

Product Test Report



Product Name	LV-67Z
Product Version	A
Issued Date	2020.3.3
Report Edition	1.0
BIOS Version	1.0
Testing Engineer	Perry
Check Engineer	Daniel

REVISION HISTORY

DATE	REVISION NO.	PAGE	DESCRIPTONS
2020.3.3	Ver. 1.0	35	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	AUDIO	PASS
9	LAN1(I219)	PASS
10	LAN2(I210)	PASS
11	DDR4_A/B	PASS
12	CN_SATA3-1/2	PASS
13	USB3 - 1/2/3/4	PASS
14	USB1	PASS
15	CN_USB	PASS
16	COM 1/2	PASS
17	CN_COM 3/4/5/6	PASS
18	CN_PS2	PASS
19	HDMI	PASS
20	Display Port	PASS
21	LVDS	PASS
22	MINI_CRAD	PASS
23	M2	PASS

24	PCIE_4X	PASS
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Jumper

Item	Description	Result
1	JRTC	PASS
2	JAT	PASS
3	JMSATA	PASS
4	JVLCD	PASS
5	JP1&JP2	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	Numlock	PASS	
7	Active Processor Cores	PASS	
8	Hyper-Threading	PASS	
9	Channel A&B DIMM Control	PASS	
10	LCD Control	PASS	
11	HD Audio	PASS	
12	Wake On LAN	PASS	
13	LVDS Configuration	PASS	

Item	Description	Result	Remark
14	COM Port 1~4	PASS	
15	Keyboard Controller	PASS	
16	Power Loss	PASS	
17	Watch Dog Timer	PASS	
18	Auto Wake on S5	PASS	
19	iAMT	PASS	

1.3 Driver

CD edition : IPCI2-1.0

1. Windows 10 64 bit Driver Test

Item	Description	Result	Version
1	Chipset Driver	PASS	
2	VGA Driver	PASS	26.20.100.6861
3	Audio Driver	PASS	6.0.1.8036
4	LAN Driver	PASS	I219LM:12.18.8.9 I210: 12.15.184.0

2. Compatibility test

2.1 CPU Test

Test environment:

OS: Windows 10 64bit

Test program : BurnIn Test8.1 & AIDA64

Spec	CPU Speed	Family	Processor	TDP	Smart Cache	Result
SRFDS	1.7GHz	CORE	i7-8665UE	15W	8 MB	PASS
SRFDU	1.6GHz	CORE	i5-8365UE	15W	6 MB	PASS
SRFDT	2.2GHz	CORE	i3-8145UE	15W	4 MB	PASS

2.2 Memory Test

Test environment:

OS: Windows 10 64bit

Test program : BurnIn Test8.1 & MemTest64 & MemTest86+

Manufacturer	Chip	Frequency	Capacity Mbytes	Memory test Source
Kingston KVR24S17D8/16	SKhynix H5AN8G8NCJR -VKC	DDR4 2400	16 GB	PASS
Kingston KVR24S17S8/8	Micron 7WE75D9VPP	DDR4 2400	8 GB	PASS
Kingston KVR24S17S6/4	Micron 7UE75D9WFH	DDR4 2400	4 GB	PASS
Kingston KVR21S15D8/16	Micron 7JH45D9VHP	DDR4 2133	16 GB	PASS
Transcend 16G 2Rx8 DDR4 2133 SO	SEC 546 K4ABG085WB BCRC	DDR4 2133	16 GB	PASS
Kingston KVR26S19S8/8 8GB	Micron 8BE77D9VPP	DDR4 2666	8 GB	PASS
Crucial CT4G4SFS8213.8FA2	Micron 5RA77D9RGQ	DDR4 2133	4 GB	PASS
ACPI DDRIV – 2133 SO-DIMM 1.2V CMA6-3FA01BAR01 M00	SKhynix H5AN4GBNMF R TFC	DDR4 2133	4 GB	PASS

2.3 HDMI Graphic Quality Test

Test environment:

OS Windows 10 64bit

Driver version : 26.20.100.6861

Resolution	Color	Result	Remark
800 x 600	32bit	PASS	
1024 x 768	32bit	PASS	
1152 x 864	32bit	PASS	
1280 x 600	32bit	PASS	
1280 x 720	32bit	PASS	
1280 x 768	32bit	PASS	
1280 x 800	32bit	PASS	
1280 x 960	32bit	PASS	
1280 x 1024	32bit	PASS	
1360 x 768	32bit	PASS	
1366 x 768	32bit	PASS	
1400 x 1050	32bit	PASS	
1440 x 900	32bit	PASS	
1600 x 900	32bit	PASS	
1680 x 1050	32bit	PASS	
1920 x 1080	32bit	PASS	
3840 x 2160	32bit	PASS	

