

Product Qualification

--- Compatibility Test ---

Product Name: uSDC-M Plus 16GB
Product P/N: 86.UDF20.A139B
Firmware Version: SFPS928G_DEVSLP
Description: uSDC-M PLUS 16GB
Controller: SH9B-16GDCA220B
Flash Type: ET6KB7A-HS (Toshiba 15nm 64Gb Wafer)
PCB Version: _____
Qualification: Qual FW
Test Result: PASS

APPROVAL					
QT	Date	Signature	Approved by	Date	Signature
Alex Lin	2016/06/17	Alex Lin	Danny Chen	2016/06/17	Danny Chen

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SUMMARY RESULT

		PC1	PC2	PC3	PC4						
Testing Product		uSDC-M PLUS 16GB									
System		Windows Emb. 7 Standard	Fedora kernel 3.3.4 -5 fc17 / Windows Emb. 8.1 Industry Pro								
M/B	Name	Z97X-UD3H	QM77-A1R								
	Vendor	Gigabyte	Avalue EMX								
	Chipset	Intel Z97	Intel QM77								
	Interface	SATA III	SATA III								
	BIOS	F9	V1.1.0								
Test Result											
Basic Function Test		V	V								
Burn In Test	Comp32	V	--								
	PassMark Burn In Test Pro V8.0	V	--								
	PassMark Burn In Test Pro V3.0.1007	--	--								
Warm Boot Test		V	--								
Cold Boot Test		--	V								
		--	--								
		--	--								
Install System Test											
	Windows Emb. 7 Standard	Windows Emb. 8 Standard	Windows Emb. 8.1 Industry	Windows 10	Fedora kernel 3.3.4 -5 fc17	Ubuntu kernel 3.13.0 -32	Red Hat kernel 2.6.32 -431.e16				
Result	V	V	V	V	V	V	V				
Remark:						Test Result — PASS					

A. Function Test With M/B : Gigabyte Z97X-UD3H

Testing Product	uSDC-M PLUS 16GB	Testing Engineer	Alex Lin
Testing Environment	M/B: Gigabyte Z97X-UD3H	Chipset: Intel Z97 Interface: SATA III	BIOS: F9

1. Basic Function Test

	Copy	Delete	Restart	Compare	Suspend (S3)	Hibernate (S4)	LED
Windows Emb. 7 Standard	V	V	V	V	V	V	V

2. Format Test

	FAT32	NTFS
Windows Emb. 7 Standard	14.8GB	14.9GB

3. Burn In Test

	Comp32 15 hours
Windows Emb. 7 Standard	V

4. Reboot Test

	Warm Boot 6000 Cycles
Windows Emb. 7 Standard	V

5. Install System Test

Install System	Result
Install Windows Embedded Standard 7 System	V
Install Windows Embedded 8 Standard System	V
Install Windows Embedded 8.1 Industry Pro System	V
Windows 10 Multiple Edition	V
Windows 10 Enterprise	V

6. Test Result

Pass

B. Burn In Test With M/B : Gigabyte Z97X-UD3H

Testing Product	uSDC-M PLUS 16GB	Testing Engineer	Alex Lin
Testing Environment	M/B: Gigabyte Z97X-UD3H	Chipset: Intel Z97 Interface: SATA III	BIOS: F9

1. Burn In Test

Burn In Test V8.0 Pro 168 hours

Windows
Emb. 7
Standard

2. Test Result

Pass

C. Function Test With M/B : Avalue EMX QM77-A1R

Testing Product	uSDC-M PLUS 16GB	Testing Engineer	Alex Lin
Testing Environment	M/B: Avalue EMX QM77-A1R	Chipset: Intel QM77 Interface: SATA III	BIOS: V1.1.0

1. Basic Function Test

	Copy	Delete	Restart	Compare	Suspend (S3)	Hibernate (S4)	LED
Fedora kernel 3.3.4 -5 fc17	V	V	V	V	V	V	V

