

1. Stability Test:

1.1 CPU Function Test:

Test Purpose	Test CPU functions work normally under Windows Operating System
Test Procedure	1. Install Windows operating system 2. Install M/B device drivers 3. CPU-Z t check CPU info 4. Run AIDA64 Cache and Memory Benchmark Ver.5.60.3700 1 time 5. Run Passmark Performance Test 8.0 Build1053 1 time 6. Run 3DMark for Windows Ver.1.5.915 BenchMark 3 times and check CPU Temp. 7. S3/Hibernate Test 3 times
Test Criteria	It should be correct for each test step

No.	CPU	Type	Full Loading CPU Temp.	Result
1	Intel / 3.40GHz	Core i7-6700 (Skylake-S/R0-SR2BT) / 65W / LGA1151	54.5 °C	Pass
2	Intel / 3.20GHz	Core i5-6500 (Skylake-S/R0-SR2BX) / 65W / LGA1151	44.5 °C	Pass
3	Intel / 2.70GHz	Core i3-6100TE (Skylake-S/R0-SR2LS) / 35W / LGA1151	34.5 °C	Pass
4	Intel / 3.70GHz	Core i3-6100 (Skylake-S/S0-SR2HG) / 51W / LGA1151	57.5 °C	Pass
5	Intel / 3.30GHz	Pentium-G4400 (Skylake-S/R0-SR2DC) / 54W / LGA1151	47.5 °C	Pass
6	Intel / 2.40GHz	Pentium-G4400TE (Skylake-S/R0-SR2LT) / 35W / LGA1151	31.5 °C	Pass

1.2 Memory Function Test:

Test Purpose	Test Memory functions work normally under Windows Operating System
Test Procedure	<ol style="list-style-type: none"> 1. Install Windows Operating System 2. Install M/B Device Driver 3. Run AIDA64 Cache and Memory Benchmark Ver.5.60.3700 1 time 4. Run Passmark Performance Test 8.0 Build1053 1 time 5. Run 3DMark for Windows Ver.1.5.915 BenchMark 3 times 6. S3/Hibernate Test 3 times
Test Criteria	It should be no problem for the test

1.2.1 DDR4:

No.	Function	Result
1	Single Channel mode	Pass
2	Dual channel mode	Pass
3	DIMM Slot1	Pass
4	DIMM Slot2	Pass
5	DIMM Slot3	Pass
6	DIMM Slot4	Pass

1.2.2 Application Test:

No.	Software	Test Keypoint	Test Environment	Result
1	MemTest86 Ver.6.2.0	1. Stress test 12 hours.	M/B: SD331-Q170CRM Rev.2 (021) (BSG110400026) M/B BIOS: Insyde Mar/03/2016 M/B Driver: Demo ver.0.2.1604.0 CPU: Intel / Co e i5-6500 (Skylak e-S/R0-SR2BX) / 3.20GHz DDR4: Transcend (TS2GLH64V1B 1.2V) [1024Mx8,CL=15,Trcd=15, Trp=15] / SEC (K4A8G0B) / PC4-17000 (DDR4-2133)/ ECC / 16GB *4 SATA HDD: WD / WD3200LPVX SATA 320GB 2.5" 5400RPM Display: On Board (using DP) DVD-ROM: Pioneer / DVD-231DW (18X) Power: Delta / GPS-500BB (500W) O.S.: DOS	Pass

