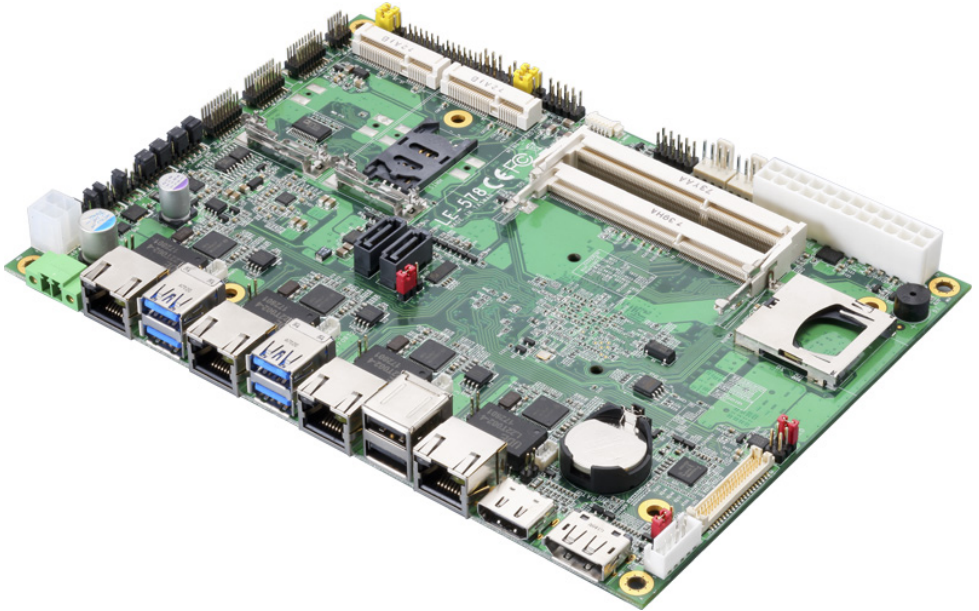


Product Test Report



Product Name	LE-578
Product Version	A
Issued Date	2018.11.12
Report Edition	1.0
BIOS Version	1.1
Testing Engineer	Rick
Check Engineer	Daniel

REVISION HISTORY

DATE	REVISION NO.	PAGE	DESCRIPTONS
2018.11.12	Ver. 1.0	47	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	PS2	PASS
8	CN_AUDIO	PASS
9	LAN1	PASS
10	LAN2	PASS
11	LAN3	PASS
12	LAN4	PASS
13	DDR3L 1/2	PASS
14	SATA 1/2	PASS
15	USB2.0 1/2/3/4	PASS
16	USB3.0 1/2/3/4	PASS
17	COM 1/2/3/4/5/6	PASS
18	DVI	PASS
19	HDMI	PASS
20	Display Port	PASS
21	LVDS	PASS
22	MINI_CRAD	PASS

Jumper

Item	Description	Result
1	JRTC	PASS
2	JAT	PASS
4	JP1	PASS
5	JP2	PASS
6	JCSEL1	PASS
7	JCSEL2	PASS
8	JUSBS	PASS
9	JMSATA	PASS
10	JVLCD	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	Selection Language	PASS	
7	Serial ports	PASS	
8	HD-Audio Configuration	PASS	
9	Chipset SATA	PASS	
10	Set Supervisor Password	PASS	
11	Boot Device Priority	PASS	

1.3 Driver

CD edition : IPCLi1-1.8

1. Windows 10 64-bit Driver Test

Item	Description	Result	Version
1	Chipset Driver	PASS	10.1.1
2	VGA Driver	PASS	21.20.16.4550
3	Audio Driver	PASS	6.0.1.8036
4	LAN Driver	PASS	12.15.184.0

2. Compatibility test

2.1 CPU Test

Test environment:

OS: Windows 10 64-bit

Test program : 3D MARK VANTAGE

Link	CPU Speed	Family	Processor	MAX TDP	Smart Cache	Result
1	1.10 GHz	Celeron	N3350	6 W	2 MB	PASS
2	1.10 GHz	Pentium	N4200	6 W	2 MB	PASS

2.2 Memory Test

Test environment:

OS: Windows 10 64-bit

Test program : 3D MARK Vantage

Manufacturer	Chip	Frequency	Capacity Mbytes	Memory test Result
Transcend TS512MSK64W6H	SEC 234 HYKB K4B4G0846B	DDR3L 1600	4 GB	PASS
Kingston KVR16LS11/4	Kingston D512BCD1FPGGBU	DDR3L 1600	4 GB	PASS
SLINK MBG-JBM JA4GSNFM8NDFC	NANYA NT5CC512WBE N-EK	DDR3L 1866	4 GB	PASS
SLINK MBG-JBM JA8GSNFM8NDFC	NANYA NT5CC512WBE N-EK	DDR3L 1866	8 GB	PASS

2.3 Display Port Graphic Quality Test

Test environment:

OS Windows 10 64-bit

Driver version : 21.20.16.4550

Resolution	Refresh Rate	Result	Remark
800 x 600	29p / 30p / 60p / 75p Hz	PASS	
1024 x 768	29p / 30p / 59p / 60p / 75p Hz	PASS	
1152 x 864	29p / 30p Hz	PASS	
1280 x 600	29p / 30p Hz	PASS	
1280 x 720	29p / 30p / 50p / 59p / 60p Hz	PASS	
1280 x 768	29p / 30p Hz	PASS	
1280 x 800	29p / 30p Hz	PASS	
1280 x 960	29p / 30p / 59p / 60p Hz	PASS	
1280 x 1024	29p / 30p / 59p / 60p / 75p Hz	PASS	
1360 x 768	29p / 30p Hz	PASS	
1366 x 768	29p / 30p Hz	PASS	
1400 x 1050	29p / 30p Hz	PASS	
1440 x 900	29p / 30p / 59p / 60p Hz	PASS	
1600 x 900	29p / 30p Hz	PASS	
1600 x 1200	29p / 30p Hz	PASS	
1680 x 1050	29p / 30p / 59p / 60p Hz	PASS	
1792 x 1344	29p / 30p Hz	PASS	
1856 x 1392	29p / 30p Hz	PASS	
1920 x 1080	29p / 30p / 50p / 50i / 59p / 59i / 60p / 60i Hz	PASS	
1920 x 1200	29p / 30p Hz	PASS	

