

2. Windows 8.1 32/64-bit

Item	Description	Result	Remark
1	Device Manager Check	PASS	
2	Keyboard Typing Test	PASS	
3	Mouse Detect Test	PASS	

3. Windows 10 32/64-bit

Item	Description	Result	Remark
1	Device Manager Check	PASS	
2	Keyboard Typing Test	PASS	
3	Mouse Detect Test	PASS	

4. Ubuntu 16.04

Item	Description	Result	Remark
1	Device Manager Check	PASS	
2	Keyboard Typing Test	PASS	
3	Mouse Detect Test	PASS	

2.13 LAN Test

Data Transfer Test environment:

-CAT 6 UTP 100M

-8 HR. continuous

1. Windows 7 32/64-bit (Only Sky Lake CPU)

Item	Description	Result	Remark
1	Device Manager Check	PASS	(IPERF)
2	Data Transfer Test	PASS	(IPERF)

2. Windows 8.1 32/64-bit (Only Sky Lake CPU)

Item	Description	Result	Remark
1	Device Manager Check	PASS	(IPERF)
2	Data Transfer Test	PASS	(IPERF)

3. Windows 10 32/64-bit (32-bit only Sky Lake CPU)

Item	Description	Result	Remark
1	Device Manager Check	PASS	(IPERF)
2	Data Transfer Test	PASS	(IPERF)

4. Ubuntu 16.04

Item	Description	Result	Remark
1	Device Manager Check	PASS	

2.14 Power Supply Test

Item	Type	Description	Result	Remark
1	Adapter	FSP GROUP INC. FSP120-AAA 120W	PASS	
2	Adapter	LI SHIN 0227B19120 120W	PASS	

2.15 OS Install

Item	Description	Result	Remark
1	Windows 7 32/64 bit	PASS	
2	Windows 8.1 32/64 bit	PASS	
3	Windows 10 32/64 bit	PASS	
4	Ubuntu16.04 (4.8.0-36-generic)	PASS	

2.16 PCI Express Mini Card

Motherboard	PCI Express mini card	Remark
LS-37K	MPX-210D	PASS
	MPX-210D2	PASS
	MPX-350	PASS
	MPX-574D	PASS
	MPX-574D2	PASS
	MPX-827	PASS
	MPX-885	PASS
	MPX-2213	PASS
	MPX-6864	PASS
	MPX-8188	PASS
	MPX-25858	PASS
	MPX-M2EG	PASS
	M2-210	PASS
	mSATA	PASS

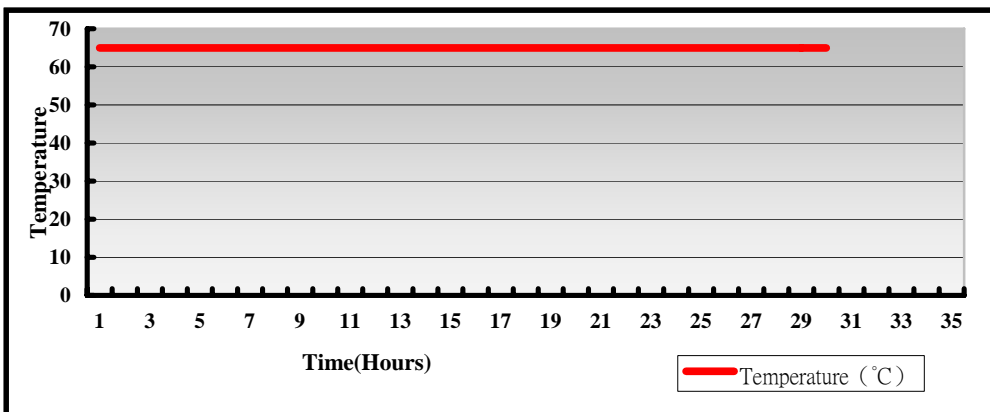
3. Environmental test

3.1 Temperature Test

Hardware Device list:

System Board	LS-37K_B
CPU	Intel(R) Core(TM) i7-7700T 3.80GHz
Memory	Kingston DDR4 2133 16GB (Micro 6JB47 D9TBH)
HDD	MemoRight MRSAJ6C064GC125C00 64GB
Operating OS	Windows 10 64-bit
Test Equipment	THERMOTRON 2800 Programmer/Controller
Test Program	BurnIn7.0 + Prime95

