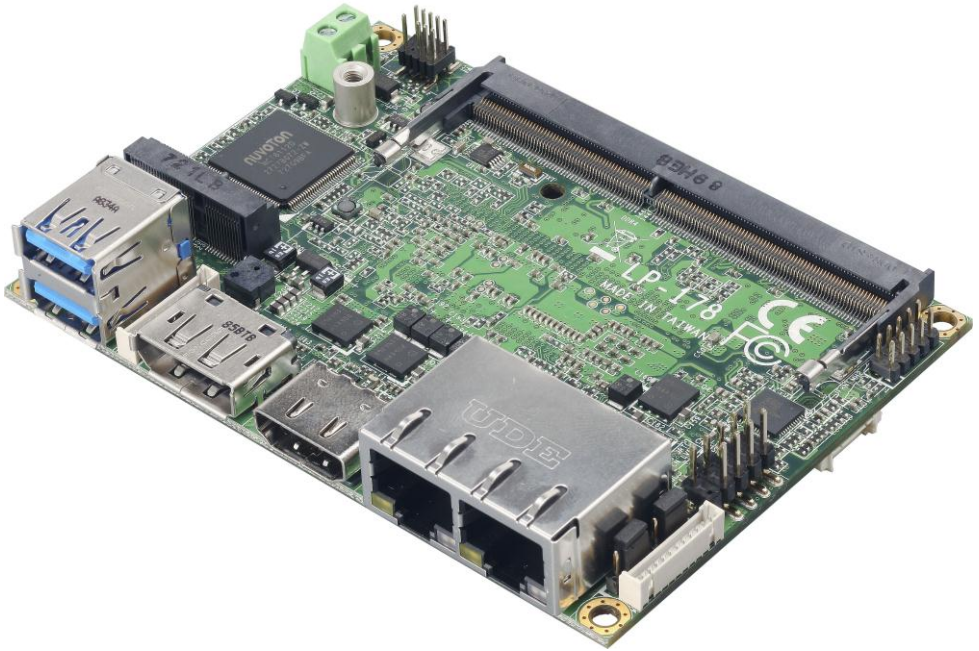


Product Test Report



| | |
|-------------------------|-----------------|
| Product Name | LP-178 |
| Product Version | A |
| Issued Date | 2020.2.7 |
| Report Edition | 1.0 |
| BIOS Version | 1.0 |
| Testing Engineer | Perry |
| Check Engineer | Daniel |

| REVISION HISTORY | | | |
|-------------------------|---------------------|-------------|------------------------|
| DATE | REVISION NO. | PAGE | DESCRIPTONS |
| 2020.2.7 | Ver. 1.0 | 57 | Initial Release |

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1. Function test

1.1 Hardware functions

Base Function Test

| Item | Description | Result |
|------|--------------|--------|
| 1 | Power Button | PASS |
| 2 | Reset | PASS |
| 3 | Power LED | PASS |
| 4 | HDD LED | PASS |
| 5 | CPUFAN | PASS |
| 6 | SYSFAN | PASS |
| 7 | LAN1(I219) | PASS |
| 8 | LAN2(I210) | PASS |
| 9 | DDR4 | PASS |
| 10 | USB3 - 1/2 | PASS |
| 11 | CN_USB2 | PASS |
| 12 | CN_COM 1/2 | PASS |
| 13 | CN_SATA | PASS |
| 14 | HDMI | PASS |
| 15 | Display Port | PASS |
| 16 | LVDS | PASS |
| 17 | M2 | PASS |

Jumper

| Item | Description | Result |
|------|-------------|--------|
| 1 | JRTC | PASS |
| 2 | JAT | PASS |

1.2 BIOS function

| Item | Description | Result | Remark |
|------|----------------------------------|--------|--------|
| 1 | Press 'Del' to run Setup Utility | PASS | |
| 2 | Ctrl-Alt-Del – Soft-Reboot | PASS | |
| 3 | Save & Exit Setup | PASS | |
| 4 | Date & Time Setting | PASS | |
| 5 | Selection Language | PASS | |
| 6 | Numlock | PASS | |
| 7 | Active Processor Cores | PASS | |
| 8 | Hyper-Threading | PASS | |
| 9 | LCD Control | PASS | |
| 10 | HD Audio | PASS | |
| 11 | Wake On LAN | PASS | |
| 12 | LVDS Configuration | PASS | |
| 13 | COM Port 1~2 | PASS | |
| 14 | Power Loss | PASS | |
| 15 | Watch Dog Timer | PASS | |
| 16 | Auto Wake on S5 | PASS | |
| 17 | iAMT | PASS | |

1.3 Driver

CD edition : IPCI2-1.0

1. Windows 10 64 bit Driver Test

| Item | Description | Result | Version |
|------|----------------|--------|---------|
| 1 | Chipset Driver | PASS | |

| | | | |
|---|--------------|------|---------------------------------------|
| 2 | VGA Driver | PASS | 26.20.100.6861 |
| 3 | Audio Driver | PASS | 6.0.1.8036 |
| 4 | LAN Driver | PASS | I219LM:12.18.8.9 I210: 12.15.184.0 |

2. Compatibility test

2.1 CPU Test

Test environment:

OS: Windows 10 64bit

Test program : BurnIn Test8.1 & AIDA64

| Spec | CPU Speed | Family | Processor | TDP | Smart Cache | Result |
|-----------------------|-----------|----------|-----------|-----|-------------|--------|
| SRFDS | 1.7GHz | CORE | i7-8665UE | 15W | 8 MB | PASS |
| SRFDU | 1.6GHz | CORE | i5-8365UE | 15W | 6 MB | PASS |
| SRFDT | 2.2GHz | CORE | i3-8145UE | 15W | 4 MB | PASS |
| SRFDZ | 2.0GHz | Celeron® | 4305UE | 15W | 2 MB | PASS |

2.2 Memory Test

Test environment:

OS: Windows 10 64bit

Test program : BurnIn Test8.1 & MemTest64 & MemTest86+

| Manufacturer | Chip | Frequency | Capacity Mbytes | Memory test Source |
|---------------------------|--------------------------------|--------------|-----------------|--------------------|
| Kingston KVR24S17D8/16 | SKhynix H5AN8G8NCJR -VKC | DDR4 2400 | 16 GB | PASS |

| | | | | |
|---|---|----------------------|--------------|-------------|
| Kingston KVR24S17S8/8 | Micron 7WE75D9VPP | DDR4 2400 | 8 GB | PASS |
| Kingston KVR24S17S6/4 | Micron 7UE75D9WFH | DDR4 2400 | 4 GB | PASS |
| Kingston KVR26S19D8/16 | SKhynix H5AN8G8NCJR -VKC | DDR4 2666 | 16 GB | PASS |
| Kingston KVR21S15D8/16 | Micron 7JH45D9VHP | DDR4 2133 | 16 GB | PASS |
| Transcend 16G 2Rx8 DDR4 2133 SO | SEC 546 K4ABG085WB BCRC | DDR4 2133 | 16 GB | PASS |
| Kingston KVR26S19S8/8 8GB | Micron 8BE77D9VPP | DDR4 2666 | 8 GB | PASS |
| Crucial CT4G4SFS8213.8FA2 | Micron 5RA77D9RGQ | DDR4 2133 | 4 GB | PASS |
| ACPI DDRIV – 2133 SO-DIMM 1.2V CMA6-3FA01BAR01 M00 | SKhynix H5AN4GBNMF R TFC | DDR4 2133 | 4 GB | PASS |