2. Reboot Test

	Cold Boot 6000 Cycles
Windows Emb. 8.1 Industry Pro	V

3. Install System Test

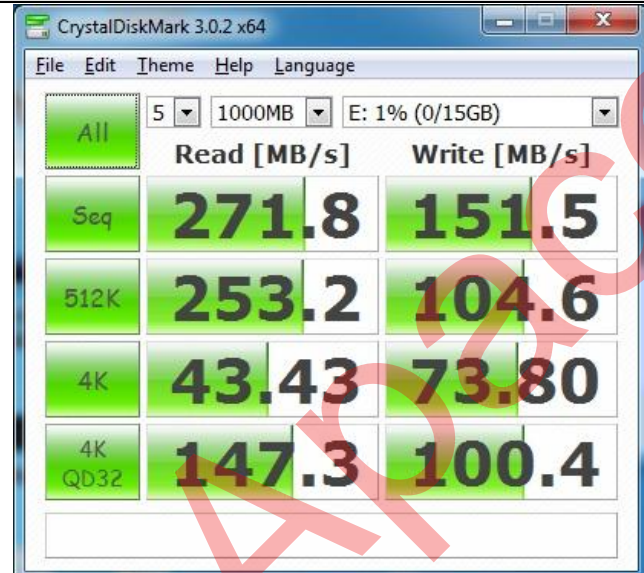
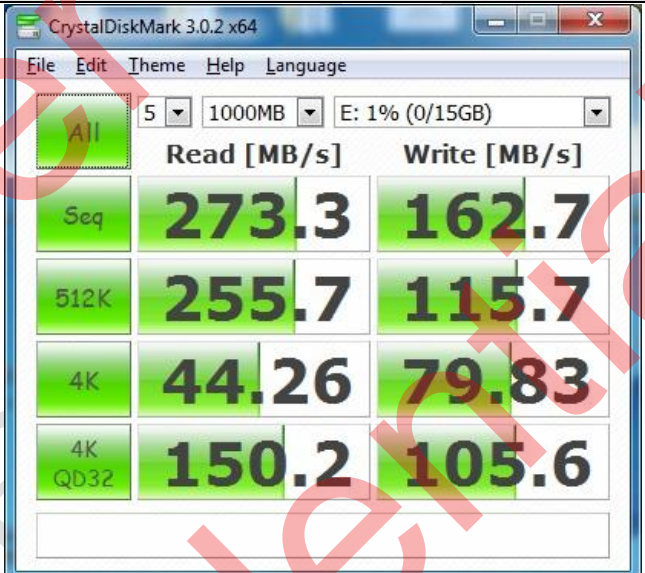
Install System	Result
Install Windows Embedded Standard 7 System	V
Install Windows Embedded 8 Standard System	V
Install Windows Embedded 8.1 Industry Pro System	V
Install Windows 7 System	V
Install Windows 8.1 System	V
Install Fedora kernel 3.3.4 -5 System	V
Install Ubuntu kernel 3.13.0 -32 System	V
Install Red Hat Kernel 2.6.32 -431.e16 System	V

4. Test Result

Pass

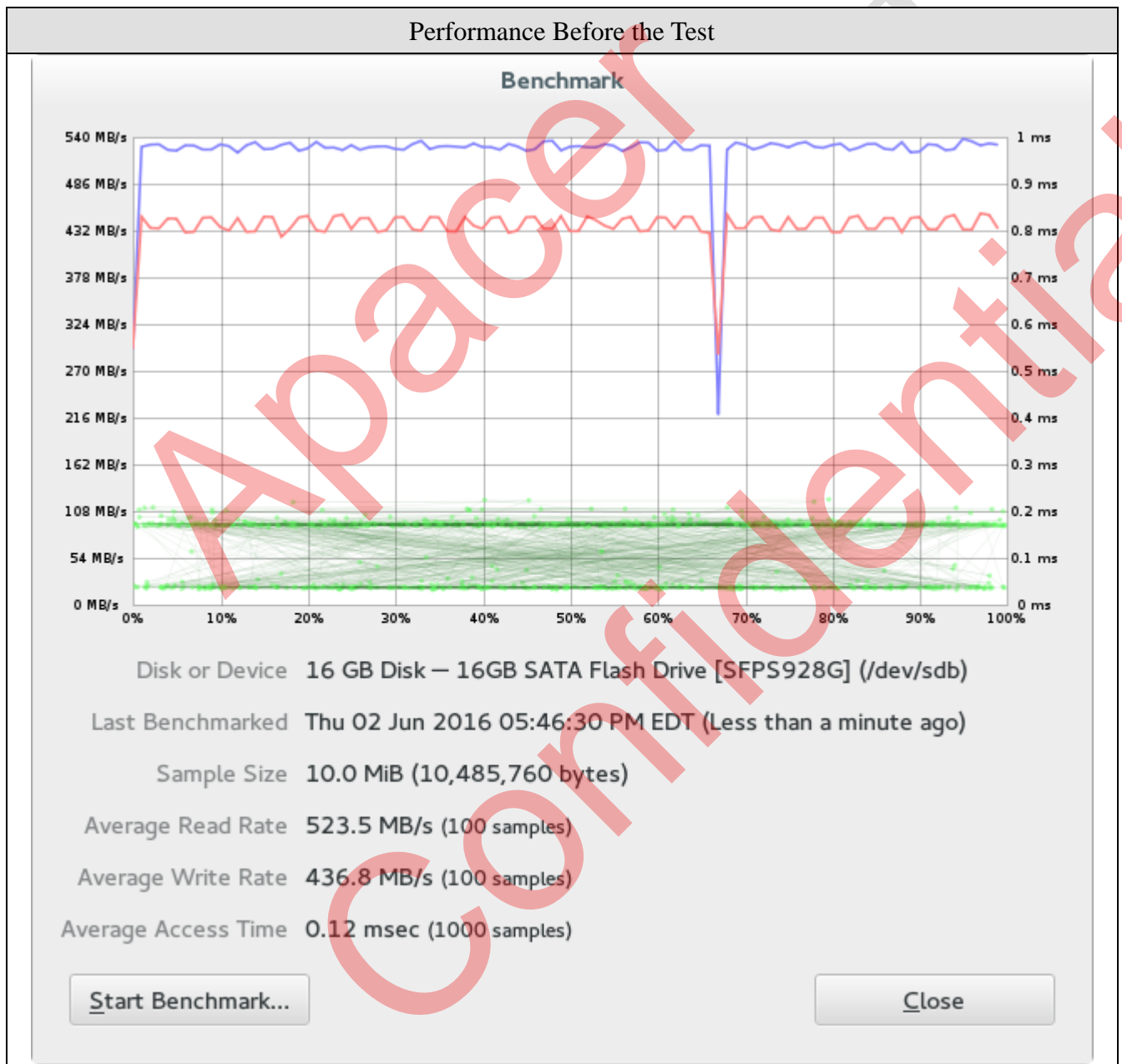
D. Performance Test With M/B : Gigabyte GA-Z77X-D3H

