

# 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>	<ol style="list-style-type: none"> <li>1. Install Windows operating system</li> <li>2. Install M/B device drivers</li> <li>3. Check CPU temperature in BIOS setup menu</li> <li>4. Run PassMark BurnIn Test and check CPU Temp.</li> <li>5. Using CPU-Z check CPU info</li> </ol>
<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 / 3.7GHz	Core i9-10900K (Cometlake-S/QUTF) / 125W / LGA1200	42 °C	48 °C	Pass
2	Intel / 2.8GHz	Core i9-10900E (Cometlake-S/QUK7) / 65W / LGA1200	44 °C	60 °C	Pass
3	Intel / 1.8GHz	Core i9-10900TE (Cometlake-S/QUK6) / 35W / LGA1200	38 °C	54 °C	Pass
4	Intel / 3.8GHz	Core i7-10700K (Cometlake-S/QUKR) / 125W / LGA1200	55 °C	70 °C	Pass
5	Intel / 2.9GHz	Core i7-10700E (Cometlake-S/QV20) / 65W / LGA1200	54 °C	72 °C	Pass
6	Intel / 2.0GHz	Core i7-10700TE (Cometlake-S/QUKC) / 35W / LGA1200	47 °C	68 °C	Pass
7	Intel / 3.1GHz	Core i5-10500E (Cometlake-S/QV22) / 65W / LGA1200	55 °C	70 °C	Pass
8	Intel / 2.3GHz	Core i5-10500TE (Cometlake-S/QTk3) / 35W / LGA1200	45 °C	65 °C	Pass
9	Intel / 3.2GHz	Core i3-10100E (Cometlake-S/QTk4) / 65W / LGA1200	48 °C	70 °C	Pass
10	Intel / 2.3GHz	Core i3-10100TE (Cometlake-S/QTk5) / 35W / LGA1200	37 °C	65 °C	Pass
11	Intel / 3.8GHz	Pentium G6400E (CommetLake/QUVA) / LGA1200	47 °C	55 °C	Pass
12	Intel / 3.2GHz	Pentium G6400TE (Cometlake-S/QTk7) / 35W / LGA1200	39 °C	41 °C	Pass
13	Intel / 3.2GHz	Celeron G5900E (CommetLake/QUVB) / LGA1200	40 °C	44 °C	Pass
14	Intel / 3.0GHz	Celeron G5900TE (CometLake/QTk8) / 35W / LGA1200	42 °C	46 °C	Pass
15	Intel / 3.5GHz	Xeon W-1290E (Cometlake/QUK8) / 95W / LGA1200	51 °C	60 °C	Pass
16	Intel / 1.8GHz	Xeon W-1290TE (Cometlake-S/QUKD) / 35W / LGA1200	37 °C	58 °C	Pass
17	Intel / 3.4GHz	Xeon W-1270E (Cometlake-S/QUK9) / 80W / LGA1200	50 °C	62 °C	Pass
18	Intel / 2.0GHz	Xeon W-1270TE (Cometlake-S/QUKA) / 35W / LGA1200	42 °C	55 °C	Pass
19	Intel / 3.5GHz	Xeon W-1250E (Cometlake-S/QTkA) / 80W / LGA1200	47 °C	70 °C	Pass
20	Intel / 2.4GHz	Xeon W-1250TE (Cometlake-S/QTkB) / 35W / LGA1200	45 °C	67 °C	Pass

### 1.1.1 Application Test:

No.	Software	Test Keypoint	Result
1	CPU-Z ver.1.96.0	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.6.32.5600 1 time</li> <li>4. Run PassMark Performance Test 10.0 Build1010 1 time</li> <li>5. Run 3DMark for Windows Ver.2.15.7088 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