2.3 HDMI Graphic Quality Test

Test environment:

OS Windows 10 64bit

Driver version : 26.20.100.6861

| Resolution | Color | Result | Remark |
|-------------------|--------------|---------------|---------------|
| 800 x 600 | 32bit | PASS | |
| 1024 x 768 | 32bit | PASS | |
| 1152 x 864 | 32bit | PASS | |

| | | | |
|--------------------|--------------|-------------|--|
| 1280 x 600 | 32bit | PASS | |
| 1280 x 720 | 32bit | PASS | |
| 1280 x 768 | 32bit | PASS | |
| 1280 x 800 | 32bit | PASS | |
| 1280 x 960 | 32bit | PASS | |
| 1280 x 1024 | 32bit | PASS | |
| 1360 x 768 | 32bit | PASS | |
| 1366 x 768 | 32bit | PASS | |
| 1400 x 1050 | 32bit | PASS | |
| 1440 x 900 | 32bit | PASS | |
| 1600 x 900 | 32bit | PASS | |
| 1680 x 1050 | 32bit | PASS | |
| 1920 x 1080 | 32bit | PASS | |
| 3840 x 2160 | 32bit | PASS | |

2.4 Display Port Graphic Quality Test

Test environment:

OS Windows 10 64bit

Driver version : 24.20.100.6194

| Resolution | Color | Result | Remark |
|-------------------|--------------|---------------|---------------|
| 800 x 600 | 32bit | PASS | |
| 1024 x 768 | 32bit | PASS | |
| 1152 x 864 | 32bit | PASS | |
| 1280 x 600 | 32bit | PASS | |
| 1280 x 720 | 32bit | PASS | |

| | | | |
|--------------------|--------------|-------------|--|
| 1280 x 768 | 32bit | PASS | |
| 1280 x 800 | 32bit | PASS | |
| 1280 x 960 | 32bit | PASS | |
| 1280 x 1024 | 32bit | PASS | |
| 1360 x 768 | 32bit | PASS | |
| 1366 x 768 | 32bit | PASS | |
| 1400 x 1050 | 32bit | PASS | |
| 1440 x 900 | 32bit | PASS | |
| 1600 x 900 | 32bit | PASS | |
| 1600 x 1050 | 32bit | PASS | |
| 1920 x 1080 | 32bit | PASS | |
| 3840 x 2160 | 32bit | PASS | |

2.5 Audio

Test environment:

OS Windows 10 64-bit

Driver version : 6.0.1.8036

| Item | Description | Result | Remark |
|-------------|--------------------|---------------|---------------|
| 1 | 2.1CH | PASS | |
| 2 | Microphone | PASS | |

OS Ubuntu 16.04 / 18.04

| Item | Description | Result | Remark |
|-------------|--------------------|---------------|---------------|
| 1 | 2.1CH | PASS | |

OS Fedoro 28 Workstation

| Item | Description | Result | Remark |
|------|-------------|--------|--------|
| 1 | 2.1CH | PASS | |

2.6 HDD Test

Test environment:

OS Windows 10 64bit

Test program : BurnIn Test8.1 & CrystalDiskMark

| HDD Model | Interface | Capacity | HDD Size Detect | HDD Data Transfer | HDD LED Check |
|----------------------------|-----------|----------|-----------------|-------------------|---------------|
| INTEL SSDSC2BW240A4 | SSD | 240 GB | PASS | PASS | PASS |
| SPCC Solid State disk(S55) | SSD | 120 GB | PASS | PASS | PASS |
| CT120 BX500 | SSD | 120 GB | PASS | PASS | PASS |
| Kingston DT100G3/32G | USB | 32 GB | PASS | PASS | PASS |
| Kingston DT Hyper X 3.0 | USB | 63 GB | PASS | PASS | PASS |

2.7 DVD-ROM Test

Test environment:

OS Windows 10 64bit

| DVD-ROM Model | Interface | DVD-ROM Detect | DVD-ROM Data Transfer | Play DVD |
|--------------------------|-----------|----------------|-----------------------|----------|
| Transcend DVD TS8XDVDS-K | USB | PASS | PASS | PASS |
| LITEON DVD eTAU108 | USB | PASS | PASS | PASS |

| | | | | |
|----------------------------------|------------|------|------|------|
| PIONEER DVD DVR-XD11T | USB | PASS | PASS | PASS |
| ZYNET GT32N A201 | USB | PASS | PASS | PASS |

2.8 USB Test

1. Windows 10 64-bit

| Item | Result | Remark |
|-----------------------------------|---------------|---------------|
| External USB Keyboard Test | PASS | |
| External USB Mouse Test | PASS | |
| Hot plugging test | PASS | |
| DVD-ROM | PASS | |
| USB Mass storage | PASS | |

2. Ubuntu 16.04 / 18.04

| Item | Result | Remark |
|-----------------------------------|---------------|---------------|
| External USB Keyboard Test | PASS | |
| External USB Mouse Test | PASS | |
| Hot plugging test | PASS | |
| DVD-ROM | PASS | |
| USB Mass storage | PASS | |

3. Fedora 28 Workstation

| Item | Result | Remark |
|-----------------------------------|---------------|---------------|
| External USB Keyboard Test | PASS | |

| | | |
|--------------------------------|------|--|
| External USB Mouse Test | PASS | |
| Hot plugging test | PASS | |
| DVD-ROM | PASS | |
| USB Mass storage | PASS | |

2.9 Serial Port Test

1. Windows 10 64-bit

| Item | Description | Result | Remark |
|------|----------------------|--------|--------|
| 1 | Device Manager Check | PASS | |
| 2 | RS-232 Mouse Test | PASS | |

2.10 LAN Test

Data Transfer Test environment:

-CAT 6 UTP 100M

-8 HR. continuous

1. Windows 10 64-bit

| Item | Description | Result | Remark |
|------|----------------------|--------|---------|
| 1 | Device Manager Check | PASS | (IPERF) |
| 2 | Data Transfer Test | PASS | (IPERF) |

2. Ubuntu 16.04 / 18.04

| Item | Description | Result | Remark |
|------|----------------------|--------|--------|
| 1 | Device Manager Check | PASS | |

3. Fedoro 28 Workstation

| Item | Description | Result | Remark |
|------|----------------------|--------|--------|
| 1 | Device Manager Check | PASS | |

2.11 Power Supply Test

| Item | Type | Description | Result | Remark |
|------|-----------|------------------------------|--------|--------|
| 1 | ATX Power | Thermaltake TR2-450AH2NCB | PASS | |
| 2 | ATX Power | SEED BS400 | PASS | |
| 3 | ATX Power | Seasonic SS-520GB 520W | PASS | |
| 4 | ATX Power | AcBel PC7008 430W | PASS | |