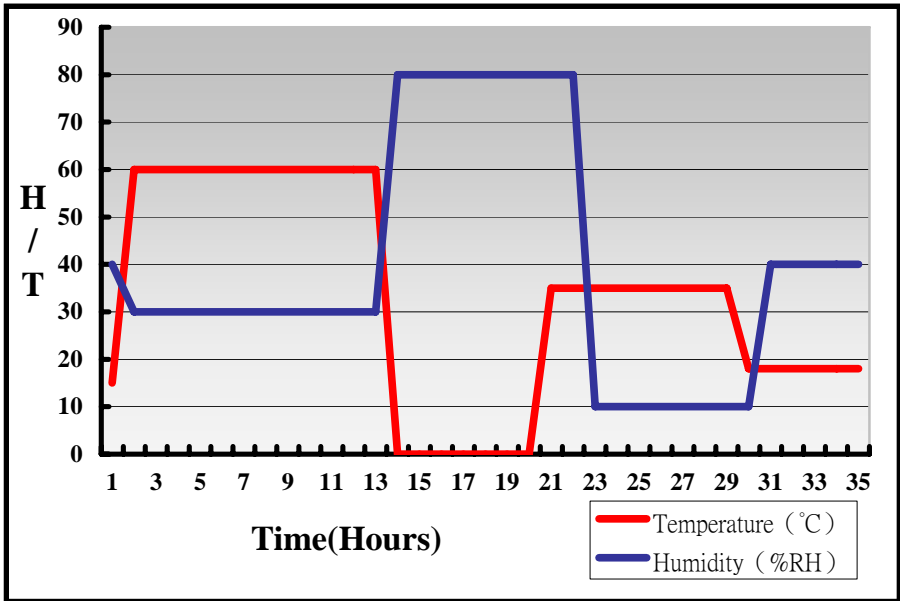
Test Result:



Hardware Device list:

System Board	LS-37K_B
CPU	Intel(R) Core(TM) i7-7700T 3.80GHz
Memory	Kingston DDR4 2133 16GB (Micro 6JB47 D9TBH)
HDD	MemoRight MRSAJ6C064GC125C00 64GB
Operating OS	Windows 10 64-bit
Test Equipment	THERMOTRON 2800 Programmer/Controller
Test Program	BurnIn7.0 + Prime95

Test Result:



Boot up Test:

Hardware Device list:

System Board	LS-37K_B
CPU	Intel(R) Core(TM) i7-7700T 3.80GHz
Memory	Kingston DDR4 2133 16GB (Micro 6JB47 D9TBH)
HDD	MemoRight MRSAJ6C064GC125C00 64GB

Temperature	Result	Remark
-40°C	PASS	50 Times
75°C	PASS	50 Times

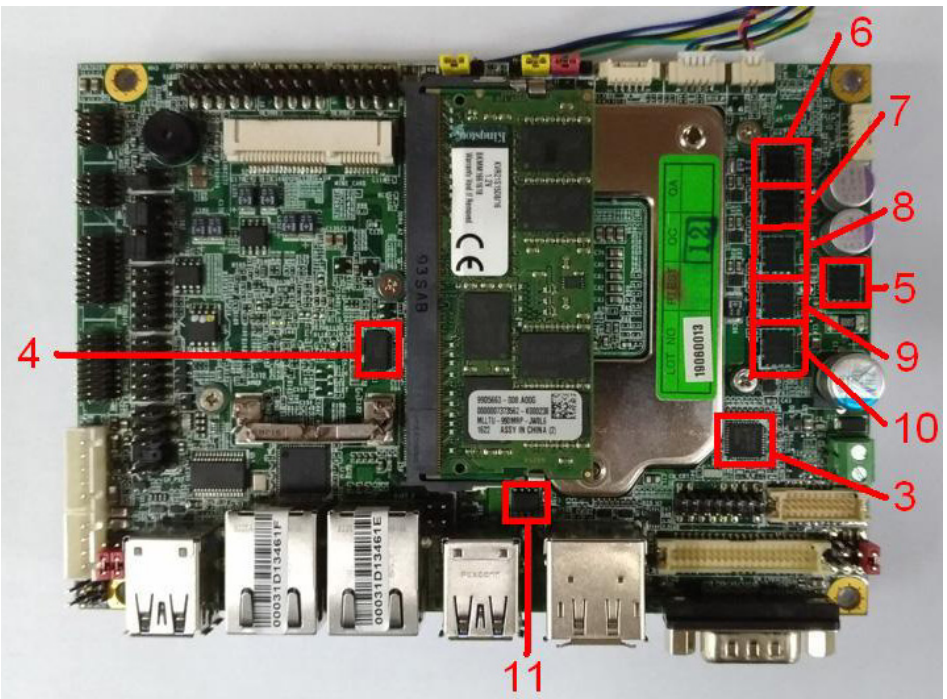
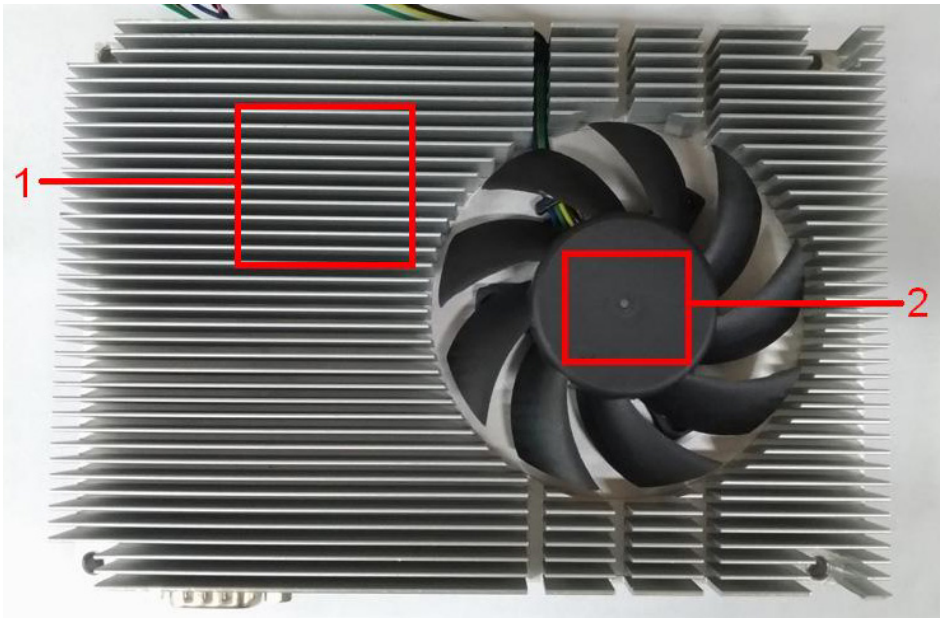
3.2 Thermal measurements at various points on the board