Test Environment	
DUT:	DUT#1
M/B:	CMS311-Q470ENRM Rev.1(011) (KSL231400009)
M/B BIOS:	B218.27A(AMI-Aptio)
ME FW Rev.:	14.1.53.1649 Corporate
M/B Driver:	Driver_643-CMS311-100G_210802_01.iso
CPU:	Intel (R) Core (TM) i9-10900K CPU @ 3.70 GHz
DDR4:	DDR4-3200 Transcend 32G/TS4GLH64V2E3(DIMM-1/2/3/4)
SSD:	Transcend SSD 420/TS128GSSD420K 128GB
Display:	On Board(Using HDMI)
DVD-ROM:	Pioneer DVR-XU01T
Monitor:	LG/27UL550-W
Power:	DELTA GPS-500BB(500W)
O.S.:	Windows 10 IOT Enterprise LTSC x64 (Version 1809 Build 17763.1971)RS5-UEFI
DUT:	DUT#2
M/B:	CMS311-W480ENRM Rev.1(011) (KSL231300005)
M/B BIOS:	B218.27A(AMI-Aptio)
ME FW Rev.:	14.1.53.1649 Corporate
M/B Driver:	Driver_643-CMS311-100G_210802_01.iso
CPU:	Intel (R) Xeon (TM) W-1290E CPU @ 3.50 GHz
DDR4:	DDR4-3200 ADATA 32G/AD4E3200732G22-BSSA(DIMM-1/2/3/4)
SSD:	Transcend SSD 420/TS128GSSD420K 128GB
Display:	On Board(Using HDMI)
DVD-ROM:	Pioneer DVR-XU01T
Monitor:	LG/27UL550-W
Power:	DELTA GPS-500BB(500W)
O.S.:	Windows 10 IOT Enterprise LTSC x64 (Version 1809 Build 17763.1971)RS5-UEFI

### 1.2.1 DDR4:

No.	Function	Result
1	Dual Channel mode	Pass
2	Single Channel mode	Pass
3	Warning beep sound when no memory install	Pass

### 1.2.2 Application Test:

No.	Software	Test Keypoint	Test Environment	Result
1	PassMark MemTest86 V9.0 Pro	1. Burn-In test 12 hours.	DUT: DUT#1 DDR4: DDR4-3200Transcend 32GB /TS4GLH64V2E3 1.2V/[2Rx8] /Micro(0RE75-D9ZFV)(DIMM-1/2/3/4) DUAL CHANNEL  DUT: DUT#2 DDR4: DDR4-3200(ECC)/ADATA-AD4E3200732G22-BSSA/SEC-K4AAG085WA-BCRWE/32GB*4 (DIMM-1/2/3/4) DUAL CHANNEL  O.S.: UEFI Shell Memtest86 V9.0	Pass