2.12 OS Install

| Item | Description | Result | Remark |
|------|--|--------|--------|
| 1 | Windows 10 64 bit | PASS | |
| 2 | Ubuntu16.04 (ubuntu-16.04.5-desktop-amd64) | PASS | |
| 3 | Ubuntu18.04 (ubuntu-18.04.1-desktop-amd64) | PASS | |
| 4 | Fedora 28 (Fedora-Workstation-Live-x86_64-28-1.1) | PASS | |

2.13 M2(Key E) Expansion slot

| Motherboard | PCI Express mini card | Result | Remark |
|-------------|--------------------------|--------|--------|
| LP-178 | M2-210 | PASS | |

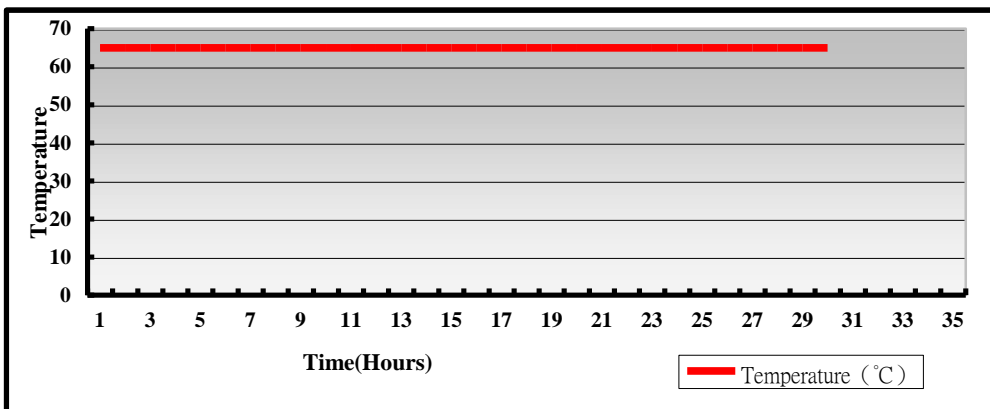
3. Environmental test

3.1 Temperature Test

Hardware Device list:

| | |
|----------------|--|
| System Board | LP-178 |
| CPU | Intel(R) Core(TM) i7-8665UE 1.7GHz |
| Memory | Kingston KVR21S15D8/16 16GB (Micron 7JH45D9VHP) |
| HDD | WD BLUE 3D NAND SSD 250GB (WDS250G2B0A-00SM50) |
| Operating OS | Windows 10 64bit |
| Test Equipment | THERMOTRON 2800 Programmer/Controller |
| Test Program | BurnIn 8.1 |

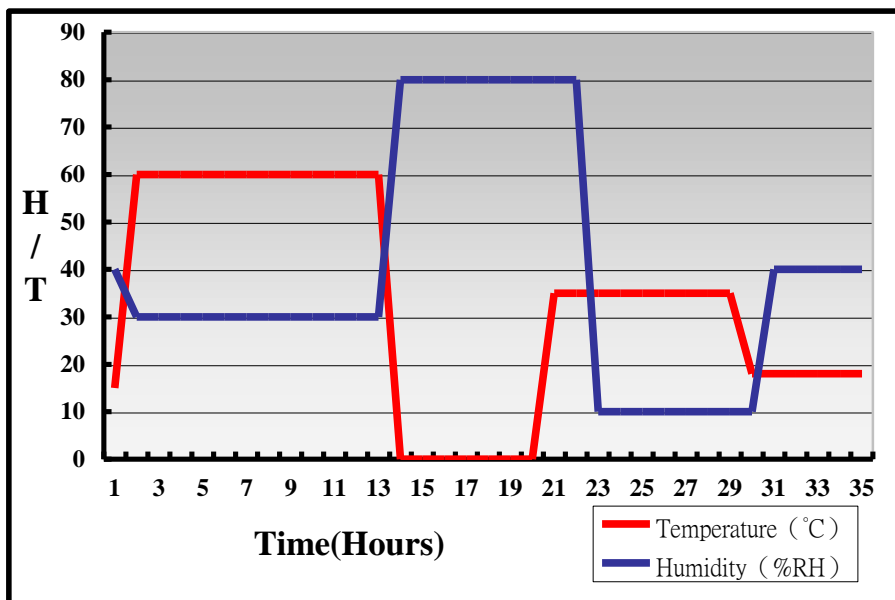
Test Result:



Hardware Device list:

| | |
|----------------|--|
| System Board | LP-178 |
| CPU | Intel(R) Core(TM) i7-8665UE 1.7GHz |
| Memory | Kingston KVR21S15D8/16 16GB (Micron 7JH45D9VHP) |
| HDD | WD BLUE 3D NAND SSD 250GB (WDS250G2B0A-00SM50) |
| Operating OS | Windows 10 64bit |
| Test Equipment | THERMOTRON 2800 Programmer/Controller |
| Test Program | BurnIn 8.1 |

Test Result:



Boot up Test:

Hardware Device list:

| | |
|---------------------|--|
| System Board | LP-178 |
| CPU | Intel(R) Core(TM) i7-8665UE 1.7GHz |
| Memory | Kingston KVR21S15D8/16 16GB (Micron 7JH45D9VHP) |
| HDD | WD BLUE 3D NAND SSD 250GB (WDS250G2B0A-00SM50) |

| Temperature | Result | Remark |
|--------------------|---------------|---------------|
| -20°C | PASS(PASS) | 50 Times |
| 80°C | PASS(PASS) | 50 Times |

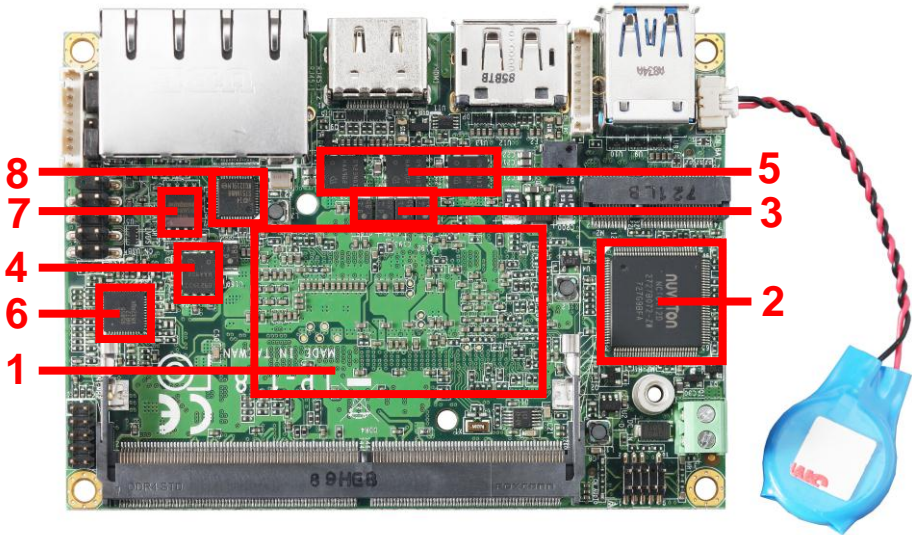
3.2 Thermal measurements at various points on the board

