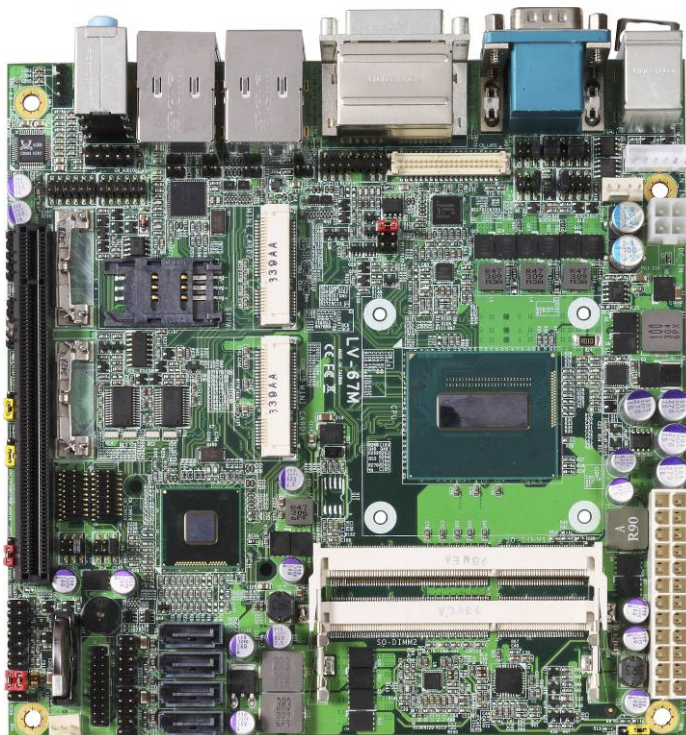


Product Test Report



Product Name	LV-67M
Product Version	C
Issued Date	2014.12.15
Report Edition	1.2
BIOS Version	1.0
Testing Engineer	Jerry

REVISION HISTORY			
DATE	REVISION NO.	PAGE	DESCRIPTONS
2014.05.19	Ver. 1.0	37	Initial Release
2014.07.10	Ver. 1.1	42	Add new OS, PCIe Mini Card and new Fan Test for Temperature
2014.12.15	Ver. 1.2	47	Increase memory test

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1. Function test

1.1 Hardware function

Base Function Test

Item	Description	Result	Remark
1	Power Button	PASS	
2	Reset	PASS	
3	Power LED	PASS	
4	HDD LED	PASS	
5	SATA3 1/2/3/4	PASS	
6	USB3.0 1/2/3/4	PASS	
7	CN_USB3	PASS	
8	CN_USB2-1/2	PASS	
9	DDR3L 1/2	PASS	
10	COM 1/2	PASS	B&B BurnInTest 7.0 mouse
11	CN_COM 3/4/5/6	PASS	B&B BurnInTest 7.0 mouse
12	DVI	PASS	
13	DisplayPort	PASS	
14	PS/2	PASS	
15	AUDIO	PASS	
16	CN_AUDIO	PASS	
17	CD_IN	PASS	
18	CN_DIO	PASS	DOS
19	CN_LPC	PASS	ADP-TPM
20	CPUFAN	PASS	
21	SYSFAN	PASS	
22	Mini PCIe 1/2	PASS	

23	CN_CRT	PASS	
24	CN_LVDS	PASS	
25	CN_INV	PASS	
26	LAN1/2	PASS	
27	IrDA	PASS	
28	DC_IN	PASS	
29	ATX	PASS	
30	RS422-485	PASS	
31	PCIEx16	PASS	

Jumper

Item	Description	Result
1	JRTC	PASS
2	JCSEL1	PASS
3	JCSEL2	PASS
4	JVLCD	PASS
5	JAT	PASS
6	JMSATA	PASS
7	JP1	PASS
8	JP2	PASS
9	JP3	PASS
10	JP4	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	NumLock	PASS	
6	Quick Boot	PASS	
7	Diagnostic Splash Screen	PASS	
8	Diagnostic Summary Screen	PASS	
9	Console Redirection	PASS	
10	View Error Manager Log	PASS	
11	Clear Error Manager Log	PASS	
12	Active Processor Cores	PASS	
13	Intell HT Technology	PASS	
14	SATA Device	PASS	
15	Interface Combination	PASS	IDE √ AHCI √ RAID √
16	Max TOLUD	PASS	
17	Boot Type	PASS	CRT √ DVI √ LVDS √ DP √
18	Azalia	PASS	
19	PCH Internal LAN	PASS	
20	LAN OPROM Selection	PASS	
21	Wake on PCH LAN	PASS	Shutdown √
22	Intell AMT	PASS	
23	Serial Port	PASS	
24	IR Func.	PASS	
25	Paraller Port	PASS	

26	Watch Dog Timer	PASS	
27	PowerLoss	PASS	Power on v Power off v
28	CPU Shutdown Temp	PASS	
29	CPU Warning Temp	PASS	
30	CPU Smart Fan	PASS	
31	Power On By RTC Alarm	PASS	
32	Set Supervisor Password	PASS	
33	Set User password	PASS	
34	ADP-TPM	PASS	
35	VCORE, 3.3V, 5V, 5VSB, 12V, VBAT	PASS	

1.3 Driver

CD Edition : IPCI5-1.0

2. Windows XP SP2 32-bit driver test

Item	Description	Result	Version
1	Chipset Driver	PASS	9.4.0.1021
2	VGA Driver	N/A	
3	Audio Driver	PASS	5.10.0.6914
4	LAN Driver	N/A	

2. Windows XP SP2 64-bit driver test

Item	Description	Result	Version
1	Chipset Driver	PASS	9.4.0.1021
2	VGA Driver	N/A	
3	Audio Driver (Need UAA bus driver)	PASS	5.10.0.6914

4	LAN Driver	N/A	
---	------------	-----	--

3. Windows Server 2003 32-bit Driver Test

Item	Description	Result	Version
1	Chipset Driver	PASS	9.4.0.1021
2	VGA Driver	N/A	
3	Audio Driver	PASS	5.10.0.6914
4	LAN Driver	N/A	

4. Windows Server 2003 64-bit driver test

Item	Description	Result	Version
1	Chipset Driver	PASS	9.4.0.1021
2	VGA Driver	N/A	
3	Audio Driver	PASS	5.10.0.6914
4	LAN Driver	N/A	

5. Windows Vista 32-bit driver test

Item	Description	Result	Version
1	Chipset Driver	PASS	9.4.0.1021
2	VGA Driver	N/A	
3	Audio Driver	PASS	6.0.1.6914
4	LAN Driver	N/A	

6. Windows Vista 64-bit driver test

Item	Description	Result	Version
1	Chipset Driver	PASS	9.4.0.1021

2	VGA Driver	N/A	
3	Audio Driver	PASS	6.0.1.6914
4	LAN Driver	N/A	

7. Windows Server 2008R2 32-bit driver test

Item	Description	Result	Version
1	Chipset Driver	PASS	9.4.0.1021
2	VGA Driver	PASS	9.18.10.3165
3	Audio Driver	PASS	6.0.1.6914
4	LAN Driver	PASS	I217-LM : 12.8.33.0 I210 :12.7.28.0
5	USB 3.0 Driver	PASS	2.5.0.19

8. Windows Server 2008R2 64-bit driver test

Item	Description	Result	Version
1	Chipset Driver	PASS	9.4.0.1021
2	VGA Driver	PASS	9.18.10.3165
3	Audio Driver	PASS	6.0.1.6914
4	LAN Driver	PASS	I217-LM : 12.8.33.0 I210 :12.7.28.0
5	USB 3.0 Driver	PASS	2.5.0.19

9. Windows 7 32-bit Driver Test

Item	Description	Result	Version
1	Chipset Driver	PASS	9.4.0.1021
2	VGA Driver	PASS	9.18.10.3165
3	Audio Driver	PASS	6.0.1.6914

4	LAN Driver	PASS	I217-LM : 12.8.33.0 I210 :12.7.28.0
5	USB 3.0 Driver	PASS	2.5.0.19

10. Windows 7 64-bit Driver Test

Item	Description	Result	Version
1	Chipset Driver	PASS	9.4.0.1021
2	VGA Driver	PASS	9.18.10.3165
3	Audio Driver	PASS	6.0.1.6914
4	LAN Driver	PASS	I217-LM : 12.8.33.0 I210 :12.7.28.0
5	USB 3.0 Driver	PASS	2.5.0.19

11. Windows 8 32-bit Driver Test

Item	Description	Result	Version
1	Chipset Driver	PASS	9.4.0.1021
2	VGA Driver	PASS	9.18.10.3165
3	Audio Driver	PASS	6.0.1.6914
4	LAN Driver	PASS	I217-LM : 12.8.33.0 I210 :12.7.28.0

12. Windows 8 64-bit Driver Test

Item	Description	Result	Version
1	Chipset Driver	PASS	9.4.0.1021
2	VGA Driver	PASS	9.18.10.3165
3	Audio Driver	PASS	6.0.1.6914

4	LAN Driver	PASS	I217-LM : 12.8.33.0 I210 :12.7.28.0
---	------------	------	--

2. Compatibility test

2.1 CPU Test

Test environment:

OS : Windows 7 professional SP1

Test program : PC MARK 2005

Spec Code	CPU Speed	Family	Processor	Max TDP	DMI	Smart Cache	Result
SR17L	2.40 GHz	Core	i7-4700EQ	47W	5 GT/s	6 MB	PASS

2.2 Operation System Test

Item	Description	Result	Remark
1	Windows 8 64-bit	PASS	
2	Windows 8 32-bit	PASS	
3	Windows 7 64-bit	PASS	
4	Windows 7 32-bit	PASS	
5	Windows Server 2008R2 64-bit	PASS	
6	Windows Server 2008R2 32-bit	PASS	
7	Windows Vista 64-bit	PASS	
8	Windows Vista 32-bit	PASS	
9	Windows XP SP2 64-bit	PASS	
10	Windows XP SP2 32-bit	PASS	
11	Windows Server 2003 64-bit	PASS	
12	Windows Server 2003 32-bit	PASS	

13	Ubuntu 12.04 desktop amd64	PASS	
14	Debian 7.5.0 i386	PASS	

2.3 Memory Test

Test environment:

OS : Windows 7 professional SP1

Test program : PC MARK 2005

Manufacturer	Chip	Frequency	Capacity Mbytes	Result
Kingston	ELPIDA J4208EBBG-GN-F	DDR3L 1600	4 GB	PASS
Kingston	Nanya NT5CC512M6BN-DI	DDR3L 1600	4 GB	PASS
Transcend	SEC 234 HYK0 K4B4G0846B	DDR3L 1600	4 GB	PASS
ATLA	SK hynix H5TC4G83AFR	DDR3L 1600	4 GB	PASS
Acpi	SK hynix H5TC4G83AFR	DDR3L 1600	8 GB	PASS
Kingston	Kingston D1288JPSFPGD9U	DDR3 1333	2 GB	PASS
ADATA	ELPIDA J2108BCSE-GN-F	DDR3 1600	4 GB	PASS
Transcend TS512MSK64W6H-I	SEC 431 XYK0 K4B4G0846D	DDR3L 1600	4 GB	PASS
Kingston KVR16LS11/8	Micron 4GE77 D9GBJ	DDR3L 1600	8 GB	PASS

2.4 VGA Graphic Quality Test

Test environment:

OS : Windows 7 professional SP1 32/64-bit

Driver version : 9.18.10.3165

Resolution	Color	CRT	DVI	DP	Remark
800*600	16 / 32bit	PASS	PASS	PASS	
1024*768	16 / 32bit	PASS	PASS	PASS	
1152*864	16 / 32bit	PASS	PASS	PASS	
1280*600	16 / 32bit	PASS	PASS	PASS	
1280*720	16 / 32bit	PASS	PASS	PASS	
1280*768	16 / 32bit	PASS	PASS	PASS	
1280*800	16 / 32bit	PASS	PASS	PASS	
1280*960	16 / 32bit	PASS	PASS	PASS	
1280*1024	16 / 32bit	PASS	PASS	PASS	
1360*768	16 / 32bit	PASS	PASS	PASS	
1366*768	16 / 32bit	PASS	PASS	PASS	
1400*1050	16 / 32bit	PASS	PASS	PASS	
1440*900	16 / 32bit	PASS	PASS	PASS	
1600*900	16 / 32bit	PASS	PASS	PASS	
1680*1050	16 / 32bit	PASS	PASS	PASS	
1920*1080	16 / 32bit	PASS	PASS	PASS	

2.5 Audio

Test environment:

OS : Windows XP professional SP1 32-bit

Driver version : 5.10.0.6914

Item	Description	Result	Remark
------	-------------	--------	--------

1	2 CH	PASS	
2	Microphone	PASS	
3	Line in	PASS	
4	CDIN	PASS	

OS : Windows XP professional SP2 64-bit

Driver version : 5.10.0.6914

Item	Description	Result	Remark
1	2 CH	PASS	
2	Microphone	PASS	
3	Line in	PASS	
4	CDIN	PASS	

OS : Windows Server 2003 32-bit

Driver version : 5.10.0.6914

Item	Description	Result	Remark
1	2 CH	PASS	
2	Microphone	PASS	
3	Line in	PASS	
4	CDIN	PASS	

OS : Windows Server 2003 64-bit

Driver version : 5.10.0.6914

Item	Description	Result	Remark
1	2 CH	PASS	
2	Microphone	PASS	
3	Line in	PASS	

4	CDIN	PASS	
---	------	------	--

OS : Windows Vista 32 bit

Driver version : 6.0.1.6914

Item	Description	Result	Remark
1	2 CH	PASS	
2	Microphone	PASS	
3	Line in	PASS	
4	CDIN	PASS	

OS : Windows Vista 64 bit

Driver version : 6.0.1.6914

Item	Description	Result	Remark
1	2 CH	PASS	
2	Microphone	PASS	
3	Line in	PASS	
4	CDIN	PASS	

OS : Windows Server 2008R2 32-bit

Driver version : 6.0.1.6914

Item	Description	Result	Remark
1	2 CH	PASS	
2	Microphone	PASS	
3	Line in	PASS	
4	CDIN	PASS	

OS : Windows Server 2008R2 64-bit

Driver version : 6.0.1.6914

Item	Description	Result	Remark
1	2 CH	PASS	
2	Microphone	PASS	
3	Line in	PASS	
4	CDIN	PASS	

OS : Windows 7 32-bit

Driver version : 6.0.1.6914

Item	Description	Result	Remark
1	2 CH	PASS	
2	Microphone	PASS	
3	Line in	PASS	
4	CDIN	PASS	

OS : Windows 7 64-bit

Driver version : 6.0.1.6914

Item	Description	Result	Remark
1	2 CH	PASS	
2	Microphone	PASS	
3	Line in	PASS	
4	CDIN	PASS	

OS : Windows 8 32-bit

Driver version : 6.0.1.6914

Item	Description	Result	Remark
------	-------------	--------	--------

1	2 CH	PASS	
2	Microphone	PASS	
3	Line in	PASS	
4	CDIN	PASS	

OS : Windows 8 64-bit

Driver version : 6.0.1.6914

Item	Description	Result	Remark
1	2 CH	PASS	
2	Microphone	PASS	
3	Line in	PASS	
4	CDIN	PASS	

2.6 HDD Test

Test environment:

OS : Windows 7 professional SP1

Model	Interface	Capacity	Size Detect	Data Transfer
Western Digital WD10EALX-009BA0	SATA3	1.0 TB	PASS	PASS
Western Digital WD10EADS-00P8B0	SATA2	1.0 TB	PASS	PASS
Western Digital WD5000AAKX-22ERMA0	SATA3	500 GB	PASS	PASS

Western Digital WD5002AALX-00J37A0	SATA3	500 GB	PASS	PASS
Innodisk DEMSR-32GD06SC2QC	mSATA	32 GB	PASS	PASS

2.7 CD-ROM Test

Test environment:

OS : Windows 7 professional SP1

Model	Interface	Detect	Data Transfer	Play CD
LITE-ON iHES312-33 3	SATA	PASS	PASS	PASS
ASUS DRW-24D1ST	SATA	PASS	PASS	PASS
BUFFALD DVSM-PC58U2VB	USB	PASS	PASS	PASS

2.8 USB device Test

1. Windows XP SP2 32/64-bit

Item	Result	Remark
External USB Keyboard Test	PASS	
External USB Mouse Test	PASS	

Hot plugging test	PASS	
CD ROM	PASS	
USB Mass storage	PASS	

2. Windows Server 2003 32/64-bit

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

3. Windows Vista 32/64-bit

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

4. Windows Server 2008R2 32/64-bit

Item	Result	Remark
External USB Keyboard Test	PASS	
External USB Mouse Test	PASS	
Hot plugging test	PASS	
CD ROM	PASS	

USB Mass storage	PASS	
USB 3.0	PASS	

5. Windows 7 32/64-bit

Item	Result	Remark
External USB Keyboard Test	PASS	
External USB Mouse Test	PASS	
Hot plugging test	PASS	
CD ROM	PASS	
USB Mass storage	PASS	
USB 3.0	PASS	

6. Windows 8 32/64-bit

Item	Result	Remark
External USB Keyboard Test	PASS	
External USB Mouse Test	PASS	
Hot plugging test	PASS	
CD ROM	PASS	
USB Mass storage	PASS	
USB 3.0	PASS	

2.9 Serial Port Test

1. MS-DOS

Item	Description	Result	Remark
1	RS-422 & RS-485	PASS	
2	CHKIT	PASS	

2. Windows XP SP2 32-bit

Item	Description	Result	Remark
1	Device Manager Check	PASS	
2	RS-232 Mouse Test	PASS	
3	b&b com port test	PASS	

3. Windows XP SP2 64-bit

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

4. Windows Server 2003 32-bit

Item	Description	Result	Remark
1	Device Manager Check	PASS	
2	RS-232 Mouse Test	PASS	
3	b&b com port test	PASS	

5. Windows Server 2003 64-bit

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

6. Windows Vista 32-bit

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

3	b&b com port test	PASS	
---	-------------------	------	--

7. Windows Vista 64-bit

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

8. Windows Server 2008R2 32-bit

Item	Description	Result	Remark
1	Device Manager Check	PASS	
2	RS-232 Mouse Test	PASS	
3	b&b com port test	PASS	

9. Windows Server 2008R2 64-bit

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

10. Windows 7 32-bit

Item	Description	Result	Remark
1	Device Manager Check	PASS	
2	RS-232 Mouse Test	PASS	
3	b&b com port test	PASS	

11. Windows 7 64-bit

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

12. Windows 8 32-bit

Item	Description	Result	Remark
1	Device Manager Check	PASS	
2	RS-232 Mouse Test	PASS	
3	b&b com port test	PASS	

13. Windows 8 64-bit

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

2.10 PS2 Keyboard 、 Mouse Test

1. MS-DOS

Item	Description	Result	Remark
1	Keyboard LED Status Test	PASS	
2	Keyboard Typing Test	PASS	
3	Mouse Detect Test	PASS	

2. Windows XP SP2 32/64-bit

Item	Description	Result	Remark
1	Keyboard LED Status Test	PASS	
2	Keyboard Typing Test	PASS	
3	Mouse Detect Test	PASS	

3. Windows Server 2003 32/64-bit

Item	Description	Result	Remark
1	Keyboard LED Status Test	PASS	
2	Keyboard Typing Test	PASS	
3	Mouse Detect Test	PASS	

4. Windows Vista 32/64-bit

Item	Description	Result	Remark
1	Keyboard LED Status Test	PASS	
2	Keyboard Typing Test	PASS	
3	Mouse Detect Test	PASS	

5. Windows server 2008R2 32/64-bit

Item	Description	Result	Remark
1	Keyboard LED Status Test	PASS	
2	Keyboard Typing Test	PASS	
3	Mouse Detect Test	PASS	

6. Windows 7 32/64-bit

Item	Description	Result	Remark
1	Keyboard LED Status Test	PASS	
2	Keyboard Typing Test	PASS	
3	Mouse Detect Test	PASS	

7. Windows 8 32/64-bit

Item	Description	Result	Remark
------	-------------	--------	--------

1	Keyboard LED Status Test	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 Server 2008R2 32/64-bit (I217-LM)

32-bit driver version : 12.8.33.0 ; 64-bit driver version : 12.8.33.0

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

2. Windows 7 32/64-bit (I217-LM)

32-bit driver version : 12.8.33.0 ; 64-bit driver version : 12.8.33.0

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

3. Windows 8 32/64-bit (I217-LM)

32-bit driver version : 12.8.33.0 ; 64-bit driver version : 12.8.33.0

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

2.12 Power Supply Test

Item	TYPE	Description	Result	Remark
1	Adapter	LI SHIN 0227B19120 120W	PASS	
2	ATX Power	AcBel API3PC50 350W	PASS	
3	ATX Power	AcBel ATX-350P-DNSS 350W	PASS	
4	ATX Power	snake PK-350W 350W	PASS	
5	DC Power	GWINSTEK SPS-3610	PASS	

2.13 PCI Express mini card

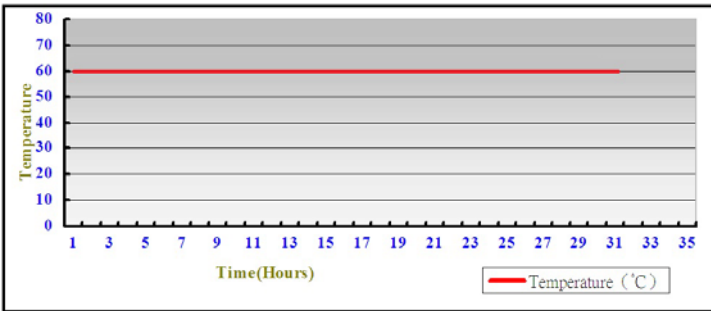
Motherboard	PCI Express mini card	Result	Remark
LV-67M	MPX-574D	PASS	
	MPX-574D2	PASS	
	MPX-210D	PASS	
	MPX-210D2	PASS	
	MPX-954E	PASS	
	MPX-7202	PASS	
	MPX-885	PASS	
	MPX-6864	PASS	
	MPX-25858	PASS	
	MPX-5201	PASS	
mSATA	PASS		

3. Environmental test

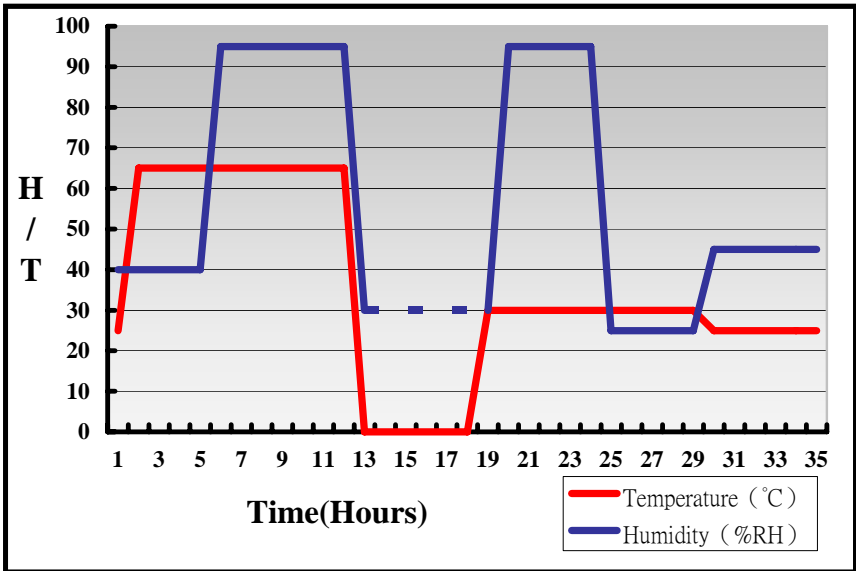
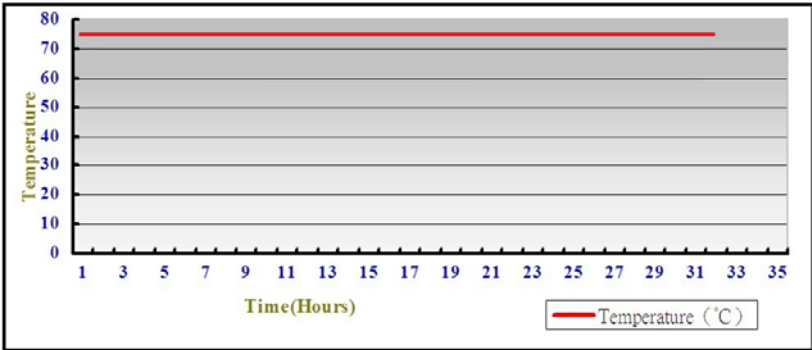
3.1 Temperature Test

System Board	LV-67M
CPU	Intel® Core™ i7-4700EQ 2.40GHz
Memory	Transcend DDR3L 1600 4GB x2 (SEC 234 HYK0 K4B4G0846B)
HDD	Western Digital WD10EALS-00P8B0 1TB
Operating OS	Windows 7 Professional SP1 64-bit
Test Equipment	GIANT FORCE (GTH-150-60-CP-AR)
Test Program	3DMark06+Prime95-266

Fan Model	OHS-P-M-K
-----------	-----------



Fan Model	OHS-P-M-Z
-----------	-----------



Definition : When the temperature is 30 degrees below arrive, humidity measurements have not, so by the dashed line express.

Boot Up Test:

Hardware Device list:

System Board	LV-67M
CPU	Intel® Core™ i7-4700EQ 2.40GHz
Memory	Transcend DDR3L 1600 4GB x2 (SEC 234 HYK0 K4B4G0846B)
HDD	Western Digital WD10EALS-00P8B0 1TB
Operating OS	Windows 7 Professional SP1 64-bit

Fan Model	OHS-P-M-K		
	Temperature	Result	Remark
	60°C	PASS	50 Times
	-30°C	PASS	50 Times

Fan Model	OHS-P-M-Z		
	Temperature	Result	Remark
	65°C	PASS	50 Times
	-30°C	PASS	50 Times

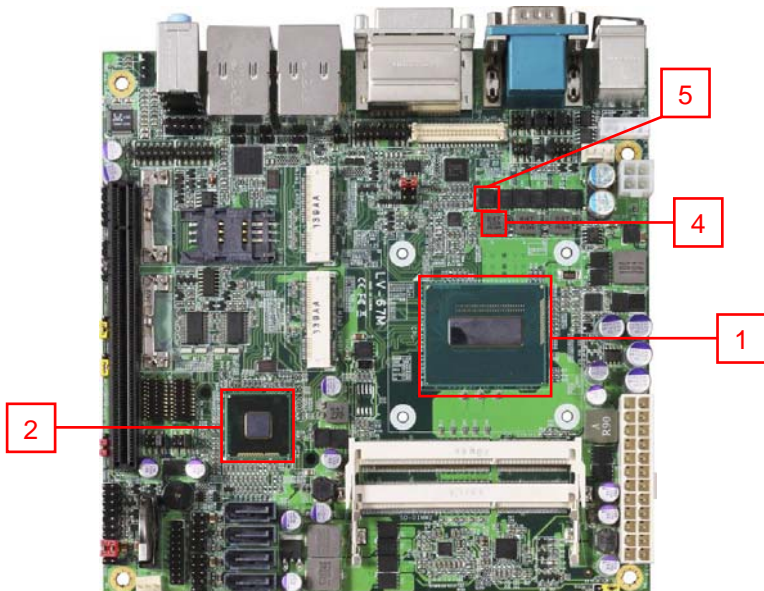
3.2 Thermal measurements at various points on the board

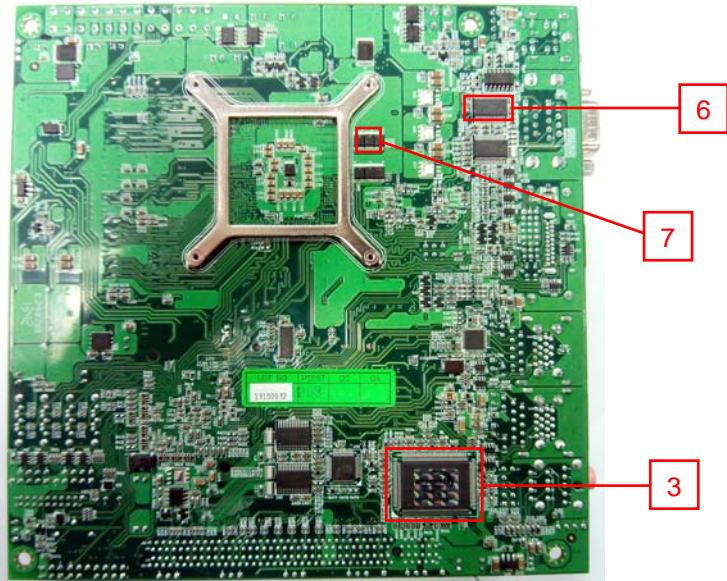
Test Environment :

CPU	Intel® Core™ i7-4700EQ 2.40GHz
Memory	Transcend DDR3L 1600 4GB x2 (SEC 234 HYK0 K4B4G0846B)
HDD	Western Digital WD10EALS-00P8B0 1TB
Power	sanke PK-350W
Operating OS	Windows 7 SP1 32-bit
Test Program	3DMark 2006+Prime95-266

Test Result:

Item	Environmental temperature	26°C
1	CPU (Fan Speed 7031 rpm)	41°C
2	PCH(QM87, None Heat Sink)	50.8°C
3	LPCIO	34.7°C
4	L5	38.7°C
5	Q25	39.5°C
6	U26	40.4°C
7	C244	42.7°C





4. Reliability Test

4.1 Power Consumption Test

1. Test Environment:

CPU	Intel® Core™ i7-4700EQ 2.40GHz
Memory	Acpi DDR3L 1600 8GB x2 (SK hynix H5TC4G83AFR)
HDD	Western Digital WD10EALS-00P8B0 1TB

Power Supply : snake PK-350W

Voltage	MS-DOS Boot up		Win7(64Bit) 3DMark06 + Prime95-266	
	Current (A)	Power (W)	Current (A)	Power (W)
12V	1.62	19.44	2.89	34.68
5V	0.81	4.05	1.38	6.9
3.3V	0.59	1.947	0.51	1.683

5VSB	0.27	1.35	0.03	0.15
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The same as above but with LCD panel

Display Panel	AUO M170EG01 17"LCD
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Power Supply : snake PK-350W

Voltage	MS-DOS Boot up		Win7(64Bit) 3DMark06 + Prime95-266	
	Current (A)	Power (W)	Current (A)	Power (W)
12V	3.10	37.2	4.70	56.4
5V	1.73	8.65	2.38	11.9
3.3V	0.54	1.782	0.65	2.145

2.Test Environment:

CPU	Intel® Core™ i7-4700EQ 2.40GHz
Memory	Transcend DDR3L 1600 4GB x2 (SEC 234 HYK0 K4B4G0846B)
HDD	Western Digital WD10EALS-00P8B0 1TB

AC ADAPTER : LI SHIN 0227B19120(19V)

Voltage	MS-DOS Boot up		Win7(64Bit) 3DMark06 + Prime95-266	
	Current (A)	Power (W)	Current (A)	Power (W)
19V	1.74	33.06	2.76	52.44

The same as above but with LCD panel

Display Panel	AUO M170EG01 17"LCD
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AC ADAPTER : LI SHIN 0227B19120(19V)

Voltage	MS-DOS Boot up		Win7(64Bit) 3DMark06 + Prime95-266	
	Current (A)	Power (W)	Current (A)	Power (W)
19V	2.97	56.43	4.37	83.03

5. Performance Test

5.1 Performance Test 7.0

Windows 7 32-bit

Test Environment		
CPU	Intel(R) Core(TM) i7-4700QE 2.40GHz	
Memory	Transcend DDR3L 1600 4GB x2 (SEC 431 XYK0 4B4G0846D)	
HDD	Western Digital WD5000AAKS-00V1A0 500GB	
Weighted Suite	Result	Score
PassMark Rating	PASS	1124.8
CPU Mark	PASS	5717.8
2D Graphics Mark	PASS	254.1
3D Graphics Mark	PASS	273.9
Memory Mark	PASS	734
Disk Mark	PASS	783

Windows 7 64-bit

Test Environment		
CPU	Intel(R) Core(TM) i7-4700QE 2.40GHz	
Memory	Transcend DDR3L 1600 4GB x2 (SEC 431 XYK0 4B4G0846D)	
HDD	Western Digital WD5000AAKS-00V1A0 500GB	
Weighted Suite	Result	Score
PassMark Rating	PASS	1356.2
CPU Mark	PASS	7308.5
2D Graphics Mark	PASS	320.9
3D Graphics Mark	PASS	272
Memory Mark	PASS	1592.8
Disk Mark	PASS	635.4

Windows 7 32-bit

Test Environment		
CPU	Intel(R) Core(TM) i7-4700QE 2.40GHz	
Memory	Kingston DDR3L 1600 8GB (Micron 4GE77 D9GBJ)	
HDD	Western Digital WD5000AAKS-00V1A0 500GB	
Weighted Suite	Result	Score
PassMark Rating	PASS	1130.5
CPU Mark	PASS	5647.1
2D Graphics Mark	PASS	269.3
3D Graphics Mark	PASS	267.7
Memory Mark	PASS	723.4
Disk Mark	PASS	769.7

Windows 7 64-bit

Test Environment		
CPU	Intel(R) Core(TM) i7-4700QE 2.40GHz	
Memory	Kingston DDR3L 1600 8GB (Micron 4GE77 D9GBJ)	
HDD	Western Digital WD10EALX-009BA0 1TB	
Weighted Suite	Result	Score
PassMark Rating	PASS	1346.7
CPU Mark	PASS	7148.5
2D Graphics Mark	PASS	306
3D Graphics Mark	PASS	258.2
Memory Mark	PASS	1497.9
Disk Mark	PASS	749.6

5.2 Performance Test 8.0

Windows 7 SP1 64-bit

Test Environment		
CPU	Intel® Core™ i7-4700EQ 2.40GHz	
Memory	Transcend DDR3L 1600 4GB x2 (SEC 234 HYK0 K4B4G0846B)	
HDD	Western Digital WD10EALS-00P8B0 1TB	
Test Program	Performance Test 8.0	
WEIGHTED SUITE	Result	Score
PassMark Rating	PASS	1326
CPU Mark	PASS	6491
2D Graphics Mark	PASS	639
3D Graphics Mark	PASS	2646
Memory Mark	PASS	1896
Disk Mark	PASS	549

5.3 CINEBENCH R15

Windows 7 SP1 64-bit

Test Environment			
CPU	Intel® Core™ i7-4700EQ 2.40GHz		
Memory	A+cpi DDR3L 1600 8GB x2 (SK hynix H5TC4G83AFR)		
HDD	Western Digital WD10EALS-00P8B0 1TB		
WEIGHTED SUITE	Result	Sorce	Remark
OpenGL	PASS	9.17 fps	
CPU	PASS	484 cb	