### 1.2.3 DDR4 Approved List:

No.	Brand	Chip	Size	Type	Chip Model No.	Vendor Part No.	Result
1	Transcend	Micron	32GB	PC4-25600 (DDR4-3200)	0RE75-D9ZfV	TS4GLH64V2E3 1.2V [2Rx8]	Pass
2	ADATA	SEC	32GB	PC4-25600 (DDR4-3200)	K4AAG085WA-BCWE	AD4U3200732G22-BSSA 1.2V [32GX16]	Pass
3	ADATA	SEC	32GB	PC4-25600 (DDR4-3200)/ECC	K4AAG085WA-BCWE	AD4E3200732G22-BSSA 1.2V [32GX18]	Pass
4	ADATA	SEC	32GB	PC4-21300 (DDR4-2666)	K4AAG085WA-BCTD	AD4U2666732G19-BSSA 1.2V [32GX16]	Pass
5	Transcend	SEC	32GB	PC4-21300 (DDR4-2666)/ECC	K4AAG085WM-BCTD	TS4GLH72V6E 1.2V [2Rx8]	Pass
6	Apacer	SEC	16GB	PC4-21300 (DDR4-2666)	K4A8G085WB-BCTD	78.D1GS7.4010B 1.2V	Pass
7	Transcend	SEC	16GB	PC4-21300 (DDR4-2666)	K4A8G085WC-BCTD	TS2GLH64V6B 1.2V [2Rx8]	Pass
8	ADATA	SEC	16GB	PC4-21300 (DDR4-2666)/ECC	K4A8G085WC-BCTD	AD4E26667316G19-BSSC 1.2V [16GX18]	Pass
9	ADATA	SKhynix	16GB	PC4-19200 (DDR4-2400)/ECC	H5AN8G8NAFR-UHC	AD4E2400316G17-BHYA 1.2V	Pass
10	Apacer	SEC	8GB	PC4-21300 (DDR4-2666)	K4A8G085WB-BCTD	78.C1GS7.40F0B	Pass
11	Innodisk	SEC	8GB	PC4-21300 (DDR4-2666)	K4A4G085WE-BCTD	M4U0-8GSSKCIK	Pass
12	Transcend	SEC	8GB	PC4-21300 (DDR4-2666)	K4A8G085WC-BCTD	TS1GLH64V6B 1.2V [1Rx8]	Pass
13	Transcend	SEC	8GB	PC4-21300 (DDR4-2666)/ECC	K4A8G085WC-BCTD	TS1GLH72V6B 1.2V [1Rx8]	Pass
14	Innodisk	SEC	4GB	PC4-21300 (DDR4-2666)/ECC	K4A4G085WE-BCTD	M4C0-4GSSLCIK	Pass
15	ADATA	Skhynix	8GB	PC4-19200 (DDR4-2400)	H5AN8G8NAFR UHC	AD4U240038G17-BHYA 1.2V [8GX8]	Pass
16	Transcend	SEC	8GB	PC4-19200 (DDR4-2400)	K4A4G085WE-BCRC	TS1GLH64V4H [2Rx8]	Pass
17	Transcend	SEC	8GB	PC4-17000 (DDR4-2133)/ECC	K4A4G085WE-BCRC	TS1GLH72V1H	Pass
18	Apacer	SEC	4GB	PC4-21300 (DDR4-2666)	K4A4G085WE-BCTD	78.B1GS6.40F0B	Pass
19	Innodisk	SEC	4GB	PC4-21300 (DDR4-2666)	K4A4G05WE-BCTD	M4U0-4GSSJCIK	Pass
20	Transcend	SEC	4GB	PC4-17000 (DDR4-2133)/ECC	K4A4G085WD BCPB	TS8AAEESD [1R-x8]	Pass