Test Environment:

| | |
|-------------------------|--|
| CPU | Intel(R) Core(TM) i7-8665UE 1.7GHz |
| Memory | Kingston KVR21S15D8/16 16GB (Micron 7JH45D9VHP) |
| HDD | WD BLUE 3D NAND SSD 250GB (WDS250G2B0A-00SM50) |
| Power | GW INSTEK SPS-3610(DC Power Supply) |
| Operating System | Windows 10 64-bit |
| Test Program | AIDA64 |

Test Result:

| Item | Environmental temperature | 25°C |
|-------------|----------------------------------|---------------|
| 1 | CPU(Bottom) | 66°C |
| 2 | LPCIO | 46.9°C |
| 3 | C192~C195 | 55°C |
| 4 | Q4 | 57°C |
| 5 | Q6~Q8 | 64.5°C |
| 6 | U3 | 57.9°C |
| 7 | U6 | 48.2°C |
| 8 | U7 | 47.3°C |



4. Reliability Test

4.1 Power Consumption Test

1. Test Environment:

| | |
|--------------------|--|
| Motherboard | LP-178 |
| CPU | Intel(R) Core(TM) i7-8665UE 1.7GHz |
| Memory | Kingston KVR21S15D8/16 16GB (Micron 7JH45D9VHP) |
| HDD | WD BLUE 3D NAND SSD 250GB(WDS250G2B0A-00SM50) |

Power Supply: GW INSTEK SPS-3610(DC Power Supply)

| Voltage | MS-DOS Boot up | | Windows 10 64bit 3DMARK + Prime95 | |
|------------|-------------------|-------------|--------------------------------------|-------------|
| | Current (A) | Power (W) | Current (A) | Power (W) |
| 12V | 1.4 | 16.8 | 3.7 | 44.4 |

1. a. Test Environment:

The same as above but with LCD(+ADP-3460)

| | |
|----------------------|---------------------------------|
| Display Panel | AUO M215HW03 V1 21.5”LCD |
|----------------------|---------------------------------|

Power Supply: GW INSTEK SPS-3610(DC Power Supply)

| Voltage | MS-DOS Boot up | | Windows 10 64bit 3DMARK + Prime95 | |
|------------|-------------------|-------------|--------------------------------------|--------------|
| | Current (A) | Power (W) | Current (A) | Power (W) |
| 12V | 1.9 | 22.8 | 4.81 | 57.72 |

2. Test Environment:

| | |
|--------------------|---|
| Motherboard | LP-178 |
| CPU | Intel(R) Core(TM) i5-8365UE 1.6GHz |
| Memory | Kingston KVR21S15D8/16 16GB (Micron 7JH45D9VHP) |
| HDD | WD BLUE 3D NAND SSD 250GB(WDS250G2B0A-00SM50) |

Power Supply: GW INSTEK SPS-3610(DC Power Supply)

| Voltage | MS-DOS Boot up | | Windows 10 64bit 3DMARK + Prime95 | |
|----------------|---------------------------|--------------------|--|--------------------|
| | Current (A) | Power (W) | Current (A) | Power (W) |
| 12V | 1.4 | 16.8 | 3.55 | 42.6 |

2. a. Test Environment:

The same as above but with LCD(+ADP-3460)

| | |
|----------------------|---------------------------------|
| Display Panel | AUO M215HW03 V1 21.5”LCD |
|----------------------|---------------------------------|

Power Supply: GW INSTEK SPS-3610(DC Power Supply)

| Voltage | MS-DOS Boot up | | Windows 10 64bit 3DMARK + Prime95 | |
|----------------|---------------------------|--------------------|--|--------------------|
| | Current (A) | Power (W) | Current (A) | Power (W) |
| 12V | 1.81 | 21.72 | 4.36 | 52.32 |

3. Test Environment:

| | |
|--------------------|---|
| Motherboard | LP-178 |
| CPU | Intel(R) Core(TM) i3-8145UE 2.2GHz |
| Memory | Kingston KVR21S15D8/16 16GB (Micron 7JH45D9VHP) |
| HDD | WD BLUE 3D NAND SSD 250GB(WDS250G2B0A-00SM50) |

Power Supply: GW INSTEK SPS-3610(DC Power Supply)

| Voltage | MS-DOS Boot up | | Windows 10 64bit 3DMARK + Prime95 | |
|---------|-------------------|-------------|--------------------------------------|-------------|
| | Current (A) | Power (W) | Current (A) | Power (W) |
| 12V | 1.27 | 15.24 | 3.58 | 42.96 |

3. a. Test Environment:

The same as above but with LCD(+ADP-3460)

| | |
|----------------------|---------------------------------|
| Display Panel | AUO M215HW03 V1 21.5”LCD |
|----------------------|---------------------------------|

Power Supply: GW INSTEK SPS-3610(DC Power Supply)

| Voltage | MS-DOS Boot up | | Windows 10 64bit 3DMARK + Prime95 | |
|---------|-------------------|-------------|--------------------------------------|-------------|
| | Current (A) | Power (W) | Current (A) | Power (W) |
| 12V | 1.9 | 22.8 | 4.28 | 51.36 |

4. Test Environment:

| | |
|--------------------|--|
| Motherboard | LP-178 |
| CPU | Intel(R) Celeron® 4305UE 2.0GHz |
| Memory | Kingston KVR21S15D8/16 16GB (Micron 7JH45D9VHP) |
| HDD | WD BLUE 3D NAND SSD 250GB(WDS250G2B0A-00SM50) |

Power Supply: GW INSTEK SPS-3610(DC Power Supply)

| Voltage | MS-DOS Boot up | | Windows 10 64bit 3DMARK + Prime95 | |
|----------------|---------------------------|--------------------|--|--------------------|
| | Current (A) | Power (W) | Current (A) | Power (W) |
| 12V | 1.1 | 13.2 | 2.41 | 28.92 |

4. a. Test Environment:

The same as above but with LCD(+ADP-3460)

| | |
|----------------------|---------------------------------|
| Display Panel | AUO M215HW03 V1 21.5”LCD |
|----------------------|---------------------------------|

Power Supply: GW INSTEK SPS-3610(DC Power Supply)

| Voltage | MS-DOS Boot up | | Windows 10 64bit 3DMARK + Prime95 | |
|----------------|---------------------------|--------------------|--|--------------------|
| | Current (A) | Power (W) | Current (A) | Power (W) |
| 12V | 1.76 | 21.12 | 3.24 | 38.88 |

5. Performance Test

5.1 3D MARK VANTAGE

Windows 10 64-bit

| Item | Weighted Suite | Test Environment | Result | Remark |
|------|----------------|--|--------|--------|
| 1 | 3DMARK SCORE | Intel(R) Core(TM) i7-8665UE 1.7GHz Kingston KVR21S15D8/16 (Micron 7JH45D9VHP) WDS250G2B0A-00SM50 | PASS | P6205 |
| 2 | GPU SCORE | | PASS | 5031 |
| 3 | CPU SCORE | | PASS | 20700 |