2.4 Display Port Graphic Quality Test

Test environment:

OS Windows 10 64bit

Driver version : 24.20.100.6194

Resolution	Color	Result	Remark
800 x 600	32bit	PASS	
1024 x 768	32bit	PASS	
1152 x 864	32bit	PASS	
1280 x 600	32bit	PASS	
1280 x 720	32bit	PASS	
1280 x 768	32bit	PASS	
1280 x 800	32bit	PASS	
1280 x 960	32bit	PASS	
1280 x 1024	32bit	PASS	
1360 x 768	32bit	PASS	
1366 x 768	32bit	PASS	
1400 x 1050	32bit	PASS	
1440 x 900	32bit	PASS	
1600 x 900	32bit	PASS	
1600 x 1050	32bit	PASS	
1920 x 1080	32bit	PASS	
3840 x 2160	32bit	PASS	

2.5 Audio

Test environment:

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 / 18.04

Item	Description	Result	Remark
1	2.1CH	PASS	

OS Fedoro 28 Workstation

Item	Description	Result	Remark
1	2.1CH	PASS	

2.6 HDD Test

Test environment:

OS Windows 10 64bit

Test program : BurnIn Test8.1 & CrystalDiskMark

HDD Model	Interface	Capacity	HDD Size Detect	HDD Data Transfer	HDD LED Check
INTEL SSDSC2BW240A4	SSD	240 GB	PASS	PASS	PASS
SPCC Solid State disk(S55)	SSD	120 GB	PASS	PASS	PASS
CT120 BX500	SSD	120 GB	PASS	PASS	PASS

WD 10EZEX	HDD	1 TB	PASS	PASS	PASS
Kingston DT100G3/32G	USB	32 GB	PASS	PASS	PASS
Kingston DT Hyper X 3.0	USB	63 GB	PASS	PASS	PASS
Crucial_CT 120M500SSD	mSATA	120 GB	PASS	PASS	PASS
Innodisk 3MV2-P DVMSR-64GD81BC 1QC	mSATA	64 GB	PASS	PASS	PASS
ACPI MSS4F-M SATA III	mSATA	64 GB	PASS	PASS	PASS

2.7 DVD-ROM Test

Test environment:

OS Windows 10 64bit

DVD-ROM Model	Interface	DVD-ROM Detect	DVD-ROM Data Transfer	Play DVD
Transcend DVD TS8XDVDS-K	USB	PASS	PASS	PASS
LITEON DVD eTAU108	USB	PASS	PASS	PASS
PIONEER DVD DVR-XD11T	USB	PASS	PASS	PASS
ZYNET GT32N A201	USB	PASS	PASS	PASS

2.8 USB Test

1. Windows 10 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. Ubuntu 16.04 / 18.04

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

3. Fedora 28 Workstation

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

2.9 Serial Port Test

1. Windows 10 64-bit

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

2.10 PS2 Keyboard 、 Mouse Test

1. Windows 10 64-bit

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

2. Ubuntu 16.04 / 18.04

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

3. Fedora 28 Workstation

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

2.11 LAN Test

Data Transfer Test environment:

-CAT 6 UTP 100M

-8 HR. continuous

1. Windows 10 64-bit

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

2. Ubuntu 16.04 / 18.04

Item	Description	Result	Remark
1	Device Manager Check	PASS	

3. Fedora 28 Workstation

Item	Description	Result	Remark
1	Device Manager Check	PASS	

2.12 Power Supply Test

Item	Type	Description	Result	Remark
1	ATX Power	Thermaltake TR2-450AH2NCB	PASS	
2	ATX Power	SEED BS400	PASS	
3	ATX Power	Seasonic SS-520GB 520W	PASS	
4	ATX Power	AcBel PC7008 430W	PASS	

2.13 OS Install

Item	Description	Result	Remark
1	Windows 10 64 bit	PASS	
2	Ubuntu16.04 (ubuntu-16.04.5-desktop-amd64)	PASS	
3	Ubuntu18.04 (ubuntu-18.04.1-desktop-amd64)	PASS	
4	Fedora 28 (Fedora-Workstation-Live-x86_64-28-1.1)	PASS	

2.14 PCI Express Mini Card

Motherboard	PCI Express mini card	Result	Remark
LV-67Z	MPX-M2E+M2-210	PASS	
	MPX-210D	PASS	
	MPX-210D2	PASS	
	MPX-574D	PASS	
	MPX-574D2	PASS	
	MPX-350	PASS	

