

# 1. Stability Test:

## 1.1 CPU Function Test:

<b>Test Purpose</b>	Test CPU functions work normally under Windows Operating System
<b>Test Procedure</b>	1. Install Windows operating system 2. Install M/B device drivers 3. Check CPU temperature in BIOS setup menu 4. Run PassMark BurnIn Test and check CPU Temp. 5. Using CPU-Z check CPU info
<b>Test Criteria</b>	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	49.0°C	60.0°C	Pass
2	Intel / 3.20GHz	Core i7-8700 (Coffeelake / QNML) / 65W / LGA1151	45.0°C	67.0°C	Pass
3	Intel / 2.40GHz	Core i7-8700T (Coffeelake / QP4P) / 35W / LGA1151	41.0°C	74.0°C	Pass
4	Intel / 3.00GHz	Core i5-8500 (Coffeelake / QP5J) / 65W / LGA1151	45.0°C	58.0°C	Pass
5	Intel / 2.10GHz	Core i5-8500T (Coffeelake / QP5H) / 35W / LGA1151	38.0°C	50.0°C	Pass
6	Intel / 3.60GHz	Core i3-8100 (Coffeelake / QP5K) / 65W / LGA1151	45.0°C	52.0°C	Pass
7	Intel / 3.10GHz	Core i3-8100T (Coffeelake / QP5Q) / 35W / LGA1151	47.0°C	51.0°C	Pass
8	Intel / 3.70GHz	Pentium G5400 (Coffeelake /SR3X9) / 58W / LGA1151	45.0°C	49.0°C	Pass
9	Intel / 3.10GHz	Celeron G4900(Coffeelake /SR3W4) / 54W / LGA1151	40.0°C	46.0°C	Pass
10	Intel / 3.60GHz	Core i7-9700K (QQPK/CoffeeLake) / 95W / LGA1151	49.0°C	69.0°C	Pass
11	Intel / 1.80GHz	Core i7-9700TE (QSJN/CoffeeLake) / 35W / LGA1151	32.0°C	48.0°C	Pass
12	Intel / 2.60GHz	Core i7-9700E (QSJM/CoffeeLake) / 65W / LGA1151	36.0°C	55.0°C	Pass
13	Intel / 3.10GHz	Core i3-9100E (QSKA/CoffeeLake) / 65W / LGA1151	44.0°C	54.0°C	Pass
14	Intel / 3.60GHz	Core i9-9900K (SRELS/CoffeeLake) / 95W / LGA1151	40.0°C	70.0°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:

<b>Test Purpose</b>	Test Memory functions work normally under Windows Operating System
<b>Test Procedure</b>	<ol style="list-style-type: none"> <li>1. Install Windows Operating System</li> <li>2. Install M/B Device Driver</li> <li>3. Run AIDA64 Cache and Memory Benchmark Ver.6.00.5100 1 time</li> <li>4. Run Passmark Performance Test 9.0 Build1031 1 time</li> <li>5. Run 3DMark for Windows Ver.2.10.6771 BenchMark 3 times</li> <li>6. S3/Hibernate Test 3 times</li> </ol>
<b>Test Criteria</b>	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.8.3 Pro	1. Running test 24 hours.	DDR4: DDR4-2666(32GB) DSL D4US2G082SH26A-C/ Samsung SEC 913 K4AAG085WA BCTD (DIMM-1/2/3/4) DUAL Channel O.S.: UEFI Shell	Pass
2	MemTest86 Ver.8.3 Pro	1. Running 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.: UEFI 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	Apacer	Samsung	16GB	DDR4-2666	K4A8G085WB BCTD	78.D1GS7.4010B	Pass
3	Apacer	Samsung	4GB	DDR4-2666	K4A4G085WE BCTD	78.B1GS6.40F0B	Pass
4	Innodisk	Samsung	8GB	DDR4-2666	SEC 807 K4A8G085WC BCTD	M4U0-8GS1JCIK	Pass
5	Innodisk	Samsung	4GB	DDR4-2666	K4A4G085WE BCTD	M4U0-4GSSJCIK	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	Apacer	Samsung	8GB	DDR4-2666	K4A8G085WB BCTD	78.C1GS7.40F0B	Pass
10	Transcend	Samsung	8GB	PC4-19200 (DDR4-2400)	SEC-K4A4G085WE-BCRC	TS1GLH64V4H	Pass
11	Innodisk	Samsung	8GB	DDR4-2666	K4A4G085WE BCTD	M4U0-8GSSKCIK	Pass

### 1.2.4 DDR4 Module Test Procedures:

No.	DDR4 Module	Test Procedures	Result
1	DDR4-2666(32GB) DSL D4US2G082SH26A-C/ Samsung SEC 913 K4AAG085WA BCTD (DIMM-1/2/3/4) DUAL Channel	M/B: CS650-Q370CRM Rev.1 (011) (BSJ391200013) 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:38085 MB/s WRITE:40747 MB/s COPY:39167 MB/s Passmark PerformanceTest 9.0 Build 1031 CPU Mark:20358.0 Memory Mark:3358.6 3DMark for Windows(V 2.10.6771)3times Cloud Gate:13392 Ice Storm Extreme:54100 Skydiver: 5621 Fire Strike:1386	Pass
2	DDR4-2666(16GB) 78.D1GS7.4010B / Apacer/ Samsung SEC 801 K4A8G085WB BCTD	M/B: CS650-Q370CRM Rev.1 (011) (BSJ391200013) 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:38154 MB/s WRITE:41345 MB/s COPY:38483 MB/s Passmark PerformanceTest 9.0 Build 1031 CPU Mark:17832.8 Memory Mark:3489.3 3DMark for Windows(V 2.10.6771)3times Cloud Gate:12240 Ice Storm Extreme:55030 Skydiver: 5569 Fire Strike:1374	Pass

3	DDR4-2666(4GB) CL19 / Apacer/ Samsung SEC 737 K4A4G085WE BCTD	M/B: CS650-Q370CRM Rev.1 (011) (BSJ391200013) CPU: Intel Core i7-9700E 2.60GHz (QSJM) 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:37426 MB/s WRITE:37821 MB/s COPY:34048 MB/s Passmark PerformanceTest 9.0 Build 1031 CPU Mark:15197.6 Memory Mark:2861.5 3DMark for Windows(V 2.10.6771)3times Cloud Gate:11575 Ice Storm Extreme:55831 Skydiver: 5341 Fire Strike:1251	Pass
4	DDR4-2666(8GB) Innodisk M4U0-8GS1JCIK/ Samsung SEC 807 K4A8G085WC BCTD	M/B: CS650-Q370CRM Rev.1 (011) (BSJ391200013) CPU: Intel Core i7-9700TE 1.80GHz (QSJN) DIMM Slot: DIMM-1/2 SINGLE Channel Test Summary: AIDA64 Cache and Memory Benchmark(V6.00.5100) SINGLE CHANNEL(DIMM-1/2) READ:21112 MB/s WRITE:19818 MB/s COPY:21302 MB/s Passmark PerformanceTest 9.0 Build 1031 CPU Mark:12510.4 Memory Mark:2547.7 3DMark for Windows(V 2.10.6771)3times Cloud Gate:10289 Ice Storm Extreme:49659 Skydiver: 5006 Fire Strike:1175	Pass
5	DDR4-2666(4GB) Innodisk M4U0-4GSSJCIK/ Samsung SEC 807 K4A4G085WE BCTD	M/B: CS650-Q370CRM Rev.1 (011) (BSJ391200013) CPU: Intel Core i3-9100E 3.10GHz (QSKA) DIMM Slot: DIMM-3/4 SINGLE Channel Test Summary: AIDA64 Cache and Memory Benchmark(V6.00.5100) SINGLE CHANNEL(DIMM-3/4) READ:18104 MB/s WRITE:18403 MB/s COPY:18830 MB/s Passmark PerformanceTest 9.0 Build 1031 CPU Mark:8383.4 Memory Mark:2302.0 3DMark for Windows(V 2.10.6771)3times Cloud Gate:7880 Ice Storm Extreme:44000 Skydiver: 4348 Fire Strike:1011	Pass
6	DDR4-2666(16GB) Transcend TS2GLH64V6B/ Samsung SEC 822 K4A8G085WC BCTD	M/B: CS650-Q370CRM Rev.1 (011) (BSJ391200013) CPU: Intel Core i7-8700K 3.70GHz (SR3QR) DIMM Slot: DIMM-1/3 DUAL Channel Test Summary: AIDA64 Cache and Memory Benchmark(V6.00.5100) DUAL CHANNEL(DIMM-1/3) READ:38628 MB/s WRITE:41250 MB/s COPY:37273 MB/s Passmark PerformanceTest 9.0 Build 1031 CPU Mark:14328.9 Memory Mark:3080.6 3DMark for Windows(V 2.10.6771)3times Cloud Gate:11740 Ice Storm Extreme:51972 Skydiver: 5615 Fire Strike:1381	Pass

7	DDR4-2666(8GB) Transcend TS1GLH64V6B/ Samsung SEC 834 K4A8G085WC BCTD	M/B: CS650-Q370CRM Rev.1 (011) (BSJ391200013) 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:34033 MB/s WRITE:38307 MB/s COPY:31344 MB/s Passmark PerformanceTest 9.0 Build 1031 CPU Mark:9656.6 Memory Mark:2226.4 3DMark for Windows(V 2.10.6771)3times Cloud Gate:10380 Ice Storm Extreme:49798 Skydiver: 5466 Fire Strike:1336	Pass
8	DDR4-2666(8GB) Transcend TS1GLH64V6B/ Samsung SEC 740 K4A8G085WC BCTD	M/B: CS650-Q370CRM Rev.1 (011) (BSJ391200013) CPU: Intel Core i5-8500 3.00GHz (QP5J) DIMM Slot: DIMM-1 SINGLE Channel Test Summary: AIDA64 Cache and Memory Benchmark(V6.00.5100) SINGLE CHANNEL(DIMM-1) READ:20358 MB/s WRITE:19473 MB/s COPY:20022 MB/s Passmark PerformanceTest 9.0 Build 1031 CPU Mark:11242.8 Memory Mark:2391.2 3DMark for Windows(V 2.10.6771)3times Cloud Gate:8953 Ice Storm Extreme:46431 Skydiver: 4664 Fire Strike:1067	Pass
9	DDR4-2666(8GB) CL19 / Apacer/ Samsung SEC 813 K4A8G085WB BCTD	M/B: CS650-Q370CRM Rev.1 (011) (BSJ391200013) CPU: Intel Core i7-8700 3.20GHz (QNML) DIMM Slot: DIMM-2 SINGLE Channel Test Summary: AIDA64 Cache and Memory Benchmark(V6.00.5100) SINGLE CHANNEL(DIMM-2) READ:20391 MB/s WRITE:19303 MB/s COPY:20530 MB/s Passmark PerformanceTest 9.0 Build 1031 CPU Mark:13189.5 Memory Mark:2468.9 3DMark for Windows(V 2.10.6771)3times Cloud Gate:10488 Ice Storm Extreme:48687 Skydiver: 5001 Fire Strike:1136	Pass
10	PC4-19200 (DDR4-2400) / Transcend- TS1GLH64V4H / SEC-K4A4G085WE-BCRC / 8GB*1 (NON ECC).	M/B: CS650-Q370CRM Rev.1 (011) (BSJ391200013) CPU: Intel Core i5-8500T 2.10GHz (QP5H) DIMM Slot: DIMM-3 SINGLE Channel Test Summary: AIDA64 Cache and Memory Benchmark(V6.00.5100) SINGLE CHANNEL(DIMM-3) READ:18806 MB/s WRITE:17896 MB/s COPY:18937 MB/s Passmark PerformanceTest 9.0 Build 1031 CPU Mark:9883.3 Memory Mark:2219.9 3DMark for Windows(V 2.10.6771)3times Cloud Gate:8740 Ice Storm Extreme:46765 Skydiver: 4703 Fire Strike:1097	Pass

11	DDR4-2666(8GB) Innodisk M4U0-8GSSKCIK/ Samsung SEC 825 K4A4G085WE BCTD	M/B: CS650-Q370CRM Rev.1 (011) (BSJ391200013) CPU: Intel Core i3-8100 3.60GHz (QP5K) DIMM Slot: DIMM-4 SINGLE Channel Test Summary: AIDA64 Cache and Memory Benchmark(V6.00.5100) SINGLE CHANNEL(DIMM-4) READ:18610 MB/s WRITE:18127 MB/s COPY:18710 MB/s Passmark PerformanceTest 9.0 Build 1031 CPU Mark:8154.3 Memory Mark:2292.4 3DMark for Windows(V 2.10.6771)3times Cloud Gate:7983 Ice Storm Extreme:44516 Skydiver: 4525 Fire Strike:1056	Pass
12	DDR4-2666(16GB) 78.D1GS7.4010B / Apacer/ Samsung SEC 801 K4A8G085WB BCTD	M/B: CS650-Q370CRM Rev.1 (011) (BSJ391200013) CPU: Intel Core i3-8100T 3.10GHz (QP5Q) 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:32684 MB/s WRITE:37362 MB/s COPY:33464 MB/s Passmark PerformanceTest 9.0 Build 1031 CPU Mark:7525.7 Memory Mark:2730.0 3DMark for Windows(V 2.10.6771)3times Cloud Gate:8543 Ice Storm Extreme:49100 Skydiver: 4848 Fire Strike:1204	Pass
13	DDR4-2666(16GB) 78.D1GS7.4010B / Apacer/ Samsung SEC 801 K4A8G085WB BCTD	M/B: CS650-Q370CRM Rev.1 (011) (BSJ391200013) CPU: Intel Pentium Gold G5400 3.70GHz (SR3X9) 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:32580 MB/s WRITE:36904 MB/s COPY:33414 MB/s Passmark PerformanceTest 9.0 Build 1031 CPU Mark:5468.4 Memory Mark:2983.4 3DMark for Windows(V 2.10.6771)3times Cloud Gate:5972 Ice Storm Extreme:30602 Skydiver: 2928 Fire Strike:739	Pass
14	DDR4-2666(16GB) 78.D1GS7.4010B / Apacer/ Samsung SEC 801 K4A8G085WB BCTD	M/B: CS650-Q370CRM Rev.1 (011) (BSJ391200013) CPU: Intel Celeron G4900 3.10GHz (SR3W4) 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:30740 MB/s WRITE:37509 MB/s COPY:33548 MB/s Passmark PerformanceTest 9.0 Build 1031 CPU Mark:3401.8 Memory Mark:2639.6 3DMark for Windows(V 2.10.6771)3times Cloud Gate:4838 Ice Storm Extreme:27055 Skydiver: 2835 Fire Strike:723	Pass