## 1.2.4 DDR4 Module Test Procedures:

No.	DDR4 Module	Test Procedures	Result	
1	Transcend / TS4GLH64V2E3 1.2V [2Rx8] / Micron 0RE75-D9ZV / DDR4-3200 / 32GB	M/B: CPU: DIMM Slot: Test Summary:	CMS311-Q470ENRM Rev.1(011) (KSL231400009) Intel (R) Core (TM) i9-10900K CPU @ 3.70 GHz DIMM-1/2/3/4 Dual Channel AIDA64 Cache and Memory Benchmark(V6.33.5700) DUAL CHANNEL(DIMM-1/2/3/4) READ:41283 MB/s WRITE:44591 MB/s COPY:42454 MB/s PassMark PerformanceTest 10.1 Build 1002 CPU Mark:24531.7 Memory Mark:3741.8 3DMark for Windows(V 2.15.7088)3times Cloud Gate:13318 Ice Storm:53920 Sky diver:5640 Fire Strike:1388	Pass
2	ADATA (AD4E3200732G22-BSSA 1.2V) [32GX18] / SEC (K4AAG085WA-BCWE) / PC4-25600 (DDR4-3200)/ECC / 32GB	M/B: CPU: DIMM Slot: Test Summary:	CMS311-W480ENRM Rev.1(011) (KSL231300005) Intel (R) Xeon (TM) W-1290E CPU @ 3.50 GHz DIMM-1/2/3/4 Dual Channel AIDA64 Cache and Memory Benchmark(V6.33.5700) DUAL CHANNEL(DIMM-1/2/3/4) READ:41289 MB/s WRITE:44998 MB/s COPY:42269 MB/s PassMark PerformanceTest 10.1 Build 1002 CPU Mark:20886.4 Memory Mark:3617.7 3DMark for Windows(V 2.15.7088)3times Cloud Gate:12459 Ice Storm:51973 Sky diver:5511 Fire Strike:1384	Pass
3	ADATA (AD4U3200732G22-BSSA 1.2V) [32GX16] / SEC (K4AAG085WA-BCWE) / PC4-25600 (DDR4-3200) / 32GB	M/B: CPU: DIMM Slot: Test Summary:	CMS311-Q470ENRM Rev.1(011) (KSL231400009) Intel (R) Core (TM) i9-10900E CPU @ 2.80 GHz DIMM-1/2/3/4 Dual Channel S3/S4/S5	Pass
4	ADATA (AD4U2666732G19-BSSA 1.2V) [32GX16] / SEC (K4AAG085WA-BCTD) / PC4-21300 (DDR4-2666) / 32GB	M/B: CPU: DIMM Slot: Test Summary:	CMS311-Q470ENRM Rev.1(011) (KSL231400009) Intel (R) Core (TM) i7-10700K CPU @ 3.80 GHz DIMM-1 Single Channel S3/S4/S5	Pass
5	Transcend (TS4GLH72V6E 1.2V) [2Rx8] / SEC (K4AAG085WM-BCTD) / PC4-21300 (DDR4-2666)/ECC / 32GB	M/B: CPU: DIMM Slot: Test Summary:	CMS311-W480ENRM Rev.1(011) (KSL231300005) Intel (R) Xeon (R) W-1290E CPU @ 3.50 GHz DIMM-2/4 Dual Channel S3/S4/S5:pass	Pass
6	Apacer (78.D1GS7.4010B 1.2V) / SEC (K4A8G085WB-BCTD) / PC4-21300 (DDR4-2666) / 16GB	M/B: CPU: DIMM Slot: Test Summary:	CMS311-Q470ENRM Rev.1(011) (KSL231400009) Intel (R) Core (TM) i7-10700TE CPU @ 2.00 GHz DIMM-3 Single Channel S3/S4/S5	Pass
7	Transcend (TS2GLH64V6B 1.2V) [2Rx8] / SEC (K4A8G085WC-BCTD) / PC4-21300 (DDR4-2666) / 16GB	M/B: CPU: DIMM Slot: Test Summary:	CMS311-Q470ENRM Rev.1(011) (KSL231400009) Intel (R) Core (TM) i7-10700E CPU @ 2.90 GHz DIMM-2 Single Channel S3/S4/S5	Pass
8	ADATA (AD4E2666316G19-BSSC 1.2V) [16GX18] / SEC (K4A8G085WC-BCTD) / PC4-21300 (DDR4-2666)/ECC / 16GB	M/B: CPU: DIMM Slot: Test Summary:	CMS311-W480ENRM Rev.1(011) (KSL231300005) Intel (R) Xeon (R) W-1250TE CPU @ 2.40 GHz DIMM-4 Single Channel S3/S4/S5:pass	Pass
9	ADATA (AD4E2400316G17-BHYA 1.2V) / SKhynix (H5AN8G8NAFR-UHC) / PC4-19200 (DDR4-2400)/ECC / 16GB	M/B: CPU: DIMM Slot: Test Summary:	CMS311-W480ENRM Rev.1(011) (KSL231300005) Intel (R) Xeon (R) W-1290E CPU @ 3.50 GHz DIMM-1 Single Channel S3/S4/S5:pass	Pass
10	Apacer (78.C1GS7.40F0B) / SEC (K4A8G085WB-BCTD) / PC4-21300 (DDR4-2666) / 8GB	M/B: CPU: DIMM Slot: Test Summary:	CMS311-Q470ENRM Rev.1(011) (KSL231400009) Intel (R) Core (TM) i5-10500E CPU @ 3.10 GHz DIMM-1/3 Dual Channel S3/S4/S5	Pass
11	Innodisk (M4U0-8GSSKCIK) / SEC (K4A4G085WE-BCTD) / PC4-21300 (DDR4-2666) / 8GB	M/B: CPU: DIMM Slot: Test Summary:	CMS311-Q470ENRM Rev.1(011) (KSL231400009) Intel (R) Core (TM) i3-10100E CPU @ 3.20 GHz DIMM-1/2/3/4 Dual Channel S3/S4/S5	Pass
12	Transcend (TS1GLH64V6B 1.2V) [1Rx8] / SEC (K4A8G085WC-BCTD) / PC4-21300 (DDR4-2666) / 8GB	M/B: CPU: DIMM Slot: Test Summary:	CMS311-Q470ENRM Rev.1(011) (KSL231400009) Intel (R) Core (TM) i9-10900E CPU @ 2.80 GHz DIMM-2/4 Dual Channel S3/S4/S5	Pass