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

2.4 HDMI Graphic Quality Test

Test environment:

OS Windows 10 64-bit

Driver version : 21.20.16.4550

Resolution	Refresh Rate	Result	Remark
800 x 600	29p / 30p / 60p / 75p Hz	PASS	
1024 x 768	29p / 30p / 59p / 60p / 75p Hz	PASS	
1152 x 864	29p / 30p Hz	PASS	
1280 x 600	29p / 30p Hz	PASS	
1280 x 720	29p / 30p / 50p / 59p / 60p Hz	PASS	
1280 x 768	29p / 30p Hz	PASS	
1280 x 800	29p / 30p Hz	PASS	
1280 x 960	29p / 30p / 59p / 60p Hz	PASS	
1280 x 1024	29p / 30p / 59p / 60p / 75p Hz	PASS	
1360 x 768	29p / 30p Hz	PASS	
1366 x 768	29p / 30p Hz	PASS	
1400 x 1050	29p / 30p Hz	PASS	

1440 x 900	29p / 30p / 59p / 60p Hz	PASS	
1600 x 900	29p / 30p Hz	PASS	
1600 x 1200	29p / 30p Hz	PASS	
1680 x 1050	29p / 30p / 59p / 60p Hz	PASS	
1792 x 1344	29p / 30p Hz	PASS	
1856 x 1392	29p / 30p Hz	PASS	
1920 x 1080	29p / 30p / 50p / 50i / 59p / 59i / 60p / 60i Hz	PASS	
1920 x 1200	29p / 30p Hz	PASS	
1920 x 1440	29p / 30p Hz	PASS	
2048 x 1152	29p / 30p Hz	PASS	
2048 x 1536	29p / 30p Hz	PASS	
2560 x 1440	29p / 30p / 59p / 60p Hz	PASS	
2560 x 1600	29p / 30p Hz	PASS	
2560 x 1920	29p / 30p Hz	PASS	
2560 x 2048	29p / 30p Hz	PASS	
3840 x 2160	29p / 30p Hz	PASS	

2.5 Audio

Test environment:

OS Windows 10 64-bit

Driver version : 6.0.1.8036

Item	Description	Result	Remark
1	2.1 CH	PASS	
2	Microphone	PASS	

2.6 HDD Test

Test environment:

OS Windows 10 64-bit

HDD Model	Interface	Capacity	HDD Size Detect	HDD Data Transfer	HDD LED Check
Western Digital WD800BEVS-00RST0	SATA	80 GB	PASS	PASS	PASS
Seagate ST3160815AS	SATA	160 GB	PASS	PASS	PASS
Western Digital WD3200BVPT00JJ50	SATA	320 GB	PASS	PASS	PASS
Western Digital WD3200BEKT-00F3T0	SATA	320 GB	PASS	PASS	PASS
Western Digital WD5000LPCX-22VHAT0	SATA	500 GB	PASS	PASS	PASS
Western Digital WD5000BPKT-00PK40	SATA	500 GB	PASS	PASS	PASS
TOSHIBA DT01ACA200	SATA	2.0 TB	PASS	PASS	PASS
MemoRight MRSAJ6C064GC125C00	SSD	64 GB	PASS	PASS	PASS
INTEL SSDSC2BW240A4	SSD	240 GB	PASS	PASS	PASS

2.7 DVD-ROM Test

Test environment:

OS Windows 10 64-bit

DVD-ROM Model	Interface	DVD-ROM Detect	DVD-ROM Data Transfer	Play DVD
ASUS DRW-1814BLT	SATA	PASS	PASS	PASS
PIONEER DVR-S19LBK	SATA	PASS	PASS	PASS
LITE-ON iHES312	SATA	PASS	PASS	PASS
LITEON DVD eTAU108	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

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

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)

2.12 Power Supply & Adapter Test

Item	Type	Description	Result	Remark
1	ATX Power	SEED BS400 400W	PASS	
2	ATX Power	ANTEC EA350 GREEN 350W	PASS	
3	ATX Power	COOLER MASTER RS-390-PMSR-A3 390W	PASS	

2.13 OS Install

Item	Description	Result	Remark
1	Windows 10 64 bit	PASS	
2	Ubuntu 16.04 (4.8.0-36-generic)	PASS	

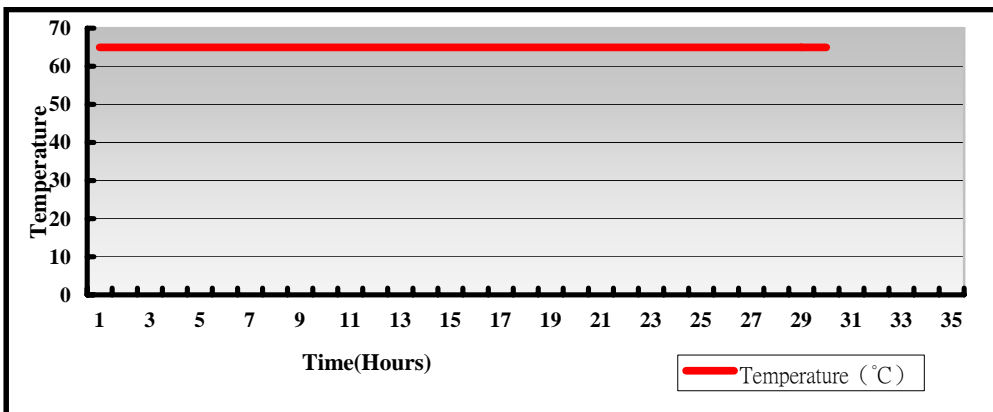
3. Environmental test

3.1 Temperature Test

Hardware Device list :

