

1. Stability Test: Rev.012

1.1 CPU Test:

Procedure:

- (1) Install O.S.**
- (2) Check CPU information & specification with CPU-Z.**
- (3) Run 3DMark11 Demo Edition Ver.1.0.5 BenchMark - 3 times.**
- (4) Check CPU temperature in the BIOS after running 3DMark.**
- (5) Run S3/S4/S5 - 3 times.**

| No. | CPU | Type | CPU Temp. | Result |
|-----------|----------------|---|--------------|-------------|
| 1 | Intel / 3.5GHz | Core i7-4770K (Haswell/C0-SR147) / 84W / LGA1150 | 40 °C | Pass |
| 2 | Intel / 3.1GHz | Core i7-4770S (Haswell/C0-SR14H) / 65W / LGA1150 | 36 °C | Pass |
| 3 | Intel / 2.3GHz | Core i7-4770TE (Haswell/C0-SR183) / 45W / LGA1150 | 29 °C | Pass |
| 4 | Intel / 2.0GHz | Core i7-4765T (Haswell/C0-SR14Q) / 35W / LGA1150 | 48 °C | Pass |
| 5 | Intel / 2.3GHz | Core i5-4670T (Haswell/C0-SR14P) / 45W / LGA1150 | 42 °C | Pass |
| 6 | Intel / 3.1GHz | Core i5-4670S (Haswell/C0-SR14K) / 65W / LGA1150 | 40 °C | Pass |
| 7 | Intel / 3.4GHz | Core i5-4670K (Haswell/C0-SR14A) / 84W / LGA1150 | 34 °C | Pass |
| 8 | Intel / 2.7GHz | Core i5-4570TE (Haswell/C0-SR17Z) / 35W / LGA1150 | 29 °C | Pass |
| 9 | Intel / 2.9GHz | Core i5-4570S (Haswell/C0-SR14J) / 65W / LGA1150 | 39 °C | Pass |
| 10 | Intel / 2.3GHz | Xeon Processor E3-1268L V3 (Haswell/C0-SR17Y) / 45W / LGA1150 | 30 °C | Pass |



1.2 DDR3 Module Test:

Procedure:

- (1) Install O.S.
- (2) Check Memory information & specification with CPU-Z.
- (3) Run 3DMark11 Demo Edition Ver.1.0.5 BenchMark - 3 times.
- (4) Run S3/S4/S5 - 3 times.

| No. | Brand | Chip | Size | Type | Chip Model No. | Vendor Part No. | Result |
|-----|-----------|-----------|------|----------------------------|-----------------|--|--------|
| 1 | Apacer | Micron | 8GB | PC3-12800 (DDR3L-1600) | 2ED27-D9PCP | 75.C93DK.G000C 1.35V/1.5V [512Mx8b-x16/1024Mx64b,CL=11] | Pass |
| 2 | Crucial | Micron | 8GB | PC3-12800 (DDR3L-1600) | 2REI7D9QBJ | CT102464BD160B.16FED(MT16KTF1G64AZ-1G6E1) 1.35V/1.5V [512Mx8b-x16/1024Mx64b,CL=11-11-11-30] | Pass |
| 3 | ACPIgroup | Hynix(SK) | 8GB | PC3L-12800 (DDR3L-1600) | H5TC4G83AFR PBA | CMA5-4GA01AAL01A00 1.35V/1.5V [512Mx8b-x16/1Gx64b,CL=9] | Pass |
| 4 | Apacer | Hynix | 4GB | PC3-12800 (DDR3-1600) | H5TQ2G83BFR PBC | 78.B1GE3.AF10C 1.5V [256Mx8b-x16/512Mx64b,CL=11] | Pass |