2.15 M2(Key E) Expansion slot

Motherboard	PCI Express mini card	Result	Remark
LV-67Z	M2-210	PASS	

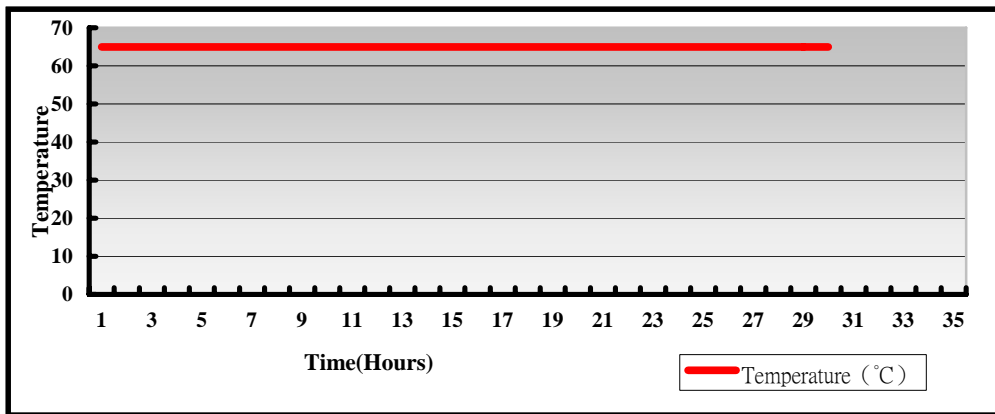
3. Environmental test

3.1 Temperature Test

Hardware Device list:

System Board	LV-67Z
CPU	Intel(R) Core(TM) i7-8665UE 1.7GHz
Memory	Kingston KVR21S15D8/16 16GBx1 (Micron 7JH45D9VHP)
HDD	WD BLUE 3D NAND SSD 250GB (WDS250G2B0A-00SM50)
Operating OS	Windows 10 64bit
Test Equipment	GIANT FORCE GTH-150-60-SP-AR LCD-9530 Programmer/Controller
Test Program	BurnIn 8.1

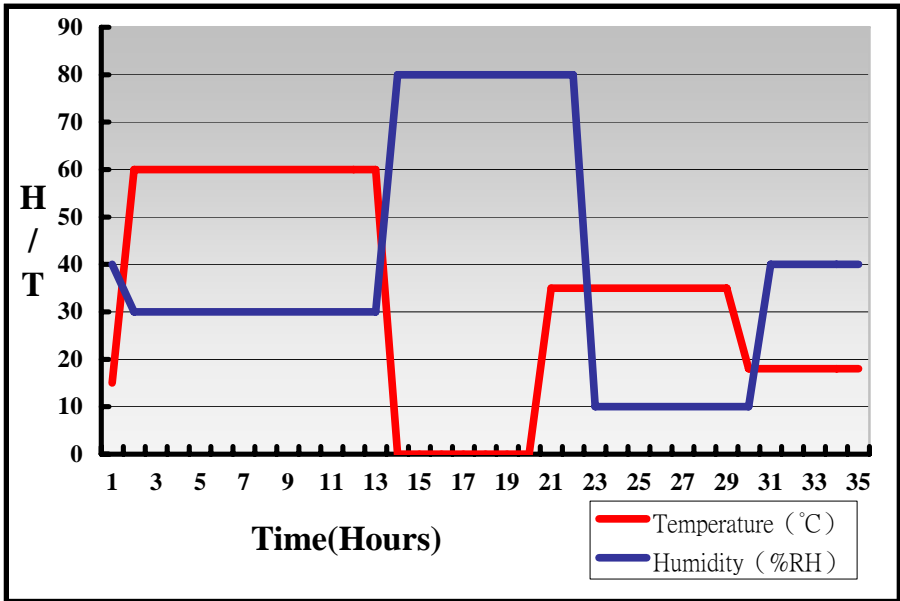
Test Result:



Hardware Device list:

System Board	LV-67Z
CPU	Intel(R) Core(TM) i7-8665UE 1.7GHz
Memory	Kingston KVR21S15D8/16 16GBx1 (Micron 7JH45D9VHP)
HDD	WD BLUE 3D NAND SSD 250GB (WDS250G2B0A-00SM50)
Operating OS	Windows 10 64bit
Test Equipment	GIANT FORCE GTH-150-60-SP-AR LCD-9530 Programmer/Controller
Test Program	BurnIn 8.1