System Board	LE-578PN3G4_B
CPU	Intel(R) Celeron(R) N3350 1.10GHz
Memory	Transcend DDR3L 1600 4GB (SEC 234 HYC0 K4B4G0846B)
HDD	MemoRight MRSAJ6C064GC125C00 64GB
Operating OS	Windows 10 64-bit
Test Equipment	THERMOTRON 2800 Programmer/Controller
Test Program	BurnIn 7.0 Pro

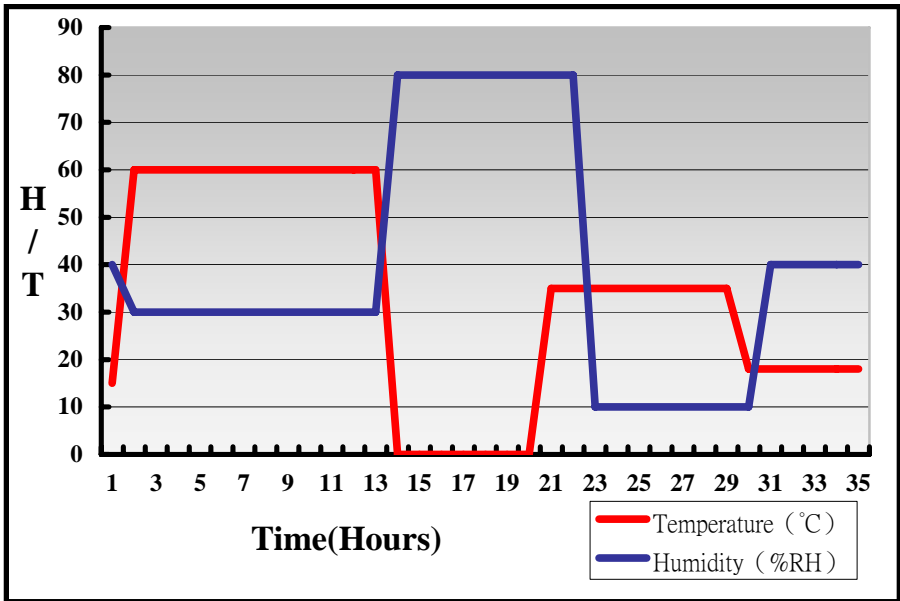
Test Result:



Hardware Device list:

System Board	LE-578PN3G4_B
CPU	Intel(R) Celeron(R) N3350 1.10GHz
Memory	Kingston DDR3L 1600 4GB (Kingston D5128ED1FPGGBU)
HDD	MemoRight MRSAJ6C064GC125C00 64GB
Operating OS	Windows 10 64-bit
Test Equipment	THERMOTRON 2800 Programmer/Controller
Test Program	BurnIn 7.0 Pro

Test Result:



Boot up Test:

Hardware Device list:

System Board	LE-578PN3G4_B
CPU	Intel(R) Celeron(R) N3350 1.10GHz
Memory	Kingston DDR3L 1600 4GB (Kingston D5128ED1FPGGBU)
HDD	MemoRight MRSAJ6C064GC125C00 64GB

Temperature	Result	Remark
-30°C	PASS	50 Times
70°C	PASS	50 Times

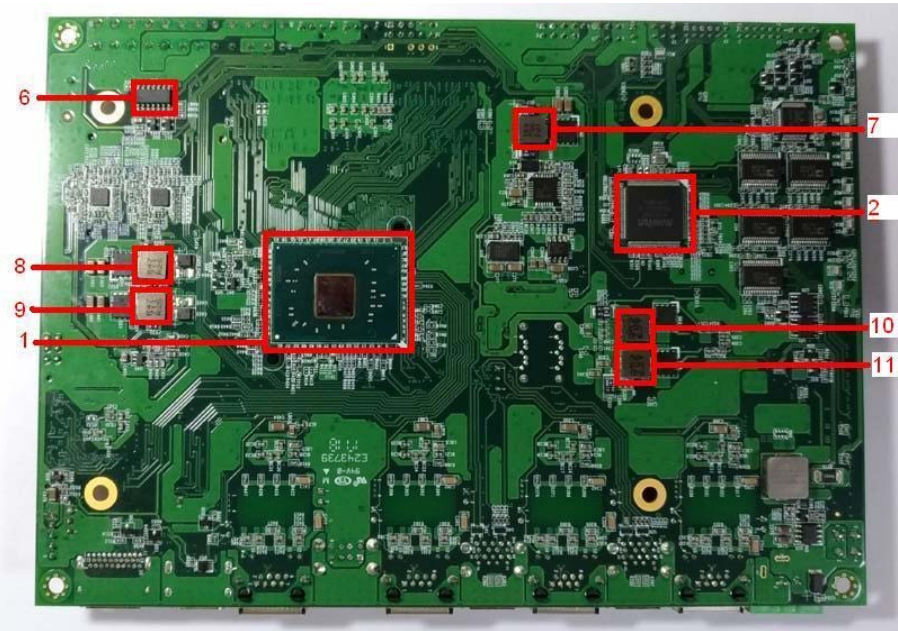
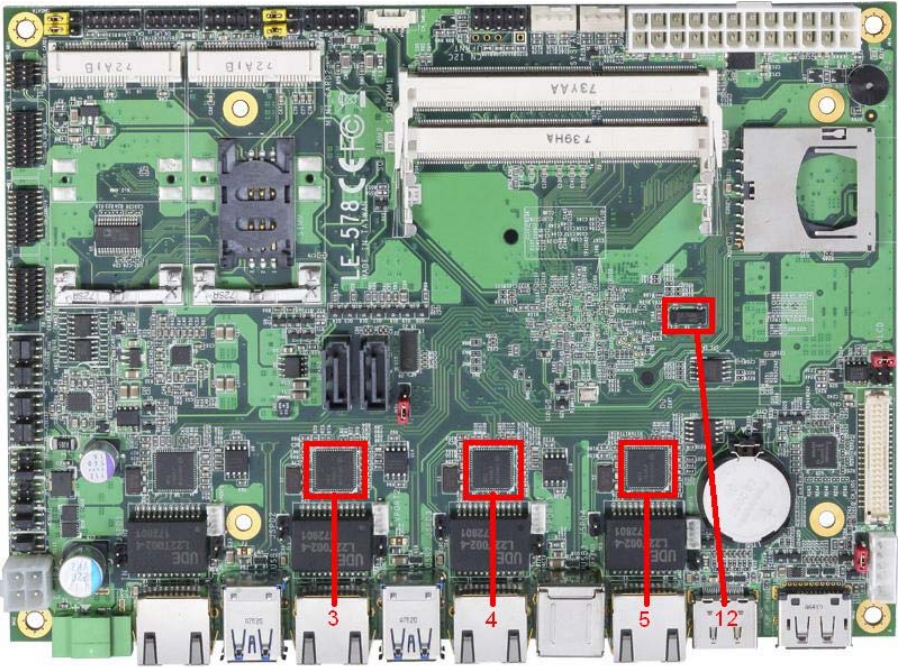
3.2 Thermal measurements at various points on the board