5.4 3DMark

Windows 7 SP1 64-bit

Test Environment			
CPU	Intel® Core™ i7-4700EQ 2.40GHz		
Memory	Transcend DDR3L 1600 4GB x2 (SEC 234 HYK0 K4B4G0846B)		
HDD	Western Digital WD10EALS-00P8B0 1TB		
WEIGHTED SUITE	Result	Score	Remark
3DMark06			
3DMarks	PASS	4329	
SM2.0	PASS	1416	
HDR/SM3.0	PASS	1692	
CPU	PASS	4905	
3DMarkVantage			
3DMarl	PASS	P2071	
GPU	PASS	1599	
CPU	PASS	17807	
3DMark11			
3DMark	PASS	P549	
Graphics	PASS	466	
Physics	PASS	6175	
Combined	PASS	538	
3DMark (2013)			
FIRE STRIKE 1.1	PASS	273	
CLOUD GATE 1.1	PASS	3144	
ICE vSTORM 1.1	PASS	22717	

Windows 7 32-bit

Weighted Suite	Test Environment	Result	Remark
3DMARK2001 SE SCORE	Intel® Core™ i7-4700EQ 2.40GHz Transcend DDR3L 1600 4GB x2 (SEC 431 XYK0 4B4G0846D) Western Digital WD5000AAKS-00V1A0 500GB	PASS	16891
3DMARK2003 SCORE		PASS	9380
3DMARK2005 SCORE		PASS	6614

Windows 7 64-bit

Weighted Suite	Test Environment	Result	Remark
3DMARK2001 SE SCORE	Intel® Core™ i7-4700EQ 2.40GHz Transcend DDR3L 1600 4GB x2 (SEC 431 XYK0 4B4G0846D) Western Digital WD5000AAKS-00V1A0 500GB	PASS	17223
3DMARK2003 SCORE		N/A	
3DMARK2005 SCORE		N/A	

Windows 7 32-bit

Weighted Suite	Test Environment	Result	Remark
3DMARK2001 SE SCORE	Intel® Core™ i7-4700EQ 2.40GHz Kingston DDR3L 1600 8GB (Micron 4GE77 D9GBJ) Western Digital WD5000AAKS-00V1A0 500GB	PASS	16270
3DMARK2003 SCORE		PASS	9048
3DMARK2005 SCORE		PASS	6277

Windows 7 64-bit

Weighted Suite	Test Environment	Result	Remark
3DMARK2001 SE SCORE	Intel® Core™ i7-4700EQ 2.40GHz Kingston DDR3L 1600 8GB (Micron 4GE77 D9GBJ) Western Digital WD10EALX-00B9A0 1TB	PASS	16316
3DMARK2003 SCORE		PASS	9194
3DMARK2005 SCORE		N/A	

3DMARK2003 need set compatibility mode

Windows 7 32-bit

Item	Weighted Suite	Test Environment	Result	Remark
1	3DMARK2006 SCORE	Intel® Core™ i7-4700EQ 2.40GHz Transcend DDR3L 1600 4GB x2 (SEC 431 XYK0 4B4G0846D) Western Digital WD5000AAKS-00V1A0 500GB	PASS	4253
2	SM2.0 SCORE		PASS	1385
3	HDR/SM3.0 SCORE		PASS	1666
4	CPU SCORE		PASS	4910

Windows 7 32-bit

Item	Weighted Suite	Test Environment	Result	Remark
1	3DMARK2006 SCORE	Intel® Core™ i7-4700EQ 2.40GHz Kingston DDR3L 1600 8GB (Micron 4GE77 D9GBJ) Western Digital WD5000AAKS-00V1A0 500GB	PASS	4034
2	SM2.0 SCORE		PASS	1294
3	HDR/SM3.0 SCORE		PASS	1593
4	CPU SCORE		PASS	4854

Windows 7 64-bit

Item	Weighted Suite	Test Environment	Result	Remark
1	3DMARK2006 SCORE	Intel® Core™ i7-4700EQ 2.40GHz Kingston DDR3L 1600 8GB (Micron 4GE77 D9GBJ) Western Digital WD10EALX-009BA0 1TB	PASS	4048
2	SM2.0 SCORE		PASS	1280
3	HDR/SM3.0 SCORE		PASS	1617
4	CPU SCORE		PASS	4885

5.5 PCMark

Windows 7 SP1 64-bit

Test Environment			
CPU	Intel® Core™ i7-4700EQ 2.40GHz		
Memory	Transcend DDR3L 1600 4GB x2 (SEC 234 HYK0 K4B4G0846B)		
HDD	Western Digital WD10EALS-00P8B0 1TB		
WEIGHTED SUITE	Result	Sorce	Remark
PCMark Vantage			
PCMark	PASS	6837	
Memories	PASS	4201	
TV and Movies	PASS	4917	
Gaming	PASS	5148	
Music	PASS	6464	
Communications	PASS	6411	
Productivity	PASS	6573	

HDD	PASS	3364	
PCMark7			
PCMark	PASS	2717	
Lightweight	PASS	2238	
Productivity	PASS	1789	
Creativity	PASS	3814	
Entertainment	PASS	2841	
Computation	PASS	6726	
System storage	PASS	1930	
Secondary storage	PASS	1748	

PC MARK2002

Test Environment
Intel® Core™ i7-4700EQ 2.40GHz Transcend DDR3L 1600 4GB x2 (SEC 431 XYK0 4B4G0846D) Western Digital WD5000AAKS-00V1A0 500GB

Windows 7 32-bit

Item	Weighted Suite	Result	Remark
1	CPU SCORE	PASS	N/A
2	Memory SCORE	PASS	51583
3	HDD SCORE	PASS	2351

Windows 7 64-bit

Item	Weighted Suite	Result	Remark
1	CPU SCORE	PASS	N/A

2	Memory SCORE	PASS	51951
3	HDD SCORE	PASS	2789

PC MARK2002

Test Environment
Intel® Core™ i7-4700EQ 2.40GHz Kingston DDR3L 1600 8GB (Micron 4GE77 D9GBJ) Western Digital WD5000AAKS-00V1A0 500GB

Windows 7 32-bit

Item	Weighted Suite	Result	Remark
1	CPU SCORE	PASS	N/A
2	Memory SCORE	PASS	51492
3	HDD SCORE	PASS	2606