| No. | Brand | Chip | Size | Type | Chip Model No. | Vendor Part No. | Result |
|-----|-----------|-----------|------|----------------------------|-------------------------|--|--------|
| 5 | Hynix | Hynix | 4GB | PC3-12800 (DDR3-1600) | H5TQ2G83BFR PBC | HMT351U6BFR8C-PBNO 1.5V [256Mx8b-x16/512Mx64b,CL=11] | Pass |
| 6 | Apacer | Hynix | 4GB | PC3-12800 (DDR3-1600) | H5TQ2G83CFR PBC | 76.B171G.C900C 1.5V [256Mx8b-x16/512Mx64b,CL=11] | Pass |
| 7 | Apacer | Micron | 4GB | PC3-12800 (DDR3-1600) | 2WE22-D9QBJ | 76.B171G.C3K0C 1.5V [512Mx8b-x8/512Mx64b,CL=11] | Pass |
| 8 | INNODISK | Micron | 4GB | PC3-12800 (DDR3L-1600) | 1WM77-D9PFJ | M3UP-4GMJAL0C-M 1.35V/1.5V [256Mx8b-x16/512Mx64b,CL=9] | Pass |
| 9 | Apacer | Micron | 4GB | PC3-12800 (DDR3L-1600) | 2DM77-D9PFJ | 75.B83DK.G000C 1.35V/1.5V [256Mx8b-x16/512Mx64b,CL=11] | Pass |
| 10 | ACPIgroup | Hynix(SK) | 4GB | PC3L-12800 (DDR3L-1600) | H5TC4G83AFR PBA | CMA5-4FA01AAL01A00 1.35V/1.5V [512Mx8b-x8/512Mx64b,CL=9] | Pass |
| 11 | Hynix | Hynix | 2GB | PC3-12800 (DDR3-1600) | H5TQ2G83BFR PBC | HMT325U6BFR8C-PBNO 1.5V [256Mx8b-x8/256Mx64b,CL=11] | Pass |
| 12 | Apacer | Hynix | 2GB | PC3-12800 (DDR3-1600) | H5TQ2G83CFR PBC | 76.A171G.C890C 1.5V [256Mx8b-x8/256Mx64b,CL=11] | Pass |
| 13 | INNODISK | Micron | 2GB | PC3-12800 (DDR3L-1600) | 1WM77-D9PFJ | M3UP-2GMJBL0C-M 1.35V/1.5V [256Mx8b-x8/256Mx64b,CL=9] | Pass |
| 14 | ACPIgroup | Hynix(SK) | 2GB | PC3L-12800 (DDR3L-1600) | H5TC2G83EFR PBA | CMA5-4E801AAL01E00 1.35V/1.5V [256Mx8b-x8/256Mx64b,CL=9] | Pass |
| 15 | Transcend | Micron | 8GB | PC3-10600 (DDR3-1333) | 1ZD27-D9PBC/2CD27-DP9BC | TS1GLK64V3H 1.5V [512Mx8b-x16/1Gx64b,CL=9] | Pass |
| 16 | DSL | Hynix | 4GB | PC3-10600 (DDR3-1333) | H5TQ2G83BFR H9C | D3UH56082XH15AA 1.5V [256Mx8b-x16/512Mx64b,CL=9] | Pass |
| 17 | Apacer | ELPIDA | 4GB | PC3-10600 (DDR3L-1333) | J2108ECSE-DJ-F | 78.B1GEG.4210C 1.35V [256Mx8b-x16/512Mx64b,CL=9] | Pass |
| 18 | ADATA | ADATA | 2GB | PC3-10600 (DDR3-1333) | AD30908C8D-151G | AD31333002GOU(AD63I1B16) 1.5V±0.75 [2GX16,CL=9] | Pass |
| 19 | Elixir | Elixir | 2GB | PC3-10600 (DDR3-1333) | M2Y2G64CB8HA9N-CG 1.5V | M2Y2G64CB8HA9N-CG 1.5V [256Mx64b,CL=9-9-9-25] | Pass |
| 20 | INNODISK | Hynix | 2GB | PC3-10600 (DDR3-1333) | H5TQ1G83BFR H9C | M3UN-2GHFAC09-B 1.5V [128Mx8b/256Mx64b] | Pass |
| 21 | DSL | Hynix | 2GB | PC3-10600 (DDR3-1333) | H5TQ2G83BFR H9C | D3UH56081XH15AA 1.5V [256Mx8b-x8/256Mx64b,CL=9] | Pass |



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|-----------|-----------|--------|-----|--------------------------|-----------------|--|-------------|
| 22 | Transcend | ELPIDA | 1GB | PC3-10600 (DDR3-1333) | J1108BASE-DJ-E | TS128MLK64V3U 1.5V [128Mx8b/128Mx64b,CL=9] | Pass |
| 23 | Kingston | ELPIDA | 1GB | PC3-10600 (DDR3-1333) | J1108BABG-DJ-E | KVR1333D3N9/1G 1.5V | Pass |
| 24 | DSL | Hynix | 1GB | PC3-10600 (DDR3-1333) | H5TQ1G83BFR H9C | D3UH28081XH15AA 1.5V [128Mx8b-*8/128Mx64b,CL=9] | Pass |
| 25 | Apacer | Hynix | 1GB | PC3-10600 (DDR3-1333) | H5TQ1G83BFR H9C | 78.01GC6.AF0 1.5V [128Mx8b-x8/128Mx64b,CL=9] | Pass |
| 26 | Kingston | Hynix | 4GB | PC3-8500 (DDR3-1066) | H5TQ2G83AFR | KVR1066D3N7/4G 1.5V [512MX64,CL=7] | Pass |
| 27 | Transcend | SEC | 2GB | PC3-8500 (DDR3-1066) | K4B1G0846D | TS256MLK64V1U 1.5V [128Mx8b/256Mx64b,CL=7-7-7] | Pass |
| 28 | Hynix | Hynix | 2GB | PC3-8500 (DDR3-1066) | H5TQ2G83BFR-G7C | HMT325U6BFR8C-G7 1.5V [256Mx8b-8/256Mx64b,CL=7] | Pass |
| 29 | ADATA | ELPIDA | 1GB | PC3-8500 (DDR3-1066) | J1108BABG-DJ-E | SU3U1066B1G7-B 1.5V [1Gx8,CL=7] | Pass |



1.3 DDR3 Module Test Procedures:

Procedure:

- (1) Install O.S.**
- (2) Check Memory information & specification with CPU-Z.**
- (3) Run 3DMark11 Demo Edition Ver.1.0.5 BenchMark - 3 times.**
- (4) Run S3/S4/S5 - 3 times.**

| No. | DDR3 Module | Test Environment | 3DMark Score | Result |
|----------|---|---|--------------|-------------|
| 1 | Apacer (75.C93DK.G000C 1.35V/1.5V) [512Mx8b-x16/1024Mx64b,CL=11] / Micron (2ED27-D9PCP) / PC3-12800 (DDR3L-1600) / 8GB *4 | M/B: HD330-Q87CR Rev.A (012) (BSD420100007) M/B BIOS: AMI-Aptio 10/04/2013 M/B Driver: Demo Oct/16/2013 CPU: Intel / Core i7-4770TE (Haswell/C0-SR183) / 2.3GHz DIMM Slot: DIMM-1/2/3/4 (Dual channel) SATA HDD: Seagate / STM3500320AS SATA2 NCQ 500GB/7200RPM On Board Display: Archgon / MD-3107-U3 USB3.0 (USB port 5) DVD-RW: Delta / GPS-500BB 500W Power: Windows 7 Ultimate 64Bit (English) & SP1 O.S.: | P1152 | Pass |
| 2 | Crucial (CT102464BD160B.16FED (MT16KTF1G64AZ-1G6E1) 1.35V/1.5V) [512Mx8b-x16/1024Mx64b, CL=11-11-11-30] / Micron (2REI7D9QBJ) / PC3-12800 (DDR3L-1600) / 8GB *4 | M/B: HD330-Q87CR Rev.A (012) (BSD420100007) M/B BIOS: AMI-Aptio 10/04/2013 M/B Driver: Demo Oct/16/2013 CPU: Intel / Core i5-4570S (Haswell/C0-SR14J) / 2.9GHz DIMM Slot: DIMM-1/2/3/4 (Dual channel) SATA HDD: Maxtor / STM3320614AS SATA2 NCQ 320GB/7200RPM Display: On Board DVD-RW: Lite-On / iHAS324-U32D SATA Power: Delta / GPS-500BB 500W O.S.: Windows 7 Ultimate 64Bit (English) & SP1 | P1309 | Pass |