Test Result:



Boot up Test:

Hardware Device list:

System Board	LV-67Z
CPU	Intel(R) Core(TM) i7-8665UE 1.7GHz
Memory	Kingston KVR21S15D8/16 16GBx1 (Micron 7JH45D9VHP)
HDD	WD BLUE 3D NAND SSD 250GB (WDS250G2B0A-00SM50)

Temperature	Result	Remark
-20°C	PASS	50 Times
85°C	PASS	50 Times

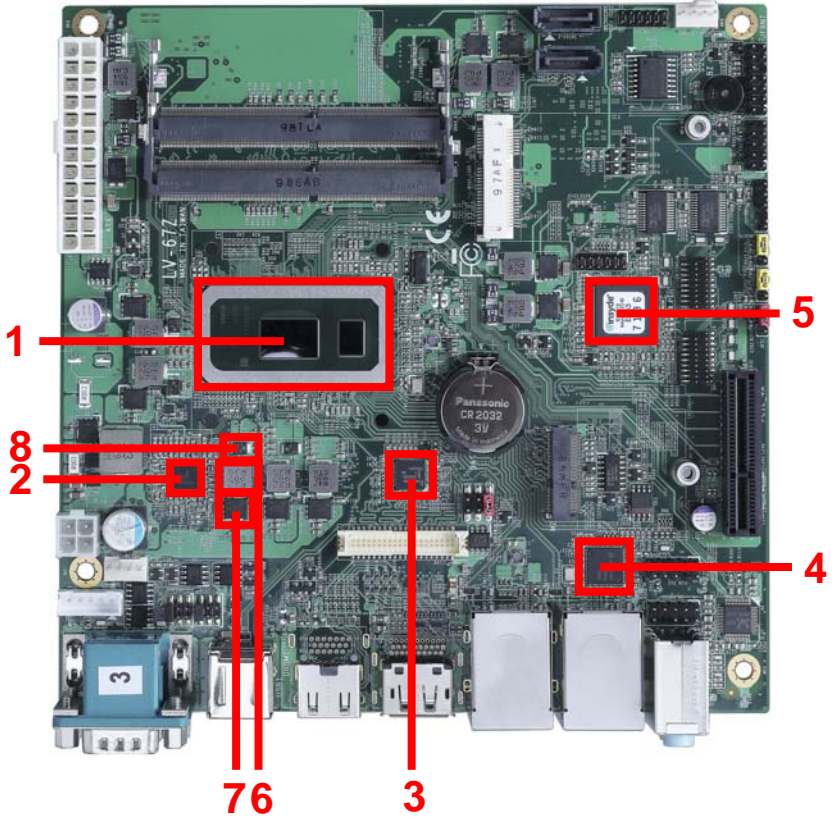
3.2 Thermal measurements at various points on the board

Test Environment:

CPU	Intel(R) Core(TM) i7-8665UE 1.7GHz
Memory	Kingston KVR21S15D8/16 16GBx1 (Micron 7JH45D9VHP)
HDD	WD BLUE 3D NAND SSD 250GB (WDS250G2B0A-00SM50)
Power	SEED BS400
Operating System	Windows 10 64-bit
Test Program	AIDA64

Test Result:

Item	Environmental temperature	25°C
1	CPU	58°C
2	U5	37.5°C
3	U12	30.0°C
4	U20	33.3°C
5	U22	31.8°C
6	L5	39.5°C
7	Q12	48.8°C
8	C78	40.3°C



4. Reliability Test

4.1 Power Consumption Test

1. Test Environment:

Motherboard	LV-67Z
CPU	Intel(R) Core(TM) i7-8665UE 1.7GHz
Memory	Kingston KVR21S15D8/16 16GBx1 (Micron 7JH45D9VHP) Kingston KVR21S15D8/16 16GBx1 (Micron 6JB47D9TBH)
HDD	WD BLUE 3D NAND SSD 250GB(WDS250G2B0A-00SM50)

Power Supply: GW INSTEK SPS-3610(DC Power Supply)

Voltage	MS-DOS Boot up		Windows 10 64bit 3DMARK + Prime95	
	Current (A)	Power (W)	Current (A)	Power (W)
12V	1.34	16.08	6.29	75.48
19V	0.94	17.86	3.92	74.48
24V	0.82	19.68	2.79	66.96

1. a. Test Environment:

The same as above but with LCD

Display Panel	AUO M215HW03 V1 21.5”LCD
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Power Supply: GW INSTEK SPS-3610(DC Power Supply)