1.2.3 DDR4 Approved List:

No.	Brand	Chip	Size	Type	Chip Model No.	Vendor Part No.	Result
1	ADATA	SKhynix	8GB	PC4-17000 (DDR4-2133)	H5AN4G8NAFR-TFC	AD4U2133W8G15-BHYA 1.2V 512Mx8/1024Mx8,CL=15 tRCD=15,tRP=15]	Pass
2	Transcend	SEC	4GB	PC4-17000 (DDR4-2133)	K4A4G085WD-BCPB	TS512MLH64V1H 1.2V 512Mx8b 1066MHz,CL=15 tRCD=15,tRP=15]	Pass
3	Transcend	SEC	16GB	PC4-17000 (DDR4-2133)/ECC	K4A8G0B	TS2GLH64V1B 1.2V 1024Mx8,CL=15 ,tRCD=15,tRP=15]	Pass
4	Transcend	SEC	16GB	PC4-17000 (DDR4-2133)/ECC	K4A8G085WB-BCPB	TS2GLH72V1B 1.2V [512Mx8/1024Mx8 1066MHz,CL=15 ,tRCD=15,tRP=15]	Pass
5	ADATA	SEC	16GB	PC4-17000 (DDR4-2133)/ECC	K4A8G085WB-BCPB	AD4E2133316G1 5-BSSB 1.2V 512Mx8/1024 x8 2133MHz@CL=15,tRCD=15,tRP=15]	Pass

6	ADATA	SKhynix	8GB	PC4-17000 (DDR4-2133)/ECC	H5AN4G8NAFR TFC	AD4E2133W8G15-BHYA 1.2V 512Mx8/1024 x8 2133MHz@CL=15,tRCD=15,tRP=15]	Pass
7	Transcend	SEC	4GB	PC4-17000 (DDR4-2133)	K4A4G085WD-BCPB	TS8AAEESD 1.2V [512Mx8,1066MHz@CL=15,tRCD=15 tRP=15,ECC Unbuffer]	Pass
8	Kingston	SKhynix	4GB	PC4-17000 (DDR4-2133)	H5AN4G8NAFR-TFC	CBD21D4U15HA G 1.2V [512Mx8-bit-x8/512Mx64-bit, 1066MHz@CL=15,tRCD=15 tRP=15]	Pass
9	Apacer	SKhynix	8GB	PC4-17000 (DDR4-2133)/ECC	H5AN4G8NMFR	78.C1GM3.AF10 B 1.2V [512Mx8/1024 x8 2133MHz@CL=15,tRCD=15,tRP=15]	Pass

1.2.4 DDR4 Module Test Procedures:

No.	DDR4 Module	Test Procedures	Result
1	ADATA (AD4U2133W8G15-BHYA 1.2V) [512Mx8/1024Mx8,CL=15 Trcd=15,Trp=15]/ SKhynix (H5AN4G8NAFR-TFC) / PC4-17000 (DDR4-2133) / 8GB *1	M/B: SD331-Q170CRM Rev.2 (021) (BSG110400026) M/B BIOS: Insyde Mar/03/2016 M/B Driver: Dem ver.0.2.1604.0 CPU: Intel / Core i3-6100TE (Skylake-S/R0-SR 2LS) / 2.70GHz DIMM Slot: DIMM-3/4 (Single channel) SATA HDD: WD / WD3200LPVX SATA 320GB 2.5" 54 00RPM Display: On Board (using DP) DVD-ROM: Pioneer / DVD-231DW (18X) Power: Delta / GPS-500BB (500W) O.S.: Windows 8.1 Embedded Pro 64Bit (with update 1) (English) (UEF) Test Summary: Environment Temp.:25.7°C CPU Temp.:34.5°C CPU Temp. after 3DMark:34.5°C 1. AIDA64 Cache and Memory Benchmark Ver.5.60.3700 SINGLE CHANNEL(Dimm-3/4) READ:16108 MB/s WRITE:15945 MB/s COPY:15863 MB/s 2. PassMark PerformanceTest 8.0 build 1053 CPU Mark:4201 Memory Mark:1805 3. 3DMark for Windows Ver.1.5.915 Cloud Gate:5020 Ice Storm:28932 Sky Diver:3132 Strike Test:726	Pass