| | | | | |
|-----------------|--|--|---------------------|--------------------|
| <p>3</p> | <p>ACPIgroup (CMA5-4GA01AAL01A00 1.35V/1.5V) [512Mx8b-x16/1Gx64b,CL=9] / Hynix(SK) (H5TC4G83AFR PBA) / PC3-12800 (DDR3L-1600) / 8GB *4</p> | <p>M/B: HD330-Q87CR Rev.A (012) (BSD420100007) M/B BIOS: AMI-Aptio 10/04/2013 M/B Driver: Demo Oct/16/2013 CPU: Intel / Core i5-4570TE (Haswell/C0-SR17Z) / 2.7GHz DIMM Slot: DIMM-1/2/3/4 (Dual channel) SATA HDD: Maxtor / STM3320614AS SATA2 NCQ 320GB/7200RPM Display: On Board DVD-RW: Lite-On / iHAS324-U32D SATA Power: Delta / GPS-500BB 500W O.S.: Windows 8 Enterprise 64Bit (English)</p> | <p>P795</p> | <p>Pass</p> |
| <p>4</p> | <p>Apacer (78.B1GE3.AF10C 1.5V) [256Mx8b-x16/512Mx64b,CL=11] / Hynix (H5TQ2G83BFR PBC) / PC3-12800 (DDR3-1600) / 4GB *1</p> | <p>M/B: HD330-Q87CR Rev.A (012) (BSD420100007) M/B BIOS: AMI-Aptio 10/04/2013 M/B Driver: Demo Oct/16/2013 CPU: Intel / Core i5-4670T (Haswell/C0-SR14P) / 2.3GHz DIMM Slot: DIMM-1 (Single channel) SATA HDD: Seagate / STM3500320AS SATA2 NCQ 500GB/7200RPM Display: On Board DVD-RW: Lite-On / iHAS324-U32D SATA Power: Delta / GPS-500BB 500W O.S.: Windows 7 Ultimate 32Bit (English) & SP1</p> | <p>P1086</p> | <p>Pass</p> |
| <p>5</p> | <p>Hynix (HMT351U6BFR8C-PBNO 1.5V) [256Mx8b-x16/512Mx64b,CL=11] / Hynix (H5TQ2G83BFR PBC) / PC3-12800 (DDR3-1600) / 4GB *1</p> | <p>M/B: HD330-Q87CR Rev.A (012) (BSD420100007) M/B BIOS: AMI-Aptio 10/04/2013 M/B Driver: Demo Oct/16/2013 CPU: Intel / Core i7-4770TE (Haswell/C0-SR183) / 2.3GHz DIMM Slot: DIMM-1 (Single channel) SATA HDD: Seagate / STM3500320AS SATA2 NCQ 500GB/7200RPM Display: On Board DVD-RW: Lite-On / iHAS324-U32D SATA Power: Delta / GPS-500BB 500W O.S.: Windows 8 Enterprise 64Bit (English)</p> | <p>P1113</p> | <p>Pass</p> |



| No. | DDR3 Module | Test Environment | 3DMark Score | Result |
|-----|---|---|--------------|--------|
| 6 | Apacer (76.B171G.C900C 1.5V) [256Mx8b-x16/512Mx64b,CL=11] / Hynix (H5TQ2G83CFR PBC) / PC3-12800(DDR3-1600) / 4GB*4 | M/B: HD330-Q87CR Rev.A (012) (BSD420100007) M/B BIOS: AMI-Aptio 10/04/2013 M/B Driver: Demo Oct/16/2013 CPU: Intel / Core i7-4770TE (Haswell/C0-SR183) / 2.3GHz DIMM Slot: DIMM-1/2/3/4 (Dual channel) SATA HDD: Seagate / STM3500320AS SATA2 NCQ 500GB/7200RPM Display: On Board DVD-RW: Archgon / MD-3107-U3 USB3.0 (USB port 6) Power: Delta / GPS-500BB 500W O.S.: Windows 8 Enterprise 64Bit (English) | P1146 | Pass |
| 7 | Apacer (76.B171G.C3K0C 1.5V) [512Mx8b-x8/512Mx64b,CL=11] / Micron (2WE22-D9QBJ) / PC3-12800(DDR3-1600) / 4GB*4 | M/B: HD330-Q87CR Rev.A (012) (BSD420100007) M/B BIOS: AMI-Aptio 10/04/2013 M/B Driver: Demo Oct/16/2013 CPU: Intel / Core i7-4770TE (Haswell/C0-SR183) / 2.3GHz DIMM Slot: DIMM-1/2/3/4 (Dual channel) SATA HDD: Seagate / STM3500320AS SATA2 NCQ 500GB/7200RPM Display: On Board DVD-RW: Archgon / MD-3107-U3 USB3.0 (USB port 6) Power: Delta / GPS-500BB 500W O.S.: Windows 7 Ultimate 64Bit (English) & SP1 | P1165 | Pass |
| 8 | INNODISK (M3UP-4GMJAL0C-M 1.35V/1.5V) [256Mx8b-x16/512Mx64b,CL=9] / Micron (1WM77-D9PFJ) / PC3-12800 (DDR3L-1600) / 4GB *2 | M/B: HD330-Q87CR Rev.A (012) (BSD420100007) M/B BIOS: AMI-Aptio 10/04/2013 M/B Driver: Demo Oct/16/2013 CPU: Intel / Core i5-4670S (Haswell/C0-SR14K) / 3.1GHz DIMM Slot: DIMM-3/4 (Single channel) SATA HDD: Seagate / STM3500320AS SATA2 NCQ 500GB/7200RPM Display: On Board DVD-RW: Lite-On / iHAS324-U32D SATA Power: Delta / GPS-500BB 500W O.S.: Windows 7 Ultimate 64Bit (English) & SP1 Test Summary: Overnight looping under 24 hours | P1162 | Pass |