Test Environment:

CPU	Intel(R) Core(TM) i7-7700T 3.80GHz
Memory	Kingston DDR4 2133 16GB (Micro 6JB47 D9TBH)
HDD	MemoRight MRSAJ6C064GC125C00 64GB
Adapter	FSP120-AAA
Operating System	Windows 10 64-bit
Test Program	BurnIn 7.0 Pro + Prime 95

Test Result:

Item	Environmental temperature	23.5°C
1	CPU	60.1°C
2	PCH (ICH9C236)	53.9°C
3	U3 (ICPIN3355BS)	53.3°C
4	U11 (ICEN5337QI)	57.9°C
5	Q1 (TMSFDMS3669S)	57.8°C
6	Q3 (TMSFDMS3669S)	55.1°C
7	Q4 (TMSFDMS3669S)	56.8°C
8	Q5 (TMSFDMS3669S)	61.8°C
9	Q6 (TMSFDMS3669S)	62.8°C
10	Q7 (TMSFDMS3669S)	63.9°C
11	Q10 (TMSFDMS8984)	61°C



4. Reliability Test

4.1 Power Consumption Test

1. Test Environment:

Motherboard	LS-37K_B
CPU	Intel(R) Core(TM) i7-7700T 3.80GHz
Memory	Transcend DDR4 2133 16GB (SEC 546 K4A8G08)
HDD	TOSHIBA DT01ACA200 2TB

Power Supply: LI SHIN 0227B19120

Voltage	MS-DOS Boot up		Windows 10 64-bit 3D MARK VANTAGE + PRIME95	
	Current (A)	Power (W)	Current (A)	Power (W)
19V	1.3	24.7	2.93	55.67

1. a. Test Environment:

The same as above but with LCD

Display Panel	LG LM190WX1
----------------------	-------------

Power Supply: LI SHIN 0227B19120

Voltage	MS-DOS Boot up		Windows 10 64-bit 3D MARK VANTAGE + PRIME95	
	Current (A)	Power (W)	Current (A)	Power (W)
19V	2.14	40.66	3.81	72.39

2. Test Environment:

Motherboard	LS-37K_B
CPU	Intel(R) Core(TM) i7-6700TE 3.40GHz
Memory	Transcend DDR4 2133 16GB (SEC 546 K4A8G08)
HDD	crucial CT120BX500SSD1 120GB

Power Supply: LI SHIN 0227B19120

Voltage	MS-DOS Boot up		Windows 10 64-bit 3D MARK VANTAGE + PRIME95	
	Current (A)	Power (W)	Current (A)	Power (W)
19V	1.33	25.27	2.26	42.94

