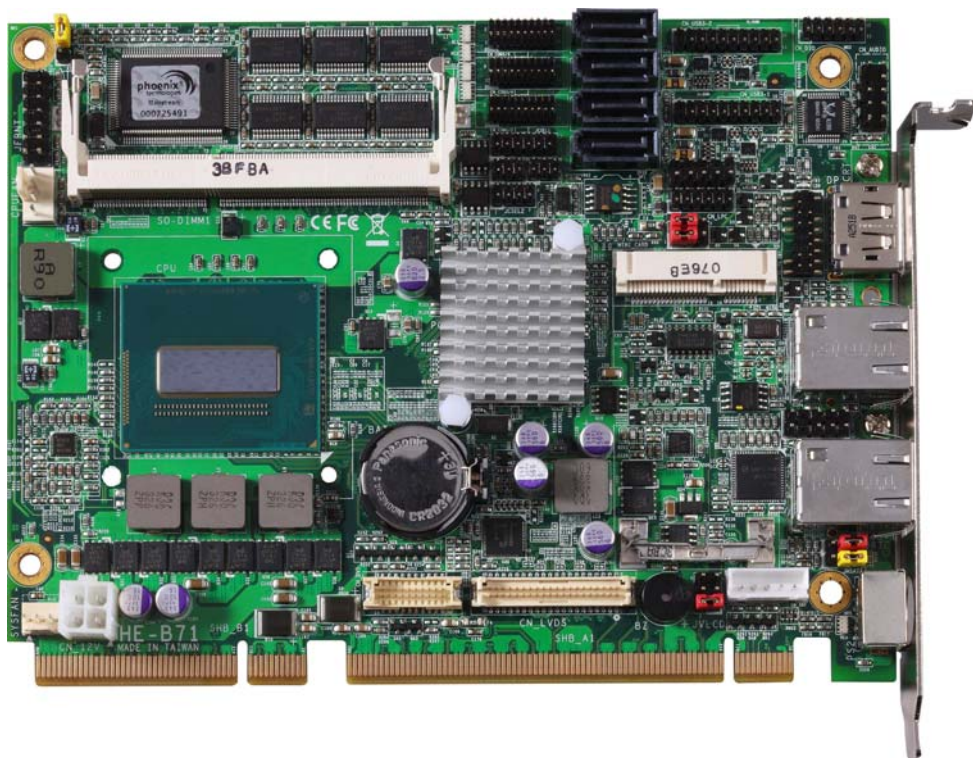


# Product Test Report



<b>Product Name</b>	HE-B71
<b>Product Version</b>	A
<b>Issued Date</b>	2014.12.05
<b>Report Edition</b>	1.2
<b>BIOS Version</b>	1.0
<b>Testing Engineer</b>	Wu De Wei
<b>Check Engineer</b>	Jerry

REVISION HISTORY			
DATE	REVISION NO.	PAGE	DESCRIPTONS
2014.05.20	Ver. 1.0	42	Initial Release
2014.09.03	Ver. 1.1	42	Increase mini PCI Express card
2014.12.05	Ver. 1.2	53	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	DDR3 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	CN_AUDIO	PASS	
16	CN_DIO	PASS	DOS
17	CN_LPC	PASS	ADP-TPM
18	CPUFAN	PASS	
19	SYSFAN	PASS	
20	Mini PCIe 1/2	PASS	
21	CN_CRT	PASS	
22	CN_LVDS	PASS	

23	CN_INV	PASS	
24	LAN1/2	PASS	
25	IrDA	PASS	
26	DC_IN	PASS	
27	ATX	PASS	
28	RS422-485	PASS	
29	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

## 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	Intel(R) HT Technology	PASS	
14	SATA Device	PASS	
15	Interface Combination	PASS	IDE√ AHCI√ RAID√
16	Max TOLUD (32BIT OS)	PASS	
17	Boot Type	PASS	CRT√ DVI√ LVDS√ DP√
18	Azalia(HD Definition Audio )	PASS	
19	PCH Internal LAN	PASS	
20	LAN OPROM Selection	PASS	
21	Wake on PCH LAN	PASS	Shutdown√
22	Intel(R) AMT	PASS	
23	Serial Port	PASS	
24	IR Func.	PASS	

25	Paraller Port	PASS	
26	Watch Dog Timer b	PASS	
27	PowerLoss	PASS	Power on/off
28	CPU Shutdown Temp(remove fan)	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

#### 1. Windows XP SP2 32-bit Driver Test

Item	Description	Result	version
1	Chipset Driver	PASS	9.4.0.1027
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	9.4.0.1027
2	VGA Driver	N/A	
3	Audio Driver	N/A	
4	LAN Driver	N/A	

#### 3. Windows Server 2003 32-bit Driver Test

Item	Description	Result	version
1	Chipset Driver	PASS	9.4.0.1027
2	VGA Driver	N/A	
3	Audio Driver	PASS	5.10.0.6914
4	LAN Driver	N/A	



#### 4. Windows Server 2003 Enterprise 64-bit Driver Test

Item	Description	Result	Version
1	Chipset Driver	PASS	9.4.0.1027
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	9.4.0.1027
2	VGA Driver	N/A	
3	Audio Driver	PASS	6.10.0.6914
4	LAN Driver	N/A	

#### 6. Windows Vista 64-bit Driver Test

Item	Description	Result	version
1	Chipset Driver	PASS	9.4.0.1027
2	VGA Driver	N/A	
3	Audio Driver	PASS	6.10.0.6914
4	LAN Driver	N/A	