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|------------------|---|--|---------------------|--------------------|
| <p>9</p> | <p>Apacer (75.B83DK.G000C 1.35V/1.5V) [256Mx8b-x16/512Mx64b,CL=11] / Micron (2DM77-D9PFJ) / PC3-12800 (DDR3L-1600) / 4GB *1</p> | <p>M/B: HD330-Q87CR Rev.A (012) (BSD420100007) M/B BIOS: AMI-Aptio 10/04/2013 M/B Driver: Demo Oct/16/2013 CPU: Intel / Core i7-4770TE (Haswell/C0-SR183) / 2.3GHz DIMM Slot: DIMM-3 (Single channel) SATA HDD: Seagate / STM3500320AS SATA2 NCQ 500GB/7200RPM Display: On Board DVD-RW: Lite-On / iHAS324-U32D SATA Power: Delta / GPS-500BB 500W O.S.: Windows 7 Ultimate 32Bit (English) & SP1 Test Summary: Overnight looping under 11 hours</p> | <p>P1111</p> | <p>Pass</p> |
| <p>10</p> | <p>ACPIgroup (CMA5-4FA01AAL01A00 1.35V/1.5V) [512Mx8b-x8/512Mx64b,CL=] / Hynix(SK) (H5TC4G83AFR PBA) / PC3L-12800(DDR3L-1600) / 4GB*4</p> | <p>M/B: HD330-Q87CR Rev.A (012) (BSD420100007) M/B BIOS: AMI-Aptio 10/04/2013 M/B Driver: Demo Oct/16/2013 CPU: Intel / Core i7-4770TE (Haswell/C0-SR183) / 2.3GHz DIMM Slot: DIMM-1/2/3/4 (Dual channel) SATA HDD: Seagate / STM3500320AS SATA2 NCQ 500GB/7200RPM Display: On Board DVD-RW: Lite-On / iHAS324-U32D SATA Power: Delta / GPS-500BB 500W O.S.: Windows 7 Ultimate 64Bit (English) & SP1</p> | <p>P1170</p> | <p>Pass</p> |
| <p>11</p> | <p>Hynix (HMT325U6BFR8C-PBNO 1.5V) [256Mx8b-x8/256Mx64b,CL=11] / Hynix (H5TQ2G83BFR PBC) / PC3-12800 (DDR3-1600) / 2GB *1</p> | <p>M/B: HD330-Q87CR Rev.A (012) (BSD420100007) M/B BIOS: AMI-Aptio 10/04/2013 M/B Driver: Demo Oct/16/2013 CPU: Intel / Core i7-4770S (Haswell/C0-SR14H) / 3.1GHz DIMM Slot: DIMM-3 (Single channel) SATA HDD: Seagate / STM3500320AS SATA2 NCQ 500GB/7200RPM Display: On Board DVD-RW: Lite-On / iHAS324-U32D SATA Power: Delta / GPS-500BB 500W O.S.: Windows 8 Enterprise 32Bit (English)</p> | <p>P1280</p> | <p>Pass</p> |



| No. | DDR3 Module | Test Environment | 3DMark Score | Result |
|-----|--|--|--------------|--------|
| 12 | Apacer (76.A171G.C890C 1.5V) [256Mx8b-x8/256Mx64b,CL=11] / Hynix (H5TQ2G83CFR PBC) / PC3-12800(DDR3-1600) / 2GB*4 | M/B: HD330-Q87CR Rev.A (012) (BSD420100007) M/B BIOS: AMI-Aptio 10/04/2013 M/B Driver: Demo Oct/16/2013 CPU: Intel / Core i7-4770TE (Haswell/C0-SR183) / 2.3GHz DIMM Slot: DIMM-1/2/3/4 (Dual channel) SATA HDD: Seagate / STM3500320AS SATA2 NCQ 500GB/7200RPM Display: On Board DVD-RW: Lite-On / iHAS324-U32D SATA Power: Delta / GPS-500BB 500W O.S.: Windows 7 Ultimate 64Bit (English) & SP1 Test Summary: Overnight looping under 11 hours | P1173 | Pass |
| 13 | INNODISK (M3UP-2GMJBL0C-M 1.35V/1.5V) [256Mx8b-x8/256Mx64b,CL=9] / Micron (1WM77-D9PFJ) / PC3-12800 (DDR3L-1600) / 2GB *2 | M/B: HD330-Q87CR Rev.A (012) (BSD420100007) M/B BIOS: AMI-Aptio 10/04/2013 M/B Driver: Demo Oct/16/2013 CPU: Intel / Core i7-4770TE (Haswell/C0-SR183) / 2.3GHz DIMM Slot: DIMM-2/3 (Dual channel) SATA HDD: Seagate / STM3500320AS SATA2 NCQ 500GB/7200RPM Display: On Board DVD-RW: Lite-On / iHAS324-U32D SATA Power: Delta / GPS-500BB 500W O.S.: Windows 7 Ultimate 32Bit (English) & SP1 | P1161 | Pass |
| 14 | ACPIgroup (CMA5-4E801AAL01E00 1.35V/1.5V) [256Mx8b-x8/256Mx64b,CL=9] / Hynix(SK) (H5TC2G83EFR PBA) / PC3L-12800(DDR3L-1600) / 2GB*4 | M/B: HD330-Q87CR Rev.A (012) (BSD420100007) M/B BIOS: AMI-Aptio 10/04/2013 M/B Driver: Demo Oct/16/2013 CPU: Intel / Core i7-4770TE (Haswell/C0-SR183) / 2.3GHz DIMM Slot: DIMM-1/2/3/4 (Dual channel) SATA HDD: Seagate / STM3500320AS SATA2 NCQ 500GB/7200RPM Display: On Board DVD-RW: Lite-On / iHAS324-U32D SATA Power: Delta / GPS-500BB 500W O.S.: Windows 7 Ultimate 64Bit (English) & SP1 | P1174 | Pass |