Test Environment:

CPU	Intel(R) Celeron(R) N3350 1.10GHz
Memory	Kingston DDR3L 1600 4GB (Kingston D512SEC4BPCGU)
HDD	MemoRight MRSAJ6C064GC125C00 64GB
Power Supply	COOLER MASTER RS-390-PMSR-A3 390W
Operating System	Windows 10 64-bit
Test Program	BurnIn 7.0 Pro + AIDA 64

Test Result:

Item	Environmental temperature	23°C
1	CPU	56°C
2	LPCIO (ICNCT6106D)	32°C
3	U10 (ICI210AT)	36.2°C
4	U17 (ICI210AT)	32.8°C
5	U20 (ICI210AT)	34.2°C
6	U45 (ITS74HC14)	36.2°C
7	L1 (LLC1.0UH/063T)	34.2°C
8	L3 (LLC0.47UH/063T)	43°C
9	L4 (LLC0.47UH/063T)	44.4°C
10	LC2 (LLC3.3UH/063T)	44°C
11	LC3 (LLC3.3UH/063T)	43.9°C
12	X5 (OCR25S-FA)	42.6°C



4. Reliability Test

4.1 Power Consumption Test

1. Test Environment:

Motherboard	LE-578PN4G4_B
CPU	Intel(R) Pentium(R) N4200 1.10GHz
Memory	Kingston DDR3L 1600 4GB*2 (Kingston D5128ED1FPGGBU)
HDD	TOSHIBA DT01ACA200 2TB

Power Supply : Seventeam ST-500PNH 450W

Voltage	MS-DOS Boot up		Windows 10 64-bit 3D MARK VANTAGE + PRIME95	
	Current (A)	Power (W)	Current (A)	Power (W)
12V	0.47	5.64	0.45	5.4
5V	1.01	5.05	3.79	18.95
5VSB	0.276	1.38	0.667	3.335

1. a. Test Environment:

The same as above but with LCD

Display Panel	LG LM190WX1 17" LCD
----------------------	----------------------------

Power Supply : Seventeam ST-500PNH 450W

Voltage	MS-DOS Boot up		Windows 10 64-bit 3D MARK VANTAGE + PRIME95	
	Current (A)	Power (W)	Current (A)	Power (W)
12V	0.71	8.52	1.09	13.08
5V	2.22	11.1	4.95	24.75
5VSB	1.989	9.945	1.285	6.425

2. Test Environment:

Motherboard	LE-578PN3G4_B
CPU	Intel(R) Celeron(R) N3350 1.10GHz
Memory	Kingston DDR3L 1600 4GB*2 (Kingston D5128ED1FPGGBU)
HDD	TOSHIBA DT01ACA200 2TB

Power Supply : Seventeam ST-500PNH 450W

Voltage	MS-DOS Boot up		Windows 10 64-bit 3D MARK VANTAGE + PRIME95	
	Current (A)	Power (W)	Current (A)	Power (W)
12V	0.43	5.16	0.48	5.76
5V	1.08	5.4	3.61	18.05
5VSB	0.26	1.3	0.878	4.39

2. a. Test Environment:

The same as above but with LCD

Display Panel	LG LM190WX1 17" LCD
----------------------	----------------------------

Power Supply : Seventeam ST-500PNH 450W

Voltage	MS-DOS Boot up		Windows 10 64-bit 3D MARK VANTAGE + PRIME95	
	Current (A)	Power (W)	Current (A)	Power (W)
12V	0.67	8.04	1.07	12.84
5V	2.13	10.65	4.42	22.1
5VSB	1.337	6.685	1.086	5.43

5. Performance Test

5.1 3D MARK VANTAGE

Windows 10 64-bit

Item	Weighted Suite	Test Environment	Result	Remark
1	3DMARK SCORE	Intel(R) Celeron(R) N3350 1.10GHz	PASS	P1868
2	GPU SCORE	Transcend DDR3L 1600 4GB (SEC 234 HYKB K4B4G0846B)	PASS	1688
3	CPU SCORE	Western Digital WD10EALX-0D9BA0 1TB	PASS	3054