Windows 10 64-bit

| Item | Weighted Suite | Test Environment | Result | Remark |
|------|----------------|---|--------|--------|
| 1 | 3DMARK SCORE | Intel(R) Core(TM) i7-8665UE 1.7GHz Kingston KVR26S19S8/8 8GB (Micron 8BE77D9VPP) WDS250G2B0A-00SM50 | PASS | P6127 |
| 2 | GPU SCORE | | PASS | 4966 |
| 3 | CPU SCORE | | PASS | 20516 |

Windows 10 64-bit

| Item | Weighted Suite | Test Environment | Result | Remark |
|------|----------------|---|--------|--------|
| 1 | 3DMARK SCORE | Intel(R) Core(TM) i7-8665UE 1.7GHz Crucial CT4G4SFS8213.8FA2 2133 4GB (Micron 5RA77D9RGQ) WDS250G2B0A-00SM50 | PASS | P6038 |
| 2 | GPU SCORE | | PASS | 4890 |
| 3 | CPU SCORE | | PASS | 20405 |

Windows 10 64-bit

| Item | Weighted Suite | Test Environment | Result | Remark |
|------|----------------|--|--------|--------|
| 1 | 3DMARK SCORE | Intel(R) Core(TM) i5-8365UE 1.6GHz Kingston KVR21S15D8/16 (Micron 7JH45D9VHP) WDS250G2B0A-00SM50 | PASS | P6016 |
| 2 | GPU SCORE | | PASS | 4867 |
| 3 | CPU SCORE | | PASS | 20616 |

Windows 10 64-bit

| Item | Weighted Suite | Test Environment | Result | Remark |
|------|----------------|---|--------|--------|
| 1 | 3DMARK SCORE | Intel(R) Core(TM) i5-8365UE 1.6GHz Kingston KVR26S19S8/8 8GB (Micron 8BE77D9VPP) WDS250G2B0A-00SM50 | PASS | P5953 |
| 2 | GPU SCORE | | PASS | 4816 |
| 3 | CPU SCORE | | PASS | 20404 |

Windows 10 64-bit

| Item | Weighted Suite | Test Environment | Result | Remark |
|------|----------------|---|--------|--------|
| 1 | 3DMARK SCORE | Intel(R) Core(TM) i5-8365UE 1.6GHz Crucial CT4G4SFS8213.8FA2 2133 4GB (Micron 5RA77D9RGQ) WDS250G2B0A-00SM50 | PASS | P5959 |
| 2 | GPU SCORE | | PASS | 4821 |
| 3 | CPU SCORE | | PASS | 20431 |

Windows 10 64-bit

| Item | Weighted Suite | Test Environment | Result | Remark |
|------|----------------|--|--------|--------|
| 1 | 3DMARK SCORE | Intel(R) Core(TM) i3-8145UE 2.2GHz Kingston KVR21S15D8/16 (Micron 7JH45D9VHP) WDS250G2B0A-00SM50 | PASS | P5450 |
| 2 | GPU SCORE | | PASS | 4592 |
| 3 | CPU SCORE | | PASS | 12389 |

Windows 10 64-bit

| Item | Weighted Suite | Test Environment | Result | Remark |
|------|----------------|---|--------|--------|
| 1 | 3DMARK SCORE | Intel(R) Core(TM) i3-8145UE 2.2GHz Kingston KVR26S19S8/8 8GB (Micron 8BE77D9VPP) WDS250G2B0A-00SM50 | PASS | P5393 |
| 2 | GPU SCORE | | PASS | 4553 |
| 3 | CPU SCORE | | PASS | 12063 |

Windows 10 64-bit

| Item | Weighted Suite | Test Environment | Result | Remark |
|------|----------------|---|--------|--------|
| 1 | 3DMARK SCORE | Intel(R) Core(TM) i3-8145UE 2.2GHz Crucial CT4G4SFS8213.8FA2 2133 4GB (Micron 5RA77D9RGQ) WDS250G2B0A-00SM50 | PASS | P5335 |
| 2 | GPU SCORE | | PASS | 4495 |
| 3 | CPU SCORE | | PASS | 12145 |

Windows 10 64-bit

| Item | Weighted Suite | Test Environment | Result | Remark |
|------|----------------|---|--------|--------|
| 1 | 3DMARK SCORE | Intel(R) Celeron® 4305UE 2.0GHz Kingston KVR21S15D8/16 (Micron 7JH45D9VHP) WDS250G2B0A-00SM50 | PASS | P3618 |
| 2 | GPU SCORE | | PASS | 3219 |
| 3 | CPU SCORE | | PASS | 5762 |

Windows 10 64-bit

| Item | Weighted Suite | Test Environment | Result | Remark |
|------|----------------|--|--------|--------|
| 1 | 3DMARK SCORE | Intel(R) Celeron® 4305UE 2.0GHz Kingston KVR26S19S8/8 8GB (Micron 8BE77D9VPP) WDS250G2B0A-00SM50 | PASS | P3522 |
| 2 | GPU SCORE | | PASS | 3113 |
| 3 | CPU SCORE | | PASS | 5807 |

Windows 10 64-bit

| Item | Weighted Suite | Test Environment | Result | Remark |
|------|----------------|--|--------|--------|
| 1 | 3DMARK SCORE | Intel(R) Celeron® 4305UE 2.0GHz Crucial CT4G4SFS8213.8FA2 2133 4GB (Micron 5RA77D9RGQ) WDS250G2B0A-00SM50 | PASS | P3542 |
| 2 | GPU SCORE | | PASS | 3132 |
| 3 | CPU SCORE | | PASS | 5824 |

5.2 3D MARK 11

Windows 10 64-bit

| Item | Weighted Suite | Test Environment | Result | Remark |
|------|----------------|--|--------|--------|
| 1 | 3DMARK SCORE | Intel(R) Core(TM) i7-8665UE 1.7GHz Kingston KVR21S15D8/16 (Micron 7JH45D9VHP) WDS250G2B0A-00SM50 | PASS | P1684 |
| 2 | Graphics SCORE | | PASS | 1513 |
| 3 | Physics SCORE | | PASS | 6131 |
| 4 | Combined SCORE | | PASS | 1358 |

Windows 10 64-bit

| Item | Weighted Suite | Test Environment | Result | Remark |
|------|----------------|---|--------|--------|
| 1 | 3DMARK SCORE | Intel(R) Core(TM) i7-8665UE 1.7GHz Kingston KVR26S19S8/8 8GB (Micron 8BE77D9VPP) WDS250G2B0A-00SM50 | PASS | P1709 |
| 2 | Graphics SCORE | | PASS | 1545 |
| 3 | Physics SCORE | | PASS | 6142 |
| 4 | Combined SCORE | | PASS | 1329 |