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|------------------|---|---|---------------------|--------------------|
| <p>15</p> | <p>Transcend (TS1GLK64V3H 1.5V) [512Mx8b-x16/1Gx64b,CL=9] / Micron (1ZD27-D9PBC/2CD27-DP9BC) / PC3-10600 (DDR3-1333) / 8GB *2</p> | <p>M/B: HD330-Q87CR Rev.A (012) (BSD420100007) M/B BIOS: AMI-Aptio 10/04/2013 M/B Driver: Demo Oct/16/2013 CPU: Intel / Core i7-4770TE (Haswell/C0-SR183) / 2.3GHz DIMM Slot: DIMM-1/2 (Single channel) SATA HDD: Maxtor / STM3320614AS SATA2 NCQ 320GB/7200RPM Display: On Board DVD-RW: Lite-On / iHAS324-U32D SATA Power: Delta / GPS-500BB 500W O.S.: Windows 7 Ultimate 64Bit (English) & SP1</p> | <p>P1082</p> | <p>Pass</p> |
| <p>16</p> | <p>DSL (D3UH56082XH15AA 1.5V) [256Mx8b-x16/512Mx64b,CL=9] / Hynix (H5TQ2G83BFR H9C) / PC3-10600 (DDR3-1333) / 4GB *1</p> | <p>M/B: HD330-Q87CR Rev.A (012) (BSD420100007) M/B BIOS: AMI-Aptio 10/04/2013 M/B Driver: Demo Oct/16/2013 CPU: Intel / Core i7-4765T (Haswell/C0-SR14Q) / 2.0GHz DIMM Slot: DIMM-2 (Single channel) SATA HDD: Seagate / STM3500320AS SATA2 NCQ 500GB/7200RPM Display: On Board DVD-RW: Lite-On / iHAS324-U32D SATA Power: Delta / GPS-500BB 500W O.S.: Windows 8 Enterprise 32Bit (English) Test Summary: Overnight looping under 11 hours</p> | <p>P911</p> | <p>Pass</p> |
| <p>17</p> | <p>Apacer (78.B1GEG.4210C 1.35V) [256Mx8b-x16/512Mx64b,CL=9] / ELPIDA (J2108ECSE-DJ-F) / PC3-10600 (DDR3L-1333) / 4GB *1</p> | <p>M/B: HD330-Q87CR Rev.A (012) (BSD420100007) M/B BIOS: AMI-Aptio 10/04/2013 M/B Driver: Demo Oct/16/2013 CPU: Intel / Core i5-4670K (Haswell/C0-SR14A) / 3.4GHz DIMM Slot: DIMM-4 (Single channel) SATA HDD: Seagate / STM3500320AS SATA2 NCQ 500GB/7200RPM Display: On Board DVD-RW: Lite-On / iHAS324-U32D SATA Power: Delta / GPS-500BB 500W O.S.: Windows 8 Enterprise 64Bit (English)</p> | <p>P1062</p> | <p>Pass</p> |



| No. | DDR3 Module | Test Environment | 3DMark Score | Result |
|-----|---|--|--------------|--------|
| 18 | ADATA (AD31333002GOU(AD63I1B16) 1.5V±0.75) [2GX16,CL=9] / ADATA (AD30908C8D-151G) / PC3-10600 (DDR3-1333) / 2GB *1 | M/B: HD330-Q87CR Rev.A (012) (BSD420100007) M/B BIOS: AMI-Aptio 10/04/2013 M/B Driver: Demo Oct/16/2013 CPU: Intel / Core i7-4770TE (Haswell/C0-SR183) / 2.3GHz DIMM Slot: DIMM-4 (Single channel) SATA HDD: Seagate / STM3500320AS SATA2 NCQ 500GB/7200RPM Display: On Board DVD-RW: Archgon / MD-3107-U3 USB3.0 (USB port 8) Power: Delta / GPS-500BB 500W O.S.: Windows 7 Ultimate 32Bit (English) & SP1 | P1075 | Pass |
| 19 | Elixir (M2Y2G64CB8HA9N-CG 1.5V) [256Mx64b,CL=9-9-9-25] / Elixir (M2Y2G64CB8HA9N-CG 1.5V) / PC3-10600 (DDR3-1333) / 2GB *3 | M/B: HD330-Q87CR Rev.A (012) (BSD420100007) M/B BIOS: AMI-Aptio 10/04/2013 M/B Driver: Demo Oct/16/2013 CPU: Intel / Core i7-4770TE (Haswell/C0-SR183) / 2.3GHz DIMM Slot: DIMM-1/2/3 (Dual channel) SATA HDD: Seagate / STM3500320AS SATA2 NCQ 500GB/7200RPM Display: On Board DVD-RW: Lite-On / iHAS324-U32D SATA Power: Delta / GPS-500BB 500W O.S.: Windows 8 Enterprise 64Bit (English) | P1097 | Pass |
| 20 | INNODISK (M3UN-2GHFAC09-B 1.5V) [128Mx8b/256Mx64b] / Hynix (H5TQ1G83BFR H9C) / PC3-10600 (DDR3-1333) / 2GB *2 | M/B: HD330-Q87CR Rev.A (012) (BSD420100007) M/B BIOS: AMI-Aptio 10/04/2013 M/B Driver: Demo Oct/16/2013 CPU: Intel / Core i7-4770TE (Haswell/C0-SR183) / 2.3GHz DIMM Slot: DIMM-1/2 (Single channel) SATA HDD: Seagate / STM3500320AS SATA2 NCQ 500GB/7200RPM Display: On Board DVD-RW: Archgon / MD-3107-U3 USB3.0 (USB port 3) Power: Delta / GPS-500BB 500W O.S.: Windows 8 Enterprise 32Bit (English) | P1068 | Pass |