2	<p>Transcend (TS2GLH64V1B 1.2V) [1024Mx8,CL=15,Trcd=15,Trp=15] / SEC (K4A8G0B) / PC4-17000 (DDR4-2133)/ECC / 16GB *4</p>	<p>M/B: SD331-Q170CRM Rev.2 (021) (BSG110400026) M/B BIOS: Insyde Mar/03/2016 M/B Driver: Dem ver.0.2.1604.0 CPU: Intel / Core i5-6500 (Skylake-S/R0-SR2B X) / 3.20GHz DIMM Slot: DIMM-1/2/3/4 (Dual channel) SATA HDD: WD / WD3200LPVX SATA 320GB 2.5" 54 00RPM Display: On Board (using DP) DVD-ROM: Pioneer / DVD-231DW (18X) Power: Delta / GPS-500BB (500W) O.S.: Windows 8.1 Embedded Pro 64Bit (with update 1) (English) (UEF) Test Summary: Environment Temp.:27.1°C CPU Temp.:44.5°C CPU Temp. after 3DMark:44.5°C 1. AIDA64 Cache and Memory Benchmark Ver.5.60.3700 READ:29381 MB/s WRITE:32217 MB/s COPY:30676 MB/s 2. PassMark PerformanceTest 8.0 build 1053 CPU Mark:7302 Memory Mark:2666 3. 3DMark for Windows Ver.1.5.915 Cloud Gate:9234 Ice Storm:57973 Sky Diver:4452 Strike Test:1057</p>	Pass
3	<p>Transcend (TS512MLH64V1H 1.2V) [512Mx8b 1066MHz,CL=15,Trcd=15,Trp=15] / SEC (K4A4G085WD-B PB) / PC4-17000 (DDR4-2133) / 4GB *2</p>	<p>M/B: SD331-Q170CRM Rev.2 (021) (BSG110400026) M/B BIOS: Insyde Mar/03/2016 M/B Driver: Dem ver.0.2.1604.0 CPU: Intel / Core i3-6100TE (Skylake-S/R0-SR 2LS) / 2.70GHz DIMM Slot: DIMM-3/4 (Single channel) SATA HDD: WD / WD3200LPVX SATA 320GB 2.5" 54 00RPM Display: On Board (using DP) DVD-ROM: Pioneer / DVD-231DW (18X) Power: Delta / GPS-500BB (500W) O.S.: Windows 8.1 Embedded Pro 64Bit (with update 1) (English) (UEF) Test Summary: Environment Temp.:25.7°C CPU Temp.:34.5°C CPU Temp. after 3DMark:34.5°C 1. AIDA64 Cache and Memory Benchmark Ver.5.60.3700 SINGLE CHANNEL(Dimm-3/4) READ:16108 MB/s WRITE:15945 MB/s COPY:15863 MB/s 2. PassMark PerformanceTest 8.0 build 1053 CPU Mark:4201 Memory Mark:1805 3. 3DMark for Windows Ver.1.5.915 Cloud Gate:5020 Ice Storm:28932 Sky Diver:3132 Strike Test:726</p>	Pass