Windows 10 64-bit

| Item | Weighted Suite | Test Environment | Result | Remark |
|------|----------------|---|--------|--------|
| 1 | 3DMARK SCORE | Intel(R) Core(TM) i7-8665UE 1.7GHz Crucial CT4G4SFS8213.8FA2 2133 4GB (Micron 5RA77D9RGQ) WDS250G2B0A-00SM50 | PASS | P1700 |
| 2 | Graphics SCORE | | PASS | 1537 |
| 3 | Physics SCORE | | PASS | 6060 |
| 4 | Combined SCORE | | PASS | 1325 |

Windows 10 64-bit

| Item | Weighted Suite | Test Environment | Result | Remark |
|------|----------------|--|--------|--------|
| 1 | 3DMARK SCORE | Intel(R) Core(TM) i5-8365UE 1.6GHz Kingston KVR21S15D8/16 (Micron 7JH45D9VHP) WDS250G2B0A-00SM50 | PASS | P1628 |
| 2 | Graphics SCORE | | PASS | 1471 |
| 3 | Physics SCORE | | PASS | 5559 |
| 4 | Combined SCORE | | PASS | 1296 |

Windows 10 64-bit

| Item | Weighted Suite | Test Environment | Result | Remark |
|------|----------------|---|--------|--------|
| 1 | 3DMARK SCORE | Intel(R) Core(TM) i5-8365UE 1.6GHz Kingston KVR26S19S8/8 8GB (Micron 8BE77D9VPP) WDS250G2B0A-00SM50 | PASS | P1645 |
| 2 | Graphics SCORE | | PASS | 1493 |
| 3 | Physics SCORE | | PASS | 5596 |
| 4 | Combined SCORE | | PASS | 1272 |

Windows 10 64-bit

| Item | Weighted Suite | Test Environment | Result | Remark |
|------|----------------|---|--------|--------|
| 1 | 3DMARK SCORE | Intel(R) Core(TM) i5-8365UE 1.6GHz Crucial CT4G4SFS8213.8FA2 2133 4GB (Micron 5RA77D9RGQ) WDS250G2B0A-00SM50 | PASS | P1640 |
| 2 | Graphics SCORE | | PASS | 1495 |
| 3 | Physics SCORE | | PASS | 5472 |
| 4 | Combined SCORE | | PASS | 1244 |

Windows 10 64-bit

| Item | Weighted Suite | Test Environment | Result | Remark |
|------|----------------|--|--------|--------|
| 1 | 3DMARK SCORE | Intel(R) Core(TM) i3-8145UE 2.2GHz Kingston KVR21S15D8/16 (Micron 7JH45D9VHP) WDS250G2B0A-00SM50 | PASS | P1578 |
| 2 | Graphics SCORE | | PASS | 1434 |
| 3 | Physics SCORE | | PASS | 4572 |
| 4 | Combined SCORE | | PASS | 1285 |

Windows 10 64-bit

| Item | Weighted Suite | Test Environment | Result | Remark |
|------|----------------|---|--------|--------|
| 1 | 3DMARK SCORE | Intel(R) Core(TM) i3-8145UE 2.2GHz Kingston KVR26S19S8/8 8GB (Micron 8BE77D9VPP) WDS250G2B0A-00SM50 | PASS | P1558 |
| 2 | Graphics SCORE | | PASS | 1419 |
| 3 | Physics SCORE | | PASS | 4506 |
| 4 | Combined SCORE | | PASS | 1250 |

Windows 10 64-bit

| Item | Weighted Suite | Test Environment | Result | Remark |
|------|----------------|---|--------|--------|
| 1 | 3DMARK SCORE | Intel(R) Core(TM) i3-8145UE 2.2GHz Crucial CT4G4SFS8213.8FA2 2133 4GB (Micron 5RA77D9RGQ) WDS250G2B0A-00SM50 | PASS | P1548 |
| 2 | Graphics SCORE | | PASS | 1416 |
| 3 | Physics SCORE | | PASS | 4466 |
| 4 | Combined SCORE | | PASS | 1213 |

Windows 10 64-bit

| Item | Weighted Suite | Test Environment | Result | Remark |
|------|----------------|---|--------|--------|
| 1 | 3DMARK SCORE | Intel(R) Celeron® 4305UE 2.0GHz Kingston KVR21S15D8/16 (Micron 7JH45D9VHP) WDS250G2B0A-00SM50 | PASS | P1066 |
| 2 | Graphics SCORE | | PASS | 965 |
| 3 | Physics SCORE | | PASS | 2353 |
| 4 | Combined SCORE | | PASS | 1031 |

Windows 10 64-bit

| Item | Weighted Suite | Test Environment | Result | Remark |
|------|----------------|--|--------|--------|
| 1 | 3DMARK SCORE | Intel(R) Celeron® 4305UE 2.0GHz Kingston KVR26S19S8/8 8GB (Micron 8BE77D9VPP) WDS250G2B0A-00SM50 | PASS | 1040 |
| 2 | Graphics SCORE | | PASS | 947 |
| 3 | Physics SCORE | | PASS | 2261 |
| 4 | Combined SCORE | | PASS | 976 |

Windows 10 64-bit

| Item | Weighted Suite | Test Environment | Result | Remark |
|------|----------------|--|--------|--------|
| 1 | 3DMARK SCORE | Intel(R) Celeron® 4305UE 2.0GHz Crucial CT4G4SFS8213.8FA2 2133 4GB (Micron 5RA77D9RGQ) WDS250G2B0A-00SM50 | PASS | P1057 |
| 2 | Graphics SCORE | | PASS | 961 |
| 3 | Physics SCORE | | PASS | 2342 |
| 4 | Combined SCORE | | PASS | 991 |

5.3 3D MARK

Windows 10 64-bit

| Item | Weighted Suite | Test Environment | Result | Remark |
|------|----------------|--|--------|--------|
| 1 | Time Spy | Intel(R) Core(TM) i7-8665UE 1.7GHz Kingston KVR21S15D8/16 (Micron 7JH45D9VHP) WDS250G2B0A-00SM50 | PASS | 371 |
| 2 | Graphics SCORE | | PASS | 323 |
| 3 | CPU SCORE | | PASS | 2423 |

Windows 10 64-bit

| Item | Weighted Suite | Test Environment | Result | Remark |
|------|----------------|---|--------|--------|
| 1 | Time Spy | Intel(R) Core(TM) i7-8665UE 1.7GHz Kingston KVR26S19S8/8 8GB (Micron 8BE77D9VPP) WDS250G2B0A-00SM50 | PASS | 369 |
| 2 | Graphics SCORE | | PASS | 322 |
| 3 | CPU SCORE | | PASS | 2370 |

Windows 10 64-bit

| Item | Weighted Suite | Test Environment | Result | Remark |
|------|----------------|---|--------|--------|
| 1 | Time Spy | Intel(R) Core(TM) i7-8665UE 1.7GHz Crucial CT4G4SFS8213.8FA2 2133 4GB (Micron 5RA77D9RGQ) WDS250G2B0A-00SM50 | PASS | 363 |
| 2 | Graphics SCORE | | PASS | 316 |
| 3 | CPU SCORE | | PASS | 2342 |

Windows 10 64-bit

| Item | Weighted Suite | Test Environment | Result | Remark |
|------|----------------|--|--------|--------|
| 1 | Time Spy | Intel(R) Core(TM) i5-8365UE 1.6GHz Kingston KVR21S15D8/16 (Micron 7JH45D9VHP) WDS250G2B0A-00SM50 | PASS | 362 |
| 2 | Graphics SCORE | | PASS | 315 |
| 3 | CPU SCORE | | PASS | 2350 |

Windows 10 64-bit

| Item | Weighted Suite | Test Environment | Result | Remark |
|------|----------------|---|--------|--------|
| 1 | Time Spy | Intel(R) Core(TM) i5-8365UE 1.6GHz Kingston KVR26S19S8/8 8GB (Micron 8BE77D9VPP) WDS250G2B0A-00SM50 | PASS | 360 |
| 2 | Graphics SCORE | | PASS | 314 |
| 3 | CPU SCORE | | PASS | 2319 |

Windows 10 64-bit

| Item | Weighted Suite | Test Environment | Result | Remark |
|------|----------------|---|--------|--------|
| 1 | Time Spy | Intel(R) Core(TM) i5-8365UE 1.6GHz Crucial CT4G4SFS8213.8FA2 2133 4GB (Micron 5RA77D9RGQ) WDS250G2B0A-00SM50 | PASS | 356 |
| 2 | Graphics SCORE | | PASS | 310 |
| 3 | CPU SCORE | | PASS | 2297 |

Windows 10 64-bit

| Item | Weighted Suite | Test Environment | Result | Remark |
|------|----------------|--|--------|--------|
| 1 | Time Spy | Intel(R) Core(TM) i3-8145UE 2.2GHz Kingston KVR21S15D8/16 (Micron 7JH45D9VHP) WDS250G2B0A-00SM50 | PASS | 347 |
| 2 | Graphics SCORE | | PASS | 304 |
| 3 | CPU SCORE | | PASS | 1805 |

Windows 10 64-bit

| Item | Weighted Suite | Test Environment | Result | Remark |
|------|----------------|---|--------|--------|
| 1 | Time Spy | Intel(R) Core(TM) i3-8145UE 2.2GHz Kingston KVR26S19S8/8 8GB (Micron 8BE77D9VPP) WDS250G2B0A-00SM50 | PASS | 346 |
| 2 | Graphics SCORE | | PASS | 303 |
| 3 | CPU SCORE | | PASS | 1794 |

Windows 10 64-bit

| Item | Weighted Suite | Test Environment | Result | Remark |
|------|----------------|---|--------|--------|
| 1 | Time Spy | Intel(R) Core(TM) i3-8145UE 2.2GHz Crucial CT4G4SFS8213.8FA2 2133 4GB (Micron 5RA77D9RGQ) WDS250G2B0A-00SM50 | PASS | 341 |
| 2 | Graphics SCORE | | PASS | 299 |
| 3 | CPU SCORE | | PASS | 1788 |

Windows 10 64-bit

| Item | Weighted Suite | Test Environment | Result | Remark |
|------|----------------|---|--------|--------|
| 1 | Time Spy | Intel(R) Celeron® 4305UE 2.0GHz Kingston KVR21S15D8/16 (Micron 7JH45D9VHP) WDS250G2B0A-00SM50 | PASS | 229 |
| 2 | Graphics SCORE | | PASS | 202 |
| 3 | CPU SCORE | | PASS | 1009 |

Windows 10 64-bit

| Item | Weighted Suite | Test Environment | Result | Remark |
|------|----------------|--|--------|--------|
| 1 | Time Spy | Intel(R) Celeron® 4305UE 2.0GHz Kingston KVR26S19S8/8 8GB (Micron 8BE77D9VPP) WDS250G2B0A-00SM50 | PASS | 227 |
| 2 | Graphics SCORE | | PASS | 200 |
| 3 | CPU SCORE | | PASS | 999 |

Windows 10 64-bit

| Item | Weighted Suite | Test Environment | Result | Remark |
|------|----------------|--|--------|--------|
| 1 | Time Spy | Intel(R) Celeron® 4305UE 2.0GHz Crucial CT4G4SFS8213.8FA2 2133 4GB (Micron 5RA77D9RGQ) WDS250G2B0A-00SM50 | PASS | 227 |
| 2 | Graphics SCORE | | PASS | 200 |
| 3 | CPU SCORE | | PASS | 1005 |

5.4 PC MARK 7 & 8

Windows 10 64-bit

| Weighted Suite | Test Environment | Result | Remark |
|-----------------|---|--------|--------|
| PCMARK 7 Scores | Intel(R) Core(TM) i7-8665UE 1.7GHz | PASS | 929 |
| PCMARK 8 Scores | Kingston KVR21S15D8/16 (Micron 7JH45D9VHP) WDS250G2B0A-00SM50 | PASS | 1387 |

Windows 10 64-bit

| Weighted Suite | Test Environment | Result | Remark |
|-----------------|--|--------|--------|
| PCMARK 7 Scores | Intel(R) Core(TM) i7-8665UE 1.7GHz | PASS | 931 |
| PCMARK 8 Scores | Kingston KVR26S19S8/8 8GB (Micron 8BE77D9VPP) WDS250G2B0A-00SM50 | PASS | 1405 |

Windows 10 64-bit

| Weighted Suite | Test Environment | Result | Remark |
|-----------------|--|--------|--------|
| PCMARK 7 Scores | Intel(R) Core(TM) i7-8665UE 1.7GHz | PASS | 957 |
| PCMARK 8 Scores | Crucial CT4G4SFS8213.8FA2 2133 4GB (Micron 5RA77D9RGQ) WDS250G2B0A-00SM50 | PASS | 1431 |

Windows 10 64-bit

| Weighted Suite | Test Environment | Result | Remark |
|------------------------|--|---------------|---------------|
| PCMARK 7 Scores | Intel(R) Core(TM) i5-8365UE 1.6GHz | PASS | 931 |
| PCMARK 8 Scores | Kingston KVR21S15D8/16 (Micron 7JH45D9VHP) WDS250G2B0A-00SM50 | PASS | 1409 |

Windows 10 64-bit

| Weighted Suite | Test Environment | Result | Remark |
|------------------------|---|---------------|---------------|
| PCMARK 7 Scores | Intel(R) Core(TM) i5-8365UE 1.6GHz | PASS | 945 |
| PCMARK 8 Scores | Kingston KVR26S19S8/8 8GB (Micron 8BE77D9VPP) WDS250G2B0A-00SM50 | PASS | 1415 |

Windows 10 64-bit

| Weighted Suite | Test Environment | Result | Remark |
|------------------------|--|---------------|---------------|
| PCMARK 7 Scores | Intel(R) Core(TM) i5-8365UE 1.6GHz | PASS | 937 |
| PCMARK 8 Scores | Crucial CT4G4SFS8213.8FA2 2133 4GB (Micron 5RA77D9RGQ) WDS250G2B0A-00SM50 | PASS | 1398 |

Windows 10 64-bit

| Weighted Suite | Test Environment | Result | Remark |
|------------------------|--|---------------|---------------|
| PCMARK 7 Scores | Intel(R) Core(TM) i3-8145UE 2.2GHz | PASS | 891 |
| PCMARK 8 Scores | Kingston KVR21S15D8/16 (Micron 7JH45D9VHP) WDS250G2B0A-00SM50 | PASS | 1360 |

Windows 10 64-bit

| Weighted Suite | Test Environment | Result | Remark |
|------------------------|---|---------------|---------------|
| PCMARK 7 Scores | Intel(R) Core(TM) i3-8145UE 2.2GHz | PASS | 898 |
| PCMARK 8 Scores | Kingston KVR26S19S8/8 8GB (Micron 8BE77D9VPP) WDS250G2B0A-00SM50 | PASS | 1406 |

Windows 10 64-bit

| Weighted Suite | Test Environment | Result | Remark |
|------------------------|--|---------------|---------------|
| PCMARK 7 Scores | Intel(R) Core(TM) i3-8145UE 2.2GHz | PASS | 887 |
| PCMARK 8 Scores | Crucial CT4G4SFS8213.8FA2 2133 4GB (Micron 5RA77D9RGQ) WDS250G2B0A-00SM50 | PASS | 1391 |

Windows 10 64-bit

| Weighted Suite | Test Environment | Result | Remark |
|------------------------|--|---------------|---------------|
| PCMARK 7 Scores | Intel(R) Celeron® 4305UE 2.0GHz | PASS | 707 |
| PCMARK 8 Scores | Kingston KVR21S15D8/16 (Micron 7JH45D9VHP) WDS250G2B0A-00SM50 | PASS | 1085 |

Windows 10 64-bit

| Weighted Suite | Test Environment | Result | Remark |
|------------------------|---|---------------|---------------|
| PCMARK 7 Scores | Intel(R) Celeron® 4305UE 2.0GHz | PASS | 707 |
| PCMARK 8 Scores | Kingston KVR26S19S8/8 8GB (Micron 8BE77D9VPP) WDS250G2B0A-00SM50 | PASS | 1078 |

Windows 10 64-bit

| Weighted Suite | Test Environment | Result | Remark |
|------------------------|--|---------------|---------------|
| PCMARK 7 Scores | Intel(R) Celeron® 4305UE 2.0GHz | PASS | 707 |
| PCMARK 8 Scores | Crucial CT4G4SFS8213.8FA2 2133 4GB (Micron 5RA77D9RGQ) WDS250G2B0A-00SM50 | PASS | 1115 |

5.5 PerformanceTest 9.0

Windows 10 64-bit

| Item | Weighted Suite | Test Environment | Result | Remark |
|------|------------------|--|--------|--------|
| 1 | PassMark Rating | Intel(R) Core(TM) i7-8665UE 1.7GHz Kingston KVR21S15D8/16 (Micron 7JH45D9VHP) WDS250G2B0A-00SM50 | PASS | 3400.7 |
| 2 | CPU Mark | | PASS | 8553.4 |
| 3 | 2D Graphics Mark | | PASS | 824.2 |
| 4 | 3D Graphics Mark | | PASS | 941.8 |
| 5 | Memory Mark | | PASS | 2284.9 |
| 6 | Disk Mark | | PASS | 4825.4 |

Windows 10 64-bit

| Item | Weighted Suite | Test Environment | Result | Remark |
|------|------------------|---|--------|--------|
| 1 | PassMark Rating | Intel(R) Core(TM) i7-8665UE 1.7GHz Kingston KVR26S19S8/8 8GB (Micron 8BE77D9VPP) WDS250G2B0A-00SM50 | PASS | 3320.7 |
| 2 | CPU Mark | | PASS | 8412.8 |
| 3 | 2D Graphics Mark | | PASS | 808.3 |
| 4 | 3D Graphics Mark | | PASS | 926.4 |
| 5 | Memory Mark | | PASS | 2129.8 |
| 6 | Disk Mark | | PASS | 4910.0 |

Windows 10 64-bit

| Item | Weighted Suite | Test Environment | Result | Remark |
|------|------------------|---|--------|--------|
| 1 | PassMark Rating | Intel(R) Core(TM) i7-8665UE 1.7GHz Crucial CT4G4SFS8213.8FA2 2133 4GB (Micron 5RA77D9RGQ) WDS250G2B0A-00SM50 | PASS | 3129.7 |
| 2 | CPU Mark | | PASS | 8366.3 |
| 3 | 2D Graphics Mark | | PASS | 799.6 |
| 4 | 3D Graphics Mark | | PASS | 892.1 |
| 5 | Memory Mark | | PASS | 1695.1 |
| 6 | Disk Mark | | PASS | 4870.1 |

Windows 10 64-bit

| Item | Weighted Suite | Test Environment | Result | Remark |
|------|------------------|---|--------|--------|
| 1 | PassMark Rating | Intel(R) Core(TM) i5-8365UE 1.6GHz Kingston KVR21S15D8/16 (Micron 7JH45D9VHP) WDS250G2B0A-00SM50 | PASS | 3354.5 |
| 2 | CPU Mark | | PASS | 8204.5 |
| 3 | 2D Graphics Mark | | PASS | 814.3 |
| 4 | 3D Graphics Mark | | PASS | 924.2 |
| 5 | Memory Mark | | PASS | 2349.6 |
| 6 | Disk Mark | | PASS | 4752.4 |

Windows 10 64-bit

| Item | Weighted Suite | Test Environment | Result | Remark |
|------|------------------|--|--------|--------|
| 1 | PassMark Rating | Intel(R) Core(TM) i5-8365UE 1.6GHz Kingston KVR26S19S8/8 8GB (Micron 8BE77D9VPP) WDS250G2B0A-00SM50 | PASS | 3287.9 |
| 2 | CPU Mark | | PASS | 8087.2 |
| 3 | 2D Graphics Mark | | PASS | 819.1 |
| 4 | 3D Graphics Mark | | PASS | 922.7 |
| 5 | Memory Mark | | PASS | 2116.3 |
| 6 | Disk Mark | | PASS | 4729.6 |

Windows 10 64-bit

| Item | Weighted Suite | Test Environment | Result | Remark |
|------|------------------|---|--------|--------|
| 1 | PassMark Rating | Intel(R) Core(TM) i5-8365UE 1.6GHz Crucial CT4G4SFS8213.8FA2 2133 4GB (Micron 5RA77D9RGQ) WDS250G2B0A-00SM50 | PASS | 3122.7 |
| 2 | CPU Mark | | PASS | 7969.3 |
| 3 | 2D Graphics Mark | | PASS | 819.2 |
| 4 | 3D Graphics Mark | | PASS | 890.4 |
| 5 | Memory Mark | | PASS | 1718.0 |
| 6 | Disk Mark | | PASS | 4807.4 |

Windows 10 64-bit

| Item | Weighted Suite | