

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. Check CPU temperature in BIOS setup menu 4. Run PassMark BurnInTest and check CPU Temp. 5. Using CPU-Z check CPU info
Test Criteria	It should be correct for each test step

No.	CPU	Type	Idle CPU Temp.	Full Loading CPU Temp.	Result
1	Intel / 3.70GHz	Core i7-8700K (Coffeelake / SR3QR) / 95W / LGA1151	43.0°C	60.0°C	Pass
2	Intel / 3.20GHz	Core i7-8700 (Coffeelake / QNML) / 65W / LGA1151	42.0°C	67.0°C	Pass
3	Intel / 2.40GHz	Core i7-8700T (Coffeelake / QP4P) / 35W / LGA1151	37.0°C	57.0°C	Pass
4	Intel / 3.00GHz	Core i5-8500 (Coffeelake / QP5J) / 65W / LGA1151	39.0°C	50.0°C	Pass
5	Intel / 2.10GHz	Core i5-8500T (Coffeelake / QP5H) / 35W / LGA1151	35.0°C	45.0°C	Pass
6	Intel / 3.60GHz	Core i3-8100 (Coffeelake / QP5K) / 65W / LGA1151	44.0°C	47.0°C	Pass
7	Intel / 3.10GHz	Core i3-8100T (Coffeelake / QP5Q) / 35W / LGA1151	40.0°C	44.0°C	Pass
8	Intel / 3.70GHz	Pentium G5400 (Coffeelake / SR3X9) / 58W / LGA1151	42.0°C	46.0°C	Pass
9	Intel / 3.10GHz	Celeron G4900 (Coffeelake / SR3W4) / 54W / LGA1151	41.0°C	46.0°C	Pass
10	Intel / 3.60GHz	Core i7-9700K (Coffeelake / QQPJ) / 95W / LGA1151	42.0°C	57.0°C	Pass
11	Intel / 1.80GHz	Core i7-9700TE (Coffeelake / QSJN) / 35W / LGA1151	31.0°C	43.0°C	Pass
12	Intel / 2.60GHz	Core i7-9700E (Coffeelake / QSJM) / 65W / LGA1151	35.0°C	46.0°C	Pass
13	Intel / 3.10GHz	Core i3-9100E (Coffeelake / QSKA) / 65W / LGA1151	39.0°C	48.0°C	Pass
14	Intel / 3.60GHz	Core i9-9900K (Coffeelake / SRELS) / 95W / LGA1151	39.0°C	69.0°C	Pass

1.1.1 Application Test:

No.	Software	Test Keypoint	Result
1	CPU-Z Ver.1.89.0	1. Check all information.	Pass

1.2 Memory Function Test:

Test Purpose	Test Memory functions work normally under Windows Operating System
Test Procedure	1. Install Windows Operating System 2. Install M/B Device Driver 3. Run AIDA64 Cache and Memory Benchmark Ver.6.00.5100 1 time 4. Run Passmark Performance Test 9.0 Build1031 1 time 5. Run 3DMark for Windows Ver.2.10.6771 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	DDR4 DIMM Slot Examine	Pass
2	Single Channel mode	Pass
3	Dual Channel mode	Pass
4	Warning beep sound when no memory install	Pass
5	DIMM Slot1	Pass
6	DIMM Slot2	Pass
7	DIMM Slot3	Pass
8	DIMM Slot4	Pass

1.2.2 Application Test:

No.	Software	Test Keypoint	Test Environment	Result
1	MemTest86 Ver.8.2 Pro	1. Burn-In test 24 hours.	DDR4: DDR4-2666(16GB) 78.D1GS7.4010B / Apacer/ Samsung SEC 801 K4A8G085WB BCTD (DR050-1/2/3/4) (DIMM-1/2/3/4) DUAL Channel O.S.: EFI Shell	Pass
2	MemTest86 Ver.8.2 Pro	1. Burn-In test 24 hours.	DDR4: DDR4-2666(16GB) ADATA AD4E2666316G19-BSSC / Samsung SEC 843 K4A8G085WC BCTD (DR066-1/2/3/4) (ECC) (DIMM-1/2/3/4) DUAL Channel O.S.: EFI Shell	Pass