Windows 10 64-bit

Item	Weighted Suite	Test Environment	Result	Remark
1	3DMARK SCORE	Intel(R) Celeron(R) N3350 1.10GHz	PASS	P1885
2	GPU SCORE	Kingston DDR3L 1600 4GB (Kingston D512BCD1FPGGBU)	PASS	1695
3	CPU SCORE	MemoRight MRSAJ6C064GC125C00 64GB	PASS	3149

Windows 10 64-bit

Item	Weighted Suite	Test Environment	Result	Remark
1	3DMARK SCORE	Intel(R) Celeron(R) N3350 1.10GHz Transcend DDR3L 1600 4GB (SEC 234 HYKB K4B4G0846B) TOSHIBA DT01ACA200 2TB	PASS	P1862
2	GPU SCORE		PASS	1662
3	CPU SCORE		PASS	2913

Windows 10 64-bit

Item	Weighted Suite	Test Environment	Result	Remark
1	3DMARK SCORE	Intel(R) Celeron(R) N3350 1.10GHz Kingston DDR3L 1600 4GB (Kingston D512BCD1FPGGBU) TOSHIBA DT01ACA200 2TB	PASS	P1877
2	GPU SCORE		PASS	1677
3	CPU SCORE		PASS	2925

Windows 10 64-bit

Item	Weighted Suite	Test Environment	Result	Remark
1	3DMARK SCORE	Intel(R) Celeron(R) N3350 1.10GHz Transcend DDR3L 1600 4GB (SEC 234 HYKB K4B4G0846B) Kingston DDR3L 1600 4GB (Kingston D512BCD1FPGGBU) TOSHIBA DT01ACA200 2TB	PASS	P2127
2	GPU SCORE		PASS	1955
3	CPU SCORE		PASS	2890

Windows 10 64-bit

Item	Weighted Suite	Test Environment	Result	Remark
1	3DMARK SCORE	Intel(R) Celeron(R) N3350 1.10GHz Kingston DDR3L 1600 4GB*2 (Kingston D512BCD1FPGGBU) TOSHIBA DT01ACA200 2TB	PASS	P2128
2	GPU SCORE		PASS	1948
3	CPU SCORE		PASS	2939

Windows 10 64-bit

Item	Weighted Suite	Test Environment	Result	Remark
1	3DMARK SCORE	Intel(R) Pentium(R) N4200 1.10GHz Transcend DDR3L 1600 4GB (SEC 234 HYKB K4B4G0846B) TOSHIBA DT01ACA200 2TB	PASS	P2399
2	GPU SCORE		PASS	2009
3	CPU SCORE		PASS	5761

Windows 10 64-bit

Item	Weighted Suite	Test Environment	Result	Remark
1	3DMARK SCORE	Intel(R) Pentium(R) N4200 1.10GHz Kingston DDR3L 1600 4GB*2 (Kingston D512BCD1FPGGBU) TOSHIBA DT01ACA200 2TB	PASS	P2982
2	GPU SCORE		PASS	2524
3	CPU SCORE		PASS	6556

Windows 10 64-bit

Item	Weighted Suite	Test Environment	Result	Remark
1	3DMARK SCORE	Intel(R) Pentium(R) N4200 1.10GHz Transcend DDR3L 1600 4GB (SEC 234 HYKB K4B4G0846B) Kingston DDR3L 1600 4GB (Kingston D512BCD1FPGGBU) TOSHIBA DT01ACA200 2TB	PASS	P3215
2	GPU SCORE		PASS	2765
3	CPU SCORE		PASS	6292

Windows 10 64-bit

Item	Weighted Suite	Test Environment	Result	Remark
1	3DMARK SCORE	Intel(R) Pentium(R) N4200 1.10GHz Kingston DDR3L 1600 4GB*2 (Kingston D512BCD1FPGGBU) TOSHIBA DT01ACA200 2TB	PASS	P2982
2	GPU SCORE		PASS	2524
3	CPU SCORE		PASS	6556

Windows 10 64-bit

Item	Weighted Suite	Test Environment	Result	Remark
1	3DMARK SCORE	Intel(R) Celeron(R) N3350 1.10GHz SLINK DDR3L 1866 4GB (NANYA NT5CC512WBEN-EK) TOSHIBA DT01ACA200 2TB	PASS	P1912
2	GPU SCORE		PASS	1716
3	CPU SCORE		PASS	2912

Windows 10 64-bit

Item	Weighted Suite	Test Environment	Result	Remark
1	3DMARK SCORE	Intel(R) Celeron(R) N3350 1.10GHz SLINK DDR3L 1866 8GB (NANYA NT5CC512WBEN-EK) TOSHIBA DT01ACA200 2TB	PASS	P1982
2	GPU SCORE		PASS	1804
3	CPU SCORE		PASS	2815

Windows 10 64-bit

Item	Weighted Suite	Test Environment	Result	Remark
1	3DMARK SCORE	Intel(R) Pentium(R) N4200 1.10GHz SLINK DDR3L 1866 4GB (NANYA NT5CC512WBEN-EK) TOSHIBA DT01ACA200 2TB	PASS	P2438
2	GPU SCORE		PASS	2049
3	CPU SCORE		PASS	5660

Windows 10 64-bit

Item	Weighted Suite	Test Environment	Result	Remark
1	3DMARK SCORE	Intel(R) Pentium(R) N4200 1.10GHz SLINK DDR3L 1866 8GB (NANYA NT5CC512WBEN-EK) TOSHIBA DT01ACA200 2TB	PASS	P2684
2	GPU SCORE		PASS	2264
3	CPU SCORE		PASS	6034

