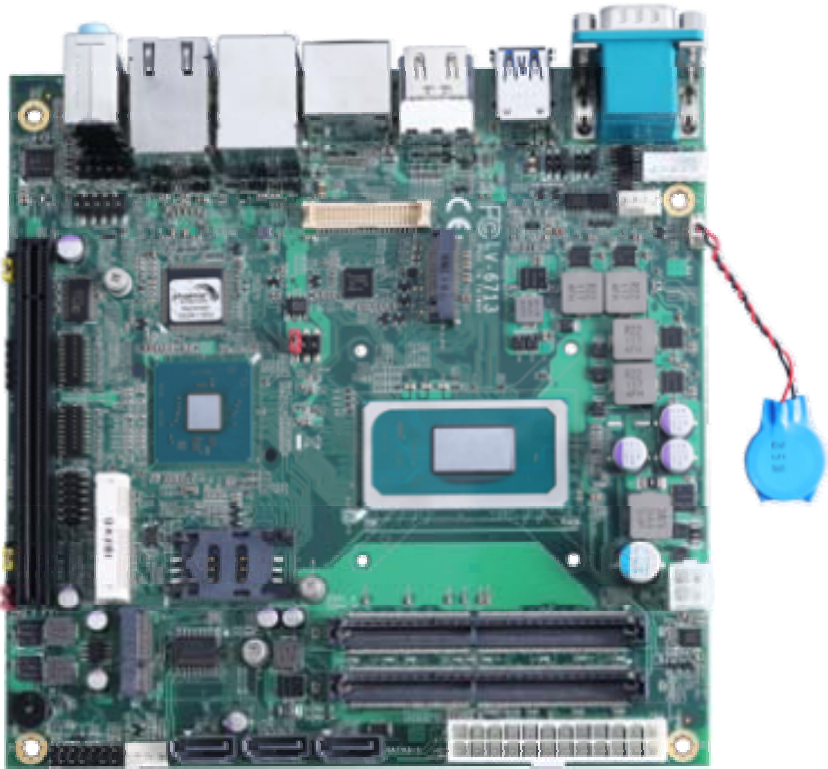


Product Test Report



Product Name	LV-6713
Product Version	A
Issued Date	2022.04.28
Report Edition	1.1
BIOS Version	1.1
Testing Engineer	Rick
Check Engineer	Daniel

REVISION HISTORY

DATE	REVISION NO.	PAGE	DESCRIPTONS
2022.02.24	Ver. 1.0	49	Initial Release
2022.04.28	Ver. 1.1	49	Add PCI Express Mini Card

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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	AUDIO	PASS
8	CN_AUDIO	PASS
9	LAN1 (I219-LM)	PASS
10	LAN2 (I225-LM)	PASS
11	DDR4 A/B	PASS
12	SATA3-1/2/3	PASS
13	USB3.2 1/2/3/4/5/6	PASS
14	CN_USB 1/2	PASS
15	COM 1/2	PASS
16	CN_COM 3/4/5/6	PASS
17	HDMI 1/2	PASS
18	Display Port 1/2	PASS
19	LVDS	PASS
20	MINI_CARD	PASS
21	M2_E	PASS
22	M2_M	PASS
23	PCIEX16	PASS

Jumper

Item	Description	Result
1	JRTC	PASS
2	JAT	PASS
3	JP1	PASS
4	JP2	PASS
5	JVLCD	PASS
6	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	Diagnostic Splash Screen	PASS	
7	Diagnostic Summary Screen	PASS	
8	SATA Controller(s)	PASS	
9	Serial Port Configuration	PASS	
10	Fan Control	PASS	
11	VBT Select	PASS	
12	EDID Panel Type	PASS	
13	LVDS Bus	PASS	
14	HD Audio	PASS	
15	Restore On Power Loss	PASS	

Item	Description	Result	Remark
16	Watch Dog Timer Selection	PASS	
17	Power On By RTC Alarm	PASS	
18	Supervisor Password	PASS	
19	User Password	PASS	
20	HDD Password	PASS	

1.3 Driver

CD edition : IPCI1-2.1

1. Windows 10 64 bit Driver Test

Item	Description	Result	Version
1	Chipset Driver	PASS	3.1.7.142
2	VGA Driver	PASS	27.20.100.9778
3	Audio Driver	PASS	6.0.1.8036
4	LAN Driver	PASS	I219LM:12.19.1.37 I225LM:1.0.2.13

2. Compatibility test

2.1 CPU Test

Test environment:

OS: Windows 10 64bit

Test program: BurnIn Test 8.1

Spec	CPU Speed	Family	Processor	MAX TDP	Smart Cache	Result
QXGH	2.60 GHz	Core	i7-11850HE	45 W	24 MB	PASS
QXGJ	2.60 GHz	Core	i5-11500HE	45 W	12 MB	PASS
QXGR	2.60 GHz	Celeron	6600HE	35 W	8 MB	PASS
QMGF	2.60 GHz	Xeon	W-11865MRE	45 W	24 MB	PASS
QXGG	2.60 GHz	Xeon	W-11555MRE	45 W	12 MB	PASS
QXGK	2.40 GHz	Xeon	W-11155MRE	45 W	8 MB	PASS
QXGN	1.50 GHz	Xeon	W-11865MLE	25 W	24 MB	PASS
QXGM	1.90 GHz	Xeon	W-11555MLE	25 W	12 MB	PASS
QXGP	1.80 GHz	Xeon	W-11155MLE	25 W	8 MB	PASS

2.2 Memory Test

Test environment:

OS: Windows 10 64bit

Test program : PC MARK05

Manufacturer	Chip	Frequency	Capacity Mbytes	Memory test Result
Kingston KVR32S22D8/32	Micro OSE77 D9ZFY	DDR4 3200	32 GB	PASS
Kingston KVR21S15D8/16	SK hynix H5AN8G8NDJ	DDR4 2133	16 GB	PASS
Innodisk M4S0-BGS2OCEM	SEC016 K4AAG0B 5WABCWE	DDR4 3200	32 GB	PASS

2.3 HDMI Graphic Quality Test

Test environment:

OS Windows 10 64bit

Driver version : 27.20.100.9778

Resolution	Bit depth	Result	Remark
800 x 600	8-bit	PASS	
1024 x 768	8-bit	PASS	
1152 x 864	8-bit	PASS	
1280 x 600	8-bit	PASS	
1280 x 720	8-bit	PASS	
1280 x 768	8-bit	PASS	
1280 x 800	8-bit	PASS	
1280 x 960	8-bit	PASS	
1280 x 1024	8-bit	PASS	
1360 x 768	8-bit	PASS	
1366 x 768	8-bit	PASS	
1400 x 1050	8-bit	PASS	
1440 x 900	8-bit	PASS	
1600 x 900	8-bit	PASS	
1600 x 1200	8-bit	PASS	
1680 x 1050	8-bit	PASS	
1792 x 1344	8-bit	PASS	
1856 x 1392	8-bit	PASS	
1920 x 1080	8-bit	PASS	
1920 x 1200	8-bit	PASS	
1920 x 1440	8-bit	PASS	

2048 x 1152	8-bit	PASS	
2048 x 1536	8-bit	PASS	
2560 x 1440	8-bit	PASS	
2560 x 1600	8-bit	PASS	
2560 x 1920	8-bit	PASS	
2560 x 2048	8-bit	PASS	
3840 x 2160	8-bit	PASS	

2.4 Display Port Graphic Quality Test

Test environment:

OS Windows 10 64bit

Driver version : 27.20.100.9778

Resolution	Bit depth	Result	Remark
800 x 600	8-bit	PASS	
1024 x 768	8-bit	PASS	
1152 x 864	8-bit	PASS	
1280 x 600	8-bit	PASS	
1280 x 720	8-bit	PASS	
1280 x 768	8-bit	PASS	
1280 x 800	8-bit	PASS	
1280 x 960	8-bit	PASS	
1280 x 1024	8-bit	PASS	
1360 x 768	8-bit	PASS	
1366 x 768	8-bit	PASS	
1400 x 1050	8-bit	PASS	

1440 x 900	8-bit	PASS	
1600 x 900	8-bit	PASS	
1600 x 1200	8-bit	PASS	
1680 x 1050	8-bit	PASS	
1792 x 1344	8-bit	PASS	
1856 x 1392	8-bit	PASS	
1920 x 1080	8-bit	PASS	
1920 x 1200	8-bit	PASS	
1920 x 1440	8-bit	PASS	
2048 x 1152	8-bit	PASS	
2048 x 1536	8-bit	PASS	
2560 x 1440	8-bit	PASS	
2560 x 1600	8-bit	PASS	
2560 x 1920	8-bit	PASS	
2560 x 2048	8-bit	PASS	
3840 x 2160	8-bit	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	
3	LINE	PASS	

2.6 HDD Test

Test environment:

OS Windows 10 64bit

Test program : PC MARK05 & BurnIn Test8.1

HDD Model	Interface	Capacity	HDD Size Detect	HDD Data Transfer	HDD LED Check
TOSHIBA DT01ACA200	HDD	2 TB	PASS	PASS	PASS
Western Digital WD20EFRX-68AX9N0	HDD	2 TB	PASS	PASS	PASS
Western Digital WD10EALX-009BA0	HDD	1 TB	PASS	PASS	PASS
Seagate ST31000528AS	HDD	1 TB	PASS	PASS	PASS
Western Digital WD3200BEKT-00F3T0	HDD	320 GB	PASS	PASS	PASS
Western Digital WD3200AAKS-00B3A0	HDD	320 GB	PASS	PASS	PASS
Western Digital WD800BEVS-00RST0	HDD	80 GB	PASS	PASS	PASS
Kingston DT Hyper X 3.0	USB 3.0	64 GB	PASS	PASS	PASS
SMI USB	USB 2.0	8 GB	PASS	PASS	PASS
Silicon-Power	USB 2.0	4 GB	PASS	PASS	PASS
Kingston SKC600MS	mSATA	256 GB	PASS	PASS	PASS
acpi MSS4F-M	mSATA SSD	64 GB	PASS	PASS	PASS
acpi M2PDD-8L	M.2 2280 SSD	500 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
PIONEER DVD DDVR-S19LBK	SATA	PASS	PASS	PASS
ASUS DRW-24D1ST	SATA	PASS	PASS	PASS
ASUS DRW-1814BLT	SATA	PASS	PASS	PASS
LG GH20NS15	SATA	PASS	PASS	PASS
LITE-ON iHES312	SATA	PASS	PASS	PASS
LITEON DVD eBAU108	USB	PASS	PASS	PASS
LITEON DVD eTAU108	USB	PASS	PASS	PASS
ZyNET GT32N	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	

2.9 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 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	(IPERF3)
2	Data Transfer Test	PASS	(IPERF3)

2.11 Power Supply Test

Item	Type	Description	Result	Remark
1	ATX Power	AcBel PC7008 430W	PASS	
2	ATX Power	SEED BS400 400W	PASS	
3	ATX Power	Seasonic SS-520GB 520W	PASS	
4	ATX Power	Seasonic SS-330HB 330W	PASS	
5	ATX Power	Seventeam ST-550PNH 450W	PASS	
6	ATX Power	Antec EA-350 GREEN 350W	PASS	

2.12 OS Install

Item	Description	Result	Remark
1	Windows 10 64 bit	PASS	
2	Ubuntu20.04 (5.4.0-26-generic)	PASS	

2.13 PCI Express Mini Card

Motherboard	PCI Express mini card	Result	Remark
LV-6713	MPX-210D	PASS	
	MPX-210D2	PASS	
	MPX-225	PASS	
	MPX-350	PASS	
	MPX-574D	PASS	
	MPX-574D2	PASS	
	MPX-768	PASS	

	MPX-827	PASS	
	MPX-2213	PASS	
	MPX-4232	PASS	
	MPX-8188	PASS	
	MPX-9125	NO SUPPLY	
	MPX-M2E	PASS	Include M.2 card
	MPX-M2EG	PASS	Include M.2 card

2.14 M.2 card

Motherboard	M.2 card	Result	Remark
LV-6713	M2-210	PASS	
	M2-225	PASS	
	M2-2213	PASS	
	M2-3502	PASS	
	M2-3504	PASS	

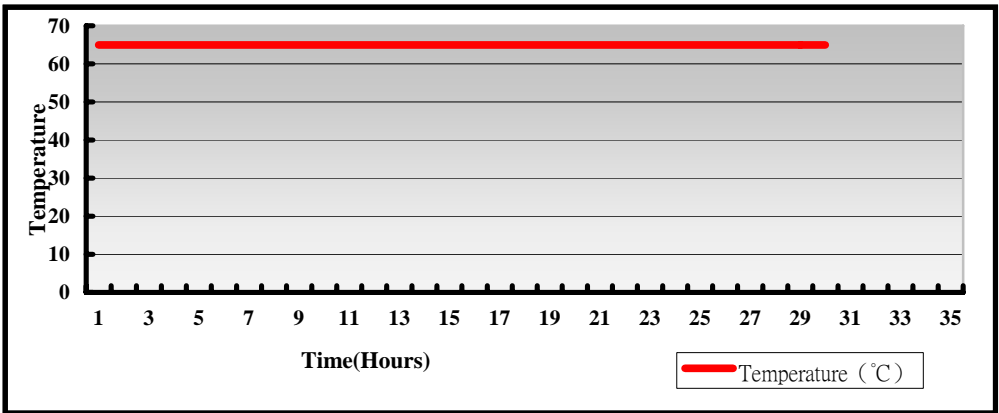
3. Environmental test

3.1 Temperature Test

Hardware Device list:

System Board	LV-67137_A
CPU	11th Gen Intel(R) Core(TM) i7-11850HE 2.60GHz
Memory	Kingston DDR4 3200 32GB (Micron OSE77 D9ZFY) innodisk DDR4 3200 32GB (SEC 016 K4AAG08 5WABCWE)
HDD	Western Digital WD3200AAKS-00B3A0 320GB
Operating OS	Windows 10 64bit
Test Equipment	GIANT FORCE GTH-150-60-SP-AR LCD-9530 Programmer/Controller
Test Program	BurnIn 8.1 + Prime95

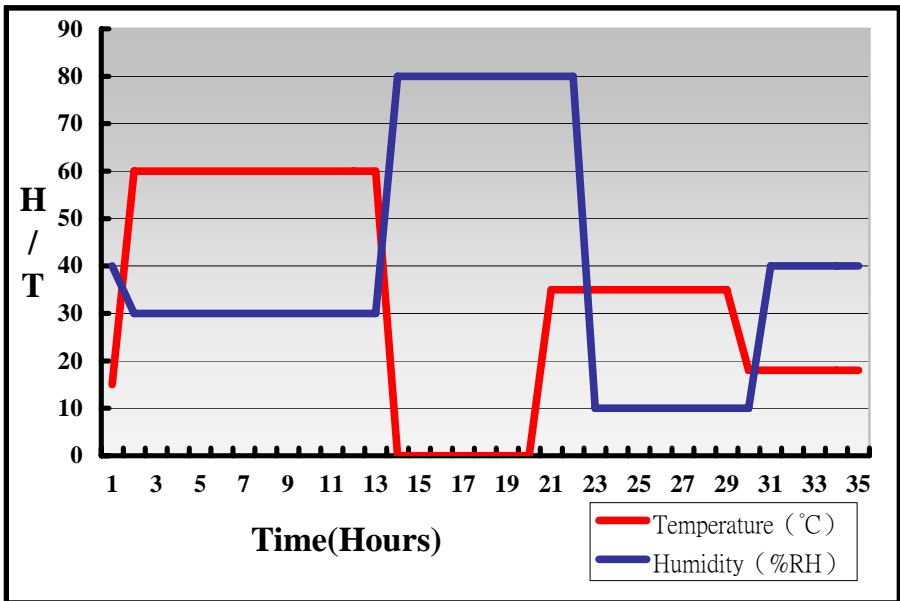
Test Result:



Hardware Device list:

System Board	LV-67137 _A
CPU	11th Gen Intel(R) Core(TM) i7-11850HE 2.60GHz
Memory	Kingston DDR4 3200 32GB (Micron OSE77 D9ZFY) innodisk DDR4 3200 32GB (SEC 016 K4AAG08 5WABCWE)
HDD	Western Digital WD3200AAKS-00B3A0 320GB
Operating OS	Windows 10 64bit
Test Equipment	GIANT FORCE GTH-150-60-SP-AR LCD-9530 Programmer/Controller
Test Program	BurnIn 8.1 + Prime95

Test Result:



Boot up Test:

Hardware Device list:

System Board	LV-67137 _A
CPU	11th Gen Intel(R) Core(TM) i7-11850HE 2.60GHz
Memory	Kingston DDR4 3200 32GB (Micron OSE77 D9ZFY) innodisk DDR4 3200 32GB (SEC 016 K4AAG08 5WABCWE)
HDD	Western Digital WD3200AAKS-00B3A0 320GB

Temperature	Result	Remark
-40°C	PASS	50 Times
80°C	PASS	50 Times

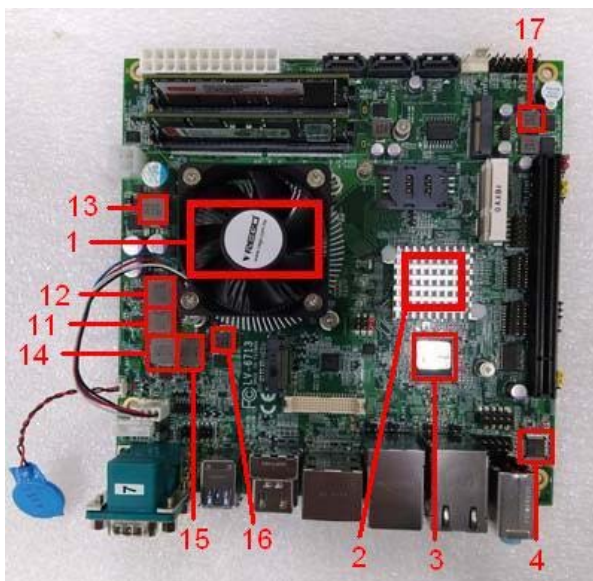
3.2 Thermal measurements at various points on the board

Test Environment:

CPU	11th Gen Intel(R) Core(TM) i7-11850HE 2.60GHz
Memory	Kingston DDR4 3200 32GB (Micron OSE77 D9ZFY) innodisk DDR4 3200 32GB (SEC 016 K4AAG08 5WABCWE)
HDD	Western Digital WD3200AAKS-00B3A0 320GB
Power Supply	AcBel PC7008 430W
Operating System	Windows 10 64-bit
Test Program	AIDA64 + BurnIn8.1 + Prime95

Test Result:

Item	Environmental temperature	25.2°C
1	CPU	47°C
2	PCH (ICHQM580E)	45.1°C
3	U19 (ICNCT6126D)	37.3°C
4	U24 (ICHALC888S-VD2-GR)	42.6°C
5	U25 (ICRAA229001-R)	48.4°C
6	U26 (ICADM213ECA-T)	39.2°C
7	U28 (ICADM213ECA-T)	38.6°C
8	U45 (ICI225LM)	39.1°C
9	U46 (ICEN5337QI)	41.5°C
10	U47 (ICADM213ECA-T)	37.2°C
11	L1 (LLC0.22UH/0445)	40.5°C
12	L2 (LLC0.22UH/0445)	37.6°C
13	L3 (LLC3.3UH/0445)	37.9°C
14	L4 (LLC0.22UH/0445)	42.4°C
15	L5 (LLC0.22UH/0445)	40°C
16	L6 (LLC0.22UH/063T)	44.3°C



4. Reliability Test

4.1 Power Consumption Test

1. Test Environment:

Motherboard	LV-67135_A
CPU	Intel® Core™ i5-11500HE 2.60GHz
Memory	Kingston DDR4 3200 32GB (Micron OSE77 D9ZFY) innodisk DDR4 3200 32GB (SEC 016 K4AAG08 5WABCWE)
HDD	Western Digital WD3200AAKS-00B3A0 320GB

Power Supply: AcBel PC7008 430W

Voltage	MS-DOS Boot up		Windows 10 64bit BurnIn 8.1 + Prime95	
	Current (A)	Power (W)	Current (A)	Power (W)
12V	1.54	18.48	4.42	53.04
5V	1.94	9.7	2.48	12.4
3.3V	0.22	0.726	0.2	0.66
5VSB	0.503	2.515	0.273	1.15

1. a. Test Environment:

The same as above but with LCD

Display Panel	AUO M215HW03 21.5”LCD
----------------------	------------------------------

Power Supply: AcBel PC7008 430W

Voltage	MS-DOS Boot up		Windows 10 64bit BurnIn 8.1 + Prime95	
	Current (A)	Power (W)	Current (A)	Power (W)
12V	2.14	25.68	7.2	86.4
5V	1.9	9.5	2.95	14.75
3.3V	1.4	4.62	1.3	4.29
5VSB	0.435	2.175	0.286	1.43

2. Test Environment:

Motherboard	LV-67137_A
CPU	Intel® Core™ i7-11850HE 2.60GHz
Memory	Kingston DDR4 3200 32GB (Micron OSE77 D9ZFY) innodisk DDR4 3200 32GB (SEC 016 K4AAG08 5WABCWE)
HDD	Western Digital WD3200AAKS-00B3A0 320GB

Power Supply: AcBel PC7008 430W

Voltage	MS-DOS Boot up		Windows 10 64bit BurnIn 8.1 + Prime95	
	Current (A)	Power (W)	Current (A)	Power (W)
12V	1.54	18.48	4.46	53.52
5V	2.17	10.85	3.18	15.9
3.3V	0.23	0.759	0.21	0.693
5VSB	0.463	2.315	0.009	0.045

2. a. Test Environment:

The same as above but with LCD

Display Panel	AUO M215HW03 21.5”LCD
----------------------	------------------------------

Power Supply: AcBel PC7008 430W

Voltage	MS-DOS Boot up		Windows 10 64bit BurnIn 8.1 + Prime95	
	Current (A)	Power (W)	Current (A)	Power (W)
12V	1.97	23.64	8.67	104.04
5V	2.18	10.9	3.23	16.15
3.3V	1.43	4.719	1.27	4.191
5VSB	0.457	2.285	0.009	0.045

3. Test Environment:

Motherboard	LV-6713W7R_A
CPU	Intel® Xeon® W-11865MRE 2.60GHz
Memory	Kingston DDR4 3200 32GB (Micron OSE77 D9ZFY) innodisk DDR4 3200 32GB (SEC 016 K4AAG08 5WABCWE)
HDD	Western Digital WD3200AAKS-00B3A0 320GB

Power Supply: AcBel PC7008 430W

Voltage	MS-DOS Boot up		Windows 10 64bit BurnIn 8.1 + Prime95	
	Current (A)	Power (W)	Current (A)	Power (W)
12V	1.7	20.4	6.61	79.32
5V	1.9	9.5	2.85	14.25
3.3V	0.23	0.759	0.17	0.561
5VSB	0.496	2.48	0.012	0.06

3. a. Test Environment:

The same as above but with LCD

Display Panel	AUO M215HW03 21.5”LCD
----------------------	------------------------------

Power Supply: AcBel PC7008 430W

Voltage	MS-DOS Boot up		Windows 10 64bit BurnIn 8.1 + Prime95	
	Current (A)	Power (W)	Current (A)	Power (W)
12V	2.72	32.64	9.17	110.04
5V	1.88	9.4	2.7	13.5
3.3V	1.93	9.369	0.4	1.32
5VSB	0.492	2.46	0.006	0.03

4. Test Environment:

Motherboard	LV-6713W5R_A
CPU	Intel® Xeon® W-11555MRE 2.60GHz
Memory	Kingston DDR4 3200 32GB (Micron OSE77 D9ZFY) innodisk DDR4 3200 32GB (SEC 016 K4AAG08 5WABCWE)
HDD	Western Digital WD3200AAKS-00B3A0 320GB

Power Supply: AcBel PC7008 430W

Voltage	MS-DOS Boot up		Windows 10 64bit BurnIn 8.1 + Prime95	
	Current (A)	Power (W)	Current (A)	Power (W)
12V	1.73	20.76	4.67	56.04
5V	1.94	9.7	2.89	14.45
3.3V	0.24	0.792	0.21	0.693
5VSB	0.467	2.335	0.011	0.055

4. a. Test Environment:

The same as above but with LCD

Display Panel	AUO M215HW03 21.5”LCD
----------------------	------------------------------

Power Supply: AcBel PC7008 430W

Voltage	MS-DOS Boot up		Windows 10 64bit BurnIn 8.1 + Prime95	
	Current (A)	Power (W)	Current (A)	Power (W)
12V	2.27	27.24	7.29	87.48
5V	1.96	9.8	2.82	14.1
3.3V	1.43	4.719	1.18	3.894
5VSB	0.52	2.6	0.021	0.105

5. Test Environment:

Motherboard	LV-6713W3R_A
CPU	Intel® Xeon® W-11155MRE 2.40GHz
Memory	Kingston DDR4 3200 32GB (Micron OSE77 D9ZFY) innodisk DDR4 3200 32GB (SEC 016 K4AAG08 5WABCWE)
HDD	Western Digital WD3200AAKS-00B3A0 320GB

Power Supply: AcBel PC7008 430W

Voltage	MS-DOS Boot up		Windows 10 64bit BurnIn 8.1 + Prime95	
	Current (A)	Power (W)	Current (A)	Power (W)
12V	1.37	16.44	4.58	54.96
5V	1.84	4.2	2.68	13.4
3.3V	0.24	0.792	0.2	0.66
5VSB	0.506	2.53	0.001	0.005

5. a. Test Environment:

The same as above but with LCD

Display Panel	AUO M215HW03 21.5”LCD
----------------------	------------------------------

Power Supply: AcBel PC7008 430W

Voltage	MS-DOS Boot up		Windows 10 64bit BurnIn 8.1 + Prime95	
	Current (A)	Power (W)	Current (A)	Power (W)
12V	2	24	5.67	68.04
5V	2.24	11.2	2.68	13.4
3.3V	1.38	4.554	1.13	3.729
5VSB	0.51	2.55	0.002	0.01

6. Test Environment:

Motherboard	LV-6713W5L_A
CPU	Intel® Xeon® W-11155MLE 1.90GHz
Memory	Kingston DDR4 3200 32GB (Micron OSE77 D9ZFY) innodisk DDR4 3200 32GB (SEC 016 K4AAG08 5WABCWE)
HDD	Western Digital WD3200AAKS-00B3A0 320GB

Power Supply: AcBel PC7008 430W

Voltage	MS-DOS Boot up		Windows 10 64bit BurnIn 8.1 + Prime95	
	Current (A)	Power (W)	Current (A)	Power (W)
12V	1.76	21.12	6.16	73.92
5V	1.58	7.9	2.42	12.1
3.3V	0.22	0.726	0.21	0.693
5VSB	0.487	2.435	0.005	0.025

6. a. Test Environment:

The same as above but with LCD

Display Panel	AUO M215HW03 21.5”LCD
----------------------	------------------------------

Power Supply: AcBel PC7008 430W

Voltage	MS-DOS Boot up		Windows 10 64bit BurnIn 8.1 + Prime95	
	Current (A)	Power (W)	Current (A)	Power (W)
12V	2.52	30.24	7.84	94.08
5V	1.64	8.2	1.95	9.75
3.3V	1.18	3.894	0.27	0.891
5VSB	0.525	2.625	0.003	0.015

7. Test Environment:

Motherboard	LV-6713W3L_A
CPU	Intel® Xeon® W-11155MLE 1.80GHz
Memory	Kingston DDR4 3200 32GB (Micron OSE77 D9ZFY) innodisk DDR4 3200 32GB (SEC 016 K4AAG08 5WABCWE)
HDD	Western Digital WD3200AAKS-00B3A0 320GB

Power Supply: AcBel PC7008 430W

Voltage	MS-DOS Boot up		Windows 10 64bit BurnIn 8.1 + Prime95	
	Current (A)	Power (W)	Current (A)	Power (W)
12V	1.34	16.08	2.52	30.24
5V	2.05	10.25	2.84	14.2
3.3V	0.23	0.759	0.22	0.726
5VSB	0.515	2.575	0.007	0.035

7. a. Test Environment:

The same as above but with LCD

Display Panel	AUO M215HW03 21.5"LCD
----------------------	------------------------------

Power Supply: AcBel PC7008 430W

Voltage	MS-DOS Boot up		Windows 10 64bit BurnIn 8.1 + Prime95	
	Current (A)	Power (W)	Current (A)	Power (W)
12V	2	24	3.78	45.36
5V	2.07	10.35	2.95	14.75
3.3V	1.39	4.587	1.11	3.663
5VSB	0.497	2.485	0.023	0.115

8. Test Environment:

Motherboard	LV-6713W7L_A
CPU	Intel® Xeon® W-11865MLE 1.50GHz
Memory	Kingston DDR4 3200 32GB (Micron OSE77 D9ZFY) innodisk DDR4 3200 32GB (SEC 016 K4AAG08 5WABCWE)
HDD	Western Digital WD3200AAKS-00B3A0 320GB

Power Supply: AcBel PC7008 430W

Voltage	MS-DOS Boot up		Windows 10 64bit BurnIn 8.1 + Prime95	
	Current (A)	Power (W)	Current (A)	Power (W)
12V	1.51	18.12	7.22	86.64
5V	2.14	10.7	2.89	14.45
3.3V	0.23	0.759	0.23	0.759
5VSB	0.511	2.555	0.005	0.025

8. a. Test Environment:

The same as above but with LCD

Display Panel	AUO M215HW03 21.5”LCD
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Power Supply: AcBel PC7008 430W

Voltage	MS-DOS Boot up		Windows 10 64bit BurnIn 8.1 + Prime95	
	Current (A)	Power (W)	Current (A)	Power (W)
12V	2.29	27.48	8.83	105.96
5V	1.91	9.55	2.71	13.55
3.3V	1.4	4.62	0.79	2.607
5VSB	0.498	2.49	0.008	0.04

9. Test Environment:

Motherboard	LV-6713C_A
CPU	Intel® Celeron® 6600HE 2.60GHz
Memory	Kingston DDR4 3200 32GB (Micron OSE77 D9ZFY) innodisk DDR4 3200 32GB (SEC 016 K4AAG08 5WABCWE)
HDD	Western Digital WD3200AAKS-00B3A0 320GB

Power Supply: AcBel PC7008 430W

Voltage	MS-DOS Boot up		Windows 10 64bit BurnIn 8.1 + Prime95	
	Current (A)	Power (W)	Current (A)	Power (W)
12V	1.36	16.32	1.55	18.6
5V	1.69	8.45	2.36	11.8
3.3V	0.22	0.726	0.18	0.594
5VSB	0.49	2.45	0.002	0.01

9. a. Test Environment:

The same as above but with LCD

Display Panel	AUO M215HW03 21.5”LCD
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Power Supply: AcBel PC7008 430W

Voltage	MS-DOS Boot up		Windows 10 64bit BurnIn 8.1 + Prime95	
	Current (A)	Power (W)	Current (A)	Power (W)
12V	1.89	22.68	2.71	32.52
5V	1.32	6.6	2.39	11.95
3.3V	1.39	4.587	1.32	4.356
5VSB	0.494	2.47	0.003	0.015

5. Performance Test

5.1 3D MARK2006

Windows 10 64-bit

Item	Weighted Suite	Test Environment	Result	Remark
1	3DMARK Source	Intel(R) Core(TM) i7-11850HE 2.60GHz	PASS	5537
2	SM2.0 Source	Kingston DDR4 3200 32GB	PASS	1714
3	HDR/SM3.0 Source	(Micron OSE77 D9ZFY) Western Digital	PASS	2141
4	CPU Source	WD3200AAKS-00B3A0 320GB	PASS	14298

Windows 10 64-bit

Item	Weighted Suite	Test Environment	Result	Remark
1	3DMARK Source	Intel(R) Core(TM) i7-11850HE 2.60GHz	PASS	5532
2	SM2.0 Source	innodisk DDR4 3200 32GB	PASS	1708
3	HDR/SM3.0 Source	(SEC 016 K4AAG08 5WABCWE)	PASS	2144
4	CPU Source	Western Digital WD3200AAKS-00B3A0 320GB	PASS	1415

Windows 10 64-bit

Item	Weighted Suite	Test Environment	Result	Remark
1	3DMARK Source	Intel(R) Core(TM) i7-11850HE 2.60GHz Kingston DDR4	PASS	5526
2	SM2.0 Source	3200 32GB (Micron OSE77 D9ZFY) innodisk DDR4	PASS	1701
3	HDR/SM3.0 Source	3200 32GB (SEC 016 K4AAG08 5WABCWE)	PASS	2148
4	CPU Source	Western Digital WD3200AAKS-00B3A0 320GB	PASS	14107

Windows 10 64-bit

Item	Weighted Suite	Test Environment	Result	Remark
1	3DMARK Source	Intel(R) Core(TM) i7-11850HE 2.60GHz Kingston DDR4	PASS	5516
2	SM2.0 Source	2133 16GB (Micro 7JH45 D9VHP)	PASS	1699
3	HDR/SM3.0 Source	Western Digital WD3200AAKS-00B3A0	PASS	2141
4	CPU Source	320GB	PASS	1429

Windows 10 64-bit

Item	Weighted Suite	Test Environment	Result	Remark
1	3DMARK Source	Intel(R) Core(TM) i7-11850HE 2.60GHz Kingston DDR4 3200 32GB (Micron OSE77 D9ZFY) Kingston DDR4 2133 16GB (Micro 7JH45 D9VHP) Western Digital WD3200AAKS-00B3A0 320GB	PASS	5533
2	SM2.0 Source		PASS	1708
3	HDR/SM3.0 Source		PASS	2144
4	CPU Source		PASS	1425

Windows 10 64-bit

Item	Weighted Suite	Test Environment	Result	Remark
1	3DMARK Source	Intel(R) Core(TM) i7-11850HE 2.60GHz innodisk DDR4 3200 32GB (SEC 016 K4AAG08 5WABCWE) Kingston DDR4 2133 16GB (Micro 7JH45 D9VHP) Western Digital WD3200AAKS-00B3A0 320GB	PASS	5507
2	SM2.0 Source		PASS	1695
3	HDR/SM3.0 Source		PASS	2138
4	CPU Source		PASS	1425

5.2 3D MARK 11

Windows 10 64-bit

Item	Weighted Suite	Test Environment	Result	Remark
1	3DMARK SCORE	Intel(R) Core(TM) i7-11850HE 2.60GHz	PASS	P979
2	Graphics SCORE	Kingston DDR4 3200 32GB (Micron OSE77 D9ZFY)	PASS	824
3	Physics SCORE	innodisk DDR4 3200 32GB (SEC 016 K4AAG08 5WABCWE)	PASS	12730
4	Combined SCORE	Western Digital WD3200AAKS-00B3A0 320GB	PASS	1007

Windows 10 64-bit

Item	Weighted Suite	Test Environment	Result	Remark
1	3DMARK SCORE	Intel(R) Core(TM) i7-11850HE 2.60GHz	PASS	P1006
2	Graphics SCORE	Kingston DDR4 3200 32GB (Micron OSE77 D9ZFY)	PASS	848
3	Physics SCORE	Western Digital WD3200AAKS-00B3A0 320GB	PASS	13292
4	Combined SCORE		PASS	1027

Windows 10 64-bit

Item	Weighted Suite	Test Environment	Result	Remark
1	3DMARK SCORE	Intel(R) Core(TM) i7-11850HE 2.60GHz innodisk DDR4 3200 32GB (SEC 016 K4AAG08 5WABCWE) Western Digital WD3200AAKS-00B3A0 320GB	PASS	P1013
2	Graphics SCORE		PASS	855
3	Physics SCORE		PASS	12975
4	Combined SCORE		PASS	1020

Windows 10 64-bit

Item	Weighted Suite	Test Environment	Result	Remark
1	3DMARK SCORE	Intel(R) Core(TM) i7-11850HE 2.60GHz Kingston DDR4 2133 16GB (Micro 7JH45 D9VHP) Western Digital WD3200AAKS-00B3A0 320GB	PASS	P1009
2	Graphics SCORE		PASS	856
3	Physics SCORE		PASS	9967
4	Combined SCORE		PASS	1010

Windows 10 64-bit

Item	Weighted Suite	Test Environment	Result	Remark
1	3DMARK SCORE	Intel(R) Core(TM) i7-11850HE 2.60GHz	PASS	P1017
2	Graphics SCORE	Kingston DDR4 3200 32GB (Micron OSE77 D9ZFY)	PASS	857
3	Physics SCORE	Kingston DDR4 2133 16GB (Micro 7JH45 D9VHP)	PASS	14498
4	Combined SCORE	Western Digital WD3200AAKS-00B3A0 320GB	PASS	1027

Windows 10 64-bit

Item	Weighted Suite	Test Environment	Result	Remark
1	3DMARK SCORE	Intel(R) Core(TM) i7-11850HE 2.60GHz	PASS	P1009
2	Graphics SCORE	Kingston DDR4 2133 16GB (Micro 7JH45 D9VHP)	PASS	854
3	Physics SCORE	innodisk DDR4 3200 32GB (SEC 016 K4AAG08 5WABCWE)	PASS	11275
4	Combined SCORE	Western Digital WD3200AAKS-00B3A0 320GB	PASS	1012

5.3 PC MARK2005

Test Environment
Intel(R) Core(TM) i7-11850HE 2.60GHz Kingston DDR4 3200 32GB (Micron OSE77 D9ZFY) Western Digital WD3200AAKS-00B3A0 320GB

Windows 10 64-bit

Item	Weighted Suite	Result	Remark
1	PCMark Source	PASS	N/A
2	CPU Source	PASS	19065
3	Memory Source	PASS	17829
4	Graphic Source	PASS	N/A
5	HDD Source	PASS	N/A

Test Environment
Intel(R) Core(TM) i7-11850HE 2.60GHz innodisk DDR4 3200 32GB (SEC 016 K4AAG08 5WABCWE) Western Digital WD3200AAKS-00B3A0 320GB

Windows 10 64-bit

Item	Weighted Suite	Result	Remark
1	PCMark Source	PASS	N/A
2	CPU Source	PASS	19062
3	Memory Source	PASS	17830
4	Graphic Source	PASS	N/A
5	HDD Source	PASS	N/A

Test Environment
Intel(R) Core(TM) i7-11850HE 2.60GHz Kingston DDR4 3200 32GB (Micron OSE77 D9ZFY) innodisk DDR4 3200 32GB (SEC 016 K4AAG08 5WABCWE) Western Digital WD3200AAKS-00B3A0 320GB

Windows 10 64-bit

Item	Weighted Suite	Result	Remark
1	PCMark Source	PASS	N/A
2	CPU Source	PASS	19061
3	Memory Source	PASS	18828
4	Graphic Source	PASS	N/A
5	HDD Source	PASS	N/A

Test Environment
Intel(R) Core(TM) i7-11850HE 2.60GHz Kingston DDR4 2133 16GB (Micro 7JH45 D9VHP) Western Digital WD3200AAKS-00B3A0 320G

Windows 10 64-bit

Item	Weighted Suite	Result	Remark
1	PCMark Source	PASS	N/A
2	CPU Source	PASS	19028
3	Memory Source	PASS	15703
4	Graphic Source	PASS	N/A
5	HDD Source	PASS	N/A

Test Environment
Intel(R) Core(TM) i7-11850HE 2.60GHz Kingston DDR4 3200 32GB (Micron OSE77 D9ZFY) Kingston DDR4 2133 16GB (Micro 7JH45 D9VHP) Western Digital WD3200AAKS-00B3A0 320GB

Windows 10 64-bit

Item	Weighted Suite	Result	Remark
1	PCMark Source	PASS	N/A
2	CPU Source	PASS	19062
3	Memory Source	PASS	17854
4	Graphic Source	PASS	N/A
5	HDD Source	PASS	N/A

Test Environment
Intel(R) Core(TM) i7-11850HE 2.60GHz innodisk DDR4 3200 32GB (SEC 016 K4AAG08 5WABCWE) Kingston DDR4 2133 16GB (Micro 7JH45 D9VHP) Western Digital WD3200AAKS-00B3A0 320GB

Windows 10 64-bit

Item	Weighted Suite	Result	Remark
1	PCMark Source	PASS	N/A
2	CPU Source	PASS	19146
3	Memory Source	PASS	16178
4	Graphic Source	PASS	N/A
5	HDD Source	PASS	N/A

5.4 PC MARK10

Test Environment
Intel(R) Core(TM) i7-11850HE 2.60GHz Kingston DDR4 3200 32GB (Micron OSE77 D9ZFY) innodisk DDR4 3200 32GB (SEC 016 K4AAG08 5WABCWE) Western Digital WD3200AAKS-00B3A0 320GB

Windows 10 64-bit

Item	Weighted Suite	Result	Remark
1	PCMark Scores	PASS	3174
2	Essentials	PASS	6365
3	Productivity	PASS	4980
4	Digital Content Creation	PASS	2738

Test Environment
Intel(R) Core(TM) i7-11850HE 2.60GHz Kingston DDR4 3200 32GB (Micron OSE77 D9ZFY) Western Digital WD3200AAKS-00B3A0 320GB

Windows 10 64-bit

Item	Weighted Suite	Result	Remark
1	PCMark Scores	PASS	3225
2	Essentials	PASS	6452
3	Productivity	PASS	4978
4	Digital Content Creation	PASS	2834

Test Environment
Intel(R) Core(TM) i7-11850HE 2.60GHz innodisk DDR4 3200 32GB (SEC 016 K4AAG08 5WABCWE) Western Digital WD3200AAKS-00B3A0 320GB

Windows 10 64-bit

Item	Weighted Suite	Result	Remark
1	PCMark Scores	PASS	3230
2	Essentials	PASS	6530
3	Productivity	PASS	4966
4	Digital Content Creation	PASS	2862

Test Environment
Intel(R) Core(TM) i7-11850HE 2.60GHz Kingston DDR4 2133 16GB (Micro 7JH45 D9VHP) Western Digital WD3200AAKS-00B3A0 320GB

Windows 10 64-bit

Item	Weighted Suite	Result	Remark
1	PCMark Scores	PASS	3106
2	Essentials	PASS	6164
3	Productivity	PASS	4824
4	Digital Content Creation	PASS	2736

Test Environment
Intel(R) Core(TM) i7-11850HE 2.60GHz Kingston DDR4 3200 32GB (Micron OSE77 D9ZFY) Kingston DDR4 2133 16GB (Micro 7JH45 D9VHP) Western Digital WD3200AAKS-00B3A0 320GB