| | | | | |
|------------------|--|--|---------------------|--------------------|
| <p>21</p> | <p>DSL (D3UH56081XH15AA 1.5V) [256Mx8b-x8/256Mx64b,CL=9] / Hynix (H5TQ2G83BFR H9C) / PC3-10600 (DDR3-1333) / 2GB *4</p> | <p>M/B: HD330-Q87CR Rev.A (012) (BSD420100007) M/B BIOS: AMI-Aptio 10/04/2013 M/B Driver: Demo Oct/16/2013 CPU: Intel / Core i7-4770TE (Haswell/C0-SR183) / 2.3GHz DIMM Slot: DIMM-1/2/3/4 (Dual channel) SATA HDD: Seagate / STM3500320AS SATA2 NCQ 500GB/7200RPM Display: On Board DVD-RW: Archgon / MD-3107-U3 USB3.0 (USB port 1) Power: Delta / GPS-500BB 500W O.S.: Windows 8 Enterprise 64Bit (English)</p> | <p>P1075</p> | <p>Pass</p> |
| <p>22</p> | <p>Transcend (TS128MLK64V3U 1.5V) [128Mx8b/128Mx64b,CL=9] / ELPIDA (J1108BASE-DJ-E) / PC3-10600 (DDR3-1333) / 1GB *2</p> | <p>M/B: HD330-Q87CR Rev.A (012) (BSD420100007) M/B BIOS: AMI-Aptio 10/04/2013 M/B Driver: Demo Oct/16/2013 CPU: Intel / Core i7-4770TE (Haswell/C0-SR183) / 2.3GHz DIMM Slot: DIMM-2/3 (Dual channel) SATA HDD: Seagate / STM3500320AS SATA2 NCQ 500GB/7200RPM Display: On Board DVD-RW: Lite-On / iHAS324-U32D SATA Power: Delta / GPS-500BB 500W O.S.: Windows 7 Ultimate 32Bit (English) & SP1</p> | <p>P1157</p> | <p>Pass</p> |
| <p>23</p> | <p>Kingston (KVR1333D3N9/1G 1.5V) / ELPIDA (J1108BABG-DJ-E) / PC3-10600 (DDR3-1333) / 1GB *4</p> | <p>M/B: HD330-Q87CR Rev.A (012) (BSD420100007) M/B BIOS: AMI-Aptio 10/04/2013 M/B Driver: Demo Oct/16/2013 CPU: Intel / Core i7-4770K (Haswell/C0-SR147) / 3.5GHz DIMM Slot: DIMM-1/2/3/4 (Dual channel) SATA HDD: Maxtor / STM3320614AS SATA2 NCQ 320GB/7200RPM Display: On Board DVD-RW: Lite-On / iHAS324-U32D SATA Power: Delta / GPS-500BB 500W O.S.: Windows 7 Ultimate 32Bit (English) & SP1</p> | <p>P1437</p> | <p>Pass</p> |



| No. | DDR3 Module | Test Environment | 3DMark Score | Result |
|-----|--|---|--------------|--------|
| 24 | DSL (D3UH28081XH15AA 1.5V) [128Mx8b-*8/128Mx64b,CL=9] / Hynix (H5TQ1G83BFR H9C) / PC3-10600 (DDR3-1333) / 1GB *4 | M/B: HD330-Q87CR Rev.A (012) (BSD420100007) M/B BIOS: AMI-Aptio 10/04/2013 M/B Driver: Demo Oct/16/2013 CPU: Intel / Core i7-4770TE (Haswell/C0-SR183) / 2.3GHz DIMM Slot: DIMM-1/2/3/4 (Dual channel) SATA HDD: Seagate / STM3500320AS SATA2 NCQ 500GB/7200RPM Display: On Board DVD-RW: Archgon / MD-3107-U3 USB3.0 (USB port 2) Power: Delta / GPS-500BB 500W O.S.: Windows 7 Ultimate 64Bit (English) & SP1 | P1139 | Pass |
| 25 | Apacer (78.01GC6.AF0 1.5V) [128Mx8b-x8/128Mx64b,CL=9] / Hynix (H5TQ1G83BFR H9C) / PC3-10600 (DDR3-1333) / 1GB *2 | M/B: HD330-Q87CR Rev.A (012) (BSD420100007) M/B BIOS: AMI-Aptio 10/04/2013 M/B Driver: Demo Oct/16/2013 CPU: Intel / Xeon Processor E3-1268L V3 (Haswell/C0-SR17Y) / 2.3GHz DIMM Slot: DIMM-1/2 (Single channel) SATA HDD: Seagate / STM3500320AS SATA2 NCQ 500GB/7200RPM Display: On Board DVD-RW: Archgon / MD-3107-U3 USB3.0 (USB port 0) Power: Delta / GPS-500BB 500W O.S.: Windows 8 Enterprise 32Bit (English) | P1055 | Pass |
| 26 | KingSton (KVR1066D3N7/4G 1.5V) [512MX64,CL=7] / Hynix (H5TQ2G83AFR) / PC3-8500 (DDR3-1066) / 4GB *1 | M/B: HD330-Q87CR Rev.A (012) (BSD420100007) M/B BIOS: AMI-Aptio 10/04/2013 M/B Driver: Demo Oct/16/2013 CPU: Intel / Core i7-4770TE (Haswell/C0-SR183) / 2.3GHz DIMM Slot: DIMM-2 (Single channel) SATA HDD: Maxtor / STM3320614AS SATA2 NCQ 320GB/7200RPM Display: On Board DVD-RW: Lite-On / iHAS324-U32D SATA Power: Delta / GPS-500BB 500W O.S.: Windows 7 Ultimate 64Bit (English) & SP1 | P1019 | Pass |



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|------------------|--|--|---------------------|--------------------|
| <p>27</p> | <p>Transcend (TS256MLK64V1U 1.5V) [128Mx8b/256Mx64b,CL=7-7-7] / SEC (K4B1G0846D) / PC3-8500 (DDR3-1066) / 2GB *1</p> | <p>M/B: HD330-Q87CR Rev.A (012) (BSD420100007) M/B BIOS: AMI-Aptio 10/04/2013 M/B Driver: Demo Oct/16/2013 CPU: Intel / Core i7-4770TE (Haswell/C0-SR183) / 2.3GHz DIMM Slot: DIMM-4 (Single channel) SATA HDD: Seagate / STM3500320AS SATA2 NCQ 500GB/7200RPM Display: On Board DVD-RW: Archgon / MD-3107-U3 USB3.0 (USB port 4) Power: Delta / GPS-500BB 500W O.S.: Windows 7 Ultimate 32Bit (English) & SP1</p> | <p>P1012</p> | <p>Pass</p> |
| <p>28</p> | <p>Hynix (HMT325U6BFR8C-G7 1.5V) [256Mx8b-8/256Mx64b,CL=7] / Hynix (H5TQ2G83BFR-G7C) / PC3-8500 (DDR3-1066) / 2GB *2</p> | <p>M/B: HD330-Q87CR Rev.A (012) (BSD420100007) M/B BIOS: AMI-Aptio 10/04/2013 M/B Driver: Demo Oct/16/2013 CPU: Intel / Core i7-4770TE (Haswell/C0-SR183) / 2.3GHz DIMM Slot: DIMM-1/4 (Dual channel) SATA HDD: Seagate / STM3500320AS SATA2 NCQ 500GB/7200RPM Display: On Board DVD-RW: Lite-On / iHAS324-U32D SATA Power: Delta / GPS-500BB 500W O.S.: Windows 8 Enterprise 32Bit (English)</p> | <p>P1129</p> | <p>Pass</p> |
| <p>29</p> | <p>ADATA (SU3U1066B1G7-B 1.5V) [1Gx8,CL=7] / ELPIDA (J1108BABG-DJ-E) / PC3-8500 (DDR3-1066) / 1GB *2</p> | <p>M/B: HD330-Q87CR Rev.A (012) (BSD420100007) M/B BIOS: AMI-Aptio 10/04/2013 M/B Driver: Demo Oct/16/2013 CPU: Intel / Core i7-4770TE (Haswell/C0-SR183) / 2.3GHz DIMM Slot: DIMM-1/3 (Dual channel) SATA HDD: Seagate / STM3500320AS SATA2 NCQ 500GB/7200RPM Display: On Board DVD-RW: Lite-On / iHAS324-U32D SATA Power: Delta / GPS-500BB 500W O.S.: Windows 7 Ultimate 32Bit (English) & SP1</p> | <p>P1139</p> | <p>Pass</p> |



2. Performance Test: Rev.A00

Procedure:

- (1) Run Passmark Performance Test 8.0 Build1027 - 1 time.
- (2) Run AIDA64 Cache and Memory Benchmark Ver.4.50.3000 - 1 time.
- (3) Run 3DMark for Windows Ver.1.3.708 BenchMark - 3 times.
- (4) Check CPU temperature in the BIOS after running 3DMark.

| No. | CPU | Test Environment | Result |
|-----|---|---|--------|
| 1 | Intel / Core i7-4790S (Haswell/C0-QFZP) / 3.20GHz (100MHz*32,L2=256KB*4, L3=8MB(Shared,3.20GHz),22nm, Bus speed:5 GT/s(DMI2),DP=65W) | M/B: HD330-Q87CR Rev.A (A00) (BNE043200033) M/B BIOS: AMI-Aptio 07/16/2014 M/B Driver: 4th Gen Intel Core Processor-based Products Drivers and Utilities (Desktop) Ver.1.0.0 DDR3: Hynix (HMT351U6BFR8C-PBNO 1.5V) [256Mx8b-x16/512Mx64b,CL=11] / Hynix (H5TQ2G83BFR PBC) / PC3-12800 (DDR3-1600) / 4GB *4 (DIMM-1/2/3/4, Dual channel) SATA HDD: WD / WD1200BEVS SATA1 NCQ 120GB/5400RPM/2.5" Display: On Board (using DVI) DVD-RW: Lite-On / iHAS324-U32D SATA Power: Seasonic / SS-400ET 400W LCD: LG / W2261V 21.5" TFT-LCD Wide Screen Monitor O.S.: Windows 8 Enterprise 64Bit (English) Test Summary: Environment Temp.:26℃ CPU Temp.:40℃ CPU Temp. after 3DMark:41℃ 1.Passmark Performance Test 8.0 Build1027 CPU Mark:9353 Memory Mark:2601 2.AIDA64 Cache and Memory Benchmark Ver.4.50.3000 READ:24173MB/s WRITE:24977MB/s COPY:22922MB/s 3.3DMark for Windows Ver.1.3.708 Cloud Gate:7734 Ice Storm:42265 Skydiver:3508 Strike Test:869 | Pass |