5.2 3D MARK (Fire Strike)

Windows 10 64-bit

Item	Weighted Suite	Test Environment	Result	Remark
1	3D Mark Score	Intel(R) Celeron(R) N3350 1.10GHz Transcend DDR3L 1600 4GB (SEC 234 HYKB K4B4G0846B) Western Digital WD10EALX-0D9BA0 1TB	PASS	302
2	Graphics Score		PASS	332
3	Physics Score		PASS	1114
4	Combined Score		PASS	109

Windows 10 64-bit

Item	Weighted Suite	Test Environment	Result	Remark
1	3D Mark Score	Intel(R) Celeron(R) N3350 1.10GHz Kingston DDR3L 1600 4GB (Kingston D512BCD1FPGGBU) MemoRight MRSAJ6C064GC125C00 64GB	PASS	311
2	Graphics Score		PASS	329
3	Physics Score		PASS	1116
4	Combined Score		PASS	127

Windows 10 64-bit

Item	Weighted Suite	Test Environment	Result	Remark
1	3D Mark Score	Intel(R) Pentium(R) N4200 1.10GHz Transcend DDR3L 1600 4GB (SEC 234 HYKB K4B4G0846B) TOSHIBA DT01ACA200 2TB	PASS	374
2	Graphics Score		PASS	405
3	Physics Score		PASS	2862
4	Combined Score		PASS	131

Windows 10 64-bit

Item	Weighted Suite	Test Environment	Result	Remark
1	3D Mark Score	Intel(R) Pentium(R) N4200 1.10GHz Kingston DDR3L 1600 4GB (Kingston D512BCD1FPGGBU) TOSHIBA DT01ACA200 2TB	PASS	376
2	Graphics Score		PASS	406
3	Physics Score		PASS	2884
4	Combined Score		PASS	132

Windows 10 64-bit

Item	Weighted Suite	Test Environment	Result	Remark
1	3D Mark Score	Intel(R) Celeron(R) N3350 1.10GHz SLINK DDR3L 1866 4GB (NANYA NT5CC512WBEN-EK) TOSHIBA DT01ACA200 2TB	PASS	336
2	Graphics Score		PASS	347
3	Physics Score		PASS	1515
4	Combined Score		PASS	140

Windows 10 64-bit

Item	Weighted Suite	Test Environment	Result	Remark
1	3D Mark Score	Intel(R) Pentium(R) N4200 1.10GHz SLINK DDR3L 1866 4GB (NANYA NT5CC512WBEN-EK) TOSHIBA DT01ACA200 2TB	PASS	386
2	Graphics Score		PASS	416
3	Physics Score		PASS	3089
4	Combined Score		PASS	136

5.3 3D MARK (TIME SPY)

Windows 10 64-bit

Item	Weighted Suite	Test Environment	Result	Remark
1	3DMARK SCORE	Intel(R) Celeron(R) N3350 1.10GHz Transcend DDR3L 1600 4GB (SEC 234 HYKB K4B4G0846B) Kingston DDR3L 1600 4GB (Kingston D512BCD1FPGGBU) TOSHIBA DT01ACA200 2TB	PASS	111
2	Graphics SCORE		PASS	98
3	CPU SCORE		PASS	493

Windows 10 64-bit

Item	Weighted Suite	Test Environment	Result	Remark
1	3DMARK SCORE	Intel(R) Celeron(R) N3350 1.10GHz Kingston DDR3L 1600 4GB*2 (Kingston D512BCD1FPGGBU) TOSHIBA DT01ACA200 2TB	PASS	106
2	Graphics SCORE		PASS	94
3	CPU SCORE		PASS	491

Windows 10 64-bit

Item	Weighted Suite	Test Environment	Result	Remark
1	3DMARK SCORE	Intel(R) Pentium(R) N4200 1.10GHz Transcend DDR3L 1600 4GB (SEC 234 HYKB K4B4G0846B) Kingston DDR3L 1600 4GB (Kingston D512BCD1FPGGBU) TOSHIBA DT01ACA200 2TB	PASS	174
2	Graphics SCORE		PASS	152
3	CPU SCORE		PASS	991

Windows 10 64-bit

Item	Weighted Suite	Test Environment	Result	Remark
1	3DMARK SCORE	Intel(R) Pentium(R) N4200 1.10GHz Kingston DDR3L 1600 4GB*2 (Kingston D512BCD1FPGGBU) TOSHIBA DT01ACA200 2TB	PASS	174
2	Graphics SCORE		PASS	152
3	CPU SCORE		PASS	995

Windows 10 64-bit

Item	Weighted Suite	Test Environment	Result	Remark
1	3DMARK SCORE	Intel(R) Celeron(R) N3350 1.10GHz SLINK DDR3L 1866 8GB (NANYA NT5CC512WBEN-EK) TOSHIBA DT01ACA200 2TB	PASS	101
2	Graphics SCORE		PASS	89
3	CPU SCORE		PASS	476

Windows 10 64-bit

Item	Weighted Suite	Test Environment	Result	Remark
1	3DMARK SCORE	Intel(R) Pentium(R) N4200 1.10GHz SLINK DDR3L 1866 8GB (NANYA NT5CC512WBEN-EK) TOSHIBA DT01ACA200 2TB	PASS	160
2	Graphics SCORE		PASS	140
3	CPU SCORE		PASS	966

5.4 GeekBench4.3 Compute

Test Environment
Intel(R) Celeron(R) N3350 1.10GHz Transcend DDR3L 1600 4GB (SEC 234 HYKB K4B4G0846B) TOSHIBA DT01ACA200 2TB

Windows 10 64-bit

Item	Weighted Suite	Result	Remark
1	OpenGL Score	PASS	7472
2	Single-Core Score	PASS	1509
3	Multi-Core Score	PASS	2608