2. a. Test Environment:

The same as above but with LCD

Display Panel	LG LM190WX1
----------------------	-------------

Power Supply: LI SHIN 0227B19120

Voltage	MS-DOS Boot up		Windows 10 64-bit 3D MARK VANTAGE + PRIME95	
	Current (A)	Power (W)	Current (A)	Power (W)
19V	2.26	42.94	3.26	61.94

5. Performance Test

5.1 3D MARK VANTAGE

Windows 10 64-bit

Item	Weighted Suite	Test Environment	Result	Remark
1	3DMARK SCORE	Intel(R) Core(TM) i7-6700TE 3.40GHz ACPI DDR4 2133 4GB (SK hynix H5AN4G8NMFR) crucial CT120BX500SSD1 120GB	PASS	P5679
2	GPU SCORE		PASS	4581
3	CPU SCORE		PASS	20212

Windows 10 64-bit

Item	Weighted Suite	Test Environment	Result	Remark
1	3DMARK SCORE	Intel(R) Core(TM) i7-6700TE 3.40GHz Kingston DDR4 2133 8GB (SK hynix H5AN4G8NMFR) crucial CT120BX500SSD1 120GB	PASS	P5898
2	GPU SCORE		PASS	4766
3	CPU SCORE		PASS	20483

Windows 10 64-bit

Item	Weighted Suite	Test Environment	Result	Remark
1	3DMARK SCORE	Intel(R) Core(TM) i7-7700T 3.80GHz Transcend DDR4 2133 16GB (SEC 546 K4A8G08) crucial CT120BX500SSD1 120GB	PASS	P5887
2	GPU SCORE		PASS	4755
3	CPU SCORE		PASS	20577

5.2 3D MARK (Fire Strike)

Windows 10 64-bit

Item	Weighted Suite	Test Environment	Result	Remark
1	3D Mark Score	Intel(R) Core(TM) i7-7700T 3.80GHz ACPI DDR4 2133 4GB (SK hynix H5AN4G8NMFR) TOSHIBA DT01ACA200 2TB	PASS	963
2	Graphics Score		PASS	1035
3	Physics Score		PASS	8408
4	Combined Score		PASS	338

Windows 10 64-bit

Item	Weighted Suite	Test Environment	Result	Remark
1	3D Mark Score	Intel(R) Core(TM) i7-6700TE 3.40GHz ACPI DDR4 2133 4GB (SK hynix H5AN4G8NMFR) crucial CT120BX500SSD1 120GB	PASS	774
2	Graphics Score		PASS	828
3	Physics Score		PASS	7684
4	Combined Score		PASS	273

5.3 3D MARK (TIME SPY)

Windows 10 64-bit

Item	Weighted Suite	Test Environment	Result	Remark
1	3DMARK SCORE	Intel(R) Core(TM) i7-7700T 3.80GHz Kingston DDR4 2133 8GB (SK hynix H5AN4G8NMFR) TOSHIBA DT01ACA200 2TB	PASS	361
2	Graphics SCORE		PASS	314
3	CPU SCORE		PASS	2571

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Item	Weighted Suite	Test Environment	Result	Remark
1	3DMARK SCORE	Intel(R) Core(TM) i7-7700T 3.80GHz	PASS	391
2	Graphics SCORE	Transcend DDR4 2133 16GB (SEC 546 K4A8G08)	PASS	340
3	CPU SCORE	TOSHIBA DT01ACA200 2TB	PASS	2716

5.4 x264 FHD Benchmark

Test Environment
Intel(R) Core(TM) i7-7700T 3.80GHz ACPI DDR4 2133 4GB (SK hynix H5AN4G8NMFR) TOSHIBA DT01ACA200 2TB

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Item	Result	Remark
1	PASS	21.1

Test Environment
Intel(R) Core(TM) i7-7700T 3.80GHz Kingston DDR4 2133 8GB (SK hynix H5AN4G8NMFR) TOSHIBA DT01ACA200 2TB

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Item	Result	Remark
1	PASS	19

Test Environment
Intel(R) Core(TM) i7-7700T 3.80GHz Transcend DDR4 2133 16GB (SEC 546 K4A8G08) TOSHIBA DT01ACA200 2TB

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Item	Result	Remark
1	PASS	20.8

5.5 GeekBench4.3 Compute

Test Environment
Intel(R) Core(TM) i7-7700T 3.80GHz ACPI DDR4 2133 4GB (SK hynix H5AN4G8NMFR) TOSHIBA DT01ACA200 2TB

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Item	Weighted Suite	Result	Remark
1	OpenGL Score	PASS	17829
2	Single-Core Score	PASS	4394
3	Multi-Core Score	PASS	13270

Test Environment
Intel(R) Core(TM) i7-7700T 3.80GHz Kingston DDR4 2133 8GB (SK hynix H5AN4G8NMFR) TOSHIBA DT01ACA200 2TB

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Item	Weighted Suite	Result	Remark
1	OpenGL Score	PASS	18485
2	Single-Core Score	PASS	4431
3	Multi-Core Score	PASS	13046

Test Environment
<p>Intel(R) Core(TM) i7-7700T 3.80GHz Transcend DDR4 2133 16GB (SEC 546 K4A8G08) TOSHIBA DT01ACA200 2TB</p>

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Item	Weighted Suite	Result	Remark
1	OpenGL Score	PASS	18674
2	Single-Core Score	PASS	4437
3	Multi-Core Score	PASS	13468

5.6 CINEBENCH R15

Test Environment
<p>Intel(R) Core(TM) i7-7700T 3.80GHz ACPI DDR4 2133 4GB (SK hynix H5AN4G8NMFR) TOSHIBA DT01ACA200 2TB</p>

Windows 10 64-bit

Item	Weighted Suite	Result	Remark
1	OpenGL	PASS	43.28 fps
2	CPU	PASS	644 cb

Test Environment
Intel(R) Core(TM) i7-7700T 3.80GHz Kingston DDR4 2133 8GB (SK hynix H5AN4G8NMFR) TOSHIBA DT01ACA200 2TB

Windows 10 64-bit

Item	Weighted Suite	Result	Remark
1	OpenGL	PASS	43.84 fps
2	CPU	PASS	630 cb

Test Environment
Intel(R) Core(TM) i7-7700T 3.80GHz Transcend DDR4 2133 16GB (SEC 546 K4A8G08) TOSHIBA DT01ACA200 2TB

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Item	Weighted Suite	Result	Remark
1	OpenGL	PASS	44.01 fps
2	CPU	PASS	644 cb

5.7 Storage Performance

5.7.1 HDD

Test environment:

OS Windows 10 64-bit

Program (HD Tune)

HDD Model	Interface	Capacity	Average	Burst Rate	Access Time
Western Digital WD800BEVS-00RST0	SATA	80 GB	34.6 MB/sec	66 MB/sec	17.6 ms
Western Digital WD800BEVS-16VAT0	SATA	80 GB	51.7 MB/sec	72.9 MB/sec	16.7 ms
Western Digital WD3200BEKT-00F3T0	SATA	320 GB	63.9 MB/sec	143 MB/sec	15 ms
TOSHIBA DT01ACA200	SATA	2.0 TB	143.4 MB/sec	296 MB/sec	13.4 ms
MemoRight MRSAJ6C064GC125C00	SSD	64 GB	142.5 MB/sec	50.1 MB/sec	0.2 ms
Crucial CT120BX500SSD1	SSD	120 GB	458 MB/sec	62.4 MB/sec	0 ms
INTEL SSDSC2BW240A4	SSD	240 GB	347.4 MB/sec	260.1 MB/sec	0.1 ms
KINGSTON SV300S37A	SSD	240 GB	364.5 MB/sec	264.1 MB/sec	0.1 Ms
Western Digital WDS250G2B0A-00SM50	SSD	250 GB	395.2 MB/sec	102.7 MB/sec	0 ms
crucial CT120M500SSD3	mSATA	120 GB	297.2 MB/sec	32.8 MB/sec	0.1 ms
acpi MRSAJ6C064GC125C	mSATA	64 GB	149.5 MB/sec	44.1 MB/sec	0.2 ms
KINGSTON DT HyperX 3.0	USB 3.0	64 GB	30.9 MB/sec	23.4 MB/sec	1.3 ms
SMI USB DISK	USB	8 GB	12.1 MB/sec	11.7 MB/sec	1 ms
Silicon-Power	USB	4 GB	1.1 MB/sec	1.1 MB/sec	1 ms

5.7.2 DVD-ROM

Test environment:

OS Windows 10 64-bit

Program (NERO)

DVD-ROM Model	Interface	Average Speed	Full Read	Burst Rate	DVD
ASUS DRW-24D1ST	SATA	10.13 x	151 ms	31 MB/s	16 x
ASUS DRW-1814BLT	SATA	7.57 x	170 ms	34 MB/s	16 x
LITE-ON iHES312	SATA	10.04 x	160 ms	35 MB/s	16 x
PIONEER DVR-S19LBK	SATA	10.24 x	191 ms	30 MB/s	16 x
PIONEER DVR-XD11T	USB	5.17 x	167 ms	20 MB/s	16 x