| No. | CPU | Test Environment | Result |
|-----|---|--|--------|
| 2 | Intel / Core i3-4340TE (Haswell/C0-SR1T5) / 2.60GHz (100MHz*26,L2=256KB*4, L3=4MB(Shared,2.60GHz),22nm, Bus speed:5 GT/s(DMI2),DP=35W) | M/B: HD330-Q87CR Rev.A (A00) (BNE043200042) M/B BIOS: AMI-Aptio 07/16/2014 M/B Driver: 4th Gen Intel Core Processor-based Products Drivers and Utilities (Desktop) Ver.1.0.0 DDR3: Apacer (75.C93DK.G000C 1.35V/1.5V) [512Mx8b-x16/1024Mx64b,CL=11] / Micron (2ED27-D9PCP) / PC3-12800 (DDR3L-1600) / 8GB *4 (DIMM-1/2/3/4, Dual channel) SATA HDD: Seagate / ST500DM002 SATA3 NCQ 500GB/7200RPM Display: On Board (using DVI) DVD-RW: Lite-On / IT iHAS324 SATA Power: RAIDER / RA450 450W LED: PHILIPS / 241PQPY 24" LED Wide Screen Monitor O.S.: Windows 8 Enterprise 64Bit (English) Test Summary: Environment Temp.:27.0℃ CPU Temp.:29℃ CPU Temp. after 3DMark:33℃ 1.Passmark Performance Test 8.0 Build1027 CPU Mark:4081 Memory Mark:2193 2.AIDA64 Cache and Memory Benchmark Ver.4.50.3000 READ:20717 MB/s WRITE:24977 MB/s COPY:22703 MB/s 3.3DMark for Windows Ver.1.3.708 Cloud Gate:3935 Ice Storm:22389 Sky Diver:1907 Strike Test:493 | Pass |

| | | | |
|----------|--|---|-------------|
| 3 | <p>Intel / Core i3-4360 (Haswell/C0-SR1PC) / 3.70GHz (100MHz*37, L2=256KB*4, L3=4MB(Shared,3.70GHz),22nm, Bus speed:5 GT/s(DMI2),DP=54W)</p> | <p>M/B: HD330-Q87CR Rev.A (A00) (BNE043200033) M/B BIOS: AMI-Aptio 07/16/2014 M/B Driver: 4th Gen Intel Core Processor-based Products Drivers and Utilities (Desktop) Ver.1.0.0 DDR3: Hynix (HMT351U6BFR8C-PBNO 1.5V) [256Mx8b-x16/512Mx64b,CL=11] / Hynix (H5TQ2G83BFR PBC) / PC3-12800 (DDR3-1600) / 4GB *4 (DIMM-1/2/3/4, Dual channel) SATA HDD: Seagate / ST9320423AS SATA2 NCQ 320GB/7200RPM/2.5" Display: On Board (using DVI) DVD-RW: Lite-On / iHAS324-U32D SATA Power: Seasonic / SS-400ET 400W LCD: LG / W2261V 21.5" TFT-LCD Wide Screen Monitor O.S.: Windows 8 Enterprise 64Bit (English) Test Summary: Environment Temp.:25°C CPU Temp.:27°C CPU Temp. after 3DMark:34°C 1.Passmark Performance Test 8.0 Build1027 CPU Mark:5749 Memory Mark:2588 2.AIDA64 Cache and Memory Benchmark Ver.4.50.3000 READ:23124MB/s WRITE:25092MB/s COPY:23707MB/s 3.3DMark for Windows Ver.1.3.708 Cloud Gate:6150 Ice Storm:36868 Skydiver:3205 Strike Test:793</p> | Pass |
|----------|--|---|-------------|



| No. | CPU | Test Environment | Result |
|-----|--|---|--------|
| 4 | Intel / Core i3-4350T (Haswell/C0-SR1PA) / 3.10GHz (100MHz*31,L2=256KB*4, L3=4MB(Shared,3.10GHz),22nm, Bus speed:5 GT/s(DMI2),DP=35W) | M/B: HD330-Q87CR Rev.A (A00) (BNE043200020) M/B BIOS: AMI-Aptio 07/16/2014 M/B Driver: 4th Gen Intel Core Processor-based Products Drivers and Utilities (Desktop) Ver.1.0.0 DDR3: Crucial (CT102464BD160B.16FED (MT16KTF1G64AZ-1G6E1) 1.35V/1.5V) [512Mx8b-x16/1024Mx64b,CL=11-11-11-30] / Micron (2REI7D9QBJ) / PC3-12800 (DDR3L-1600) / 8GB *4 (DIMM-1/2/3/4, Dual channel) SATA HDD: Seagate / ST500DM002 SATA3 NCQ 500GB/7200RPM Display: On Board (using DVI) DVD-ROM: Asus / DVD-E818A9T b/BLK/G/AS 18X SATA Power: Corsair / CMPSU-520HX 520W LED: Envision / P2478MDHL 24" LED(MVA) Wide Screen Monitor O.S.: Windows 8 Enterprise 64Bit (English) Test Summary: Environment Temp.:26.0°C CPU Temp.:42.5°C CPU Temp. after running 3DMark:48°C 1.Passmark Performance Test 8.0 Build1027 CPU Mark:4785 Memory Mark:2439 2.AIDA64 Cache and Memory Benchmark Ver.4.50.3000 READ:23034MB/s WRITE:24999MB/s COPY:23436MB/s 3.3DMark for Windows Ver.1.3.708 Cloud Gate:4640 Ice Storm Extreme:31601 Skydiver:2235 Fire Strike:578 | Pass |