Windows 10 64-bit

Item	Weighted Suite	Result	Remark
1	PCMark Scores	PASS	3212
2	Essentials	PASS	6421
3	Productivity	PASS	4916
4	Digital Content Creation	PASS	2850

Test Environment
Intel(R) Core(TM) i7-11850HE 2.60GHz innodisk DDR4 3200 32GB (SEC 016 K4AAG08 5WABCWE) Kingston DDR4 2133 16GB (Micro 7JH45 D9VHP) Western Digital WD3200AAKS-00B3A0 320GB

Windows 10 64-bit

Item	Weighted Suite	Result	Remark
1	PCMark Scores	PASS	3096
2	Essentials	PASS	6263
3	Productivity	PASS	4803
4	Digital Content Creation	PASS	2679

5.5 CINEBENCH 11.5

Windows 10 64-bit

Item	Weighted Suite	Test Environment	Result	Remark
1	OpenGL	Intel(R) Core(TM) i7-11850HE 2.60GHz Kingston DDR4 3200 32GB (Micron OSE77 D9ZFY)	PASS	22.39 fps
2	CPU	innodisk DDR4 3200 32GB (SEC 016 K4AAG08 5WABCWE) Western Digital WD3200AAKS-00B3A0 320GB	PASS	2141 cb

Windows 10 64-bit

Item	Weighted Suite	Test Environment	Result	Remark
1	OpenGL	Intel(R) Core(TM) i7-11850HE 2.60GHz Kingston DDR4 3200 32GB (Micron OSE77 D9ZFY)	PASS	22.34 fps
2	CPU	Western Digital WD3200AAKS-00B3A0 320GB	PASS	2156 cb

Windows 10 64-bit

Item	Weighted Suite	Test Environment	Result	Remark
1	OpenGL	Intel(R) Core(TM) i7-11850HE 2.60GHz innodisk DDR4 3200 32GB	PASS	22.29 fps
2	CPU	(SEC 016 K4AAG08 5WABCWE) Western Digital WD3200AAKS-00B3A0 320GB	PASS	2131 cb

Windows 10 64-bit

Item	Weighted Suite	Test Environment	Result	Remark
1	OpenGL	Intel(R) Core(TM) i7-11850HE 2.60GHz Kingston DDR4 2133 16GB (Micro 7JH45 D9VHP)	PASS	22.23 fps
2	CPU	innodisk DDR4 3200 32GB (SEC 016 K4AAG08 5WABCWE) Western Digital WD3200AAKS-00B3A0 320GB	PASS	2123 cb

Windows 10 64-bit

Item	Weighted Suite	Test Environment	Result	Remark
1	OpenGL	Intel(R) Core(TM) i7-11850HE 2.60GHz Kingston DDR4 2133 16GB (Micro 7JH45 D9VHP)	PASS	22.42 fps
2	CPU	Kingston DDR4 3200 32GB (Micron OSE77 D9ZFY) Western Digital WD3200AAKS-00B3A0 320GB	PASS	2102 cb

Windows 10 64-bit

Item	Weighted Suite	Test Environment	Result	Remark
1	OpenGL	Intel(R) Core(TM) i7-11850HE 2.60GHz Kingston DDR4 2133 16GB (Micro 7JH45 D9VHP)	PASS	22.30 fps
2	CPU	Western Digital WD3200AAKS-00B3A0 320GB	PASS	2122 cb

5.6 Storage Performance

5.6.1 HDD

Test environment:

OS Windows 10 64bit

Program: HD Tune

HDD Model	Interface	Capacity	Average	Burst Rate	Access Time
TOSHIBA DT01ACA200	HDD	2 TB	152.8 MB/sec	267.2 MB/sec	12.3 ms
Western Digital WD20EFRX-68AX9N0	HDD	2 TB	115.1 MB/sec	234.4 MB/sec	17 ms
Western Digital WD10EALX-009BA0	HDD	1 TB	107.2 MB/sec	190.6 MB/sec	13.6 ms
Seagate ST31000528AS	HDD	1 TB	98.1 MB/sec	131.6 MB/sec	16.8 ms
Western Digital WD3200BEKT-00F3T0	HDD	320 GB	64.3 MB/sec	138.6 MB/sec	14.5 ms
Western Digital WD3200AAKS-00B3A0	HDD	320 GB	92.3 MB/sec	135.8 MB/sec	16 ms
Western Digital WD800BEVS-00RST0	HDD	80 GB	34.5 MB/sec	84 MB/sec	17 ms
Kingston DT Hyper X 3.0	USB 3.0	64 GB	242.1 MB/sec	90.6 MB/sec	0.5 ms
SMI USB	USB 2.0	8 GB	12.3 MB/sec	13 MB/sec	0.9 ms
Silicon-Power	USB 2.0	4 GB	1.1 MB/sec	1.1 MB/sec	0.9 ms
Kingston SKC600MS	mSATA	256 GB	291.8 MB/sec	251.7 MB/sec	0 ms
acpi MSS4F-M	mSATA SSD	64 GB	377.8 MB/sec	80.7 MB/sec	0.1 ms

HDD Model	Interface	Capacity	Average	Burst Rate	Access Time
acpi M2PDD-8L	M.2 2280 SSD	500 GB	2606.1 MB/sec	182.6 MB/sec	0 ms

5.6.2 DVD-ROM

Test environment:

OS Windows 10 64bit

Program (NERO)

DVD-ROM Model	Interface	Average Speed	Full Read	Burst Rate	DVD
PIONEER DVD DDVR-S19LBK	SATA	11.57 x	194 ms	60 MB/s	1 – 16 x
ASUS DRW-24D1ST	SATA	11.44 x	225 ms	47 MB/s	1 - 16 x
ASUS DRW-1814BLT	SATA	8.55 x	183 ms	52 MB/s	1 - 16 x
LG GH20NS15	SATA	11.55 x	154 ms	56 MB/s	1 - 16 x
LITE-ON iHES312	SATA	11.35 x	151 ms	52 MB/s	1 - 16 x
LITEON DVD eBAU108	USB	5.8 x	221 ms	20 MB/s	1 – 16 x
LITEON DVD eTAU108	USB	5.81 x	204 ms	25 MB/s	1 – 16 x
ZyNET DVD+RW GT32N	USB	5.74 x	230 ms	25 MB/s	1 - 16 x