Test Environment
Intel(R) Celeron(R) N3350 1.10GHz Kingston DDR3L 1600 4GB (Kingston D512BCD1FPGGBU) TOSHIBA DT01ACA200 2TB

Windows 10 64-bit

Item	Weighted Suite	Result	Remark
1	OpenGL Score	PASS	7373
2	Single-Core Score	PASS	1457
3	Multi-Core Score	PASS	2413

Test Environment
Intel(R) Celeron(R) N3350 1.10GHz Transcend DDR3L 1600 4GB (SEC 234 HYKB K4B4G0846B) Kingston DDR3L 1600 4GB (Kingston D512BCD1FPGGBU) TOSHIBA DT01ACA200 2TB

Windows 10 64-bit

Item	Weighted Suite	Result	Remark
1	OpenGL Score	PASS	7552
2	Single-Core Score	PASS	1557
3	Multi-Core Score	PASS	2780

Test Environment
Intel(R) Celeron(R) N3350 1.10GHz Kingston DDR3L 1600 4GB*2 (Kingston D512BCD1FPGGBU) TOSHIBA DT01ACA200 2TB

Windows 10 64-bit

Item	Weighted Suite	Result	Remark
1	OpenGL Score	PASS	7534
2	Single-Core Score	PASS	1480
3	Multi-Core Score	PASS	2701

Test Environment
Intel(R) Pentium(R) N4200 1.10GHz Transcend DDR3L 1600 4GB (SEC 234 HYKB K4B4G0846B) TOSHIBA DT01ACA200 2TB

Windows 10 64-bit

Item	Weighted Suite	Result	Remark
1	OpenGL Score	PASS	9523
2	Single-Core Score	PASS	1448
3	Multi-Core Score	PASS	3525

Test Environment
Intel(R) Pentium(R) N4200 1.10GHz Kingston DDR3L 1600 4GB (Kingston D512BCD1FPGGBU) TOSHIBA DT01ACA200 2TB

Windows 10 64-bit

Item	Weighted Suite	Result	Remark
1	OpenGL Score	PASS	10032
2	Single-Core Score	PASS	1588
3	Multi-Core Score	PASS	4411

Test Environment
Intel(R) Pentium(R) N4200 1.10GHz Transcend DDR3L 1600 4GB (SEC 234 HYKB K4B4G0846B) Kingston DDR3L 1600 4GB (Kingston D512BCD1FPGGBU) TOSHIBA DT01ACA200 2TB

Windows 10 64-bit

Item	Weighted Suite	Result	Remark
1	OpenGL Score	PASS	12567
2	Single-Core Score	PASS	1606
3	Multi-Core Score	PASS	4216

Test Environment
Intel(R) Pentium(R) N4200 1.10GHz Kingston DDR3L 1600 4GB*2 (Kingston D512BCD1FPGGBU) TOSHIBA DT01ACA200 2TB

Windows 10 64-bit

Item	Weighted Suite	Result	Remark
1	OpenGL Score	PASS	11725
2	Single-Core Score	PASS	1614
3	Multi-Core Score	PASS	4762

Test Environment
Intel(R) Celeron(R) N3350 1.10GHz SLINK DDR3L 1866 4GB (NANYA NT5CC512WBEN-EK) TOSHIBA DT01ACA200 2TB

Windows 10 64-bit

Item	Weighted Suite	Result	Remark
1	OpenGL Score	PASS	7101
2	Single-Core Score	PASS	1486
3	Multi-Core Score	PASS	2634

Test Environment
Intel(R) Celeron(R) N3350 1.10GHz SLINK DDR3L 1866 8GB (NANYA NT5CC512WBEN-EK) TOSHIBA DT01ACA200 2TB

Windows 10 64-bit

Item	Weighted Suite	Result	Remark
1	OpenGL Score	PASS	7237
2	Single-Core Score	PASS	1530
3	Multi-Core Score	PASS	2690

Test Environment
Intel(R) Pentium(R) N4200 1.10GHz SLINK DDR3L 1866 4GB (NANYA NT5CC512WBEN-EK) TOSHIBA DT01ACA200 2TB

Windows 10 64-bit

Item	Weighted Suite	Result	Remark
1	OpenGL Score	PASS	10287
2	Single-Core Score	PASS	1587
3	Multi-Core Score	PASS	4416

Test Environment
Intel(R) Pentium(R) N4200 1.10GHz SLINK DDR3L 1866 8GB (NANYA NT5CC512WBEN-EK) TOSHIBA DT01ACA200 2TB

Windows 10 64-bit

Item	Weighted Suite	Result	Remark
1	OpenGL Score	PASS	10715
2	Single-Core Score	PASS	1566
3	Multi-Core Score	PASS	4582

5.5 CINEBENCH R15

Test Environment
Intel(R) Celeron(R) N3350 1.10GHz Kingston DDR3L 1600 4GB (Kingston D512BCD1FPGGBU) TOSHIBA DT01ACA200 2TB

Windows 10 64-bit

Item	Weighted Suite	Result	Remark
1	OpenGL	PASS	11.64 fps
2	CPU	PASS	70 cb

Test Environment
Intel(R) Celeron(R) N3350 1.10GHz Transcend DDR3L 1600 4GB (SEC 234 HYKB K4B4G0846B) TOSHIBA DT01ACA200 2TB

Windows 10 64-bit

Item	Weighted Suite	Result	Remark
1	OpenGL	PASS	14.12 fps
2	CPU	PASS	96 cb

Test Environment
Intel(R) Celeron(R) N3350 1.10GHz Kingston DDR3L 1600 4GB*2 (Kingston D512BCD1FPGGBU) TOSHIBA DT01ACA200 2TB