Voltage	MS-DOS Boot up		Windows 10 64bit 3DMARK + Prime95	
	Current (A)	Power (W)	Current (A)	Power (W)
12V	2.63	31.56	6.7	80.4
19V	1.79	34.01	5.2	98.8
24V	1.54	36.96	4.28	102.72

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) i7-8665UE 1.7GHz Kingston KVR21S15D8/16 16GB (Micron 7JH45D9VHP) WDS250G2B0A-00SM50	PASS	P5414
2	GPU SCORE		PASS	4353
3	CPU SCORE		PASS	20123

Windows 10 64-bit

Item	Weighted Suite	Test Environment	Result	Remark
1	3DMARK SCORE	Intel(R) Core(TM) i7-8665UE 1.7GHz Transcend DDR4 2133 2Rx8 16G (SEC 546 K4ABG085WB BCRC) WDS250G2B0A-00SM50	PASS	P5392
2	GPU SCORE		PASS	4332
3	CPU SCORE		PASS	20257

Windows 10 64-bit

Item	Weighted Suite	Test Environment	Result	Remark
1	3DMARK SCORE	Intel(R) Core(TM) i7-8665UE 1.7GHz Kingston KVR26S19S8/8 8GB (Micron 8BE77D9VPP) WDS250G2B0A-00SM50	PASS	P5390
2	GPU SCORE		PASS	4335
3	CPU SCORE		PASS	19967

Windows 10 64-bit

Item	Weighted Suite	Test Environment	Result	Remark
1	3DMARK SCORE	Intel(R) Core(TM) i7-8665UE 1.7GHz Crucial CT4G4SFS8213.8FA2 4GB DDR4 – 2133 1.2V SR x8 SOD(Micron 5RA77D9RGQ) WDS250G2B0A-00SM50	PASS	P5165
2	GPU SCORE		PASS	4140
3	CPU SCORE		PASS	20102

Windows 10 64-bit

Item	Weighted Suite	Test Environment	Result	Remark
1	3DMARK SCORE	Intel(R) Core(TM) i7-8665UE 1.7GHz ACPI DDRIV – 2133 SO-DIMM 1.2V CMA6-3FA01BAR01M00 (SKhynix H5AN4GBNMFR TFC) WDS250G2B0A-00SM50	PASS	P5337
2	GPU SCORE		PASS	4286
3	CPU SCORE		PASS	20221

5.2 3D MARK 11

Windows 10 64-bit

Item	Weighted Suite	Test Environment	Result	Remark
1	3DMARK SCORE	Intel(R) Core(TM) i7-8665UE 1.7GHz Kingston KVR21S15D8/16 16GB (Micron 7JH45D9VHP) WDS250G2B0A-00SM50	PASS	P1486
2	Graphics SCORE		PASS	1324
3	Physics SCORE		PASS	5861
4	Combined SCORE		PASS	1243

Windows 10 64-bit

Item	Weighted Suite	Test Environment	Result	Remark
1	3DMARK SCORE	Intel(R) Core(TM) i7-8665UE 1.7GHz Transcend DDR4 2133 2Rx8 16G (SEC 546 K4ABG085WB BCRC) WDS250G2B0A-00SM50	PASS	P1486
2	Graphics SCORE		PASS	1322
3	Physics SCORE		PASS	5887
4	Combined SCORE		PASS	1249

Windows 10 64-bit

Item	Weighted Suite	Test Environment	Result	Remark
1	3DMARK SCORE	Intel(R) Core(TM) i7-8665UE 1.7GHz Kingston KVR26S19S8/8 8GB (Micron 8BE77D9VPP) WDS250G2B0A-00SM50	PASS	P1441
2	Graphics SCORE		PASS	1284
3	Physics SCORE		PASS	5738
4	Combined SCORE		PASS	1195

Windows 10 64-bit

Item	Weighted Suite	Test Environment	Result	Remark
1	3DMARK SCORE	Intel(R) Core(TM) i7-8665UE 1.7GHz Crucial CT4G4SFS8213.8FA2 4GB DDR4 – 2133 1.2V SR x8 SOD(Micron 5RA77D9RGQ) WDS250G2B0A-00SM50	PASS	P1439
2	Graphics SCORE		PASS	1283
3	Physics SCORE		PASS	5639
4	Combined SCORE		PASS	1195