1.2.3 DDR4 Approved List:

No.	Brand	Chip	Size	Type	Chip Model No.	Vendor Part No.	Result
1	DSL	Samsung	32GB	DDR4-2666	SEC 913 K4AAG085WA BCTD	D4US2G082SH26A-C	Pass
2	Innodisk	Samsung	8GB	DDR4-2666	K4A4G085WE BCTD	M4U0-8GSSKCIK	Pass
3	Apacer	Samsung	16GB	DDR4-2666	K4A8G085WB BCTD	78.D1GS7.4010B	Pass
4	Innodisk	Samsung	4GB	DDR4-2666	K4A4G085WE BCTD	M4U0-4GSSJCIK	Pass
5	Transcend	Samsung	8GB	PC4-19200 (DDR4-2400)	SEC-K4A4G085WE-BCRC	TS1GLH64V4H	Pass
6	Transcend	Samsung	16GB	DDR4-2666	K4A8G085WC BCTD	TS2GLH64V6B	Pass
7	Transcend	Samsung	8GB	DDR4-2666	K4A8G085WC BCTD	TS1GLH64V6B	Pass
8	Transcend	Samsung	8GB	DDR4-2666	K4A8G085WC BCTD	TS1GLH64V6B	Pass
9	Innodisk	Samsung	8GB	DDR4-2666	SEC 807 K4A8G085WC BCTD	M4U0-8GS1JCIK	Pass
10	Apacer	Samsung	8GB	DDR4-2666	K4A8G085WB BCTD	78.C1GS7.40F0B	Pass
11	Apacer	Samsung	4GB	DDR4-2666	K4A4G085WE BCTD	78.B1GS6.40F0B	Pass
12	ADATA	Samsung	16GB	DDR4-2666	SEC 843 K4A8G085WC BCTD	AD4E2666316G19-BSSC (ECC)	Pass
13	Innodisk	Samsung	4GB	DDR4-2666	K4A4G085WE BCTD	M4C0-4GSSLCIK (ECC)	Pass
14	Transcend	Samsung	8GB	DDR4-2666	K4A8G085WC BCTD	TS1GLH72V6B (ECC)	Pass
15	ADATA	Hynix	16GB	PC4-19200 (DDR4-2400)	H5AN8G8NAFR UHC	AD4E2400316G17-BHYA (ECC)	Pass
16	Transcend	Samsung	8GB	PC4-19200 (DDR4-2133)	K4A4G085WE BCRC	TS1GLH72V1H (ECC)	Pass

1.2.4 DDR4 Module Test Procedures:

No.	DDR4 Module	Test Environment	Result
1	DDR4-2666(32GB) DSL D4US2G08ZSH26A-C/ Samsung SEC 913 K4AAG085WA BCTD (DIMM-1/2/3/4) DUAL Channel	M/B: CS631-Q370CRM Rev.A (0A2) (BMJ200100035) CPU: Intel Core i9-9900K 3.60GHz (SRELS) DIMM Slot: DIMM-1/2/3/4 DUAL Channel Test Summary: AIDA64 Cache and Memory Benchmark(V6.00.5100) DUAL CHANNEL(DIMM-1/2/3/4) READ:37971 MB/s WRITE:40616 MB/s COPY:38788 MB/s Passmark PerformanceTest 9.0 Build 1031 CPU Mark:20812.3 Memory Mark:3359.9 3DMark for Windows(V 2.10.6771)3times Cloud Gate:13267 Ice Storm Extreme:53820 Skydiver: 5544 Fire Strike:1388	Pass
2	DDR4-2666(8GB) Innodisk M4U0-8GSSKCIK/ Samsung SEC 825 K4A4G085WE BCTD	M/B: CS631-Q370CRM Rev.A (0A2) (BMJ200100035) CPU: Intel Core i7-8700K 3.70GHz (SR3QR) DIMM Slot: DIMM-1/2/3 DUAL Channel Test Summary: AIDA64 Cache and Memory Benchmark(V6.00.5100) DUAL CHANNEL(DIMM-1/2/3) READ:38372 MB/s WRITE:40731 MB/s COPY:38136 MB/s Passmark PerformanceTest 9.0 Build 1031 CPU Mark:16844.6 Memory Mark:3353.7 3DMark for Windows(V 2.10.6771)3times Cloud Gate:12390 Ice Storm Extreme:53977 Skydiver: 5617 Fire Strike:1398	Pass
3	DDR4-2666(16GB) 78.DIGS7.4010B / Apacer/ Samsung SEC 801 K4A8G085WB BCTD	M/B: CS631-Q370CRM Rev.A (0A2) (BMJ200100035) CPU: Intel Core i7-8700 3.20GHz (QNML) DIMM Slot: DIMM-1/3 DUAL Channel Test Summary: AIDA64 Cache and Memory Benchmark(V6.00.5100) DUAL CHANNEL(DIMM-1/3) READ:39318 MB/s WRITE:40523 MB/s COPY:38075 MB/s Passmark PerformanceTest 9.0 Build 1031 CPU Mark:16720.1 Memory Mark:3370.1 3DMark for Windows(V 2.10.6771)3times Cloud Gate:12330 Ice Storm Extreme:53208 Skydiver: 5572 Fire Strike:1383	Pass
4	DDR4-2666(4GB) Innodisk M4U0-4GSSJCIK/ Samsung SEC 807 K4A4G085WE BCTD	M/B: CS631-Q370CRM Rev.A (0A2) (BMJ200100035) CPU: Intel Core i7-8700T 2.40GHz (QP4P) DIMM Slot: DIMM-2/4 DUAL Channel Test Summary: AIDA64 Cache and Memory Benchmark(V6.00.5100) DUAL CHANNEL(DIMM-2/4) READ:38749 MB/s WRITE:38923 MB/s COPY:34130 MB/s Passmark PerformanceTest 9.0 Build 1031 CPU Mark:13906.5 Memory Mark:2828.5 3DMark for Windows(V 2.10.6771)3times Cloud Gate:11785 Ice Storm Extreme:52604 Skydiver: 5480 Fire Strike:1363	Pass

5	PC4-19200 (DDR4-2400) / Transcend-TS1GLH64V4H / SEC-K4A4G085WE-BCRC / 8GB*2 (NON ECC).	M/B: CPU: DIMM Slot: Test Summary:	CS631-Q370CRM Rev.A (0A2) (BMJ200100035) Intel Core i5-8500 3.00GHz (QP5J) DIMM-1/2 SINGLE Channel AIDA64 Cache and Memory Benchmark(V6.00.5100) SINGLE CHANNEL(DIMM-1/2) READ:18788 MB/s WRITE:18263 MB/s COPY:18404 MB/s Passmark PerformanceTest 9.0 Build 1031 CPU Mark:11699.0 Memory Mark:2508.8 3DMark for Windows(V 2.10.6771)3times Cloud Gate:9310 Ice Storm Extreme:47654 Skydiver: 4709 Fire Strike:1103	Pass
6	DDR4-2666(16GB) Transcend TS2GLH64V6B/ Samsung SEC 822 K4A8G085WC BCTD	M/B: CPU: DIMM Slot: Test Summary:	CS631-Q370CRM Rev.A (0A2) (BMJ200100035) Intel Core i5-8500T 2.10GHz (QP5H) DIMM-3/4 SINGLE Channel AIDA64 Cache and Memory Benchmark(V6.00.5100) SINGLE CHANNEL(DIMM-3/4) READ:20144 MB/s WRITE:20203 MB/s COPY:18963 MB/s Passmark PerformanceTest 9.0 Build 1031 CPU Mark:10298.3 Memory Mark:2496.7 3DMark for Windows(V 2.10.6771)3times Cloud Gate:9074 Ice Storm Extreme:47178 Skydiver: 4776 Fire Strike:1121	Pass
7	DDR4-2666(8GB) Transcend TS1GLH64V6B/ Samsung SEC 740 K4A8G085WC BCTD	M/B: CPU: DIMM Slot: Test Summary:	CS631-Q370CRM Rev.A (0A2) (BMJ200100035) Intel Core i3-8100 3.60GHz (QP5K) DIMM-1 SINGLE Channel AIDA64 Cache and Memory Benchmark(V6.00.5100) SINGLE CHANNEL(DIMM-1) READ:17992 MB/s WRITE:17420 MB/s COPY:17265 MB/s Passmark PerformanceTest 9.0 Build 1031 CPU Mark:8069.8 Memory Mark:2209.1 3DMark for Windows(V 2.10.6771)3times Cloud Gate:7845 Ice Storm Extreme:41546 Skydiver: 4363 Fire Strike:1017	Pass
8	DDR4-2666(8GB) Transcend TS1GLH64V6B/ Samsung SEC 834 K4A8G085WC BCTD	M/B: CPU: DIMM Slot: Test Summary:	CS631-Q370CRM Rev.A (0A2) (BMJ200100035) Intel Core i3-8100T 3.10GHz (QP5Q) DIMM-2 SINGLE Channel AIDA64 Cache and Memory Benchmark(V6.00.5100) SINGLE CHANNEL(DIMM-2) READ:17860 MB/s WRITE:17635 MB/s COPY:17350 MB/s Passmark PerformanceTest 9.0 Build 1031 CPU Mark:7061.7 Memory Mark:2082.1 3DMark for Windows(V 2.10.6771)3times Cloud Gate:7845 Ice Storm Extreme:41546 Skydiver: 4363 Fire Strike:1017	Pass

9	DDR4-2666(8GB) Innodisk M4U0-8GS1JCIK/ Samsung SEC 807 K4A8G085WC BCTD	M/B: CS631-Q370CRM Rev.A (0A2) (BMJ200100035) CPU: Intel Celeron G4900 3.10GHz (SR3W4) DIMM Slot: DIMM-3 SINGLE Channel Test Summary: AIDA64 Cache and Memory Benchmark(V6.00.5100) SINGLE CHANNEL(DIMM-3) READ:17588 MB/s WRITE:17844 MB/s COPY:16864 MB/s Passmark PerformanceTest 9.0 Build 1031 CPU Mark:3335.5 Memory Mark:2019.7 3DMark for Windows(V 2.10.6771)3times Cloud Gate:4571 Ice Storm Extreme:24964 Skydiver: 2658 Fire Strike:660	Pass
10	DDR4-2666(8GB) CL19 / Apacer/ Samsung SEC 813 K4A8G085WB BCTD	M/B: CS631-Q370CRM Rev.A (0A2) (BMJ200100035) CPU: Intel Pentium Gold G5400 3.70GHz (SR3X9) DIMM Slot: DIMM-4 SINGLE Channel Test Summary: AIDA64 Cache and Memory Benchmark(V6.00.5100) SINGLE CHANNEL(DIMM-4) READ:17486 MB/s WRITE:17774 MB/s COPY:17340 MB/s Passmark PerformanceTest 9.0 Build 1031 CPU Mark:5276.8 Memory Mark:2207.6 3DMark for Windows(V 2.10.6771)3times Cloud Gate:5784 Ice Storm Extreme:27817 Skydiver: 2803 Fire Strike:682	Pass
11	DDR4-2666(4GB) CL19 / Apacer/ Samsung SEC 737 K4A4G085WE BCTD	M/B: CS631-Q370CRM Rev.A (0A2) (BMJ200100035) CPU: Intel Core i7-9700TE 1.80GHz (QSJN) DIMM Slot: DIMM-1/2/3/4 DUAL Channel Test Summary: AIDA64 Cache and Memory Benchmark(V6.00.5100) DUAL CHANNEL(DIMM-1/2/3/4) READ:37869 MB/s WRITE:40192 MB/s COPY:37153 MB/s Passmark PerformanceTest 9.0 Build 1031 CPU Mark:14391.2 Memory Mark:2953.6 3DMark for Windows(V 2.10.6771)3times Cloud Gate:11595 Ice Storm Extreme:53046 Skydiver: 5387 Fire Strike:1359	Pass
12	DDR4-2666(16GB) 78.D1GS7.4010B / Apacer/ Samsung SEC 801 K4A8G085WB BCTD	M/B: CS631-Q370CRM Rev.A (0A2) (BMJ200100035) CPU: Intel Core i7-9700E 2.60GHz (QSJM) DIMM Slot: DIMM-1/2/3/4 DUAL Channel Test Summary: AIDA64 Cache and Memory Benchmark(V6.00.5100) DUAL CHANNEL(DIMM-1/2/3/4) READ:38670 MB/s WRITE:40501 MB/s COPY:38375 MB/s Passmark PerformanceTest 9.0 Build 1031 CPU Mark:16554.1 Memory Mark:3329.5 3DMark for Windows(V 2.10.6771)3times Cloud Gate:12038 Ice Storm Extreme:54540 Skydiver: 5457 Fire Strike:1360	Pass

13	DDR4-2666(16GB) 78.D1GS7.4010B / Apacer/ Samsung SEC 801 K4A8G085WB BCTD	M/B: CS631-Q370CRM Rev.A (0A2) (BMJ200100035) CPU: Intel Core i3-9100E 3.10GHz (QSKA) DIMM Slot: DIMM-1/2/3/4 DUAL Channel Test Summary: AIDA64 Cache and Memory Benchmark(V6.00.5100) DUAL CHANNEL(DIMM-1/2/3/4) READ:33996 MB/s WRITE:36607 MB/s COPY:34051 MB/s Passmark PerformanceTest 9.0 Build 1031 CPU Mark:9010.9 Memory Mark:3037.3 3DMark for Windows(V 2.10.6771)3times Cloud Gate:9029 Ice Storm Extreme:49228 Skydiver: 4703 Fire Strike:1167	Pass
14	DDR4-2666(16GB) 78.D1GS7.4010B / Apacer/ Samsung SEC 801 K4A8G085WB BCTD	M/B: CS631-Q370CRM Rev.A (0A2) (BMJ200100035) CPU: Intel Core i7-9700K 3.60GHz (QQPK) DIMM Slot: DIMM-1/2/3/4 DUAL Channel Test Summary: AIDA64 Cache and Memory Benchmark(V6.00.5100) DUAL CHANNEL(DIMM-1/2/3/4) READ:37480 MB/s WRITE:40848 MB/s COPY:38631 MB/s Passmark PerformanceTest 9.0 Build 1031 CPU Mark:18520.8 Memory Mark:3492.8 3DMark for Windows(V 2.10.6771)3times Cloud Gate:12572 Ice Storm Extreme:55230 Skydiver: 5598 Fire Strike:1392	Pass