<b>13</b>	Transcend (TS1GLH72V6B 1.2V) [1Rx8] / SEC (K4A8G085WC-BCTD) / PC4-21300 (DDR4-2666)/ECC / 8GB	M/B: CPU: DIMM Slot: Test Summary:	CMS311-W480ENRM Rev.1(011) (KSL231300005) Intel (R) Xeon (R) W-1250E CPU @ 3.50 GHz DIMM-1/3 Dual Channel S3/S4/S5:pass	<b>Pass</b>
<b>14</b>	Innodisk (M4C0-4GSSLCIK) / SEC (K4A4G085WE-BCTD) / PC4-21300 (DDR4-2666)/ECC / 4GB	M/B: CPU: DIMM Slot: Test Summary:	CMS311-W480ENRM Rev.1(011) (KSL231300005) Intel (R) Xeon (R) W-1270TE CPU @ 2.00 GHz DIMM-2/4 Dual Channel S3/S4/S5:pass	<b>Pass</b>
<b>15</b>	ADATA (AD4U240038G17-BHYA 1.2V) [8GX8] / Skhynix (H5AN8G8NAFR UHC) / PC4-19200 (DDR4-2400) / 8GB	M/B: CPU: DIMM Slot: Test Summary:	CMS311-Q470ENRM Rev.1(011) (KSL231400009) Intel (R) Core (TM) i9-10900TE CPU @ 1.80 GHz DIMM-1/3 Dual Channel S3/S4/S5	<b>Pass</b>
<b>16</b>	Transcend (TS1GLH64V4H) [2Rx8] / SEC (K4A4G085WE-BCRC) / PC4-19200 (DDR4-2400) / 8GB	M/B: CPU: DIMM Slot: Test Summary:	CMS311-Q470ENRM Rev.1(011) (KSL231400009) Intel (R) Pentium (R) Gold G6400TE CPU @ 3.20 GHz DIMM-1/3 Dual Channel S3/S4/S5	<b>Pass</b>
<b>17</b>	Transcend (TS1GLH72V1H) / SEC (K4A4G085WE-BCRC) / PC4-17000 (DDR4-2133)/ECC / 8GB	M/B: CPU: DIMM Slot: Test Summary:	CMS311-W480ENRM Rev.1(011) (KSL231300005) Intel (R) Xeon (R) W-1270E CPU @ 3.40 GHz DIMM-1 Single Channel S3/S4/S5:pass	<b>Pass</b>
<b>18</b>	Apacer (78.B1GS6.40F0B) / SEC (K4A4G085WE-BCTD) / PC4-21300 (DDR4-2666) / 4GB	M/B: CPU: DIMM Slot: Test Summary:	CMS311-Q470ENRM Rev.1(011) (KSL231400009) Intel (R) Core (TM) i5-10500TE CPU @ 2.30 GHz DIMM-4 Single Channel S3/S4/S5	<b>Pass</b>
<b>19</b>	Innodisk (M4U0-4GSSJCIK) / SEC (K4A4G05WE-BCTD) / PC4-21300 (DDR4-2666) / 4GB	M/B: CPU: DIMM Slot: Test Summary:	CMS311-Q470ENRM Rev.1(011) (KSL231400009) Intel (R) Pentium (R) Gold G6400E CPU @ 3.80 GHz DIMM-2/4 Dual Channel S3/S4/S5	<b>Pass</b>
<b>20</b>	Transcend (TS8AAEESD) [1R-x8] / SEC (K4A4G085WD BCPB) / PC4-17000 (DDR4-2133)/ECC / 4GB *	M/B: CPU: DIMM Slot: Test Summary:	CMS311-W480ENRM Rev.1(011) (KSL231300005) Intel (R) Xeon (R) W-1290TE CPU @ 1.80 GHz DIMM-1/3 Dual Channel S3/S4/S5:pass	<b>Pass</b>