Windows 10 64-bit

Item	Weighted Suite	Test Environment	Result	Remark
1	3DMARK SCORE	Intel(R) Core(TM) i7-8665UE 1.7GHz ACPI DDRIV – 2133 SO-DIMM 1.2V CMA6-3FA01BAR01M00 (SKhynix H5AN4GBNMFR TFC) WDS250G2B0A-00SM50	PASS	P1441
2	Graphics SCORE		PASS	1287
3	Physics SCORE		PASS	5662
4	Combined SCORE		PASS	1184

5.3 3D MARK

Windows 10 64-bit

Item	Weighted Suite	Test Environment	Result	Remark
1	Time Spy	Intel(R) Core(TM) i7-8665UE 1.7GHz Kingston KVR21S15D8/16 16GB (Micron 7JH45D9VHP) WDS250G2B0A-00SM50	PASS	321
2	Graphics SCORE		PASS	279
3	CPU SCORE		PASS	2455

Windows 10 64-bit

Item	Weighted Suite	Test Environment	Result	Remark
1	Time Spy	Intel(R) Core(TM) i7-8665UE 1.7GHz Transcend DDR4 2133 2Rx8 16G (SEC 546 K4ABG085WB BCRC) WDS250G2B0A-00SM50	PASS	321
2	Graphics SCORE		PASS	279
3	CPU SCORE		PASS	2444

Windows 10 64-bit

Item	Weighted Suite	Test Environment	Result	Remark
1	Time Spy	Intel(R) Core(TM) i7-8665UE 1.7GHz Kingston KVR26S19S8/8 8GB (Micron 8BE77D9VPP) WDS250G2B0A-00SM50	PASS	320
2	Graphics SCORE		PASS	278
3	CPU SCORE		PASS	2415

Windows 10 64-bit

Item	Weighted Suite	Test Environment	Result	Remark
1	Time Spy	Intel(R) Core(TM) i7-8665UE 1.7GHz Crucial CT4G4SFS8213.8FA2 4GB DDR4 – 2133 1.2V SR x8 SOD(Micron 5RA77D9RGQ) WDS250G2B0A-00SM50	PASS	315
2	Graphics SCORE		PASS	274
3	CPU SCORE		PASS	2391

Windows 10 64-bit

Item	Weighted Suite	Test Environment	Result	Remark
1	Time Spy	Intel(R) Core(TM) i7-8665UE 1.7GHz ACPI DDRIV – 2133 SO-DIMM 1.2V CMA6-3FA01BAR01M00 (SKhynix H5AN4GBNMFRTFC) WDS250G2B0A-00SM50	PASS	317
2	Graphics SCORE		PASS	275
3	CPU SCORE		PASS	2377

5.4 PC MARK 7 & 8

Windows 10 64-bit

Weighted Suite	Test Environment	Result	Remark
PCMARK 7 Scores	Intel(R) Core(TM) i7-8665UE 1.7GHz	PASS	954
PCMARK 8 Scores	Kingston KVR21S15D8/16 16GB (Micron 7JH45D9VHP) WDS250G2B0A-00SM50	PASS	1442

Windows 10 64-bit

Weighted Suite	Test Environment	Result	Remark
PCMARK 7 Scores	Intel(R) Core(TM) i7-8665UE 1.7GHz	PASS	956
PCMARK 8 Scores	Transcend DDR4 2133 2Rx8 16G (SEC 546 K4ABG085WB BCRC) WDS250G2B0A-00SM50	PASS	1399

Windows 10 64-bit

Weighted Suite	Test Environment	Result	Remark
PCMARK 7 Scores	Intel(R) Core(TM) i7-8665UE 1.7GHz	PASS	957
PCMARK 8 Scores	Kingston KVR26S19S8/8 8GB (Micron 8BE77D9VPP) WDS250G2B0A-00SM50	PASS	1451

Windows 10 64-bit

Weighted Suite	Test Environment	Result	Remark
PCMARK 7 Scores	Intel(R) Core(TM) i7-8665UE 1.7GHz Crucial CT4G4SFS8213.8FA2 4GB DDR4 – 2133 1.2V SR x8 SOD(Micron 5RA77D9RGQ) WDS250G2B0A-00SM50	PASS	956
PCMARK 8 Scores		PASS	1442

Windows 10 64-bit

Weighted Suite	Test Environment	Result	Remark
PCMARK 7 Scores	Intel(R) Core(TM) i7-8665UE 1.7GHz ACPI DDRIV – 2133 SO-DIMM 1.2V CMA6-3FA01BAR01M00 (SKhynix H5AN4GBNMFRTFC) WDS250G2B0A-00SM50	PASS	955
PCMARK 8 Scores		PASS	1473