PC MARK2002

Test Environment
Intel® Core™ i7-4700EQ 2.40GHz Kingston DDR3L 1600 8GB (Micron 4GE77 D9GBJ) Western Digital WD10EALX-009BA0 1TB

Windows 7 32-bit

Item	Weighted Suite	Result	Remark
1	CPU SCORE	PASS	N/A
2	Memory SCORE	PASS	52220
3	HDD SCORE	PASS	3317

PC MARK 2004

Test Environment
Intel® Core™ i7-4700EQ 2.40GHz Transcend DDR3L 1600 4GB x2 (SEC 431 XYK0 4B4G0846D) Western Digital WD5000AAKS-00V1A0 500GB

Windows 7 32-bit

Item	Weighted Suite	Result	Remark
1	PCMark SCORE	PASS	N/A
2	CPU SCORE	PASS	N/A
3	Memory SCORE	PASS	13537
4	Graphic SCORE	PASS	7927
5	HDD SCORE	PASS	N/A

Windows 7 64-bit

Item	Weighted Suite	Result	Remark
1	PCMark SCORE	PASS	N/A
2	CPU SCORE	PASS	N/A
3	Memory SCORE	PASS	13718
4	Graphic SCORE	PASS	8274
5	HDD SCORE	PASS	N/A

PC MARK 2004

Test Environment
Intel® Core™ i7-4700EQ 2.40GHz Kingston DDR3L 1600 8GB (Micron 4GE77 D9GBJ) Western Digital WD5000AAKS-00V1A0 500GB

Windows 7 32-bit

Item	Weighted Suite	Result	Remark
1	PCMark SCORE	PASS	N/A
2	CPU SCORE	PASS	N/A
3	Memory SCORE	PASS	13277
4	Graphic SCORE	PASS	7830
5	HDD SCORE	PASS	N/A

PC MARK 2004

Test Environment
Intel® Core™ i7-4700EQ 2.40GHz Kingston DDR3L 1600 8GB (Micron 4GE77 D9GBJ) Western Digital WD10EALX-009BA0 1TB

Windows 7 64-bit

Item	Weighted Suite	Result	Remark
1	PCMark SCORE	PASS	N/A
2	CPU SCORE	PASS	N/A
3	Memory SCORE	PASS	13529
4	Graphic SCORE	PASS	8082
5	HDD SCORE	PASS	N/A

PC MARK 2005

Test Environment
Intel® Core™ i7-4700EQ 2.40GHz Transcend DDR3L 1600 4GB x2 (SEC 431 XYK0 4B4G0846D) Western Digital WD5000AAKS-00V1A0 500GB

Windows 7 32-bit

Item	Weighted Suite	Result	Remark
1	PCMark SCORE	PASS	N/A
2	CPU SCORE	PASS	9789
3	Memory SCORE	PASS	10756
4	Graphic SCORE	PASS	N/A
5	HDD SCORE	PASS	N/A

Windows 7 64-bit

Item	Weighted Suite	Result	Remark
1	PCMark SCORE	PASS	N/A
2	CPU SCORE	PASS	9858
3	Memory SCORE	PASS	10744
4	Graphic SCORE	PASS	N/A
5	HDD SCORE	PASS	N/A

PC MARK 2005

Test Environment
Intel® Core™ i7-4700EQ 2.40GHz Kingston DDR3L 1600 8GB (Micron 4GE77 D9GBJ) Western Digital WD5000AAKS-00V1A0 500GB

Windows 7 32-bit

Item	Weighted Suite	Result	Remark
1	PCMark SCORE	PASS	N/A
2	CPU SCORE	PASS	9854
3	Memory SCORE	PASS	10201
4	Graphic SCORE	PASS	N/A
5	HDD SCORE	PASS	N/A

Windows 7 64-bit

Item	Weighted Suite	Result	Remark
1	PCMark SCORE	PASS	N/A
2	CPU SCORE	PASS	9899
3	Memory SCORE	PASS	10023
4	Graphic SCORE	PASS	N/A
5	HDD SCORE	PASS	N/A

5.6 Storage Performance

5.6.1 HDD

Test environment:

OS : Windows 7 SP1 64-bit

Program : HD Tune v2.55

HDD Model	Interface	Capacity	Average	Burst Rate	Access time
Western Digital WD10EALS-00P8B0	SATA2	1.0 TB	62.9 MB/sec	140.7 MB/sec	15.0 ms
Western Digital WD10EZEX-00RKKA0	SATA3	1.0 TB	128.9 MB/sec	145.1 MB/sec	15.4 ms
Memoright MRSAD4B060GC225C00	SATA3	60 GB	253.2 MB/sec	81.5 MB/sec	0.2 ms
KingstonDT HyperX DDTHX30/64GB	USB3.0	64 GB	237.6 MB/sec	56.7 MB/sec	1.1 ms

JetFlash Transcend 300	USB2.0	4 GB	19.6 MB/sec	16.8 MB/sec	0.7 ms
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5.6.2 CD-ROM

Test environment:

OS : Windows 7 SP1 64-bit

Program : Opti Driver Control 1.70

52X CD-R

CD-ROM Model	Interface	Average Speed	Full Stroke	Burst Rate
Pioneer DVR-S19LBK	SATA	22.12X	111 ms	52.4 MB/s
ASUS DRW-24D1ST	SATA	26.40X	109 ms	66.3 MB/s
BUFFALO DVSM-PC58U2V	USB	13.37X	140 ms	23.2 MB/s
ZYNET OP-A77-DMY	USB	13.36X	137 ms	22.5 MB/s

DVD-R 1-16X

CD-ROM Model	Interface	Average Speed	Full Stroke	Burst Rate
Pioneer DVR-S19LBK	SATA	8.31X	166 ms	51.5 MB/s
ASUS DRW-24D1ST	SATA	8.22X	132 ms	44.8 MB/s
BUFFALO DVSM-PC58U2V	USB	4.12X	153 ms	24.1 MB/s
ZYNET OP-A77-DMY	USB	4.12X	156 ms	24.4 MB/s