Testing Product	uSDC-M PLUS 16GB	Testing Engineer	Alex Lin
Testing Environment	M/B: Gigabyte GA-Z77X-D3H	Chipset: Intel Z77 Interface: SATA III	BIOS: F16
Testing Software	CrystalMark 3.0.2		

Performance Before the Test	Performance After the Test																														
 <table border="1"> <thead> <tr> <th></th> <th>Read [MB/s]</th> <th>Write [MB/s]</th> </tr> </thead> <tbody> <tr> <td>Seq</td> <td>271.8</td> <td>151.5</td> </tr> <tr> <td>512K</td> <td>253.2</td> <td>104.6</td> </tr> <tr> <td>4K</td> <td>43.43</td> <td>73.80</td> </tr> <tr> <td>4K QD32</td> <td>147.3</td> <td>100.4</td> </tr> </tbody> </table>		Read [MB/s]	Write [MB/s]	Seq	271.8	151.5	512K	253.2	104.6	4K	43.43	73.80	4K QD32	147.3	100.4	 <table border="1"> <thead> <tr> <th></th> <th>Read [MB/s]</th> <th>Write [MB/s]</th> </tr> </thead> <tbody> <tr> <td>Seq</td> <td>273.3</td> <td>162.7</td> </tr> <tr> <td>512K</td> <td>255.7</td> <td>115.7</td> </tr> <tr> <td>4K</td> <td>44.26</td> <td>79.83</td> </tr> <tr> <td>4K QD32</td> <td>150.2</td> <td>105.6</td> </tr> </tbody> </table>		Read [MB/s]	Write [MB/s]	Seq	273.3	162.7	512K	255.7	115.7	4K	44.26	79.83	4K QD32	150.2	105.6
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E. Performance Test With M/B : Asus Maximus VI Hero

Testing Product	uSDC-M PLUS 16GB	Testing Engineer	Alex Lin
Testing Environment	M/B: ASUS Maximus VI Hero	Chipset: Intel Z87 Interface: SATA III	BIOS: 0224
Testing Software	Ubuntu 14.10 Benchmark		



F. Platform Compatibility Test

Platform	Chipset	M/B	Interface	System	Result
PC1	Intel G35	Asus P5E-VM HDMI	SATA II	Win7	V
PC2	Intel P55	Asus P7P55D	SATA II	Win7	V
PC3	Intel H67	Gigabyte PH67A-D3-B3	SATA III	Win8.1	V
PC4	Intel Z68	Asus P8Z68-M Pro	SATA III	Win8.1	V
PC5	Intel Z77	Gigabyte IVB	SATA III	Win8.1	V
PC6	Intel Z87	Asus Maximus VI Hero	SATA III	Win8.1	V
PC7	Intel Z77	GA-Z77X-D3H	SATA III	Win8.1	V
PC8	Intel QM77	Avalue EMX QM77-A1R	SATA III	Win8.1	V
PC9	AMD 780G	Asus M3A78-EM	SATA II	Win7	V
PC10	AMD 785G	Asus M4A785D-M Pro	SATA II	Win7	V
PC11	AMD 790FX	Asus M4A79T Deluxe	SATA III	Win8.1	V
PC12	AMD 790GX	Asus M4A78T-E	SATA III	Win8.1	V
PC13	AMD A88X	Asus A88XM-A	SATA III	Win8.1	V

G. Additional Qualification:

1. Environmental

- 1. RoHS Standard 2011/65/EU / PCRD005
- 2. Other Environmental Standard REACH / China RoHS
- 3. WEEE (By Product) 2012/19/EU
- 4. Battery Standard N/A
- 5. Packing Standard 94/62/EC
- 6. Others N/A

2. Certification

- 1. CE No. _____
- 2. FCC No. _____
- 3. BSMI No. _____
- 4. VCCC No. _____
- 5. C-tick No. _____
- 6. Other _____

Apacer
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