5.5 PerformanceTest 9.0

Windows 10 64-bit

Item	Weighted Suite	Test Environment	Result	Remark
1	PassMark Rating	Intel(R) Core(TM) i7-8665UE 1.7GHz Kingston KVR21S15D8/16 16GB (Micron 7JH45D9VHP) WDS250G2B0A-00SM50	PASS	3344.1
2	CPU Mark		PASS	8333.5
3	2D Graphics Mark		PASS	810.1
4	3D Graphics Mark		PASS	914.4
5	Memory Mark		PASS	2288.6
6	Disk Mark		PASS	4895.2

Windows 10 64-bit

Item	Weighted Suite	Test Environment	Result	Remark
1	PassMark Rating	Intel(R) Core(TM) i7-8665UE 1.7GHz Transcend DDR4 2133 2Rx8 16G (SEC 546 K4ABG085WB BCRC) WDS250G2B0A-00SM50	PASS	3364.9
2	CPU Mark		PASS	8212.2
3	2D Graphics Mark		PASS	828.1
4	3D Graphics Mark		PASS	924.8
5	Memory Mark		PASS	2287.3
6	Disk Mark		PASS	4917.4

Windows 10 64-bit

Item	Weighted Suite	Test Environment	Result	Remark
1	PassMark Rating	Intel(R) Core(TM) i7-8665UE 1.7GHz Kingston KVR26S19S8/8 8GB (Micron 8BE77D9VPP) WDS250G2B0A-00SM50	PASS	3316.3
2	CPU Mark		PASS	7929.8
3	2D Graphics Mark		PASS	838.9
4	3D Graphics Mark		PASS	909.0
5	Memory Mark		PASS	2243.6
6	Disk Mark		PASS	4781.7

Windows 10 64-bit

Item	Weighted Suite	Test Environment	Result	Remark
1	PassMark Rating	Intel(R) Core(TM) i7-8665UE 1.7GHz Crucial CT4G4SFS8213.8FA2 4GB DDR4 – 2133 1.2V SR x8 SOD(Micron 5RA77D9RGQ) WDS250G2B0A-00SM50	PASS	3174.8
2	CPU Mark		PASS	8046.5
3	2D Graphics Mark		PASS	830.8
4	3D Graphics Mark		PASS	890.0
5	Memory Mark		PASS	1804.0
6	Disk Mark		PASS	4895.3

Windows 10 64-bit

Item	Weighted Suite	Test Environment	Result	Remark
1	PassMark Rating	Intel(R) Core(TM) i7-8665UE 1.7GHz ACPI DDRIV – 2133 SO-DIMM 1.2V CMA6-3FA01BAR01M00 (SKhynix H5AN4GBNMFR TFC) WDS250G2B0A-00SM50	PASS	3192.9
2	CPU Mark		PASS	8109.3
3	2D Graphics Mark		PASS	839.6
4	3D Graphics Mark		PASS	892.8
5	Memory Mark		PASS	1812.6
6	Disk Mark		PASS	4882.8

5.6 Geekbench 4

Test Environment
Intel(R) Core(TM) i7-8665UE 1.7GHz Kingston KVR21S15D8/16 16GB (Micron 7JH45D9VHP) WDS250G2B0A-00SM50

Windows 10 64-bit

Item	Weighted Suite		Result	Remark
1	Run CPU Benchmark Score	Single-core	PASS	4966
		Multi-core		14290
2	Run Compute Benchmark (OpenCL Score)		PASS	18890

Test Environment
Intel(R) Core(TM) i7-8665UE 1.7GHz Transcend 16G 2Rx8 DDR4 2133 SO (SEC 546 K4ABG085WB BCRC) WDS250G2B0A-00SM50

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Item	Weighted Suite		Result	Remark
1	Run CPU Benchmark Score	Single-core	PASS	5003
		Multi-core		14440
2	Run Compute Benchmark (OpenCL Score)		PASS	18877

Test Environment
Intel(R) Core(TM) i7-8665UE 1.7GHz Kingston KVR26S19S8/8 8GB (Micron 8BE77D9VPP) WDS250G2B0A-00SM50

Windows 10 64-bit

Item	Weighted Suite		Result	Remark
1	Run CPU Benchmark Score	Single-core	PASS	4939
		Multi-core		13622
2	Run Compute Benchmark (OpenCL Score)		PASS	18540

Test Environment
<p align="center"> Intel(R) Core(TM) i7-8665UE 1.7GHz Crucial CT4G4SFS8213.8FA2 4GB DDR4 – 2133 1.2V SR x8 SOD (Micron 5RA77D9RGQ) WDS250G2B0A-00SM50 </p>