4	<p>Transcend (TS2GLH72V1B 1.2V) [512Mx8/1024Mx8,1066MHz @CL=15,tRCD=15 tRP=15,ECC Unbuffer)] / SEC (K4A8G085WB-BCPB) / PC4-17000 (DDR4-2133)/ECC / 16GB *4</p>	<p>M/B: SD331-C236CRM Rev. (021) (BSG110500004) M/B BIOS: Insyde Mar/03/2016 M/B Driver: Dem ver.0.2.1604.0 CPU: Intel / Xeon E3-1275 V5 (Skylake-S/QJ6 Z) / 3.60GHz DIMM-1/2/3/4 (Dual channel) DIMM Slot: Hitachi / HTS541612J9SA00 120GB 5400 RPM 2.5" SATA HDD: On Board (using DVI) Display: Asus / DVD-E818A9T b/BLK/G/AS SATA2 .0 DVD-ROM: CWT / GPK500V Power: Windows 8.1 Embedded Pro 64Bit (with update 1) (English) (UEF) O.S.: Test Summary: Environment Temp.:25.1°C CPU Temp.:45.5°C CPU Temp. after 3DMark:45.5°C</p> <ol style="list-style-type: none"> AIDA64 Cache and Memory Benchmark Ver.5.60.3700 READ:29894 MB/s WRITE:32223 MB/s COPY:31193 MB/s PassMark PerformanceTest 8.0 build 1053 CPU Mark:10415 Memory Mark:2853 3DMark for Windows Ver.1.5.915 Cloud Gate:3335 Ice Storm:18761 Sky Diver:1423 Strike Test:338 	Pass
5	<p>Transcend (TS8AAEESD 1.2V) [512Mx8,1066MHz@CL=15,tRCD=15 tRP=15,ECC Unbuffer] SEC(K4A4G085WD-BCPB) PC4-17000(DDR4-2133) 4GB *2</p>	<p>M/B: SD331-C236CRM Rev. (021) (BSG110500004) M/B BIOS: Insyde Mar/03/2016 M/B Driver: Dem ver.0.2.1604.0 CPU: Intel / Xeon E3-1225 V5 (Skylake-S/QJ7 D) / 3.30GHz DIMM Slot: DIMM-1/2 (Single channel) SATA HDD: Hitachi / HTS541612J9SA00 120GB, 2.5" Display: On Board (using DVI) DVD-ROM: Asus / DVD-E818A9T b/BLK/G/AS SATA2 .0 Power: CWT / GPK500V O.S.: Windows 8.1 Embedded Pro 64Bit (with update 1) (English) (UEF) Test Summary: Environment Temp.:24.7°C CPU Temp.:39.5°C CPU Temp. after 3DMark:39.5°C</p> <ol style="list-style-type: none"> AIDA64 Cache and Memory Benchmark Ver.5.60.3700 SINGLE CHANNEL (Dimm-1/2) READ:16424 MB/s WRITE:15645 MB/s COPY:16781 MB/s PassMark PerformanceTest 8.0 build 1053 CPU Mark:7376 Memory Mark:2078 3DMark for Windows Ver.1.5.915 Cloud Gate:6981 Ice Storm:48509 Sky Diver:3950 Strike Test:841 	Pass

6	<p>ADATA (AD4E213316G15-BSSB 1.2V) [512Mx8/1024 x8 2133MHz@CL=15, tRCD=15,tRP=15] / SEC (K4A8G085WB-BCPB) / PC4-17000 (DDR4-2133)/ECC / 16GB *1</p>	<p>M/B: SD331-C236CRM Rev. (021) (BSG110500004) M/B BIOS: Insyde Mar/03/2016 M/B Driver: Dem ver.0.2.1604.0 CPU: Intel / Xeon E3-1225 V5 (Skylake-S/QJ7 D) / 3.30GHz DIMM-2 DIMM Slot: (Single channel) SATA HDD: Hitachi / HTS541612J9SA00 120GB 5400 RPM 2.5" Display: On Board (using DVI) DVD-ROM: Asus / DVD-E818A9T b/BLK/G/AS SATA 2 .0 Power: CWT / GPK500V O.S.: Windows 8.1 Embedded Pro 64Bit (with update 1) (English) (UEF) Test Summary: Test Summary: Environment Temp.:24.7°C CPU Temp.:38.5°C CPU Temp. after 3DMark:39.5°C 1. AIDA64 Cache and Memory Benchmark Ver.5.60.3700 SINGLE CHANNEL (Dimm-2) READ:16787 MB/s WRITE:15784 MB/s COPY:16766 MB/s 2. PassMark PerformanceTest 8.0 build 1053 CPU Mark:7601 Memory Mark:2239 3. 3DMark for Windows Ver.1.5.915 Cloud Gate:7049 Ice Storm:48507 Sky Diver:3937 Strike Test:851</p>	Pass
7	<p>ADATA (AD4E2133W8G15-BHYA 1.2V) [512Mx8/1024 x8 2133MHz@CL=15, tRCD=15,tRP=15] / SKhynix (H5AN4G8NAFR TFC) / PC4-17000 (DDR4-2133)/ECC / 8GB *1</p>	<p>M/B: SD331-C236CRM Rev. (021) (BSG110500004) M/B BIOS: Insyde Mar/03/2016 M/B Driver: Dem ver.0.2.1604.0 CPU: Intel / Xeon E3-1225 V5 (Skylake-S/QJ7 D) / 3.30GHz DIMM-1 DIMM Slot: (Single channel) SATA HDD: Hitachi / HTS541612J9SA00 120GB, 2.5" Display: On Board (using DVI) DVD-ROM: Asus / DVD-E818A9T b/BLK/G/AS SATA2 .0 Power: CWT / GPK500V O.S.: Windows 8.1 Embedded Pro 64Bit (with update 1) (English) (UEF) Test Summary: Environment Temp.:25.7°C CPU Temp.:38.5°C CPU Temp. after 3DMark:39.5°C 1. AIDA64 Cache and Memory Benchmark Ver.5.60.3700 SINGLE CHANNEL (Dimm-1) READ:16680 MB/s WRITE:16025 MB/s COPY:16867 MB/s 2. PassMark PerformanceTest 8.0 build 1053 CPU Mark:7535 memory Mark:2137 3. 3DMark for Windows Ver.1.5.915 Cloud Gate:7058 Ice Storm:48760 Sky Diver:3965 Strike Test:856</p>	Pass