## 7. Windows Server 2008R2 Standard 32-bit Driver Test

Item	Description	Result	version
1	Chipset Driver	PASS	9.4.0.1027
2	VGA Driver	N/A	
3	Audio Driver	PASS	6.0.1.6914
4	LAN Driver	N/A	
5	USB 3.0 Driver	N/A	

## 8. Windows Server 2008R2 Standard 64-bit Driver Test

Item	Description	Result	version
1	Chipset Driver	PASS	9.4.0.1027
2	VGA Driver	PASS	9.18.10.3257
3	Audio Driver	PASS	6.0.1.6914
4	LAN Driver	PASS	12.10.30.0(I217-LM) 12.7.28.0(I210)
5	USB 3.0 Driver	PASS	2.5.1.28

## 9. Windows 7 32-bit Driver Test

Item	Description	Result	version
1	Chipset Driver	PASS	9.4.0.1027
2	VGA Driver	PASS	9.18.10.3257
3	Audio Driver	PASS	6.0.1.6914
4	LAN Driver	PASS	12.10.30.0(I217-LM) 12.7.28.0(I210)
5	USB 3.0 Driver	PASS	2.5.1.28

## 10. Windows 7 64-bit Driver Test

Item	Description	Result	version
1	Chipset Driver	PASS	9.4.0.1027
2	VGA Driver	PASS	9.18.10.3257
3	Audio Driver	PASS	6.0.1.6914
4	LAN Driver	PASS	12.10.30.0(I217-LM) 12.7.28.0(I210)
5	USB 3.0 Driver	PASS	2.5.1.28

## 11. Windows 8 32-bit Driver Test

Item	Description	Result	version
1	Chipset Driver	PASS	9.4.0.1027
2	VGA Driver	PASS	9.18.10.3257
3	Audio Driver	PASS	6.0.1.6914
4	LAN Driver	PASS	12.10.30.0(I217-LM) 12.7.28.0(I210)

## 12. Windows 8 64-bit Driver Test

Item	Description	Result	version
1	Chipset Driver	PASS	9.4.0.1027
2	VGA Driver	PASS	9.18.10.3257
3	Audio Driver	PASS	6.0.1.6914
4	LAN Driver	PASS	12.10.30.0(I217-LM) 12.7.28.0(I210)

## 2. Compatibility test

### 2.1 CPU Test

Test environment:

OS : Windows 7 32-bit

Test program : PC MARK 2005

Spec Code	CPU Speed	Family	Processor	Max TDP	DMI	Smart Cache	Result
<a href="#">SR17L</a>	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 Standard 64-bit	PASS	
6	Windows Server 2008R2 Standard 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	

## 2.3 Memory Test

Test environment:

OS : Windows 8 32-bit

Test program : 3DMARK 2006

Manufacturer	Chip	Frequency	Capacity MBytes	Result
Transcend	SEC 234 HYK0 K4B4G0846B	DDR3L 1600	4 GB	PASS
Kingston	ELPIDA J4208EBBG	DDR3L 1600	4 GB	PASS
Kingston	NANYA	DDR3L 1600	4 GB	PASS
ADATA	ELPIDA J2108BCSE-GN-F	DDR3 1600	4 GB	PASS
ACPI	SKhynix H5TC4G83AFR PBA	DDR3 1600	8 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 32/64-bit

Driver version : 9.18.10.3257

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 SP2 64-bit

Driver version : N/A

Item	Description	Result	Remark
1	2 CH	N/A	
2	Microphone	N/A	
3	Line in	N/A	
4	CDIN	N/A	

OS Windows XP Professional SP2 32-bit

Driver version : 5.10.0.6914

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

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	N/A	
4	CDIN	N/A	

## 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	N/A	
4	CDIN	N/A	

## OS Windows Vista 32 bit

Driver version : 6.10.0.6914

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

## 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	N/A	
4	CDIN	N/A	



## OS Windows Server 2008R2 Standard 32-bit

Driver version : 6.0.1.6914

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

## OS Windows Server 2008R2 Standard 64-bit

Driver version : 6.0.1.6914

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

## 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	N/A	
4	CDIN	N/A	

## 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	N/A	
4	CDIN	N/A	

## 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	N/A	
4	CDIN	N/A	

## 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	N/A	
4	CDIN	N/A	

## 2.6 HDD Test

Test environment:

OS : Windows 7 64-bit

Model	Interface	Capacity	Size Detect	Data Transfer
Western Digital WD5000AAKX-22ERMA0	SATA	500 GB	PASS	PASS
Western Digital WD5002AALX-00J37A0	SATA	500 GB	PASS	PASS
Kingston SKC300S37A(SSD)	SATA	180 GB	PASS	PASS

## 2.7 CD-ROM Test

Test environment:

OS Windows 7 64-bit

Model	Interface	Detect	Data Transfer	Play CD
ASUS DRW-24D1ST	SATA	PASS	PASS	PASS
PIONEER DDVR-S19LBK	SATA	PASS	PASS	PASS
BUFFALD DVSM-PC58U2VB	USB	PASS	PASS	PASS
ZYNET	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 Standard 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	N/A	

#### 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 Standard 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
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	

### 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 (use iperf.exe)

Data Transfer Test environment:

-CAT 6 UTP 100M

-8 HR. continuous

1. Windows Server 2008R2 Standard 64-bit

64-bit driver version : 12.10.30.0(I217-LM), 12.7.28.0(I210)

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

2. Windows 7 32/64-bit

32-bit driver version : 12.10.30.0(I217-LM), 12.7.28.0(I210)

64-bit driver version : 12.10.30.0(I217-LM), 12.7.28.0(I210)

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

3. Windows 8.1 32-bit

32-bit driver version : 12.10.30.0(I217-LM), 12.7.28.0(I210)

64-bit driver version : 12.10.30.0(I217-LM), 12.7.28.0(I210)

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

#### 4. Windows 8 32/64-bit

32-bit driver version : 12.10.30.0(I217-LM), 12.7.28.0(I210)

64-bit driver version : 12.10.30.0(I217-LM), 12.7.28.0(I210)

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	ATX Power	AcBel API3PC50 350W	PASS	
2	ATX Power	Snake PK-350 350W	PASS	
3	ATX Power	AOpen FSP300-602ATV 300W	PASS	
4	ATX Power	SWITCHCHING B-300ATX 300W	PASS	
5	ATX Power	CHANNEL WELL CWT-250ATX12 250W	PASS	
6	ATX Power	Enhance ENP-2120A 200W	PASS	

## 2.13 Mini PCI Express card

Motherboard	PCI Express mini card	Result	Remark
HE-B71	MPX-210D	PASS	Windows7 32-bit
	MPX-210D2	NO SUPPLY	
	MPX-574D	PASS	Windows7 32-bit
	MPX-574D2	NO SUPPLY	
	MPX-750	PASS	Windows7 32-bit
	MPX-827	PASS	Windows7 32-bit
	MPX-885	PASS	Windows7 32-bit
	MPX-954	PASS	Windows7 32-bit
	MPX-954E	PASS	Windows7 32-bit
	MPX-3132	PASS	Windows7 32-bit
	MPX-6864	PASS	Windows7 32-bit
	MPX-7202	PASS	Windows7 32-bit
	MPX-9125	PASS	Windows7 32-bit
	MPX-TP4R	PASS	Windows7 32-bit
	MPX-24794G2	PASS	Windows7 32-bit
	MPX-25858	PASS	Windows7 32-bit
	MPX-5201	PASS	Windows7 64-bit
	Ralink RT2700E	PASS	Windows7 64-bit
mSATA	PASS	Windows7 64-bit	

**NOTE: MPX-3132 needs to BIOS setting:**

**Advanced -> South Bridge Configuration -> SB PCI Express config**

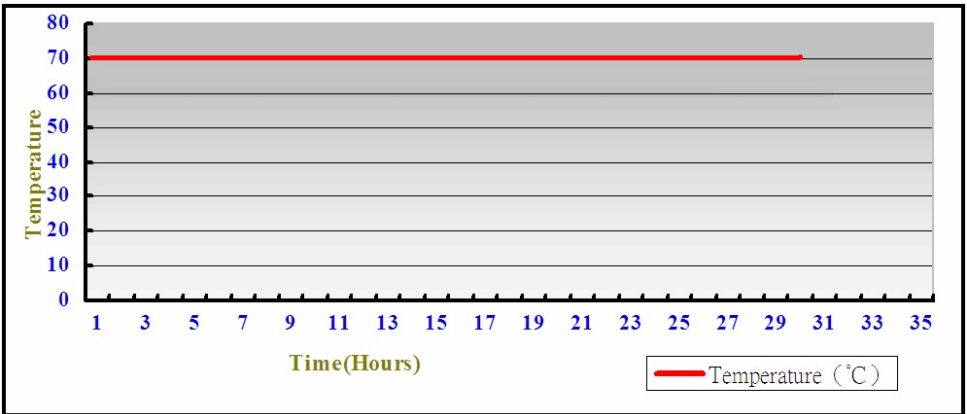
**-> PCI Express Port 5 config.**

**-> PCIe Speed [Gen1]**

### 3. Environmental test

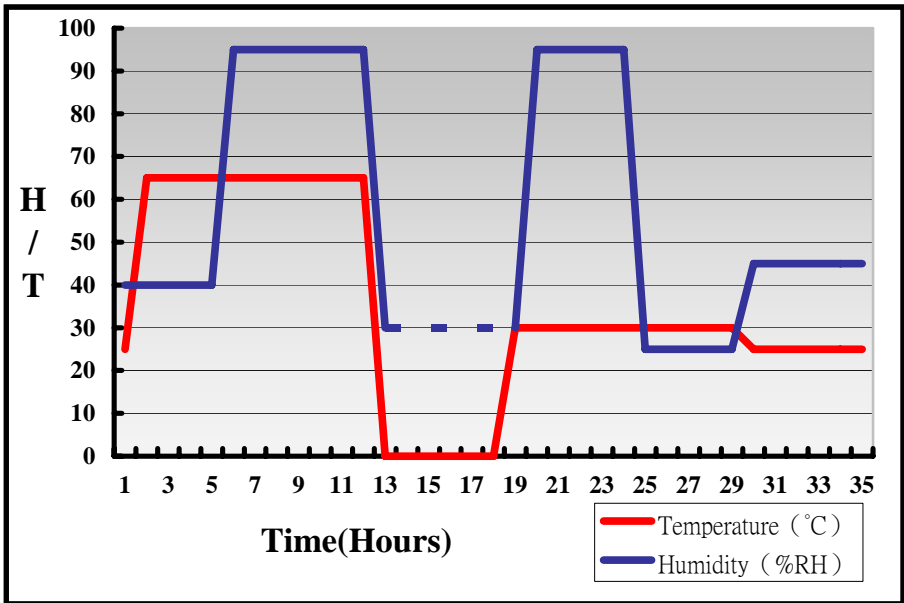
#### 3.1 Temperature Test

System Board	HE-B71
CPU	Intel® Core™ i7-4700EQ 2.40GHz
Memory	Kingston DDR3L 1600 4GBx1 (ELPIDA J4208EBBG)
HDD	Western Digital WD5002AALX-00J37A0
Operating OS	Windows 7 64-bit
Test Equipment	GIANT FORCE (GTH-150-60-CP-AR)
Test Program	3DMark06+Prime95-255a



## Hardware Device list:

System Board	HE-B71
CPU	Intel® Core™ i7-4700EQ 2.40GHz
Memory	Kingston DDR3L 1600 4GBx1 (ELPIDA J4208EBBG)
HDD	Western Digital WD5002AALX-00J37A0
Operating OS	Windows 7 64-bit
Test Equipment	GIANT FORCE (GTH-150-60-CP-AR)
Test Program	3DMark06+Prime95-255a



**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:

<b>System Board</b>	<b>HE-B71</b>
<b>CPU</b>	<b>Intel® Core™ i7-4700EQ 2.40GHz</b>
<b>Memory</b>	<b>Kingston DDR3L 1600 4Gx1 (ELPIDA J4208EBBG)</b>
<b>HDD</b>	<b>Western Digital WD5002AALX-00J37A0</b>
<b>Operating OS</b>	<b>Windows 7 64-bit</b>

<b>Temperature</b>	<b>Result</b>	<b>Remark</b>
<b>60°C</b>	<b>PASS</b>	<b>50 Times</b>
<b>-40°C</b>	<b>PASS</b>	<b>50 Times</b>



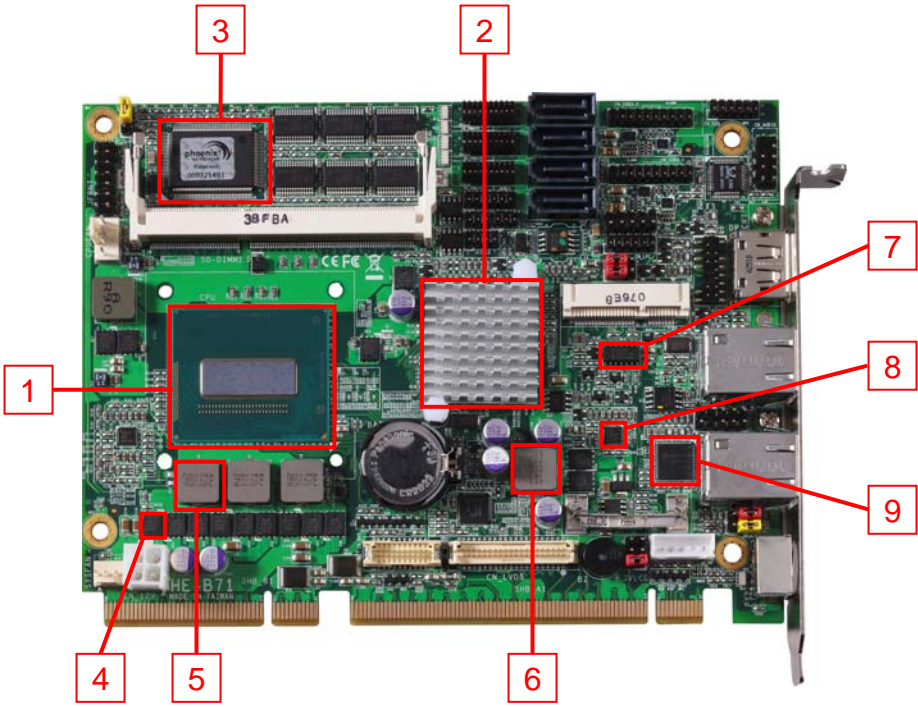
## 3.2 Thermal measurements at various points on the board

### Test Environment :

<b>CPU</b>	Intel® Core™ i7-4700EQ 2.40GHz
<b>Memory</b>	Kingston DDR3L 1600 4GBx1 (ELPIDA J4208EBBG)
<b>HDD</b>	Western Digital WD5002AALX-00J37A0
<b>Power</b>	AcBel ATX-350P-DNSS
<b>Operating OS</b>	Windows 7 64-bit
<b>Test Program</b>	3DMark06+Prime95-255a

### Test Result:

Item	Environmental temperature	25 °C
1	CPU	49°C
2	PCH	45°C
3	LPCIO	48°C
4	Q30	38.4°C
5	L4	37.8°C
6	LC3	35.3°C
7	U14	34.9°C
8	U15	36.7°C
9	U18	34.5°C



## 4. Reliability Test

### 4.1 Power Consumption Test

#### 1. Test Environment:

CPU	Intel® Core™ i7-4700EQ 2.40GHz
Memory	Kingston DDR3L 4Gx1(ELPIDA J4208EBBG)
HDD	Western Digital WD5002AALX-00J37A0

Power Supply : AOpen FSP300-602ATV 300W

Voltage	MS-DOS Boot up		Win8 PRO(64-Bit) 3DMark2013 + Prime95-255a	
	Current ( A )	Power ( W )	Current ( A )	Power ( W )
12V	1.55	18.6	3.10	37.2
5V	0.12	0.5	0.08	0.4
3.3V	0.4	1.32	0.43	1.419
5VSB	0.02	0.1	0.02	0.1

The same as above but with LCD panel

Display Panel	AUO M170EG01 17"LCD
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Power Supply : AOpen FSP300-602ATV 300W

Voltage	MS-DOS Boot up		Win8 PRO(64-Bit) 3DMark2006 + Prime95(v255a)	
	Current ( A )	Power ( W )	Current ( A )	Power ( W )
12V	1.68	20.16	5.17	62.04
5V	0.01	0.05	0.04	0.2
3.3V	0.37	1.221	0.41	1.353

## 5. Performance Test

### 5.1 Performance Test 7.0

#### Windows 7 32-bit

Test Environment		
CPU	Intel(R) Core(TM) i3-4102E 1.60GHz	
Memory	Transcend DDR3L 1600 4GB (SEC 431 XYK0 4B4G0846D)	
HDD	Western Digital WD5000AAKS-00V1A0 500GB	
WEIGHTED SUITE	Result	Score
PassMark Rating	PASS	849.2
CPU Mark	PASS	1997.4
2D Graphics Mark	PASS	246.2
3D Graphics Mark	PASS	286.9
Memory Mark	PASS	563.7
Disk Mark	PASS	768

#### Windows 7 64-bit

Test Environment		
CPU	Intel(R) Core(TM) i3-4102E 1.60GHz	
Memory	Transcend DDR3L 1600 4GB (SEC 431 XYK0 4B4G0846D)	
HDD	Western Digital WD5000AAKS-00V1A0 500GB	
WEIGHTED SUITE	Result	Score
PassMark Rating	PASS	947.7
CPU Mark	PASS	2541.3
2D Graphics Mark	PASS	284.1
3D Graphics Mark	PASS	281.4
Memory Mark	PASS	651.6
Disk Mark	PASS	664.9

## Windows 7 32-bit

Test Environment		
<b>CPU</b>	Intel(R) Core(TM) i3-4102E 1.60GHz	
<b>Memory</b>	Kingston DDR3L 1600 8GB (Micron 4GE77 D9GBJ)	
<b>HDD</b>	Western Digital WD5000AAKS-00V1A0 500GB	
WEIGHTED SUITE	Result	Score
PassMark Rating	PASS	843.6
CPU Mark	PASS	1977.9
2D Graphics Mark	PASS	242
3D Graphics Mark	PASS	297.8
Memory Mark	PASS	546.8
Disk Mark	PASS	776

## Windows 7 64-bit

Test Environment		
<b>CPU</b>	Intel(R) Core(TM) i3-4102E 1.60GHz	
<b>Memory</b>	Kingston DDR3L 1600 8GB (Micron 4GE77 D9GBJ)	
<b>HDD</b>	Western Digital WD5000AAKS-00V1A0 500GB	
WEIGHTED SUITE	Result	Score
PassMark Rating	PASS	1035.7
CPU Mark	PASS	2542
2D Graphics Mark	PASS	287.3
3D Graphics Mark	PASS	297
Memory Mark	PASS	1063.9
Disk Mark	PASS	654.9

## 5.2 Performance Test 8.0

Windows 7 64-bit

Test Environment		
CPU	Intel® Core™ i7-4700EQ 2.40GHz	
Memory	Kingston DDR3L 1600 4GBx1 (ELPIDA J4208EBBG)	
HDD	Western Digital WD5002AALX-00J37A0	
WEIGHTED SUITE	Result	Score
PassMark Rating	PASS	1689
CPU Mark	PASS	6876
2D Graphics Mark	PASS	772
3D Graphics Mark	PASS	5347
Memory Mark	PASS	1547
Disk Mark	PASS	946

## 5.3 3DMark

Windows 7 SP1 64-bit

<b>Test Environment</b>			
<b>CPU</b>	Intel® Core™ i7-4700EQ 2.40GHz		
<b>Memory</b>	Kingston DDR3L 1600 4GBx1 (ELPIDA J4208EBBG)		
<b>HDD</b>	Western Digital WD5002AALX-00J37A0		
<b>WEIGHTED SUITE</b>	<b>Result</b>	<b>Score</b>	<b>Remark</b>
<b>3DMark06</b>			
<b>3DMarks</b>	PASS	4859	
<b>SM2.0</b>	PASS	1562	
<b>HDR/SM3.0</b>	PASS	1916	
<b>CPU</b>	PASS	5831	
<b>3DMarkVantage</b>			
<b>3DMarl</b>	PASS	3778	
<b>GPU</b>	PASS	2977	
<b>CPU</b>	PASS	19615	
<b>3DMark11</b>			
<b>3DMark</b>	PASS	P972	
<b>Graphics</b>	PASS	857	
<b>Physics</b>	PASS	5275	
<b>Combined</b>	PASS	804	
<b>3DMark 2013</b>			
<b>FIRE STRIKE 1.1</b>	PASS	529	
<b>CLOUD GATE 1.1</b>	PASS	5209	
<b>ICE vSTORM 1.1</b>	PASS	36484	

**Windows 7 32-bit**

<b>Weighted Suite</b>	<b>Test Environment</b>	<b>Result</b>	<b>Remark</b>
<b>3DMARK2001 SE SCORE</b>	<b>Intel(R) Core(TM) i3-4102E 1.60GHz Transcend DDR3L 1600 4GB (SEC 431 XYK0 4B4G0846D) Western Digital WD5000AAKS-00V1A0 500GB</b>	PASS	14667
<b>3DMARK2003 SCORE</b>		PASS	9136
<b>3DMARK2005 SCORE</b>		PASS	5578

**Windows 7 64-bit**

<b>Weighted Suite</b>	<b>Test Environment</b>	<b>Result</b>	<b>Remark</b>
<b>3DMARK2001 SE SCORE</b>	<b>Intel(R) Core(TM) i3-4102E 1.60GHz Transcend DDR3L 1600 4GB (SEC 431 XYK0 4B4G0846D) Western Digital WD5000AAKS-00V1A0 500GB</b>	PASS	14513
<b>3DMARK2003 SCORE</b>		PASS	9380
<b>3DMARK2005 SCORE</b>		PASS	5640



**Windows 7 32-bit**

<b>Weighted Suite</b>	<b>Test Environment</b>	<b>Result</b>	<b>Remark</b>
<b>3DMARK2001 SE SCORE</b>	<b>Intel(R) Core(TM) i3-4102E 1.60GHz Kingston DDR3L 1600 8GB (Micron 4GE77 D9GBJ) Western Digital WD5000AAKS-00V1A0 500GB</b>	PASS	11347
<b>3DMARK2003 SCORE</b>		PASS	9380
<b>3DMARK2005 SCORE</b>		PASS	5669

**Windows 7 64-bit**

<b>Weighted Suite</b>	<b>Test Environment</b>	<b>Result</b>	<b>Remark</b>
<b>3DMARK2001 SE SCORE</b>	<b>Intel(R) Core(TM) i3-4102E 1.60GHz Kingston DDR3L 1600 8GB (Micron 4GE77 D9GBJ) Western Digital WD5000AAKS-00V1A0 500GB</b>	PASS	15052
<b>3DMARK2003 SCORE</b>		PASS	9502
<b>3DMARK2005 SCORE</b>		PASS	5818

### Windows 7 32-bit

Item	Weighted Suite	Test Environment	Result	Remark
1	3DMARK2006 SCORE	Intel(R) Core(TM) i3-4102E 1.60GHz Transcend DDR3L 1600 4GB (SEC 431 XYK0 4B4G0846D) Western Digital WD5000AAKS-00V1A0 500GB	PASS	3876
2	SM2.0 SCORE		PASS	1302
3	HDR/SM3.0 SCORE		PASS	1675
4	CPU SCORE		PASS	2028

### Windows 7 64-bit

Item	Weighted Suite	Test Environment	Result	Remark
1	3DMARK2006 SCORE	Intel(R) Core(TM) i3-4102E 1.60GHz Transcend DDR3L 1600 4GB (SEC 431 XYK0 4B4G0846D) Western Digital WD5000AAKS-00V1A0 500GB	PASS	3856
2	SM2.0 SCORE		PASS	1281
3	HDR/SM3.0 SCORE		PASS	1682
4	CPU SCORE		PASS	2016

### Windows 7 32-bit

Item	Weighted Suite	Test Environment	Result	Remark
1	3DMARK2006 SCORE	Intel(R) Core(TM) i3-4102E 1.60GHz Kingston DDR3L 1600 8GB (Micron 4GE77 D9GBJ) Western Digital WD5000AAKS-00V1A0 500GB	PASS	4066
2	SM2.0 SCORE		PASS	1389
3	HDR/SM3.0 SCORE		PASS	1757
4	CPU SCORE		PASS	2015

### Windows 7 64-bit

Item	Weighted Suite	Test Environment	Result	Remark
1	3DMARK2006 SCORE	Intel(R) Core(TM) i3-4102E 1.60GHz Kingston DDR3L 1600 8GB (Micron 4GE77 D9GBJ) Western Digital WD5000AAKS-00V1A0 500GB	PASS	4086
2	SM2.0 SCORE		PASS	1385
3	HDR/SM3.0 SCORE		PASS	1775
4	CPU SCORE		PASS	2030

## 5.3 PCMark

Windows 7 SP1 64-bit

<b>Test Environment</b>			
<b>CPU</b>	Intel® Core™ i7-4700EQ 2.40GHz		
<b>Memory</b>	Kingston DDR3L 1600 4GBx1 (ELPIDA J4208EBBG)		
<b>HDD</b>	Western Digital WD5002AALX-00J37A0		
<b>WEIGHTED SUITE</b>	<b>Result</b>	<b>Score</b>	<b>Remark</b>
<b>PCMarkVantage</b>			
<b>PCMark</b>	PASS	7715	
<b>Memories</b>	PASS	5207	
<b>TV and Movies</b>	PASS	5697	
<b>Gaming</b>	PASS	5375	
<b>Music</b>	PASS	8247	
<b>Communications</b>	PASS	7376	
<b>Productivity</b>	PASS	6794	
<b>HDD</b>	PASS	3966	
<b>PCMark7</b>			
<b>PCMark</b>	PASS	3211	
<b>Lightweight</b>	PASS	2762	
<b>Productivity</b>	PASS	1981	
<b>Creativity</b>	PASS	5679	
<b>Entertainment</b>	PASS	3162	
<b>Computation</b>	PASS	13207	
<b>System storage</b>	PASS	1823	
<b>PCMark8</b>			
<b>Home Score</b>	PASS	3390	
<b>Web Browsing-Amazonia</b>	PASS	0.13s	

<b>Web Browsing-JunglePin</b>	PASS	0.32s	
<b>Photo Editing</b>	PASS	3.37s	
<b>Writing</b>	PASS	4.55s	
<b>Video Chat encoding</b>	PASS	70ms	
<b>Video Chat playback 1</b>	PASS	30fps	
<b>Casual Gaming</b>	PASS	17.4fps	

**PC MARK2002**

<b>Test Environment</b>
<b>Intel(R) Core(TM) i3-4102E 1.60GHz</b> <b>Transcend DDR3L 1600 4GB (SEC 431 XYK0 4B4G0846D)</b> <b>Western Digital WD5000AAKS-00V1A0 500GB</b>

**Windows 7 32-bit**

<b>Item</b>	<b>Weighted Suite</b>	<b>Result</b>	<b>Remark</b>
<b>1</b>	<b>CPU SCORE</b>	PASS	N/A
<b>2</b>	<b>Memory SCORE</b>	PASS	28487
<b>3</b>	<b>HDD SCORE</b>	PASS	3276
<b>Test Environment</b>			
<b>Intel(R) Core(TM) i3-4102E 1.60GHz</b> <b>Transcend DDR3L 1600 4GB (SEC 431 XYK0 4B4G0846D)</b> <b>Western Digital WD5000AAKS-00V1A0 500GB</b>			

**Windows 7 64-bit**

<b>Item</b>	<b>Weighted Suite</b>	<b>Result</b>	<b>Remark</b>
<b>1</b>	<b>CPU SCORE</b>	PASS	N/A
<b>2</b>	<b>Memory SCORE</b>	PASS	28700
<b>3</b>	<b>HDD SCORE</b>	PASS	2533

**PC MARK2002**

<b>Test Environment</b>
<b>Intel(R) Core(TM) i3-4102E 1.60GHz Kingston DDR3L 1600 8GB (Micron 4GE77 D9GBJ) Western Digital WD5000AAKS-00V1A0 500GB</b>

**Windows 7 32-bit**

<b>Item</b>	<b>Weighted Suite</b>	<b>Result</b>	<b>Remark</b>
<b>1</b>	<b>CPU SCORE</b>	PASS	N/A
<b>2</b>	<b>Memory SCORE</b>	PASS	28969
<b>3</b>	<b>HDD SCORE</b>	PASS	3034

<b>Test Environment</b>
<b>Intel(R) Core(TM) i3-4102E 1.60GHz Kingston DDR3L 1600 8GB (Micron 4GE77 D9GBJ) Western Digital WD5000AAKS-00V1A0 500GB</b>

**Windows 7 64-bit**

<b>Item</b>	<b>Weighted Suite</b>	<b>Result</b>	<b>Remark</b>
<b>1</b>	<b>CPU SCORE</b>	PASS	N/A
<b>2</b>	<b>Memory SCORE</b>	PASS	28458
<b>3</b>	<b>HDD SCORE</b>	PASS	2789

**PC MARK 2004**

<b>Test Environment</b>
<b>Intel(R) Core(TM) i3-4102E 1.60GHz</b> <b>Transcend DDR3L 1600 4GB (SEC 431 XYK0 4B4G0846D)</b> <b>Western Digital WD5000AAKS-00V1A0 500GB</b>

**Windows 7 32-bit**

<b>Item</b>	<b>Weighted Suite</b>	<b>Result</b>	<b>Remark</b>
<b>1</b>	<b>PCMark SCORE</b>	PASS	N/A
<b>2</b>	<b>CPU SCORE</b>	PASS	6426
<b>3</b>	<b>Memory SCORE</b>	PASS	7238
<b>4</b>	<b>Graphic SCORE</b>	PASS	8528
<b>5</b>	<b>HDD SCORE</b>	PASS	N/A

<b>Test Environment</b>
<b>Intel(R) Core(TM) i3-4102E 1.60GHz</b> <b>Transcend DDR3L 1600 4GB (SEC 431 XYK0 4B4G0846D)</b> <b>Western Digital WD5000AAKS-00V1A0 500GB</b>

**Windows 7 64-bit**

<b>Item</b>	<b>Weighted Suite</b>	<b>Result</b>	<b>Remark</b>
<b>1</b>	<b>PCMark SCORE</b>	PASS	N/A
<b>2</b>	<b>CPU SCORE</b>	PASS	5412
<b>3</b>	<b>Memory SCORE</b>	PASS	6294
<b>4</b>	<b>Graphic SCORE</b>	PASS	N/A
<b>5</b>	<b>HDD SCORE</b>	PASS	N/A

## PC MARK 2004

<b>Test Environment</b>
Intel(R) Core(TM) i3-4102E 1.60GHz 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	6389
3	Memory SCORE	PASS	7517
4	Graphic SCORE	PASS	7082
5	HDD SCORE	PASS	N/A

<b>Test Environment</b>
Intel(R) Core(TM) i3-4102E 1.60GHz Kingston DDR3L 1600 8GB (Micron 4GE77 D9GBJ) Western Digital WD5000AAKS-00V1A0 500GB

### Windows 7 64-bit

Item	Weighted Suite	Result	Remark
1	PCMark SCORE	PASS	N/A
2	CPU SCORE	PASS	6366
3	Memory SCORE	PASS	7503
4	Graphic SCORE	PASS	7382
5	HDD SCORE	PASS	N/A



**PC MARK 2005**

<b>Test Environment</b>
<b>Intel(R) Core(TM) i3-4102E 1.60GHz</b> <b>Transcend DDR3L 1600 4GB (SEC 431 XYK0 4B4G0846D)</b> <b>Western Digital WD5000AAKS-00V1A0 500GB</b>

**Windows 7 32-bit**

<b>Item</b>	<b>Weighted Suite</b>	<b>Result</b>	<b>Remark</b>
<b>1</b>	<b>PCMark SCORE</b>	PASS	N/A
<b>2</b>	<b>CPU SCORE</b>	PASS	5397
<b>3</b>	<b>Memory SCORE</b>	PASS	6085
<b>4</b>	<b>Graphic SCORE</b>	PASS	N/A
<b>5</b>	<b>HDD SCORE</b>	PASS	N/A

<b>Test Environment</b>
<b>Intel(R) Core(TM) i3-4102E 1.60GHz</b> <b>Transcend DDR3L 1600 4GB (SEC 431 XYK0 4B4G0846D)</b> <b>Western Digital WD5000AAKS-00V1A0 500GB</b>

**Windows 7 64-bit**

<b>Item</b>	<b>Weighted Suite</b>	<b>Result</b>	<b>Remark</b>
<b>1</b>	<b>PCMark SCORE</b>	PASS	N/A
<b>2</b>	<b>CPU SCORE</b>	PASS	5412
<b>3</b>	<b>Memory SCORE</b>	PASS	6294
<b>4</b>	<b>Graphic SCORE</b>	PASS	N/A
<b>5</b>	<b>HDD SCORE</b>	PASS	N/A

**PC MARK 2005**

<b>Test Environment</b>
<b>Intel(R) Core(TM) i3-4102E 1.60GHz</b> <b>Kingston DDR3L 1600 8GB (Micron 4GE77 D9GBJ)</b> <b>Western Digital WD5000AAKS-00V1A0 500GB</b>

**Windows 7 32-bit**

<b>Item</b>	<b>Weighted Suite</b>	<b>Result</b>	<b>Remark</b>
<b>1</b>	<b>PCMark SCORE</b>	PASS	N/A
<b>2</b>	<b>CPU SCORE</b>	PASS	5392
<b>3</b>	<b>Memory SCORE</b>	PASS	6268
<b>4</b>	<b>Graphic SCORE</b>	PASS	N/A
<b>5</b>	<b>HDD SCORE</b>	PASS	N/A

<b>Test Environment</b>
<b>Intel(R) Core(TM) i3-4102E 1.60GHz</b> <b>Kingston DDR3L 1600 8GB (Micron 4GE77 D9GBJ)</b> <b>Western Digital WD5000AAKS-00V1A0 500GB</b>

**Windows 7 64-bit**

<b>Item</b>	<b>Weighted Suite</b>	<b>Result</b>	<b>Remark</b>
<b>1</b>	<b>PCMark SCORE</b>	PASS	N/A
<b>2</b>	<b>CPU SCORE</b>	PASS	5416
<b>3</b>	<b>Memory SCORE</b>	PASS	6298
<b>4</b>	<b>Graphic SCORE</b>	PASS	N/A
<b>5</b>	<b>HDD SCORE</b>	PASS	N/A

## 5.4 AQUAMARK3

Test Environment	
CPU	Intel® Core™ i7-4700EQ 2.40GHz
Memory	Kingston DDR3L 1600 4GBx1 (ELPIDA J4208EBBG)
HDD	Western Digital WD5002AALX-00J37A0

### Windows 7 64-bit

WEIGHTED SUITE	Result	Sorce	Remark
GFX	PASS	15840	
CPU	PASS	10777	

### Windows 8 32-bit

WEIGHTED SUITE	Result	Sorce	Remark
GFX	PASS	13725	
CPU	PASS	9824	

## 5.5 CINEBENCH R15

Test Environment	
CPU	Intel® Core™ i7-4700EQ 2.40GHz
Memory	Kingston DDR3L 1600 4GBx1 (ELPIDA J4208EBBG)
HDD	Western Digital WD5002AALX-00J37A0

### Windows 7 64-bit

WEIGHTED SUITE	Result	Sorce	Remark
OpenGL	PASS	16.58 fps	
CPU	PASS	547 cb	

## 5.6 ZD CPUMARK

Test Environment	
CPU	Intel® Core™ i7-4700EQ 2.40GHz
Memory	Kingston DDR3L 4GBx1(ELPIDA J4208EBBG)
HDD	Western Digital WD5002AALX-00J37A0

Windows 7 64-bit

Item	WEIGHTED SUITE	Result	Remark
1	SCORE	PASS	576

## 5.7 Storage Performance

### 5.7.1 HDD

Test environment:

OS Windows 7 (64Bit)

Program (HD Tune)

HDD Model	Interface	Capacity	Average (MB/s)	Burst Rate (MB/s)	Access time (ms)
Western Digital WD5002AALX-00J37A0	SATA	500 GB	106.8	118.3	16.3
Western Digital WD5000AAKX	SATA	500 GB	100	126	15.5
Kingston SKC300S37A(SSD)	SATA	180GB	284	307	0.2

<b>ADATA UV128 USB 3.0</b>	<b>USB</b>	<b>32 GB</b>	34.1	18.6	1.1
<b>Kingston DataTraveler USB 2.0</b>	<b>USB</b>	<b>16 GB</b>	20.2	16.1	0.7

### 5.7.2 CD-ROM

Test environment:

OS Windows 7 64-bits

Program (NERO)

<b>CD-ROM Model</b>	<b>Interface</b>	<b>Average Speed</b>	<b>Access times (Full Read)</b>	<b>Burst Rate</b>	<b>CD</b>
<b>PIONEER DDVR-S19LBK</b>	<b>SATA</b>	10.7	188ms	57MB/s	52X
<b>ASUS DRW-24DT1ST</b>	<b>SATA</b>	8.40x	188ms	40MB/s	52x
<b>ZYNET DVDRW</b>	<b>USB</b>	5.32x	270ms	24MB/s	52x