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Item	Weighted Suite		Result	Remark
1	Run CPU Benchmark Score	Single-core	PASS	4892
		Multi-core		13919
2	Run Compute Benchmark (OpenCL Score)		PASS	17974

Test Environment
<p align="center"> Intel(R) Core(TM) i7-8665UE 1.7GHz ACPI DDRIV – 2133 SO-DIMM 1.2V CMA6-3FA01BAR01M00 (SKhynix H5AN4GBNMFR TFC) WDS250G2B0A-00SM50 </p>

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Item	Weighted Suite		Result	Remark
1	Run CPU Benchmark Score	Single-core	PASS	4882
		Multi-core		13890
2	Run Compute Benchmark (OpenCL Score)		PASS	18122

5.7 Cinebench R15

Test Environment
Intel(R) Core(TM) i7-8665UE 1.7GHz Kingston KVR21S15D8/16 16GB (Micron 7JH45D9VHP) WDS250G2B0A-00SM50

Windows 10 64-bit

Item	Weighted Suite	Result	Remark
1	OpenGL	PASS	39.30 fps
2	CPU	PASS	563 cb

Test Environment
Intel(R) Core(TM) i7-8665UE 1.7GHz Transcend 16G 2Rx8 DDR4 2133 SO (SEC 546 K4ABG085WB BCRC) WDS250G2B0A-00SM50

Windows 10 64-bit

Item	Weighted Suite	Result	Remark
1	OpenGL	PASS	39.34 fps
2	CPU	PASS	563 cb

Test Environment
Intel(R) Core(TM) i7-8665UE 1.7GHz Kingston KVR26S19S8/8 8GB (Micron 8BE77D9VPP) WDS250G2B0A-00SM50

Windows 10 64-bit

Item	Weighted Suite	Result	Remark
1	OpenGL	PASS	37.11 fps
2	CPU	PASS	538 cb

Test Environment
Intel(R) Core(TM) i7-8665UE 1.7GHz Crucial CT4G4SFS8213.8FA2 4GB DDR4 – 2133 1.2V SR x8 SOD (Micron 5RA77D9RGQ) WDS250G2B0A-00SM50

Windows 10 64-bit

Item	Weighted Suite	Result	Remark
1	OpenGL	PASS	37.17 fps
2	CPU	PASS	552 cb

Test Environment
Intel(R) Core(TM) i5-8365UE 1.6GHz ACPI DDRIV – 2133 SO-DIMM 1.2V CMA6-3FA01BAR01M00 (SKhynix H5AN4GBNMFR TFC) WDS250G2B0A-00SM50

Windows 10 64-bit

Item	Weighted Suite	Result	Remark
1	OpenGL	PASS	37.60 fps
2	CPU	PASS	543 cb

5.8 Storage Performance

5.8.1 HDD

Test environment:

OS Windows 10 64bit

Program: HD Tune

HDD Model	Interface	Capacity	Average	Burst Rate	Access Time
INTEL SSDSC2BW240A4	SSD	240 GB	315.3 MB/sec	293.3 MB/sec	0.213 ms
SPCC Solid State disk(S55)	SSD	120 GB	179.6 MB/sec	95.0 MB/sec	0.054 ms
CT120 BX500	SSD	120 GB	324.2 MB/sec	151.1 MB/sec	0.059 ms
WDS250G2B0A	SSD	250 GB	422.3 MB/sec	38.6 MB/sec	0.085 ms
Kingston SV300S37A	SSD	240 GB	241.2 MB/sec	138.6 MB/sec	0.155 ms
Kingston DT100G3/32G	USB	32 GB	67.3 MB/sec	49.6 MB/sec	0.318 ms
ADATA UV128/16GB	USB	16 GB	106.8 MB/sec	35.0 MB/sec	1.85 ms
Acpi CSC064GR5-G710A00D	mSATA	64 GB	396.0 MB/sec	93.7 MB/sec	0.068 ms

5.8.2 DVD-ROM

Test environment:

OS Windows 10 64bit

Program (NERO)

DVD-ROM Model	Interface	Average Speed	Full Read	Burst Rate	DVD
Transcend DVD TS8XDVDS-K	USB	2.86 x	308 ms	18 MB/s	1 - 16 x
LITEON DVD eTAU108	USB	5.57 x	208 ms	18 MB/s	1 – 16 x
PIONEER DVD DVR-XD11T	USB	5.80 x	181 ms	20 MB/s	1 - 16 x
ZYNET GT32N A201	USB	5.70 x	213 ms	20 MB/s	1 - 16 x