8	Kingston (CBD21D4U15HAG 1.2V) [512Mx8-bit-x8/512Mx64bit,1066MHz @CL=15, tRCD=15 tRP=15,Non-ECC] SKhynix/4GB*,H5AN4 8NAFR-TFC, PC4- 17000(DDR4-2133) / 4GB *2	M/B: SD331-Q170CRM Rev.2 (021) (BSG110400026) M/B BIOS: Insyde Mar/03/2016 M/B Driver: Dem ver.0.2.1604.0 CPU: Intel / Core i3-6100 (Skylake-S/S0-SR2H G) / 3.70GHz DIMM Slot: DIMM-1/3 (Dual channel) SATA HDD: WD / WD3200LPVX SATA 320GB 2.5" 54 00RPM Display: On Board (using DP) DVD-ROM: Pioneer / DVD-231DW (18X) Power: Delta / GPS-500BB (500W) O.S.: Windows 8.1 Embedded Pro 64Bit (with update 1) (English) (UEF) Test Summary: Environment Temp.:27.8°C CPU Temp.:56.5°C CPU Temp. after 3DMark:57.5°C 1. AIDA64 Cache and Memory Benchmark Ver.5.60.3700 READ:30405 MB/s WRITE:31625 MB/s COPY:26254 MB/s 2. PassMark PerformanceTest 8.0 build 1053 CPU Mark:5663 Memory Mark:2580 3. 3DMark for Windows Ver.1.5.915 Cloud Gate:3164 Ice Storm:17621 Sky Diver:1411 Strike Test:330	Pass
9	Apacer (78.C1GM3.AF10B 1.2V) [512Mx8/1024 x8 2133MHz @CL=15,tRCD=15,tRP=15] SKhynix (H5AN4G8NMFR) PC4-17000(DDR4-2133) 8GB *2	M/B: SD331-Q170CRM Rev.2 (021) (BSG110400026) M/B BIOS: Insyde Mar/03/2016 M/B Driver: Dem ver.0.2.1604.0 CPU: Intel / Pentium-G4400TE (Skylake-S/R0- SR2LT) / 2.40GHz DIMM Slot: DIMM-3/4 (Dual channel) SATA HDD: WD / WD3200LPVX SATA 320GB 2.5" 54 00RPM Display: On Board (using DP) DVD-ROM: PIONEER / DVD-231DW (18X) O.S.: Windows 8.1 Embedded Pro 64Bit (with update 1) (English) (UEF) Test Summary: Environment Temp.:24.1°C CPU Temp.:30.5°C CPU Temp. after 3DMark:31.5°C 1. AIDA64 Cache and Memory Benchmark Ver.5.60.3700 DUAL CHANNEL (Di m-3/4) READ:26746 MB/s WRITE:32155 MB/s COPY:29840 MB/s 2. PassMark PerformanceTest 8.0 build 1053 CPU Mark:2881 Memory Mark:2184 3. 3DMark for Windows Ver.1.5.915 Cloud Gate:3581 Ice Storm:20469 Sky Diver:2049 Strike Test:535	Pass