Windows 10 64-bit

Item	Weighted Suite	Result	Remark
1	OpenGL	PASS	17.13 fps
2	CPU	PASS	96 cb

Test Environment
<p>Intel(R) Celeron(R) N3350 1.10GHz Kingston DDR3L 1600 4GB (Kingston D512BCD1FPGGBU) Transcend DDR3L 1600 4GB (SEC 234 HYKB K4B4G0846B) TOSHIBA DT01ACA200 2TB</p>

Windows 10 64-bit

Item	Weighted Suite	Result	Remark
1	OpenGL	PASS	19.07 fps
2	CPU	PASS	195 cb

Test Environment
<p>Intel(R) Pentium(R) N4200 1.10GHz Kingston DDR3L 1600 4GB (Kingston D512BCD1FPGGBU) TOSHIBA DT01ACA200 2TB</p>

Windows 10 64-bit

Item	Weighted Suite	Result	Remark
1	OpenGL	PASS	18.11 fps
2	CPU	PASS	194 cb

Test Environment
Intel(R) Pentium(R) N4200 1.10GHz Transcend DDR3L 1600 4GB (SEC 234 HYKB K4B4G0846B) TOSHIBA DT01ACA200 2TB

Windows 10 64-bit

Item	Weighted Suite	Result	Remark
1	OpenGL	PASS	22.15 fps
2	CPU	PASS	195 cb

Test Environment
Intel(R) Pentium(R) N4200 1.10GHz Kingston DDR3L 1600 4GB*2 (Kingston D512BCD1FPGGBU) TOSHIBA DT01ACA200 2TB

Windows 10 64-bit

Item	Weighted Suite	Result	Remark
1	OpenGL	PASS	21.10 fps
2	CPU	PASS	193 cb

Test Environment
Intel(R) Pentium(R) N4200 1.10GHz Kingston DDR3L 1600 4GB (Kingston D512BCD1FPGGBU) Transcend DDR3L 1600 4GB (SEC 234 HYKB K4B4G0846B) TOSHIBA DT01ACA200 2TB

Windows 10 64-bit

Item	Weighted Suite	Result	Remark
1	OpenGL	PASS	22.15 fps
2	CPU	PASS	196 cb

Test Environment
<p>Intel(R) Celeron(R) N3350 1.10GHz SLINK DDR3L 1866 4GB (NANYA NT5CC512WBEN-EK) TOSHIBA DT01ACA200 2TB</p>

Windows 10 64-bit

Item	Weighted Suite	Result	Remark
1	OpenGL	PASS	16.69 fps
2	CPU	PASS	87 cb

Test Environment
<p>Intel(R) Celeron(R) N3350 1.10GHz SLINK DDR3L 1866 8GB (NANYA NT5CC512WBEN-EK) TOSHIBA DT01ACA200 2TB</p>

Windows 10 64-bit

Item	Weighted Suite	Result	Remark
1	OpenGL	PASS	16.92 fps
2	CPU	PASS	97 cb

Test Environment
Intel(R) Pentium(R) N4200 1.10GHz SLINK DDR3L 1866 4GB (NANYA NT5CC512WBEN-EK) TOSHIBA DT01ACA200 2TB

Windows 10 64-bit

Item	Weighted Suite	Result	Remark
1	OpenGL	PASS	19.78 fps
2	CPU	PASS	194 cb

Test Environment
Intel(R) Pentium(R) N4200 1.10GHz SLINK DDR3L 1866 8GB (NANYA NT5CC512WBEN-EK) TOSHIBA DT01ACA200 2TB

Windows 10 64-bit

Item	Weighted Suite	Result	Remark
1	OpenGL	PASS	20.28 fps
2	CPU	PASS	191 cb

5.6 Storage Performance

5.6.1 HDD

Test environment:

OS Windows 10 64-bit

Program (HD Tune)

HDD Model	Interface	Capacity	Average	Burst Rate	Access Time
Western Digital WD5000LPCX-22VHAT0	SATA	500 GB	3.5 MB/sec	8.5 MB/sec	25.3 ms
Western Digital WD10EADS-00P8B0	SATA	1.0 TB	63.4 MB/sec	126 MB/sec	15 ms
TOSHIBA DT01ACA200	SATA	2.0 TB	153.4 MB/sec	304.7 MB/sec	12.8 ms
MemoRight MRSAJ6C064GC125C00	SSD	64 GB	150.8 MB/sec	56.5 MB/sec	0.2 ms
KINGSTON DT HyperX 3.0	USB 3.0	64 GB	172.2 MB/sec	97.1 MB/sec	0.5 ms
SMI USB DISK	USB 2.0	8 GB	12 MB/sec	12.2 MB/sec	1.1 ms
Silicon-Power	USB 2.0	4 GB	1.2 MB/sec	1.1 MB/sec	1.1 ms

5.6.2 DVD-ROM

Test environment:

OS Windows 10 64-bit

Program (NERO)

DVD-ROM Model	Interface	Average Speed	Full Read	Burst Rate	DVD
ASUS DRW-1814BLT	SATA	8.34 x	195 ms	32 MB/s	16 x
ASUS DRW-24D1ST	SATA	11.17 x	179 ms	44 MB/s	16 x
PIONEER DVR-S19LBK	SATA	11.30 x	207 ms	40 MB/s	16 x
LITE-ON iHES312	SATA	11.09 x	158 ms	38 MB/s	16 x
LITEON DVD eTAU108	USB	5.67 x	232 ms	20 MB/s	16 x
ZYNET GT32N A201	USB	5.60 x	264 ms	24 MB/s	16 x
PIONEER DVR-XD11T	USB	5.70 x	185 ms	19 MB/s	16 x
Transcend TS8XDVDS-K	USB	5.67 x	305 ms	13 MB/s	16 x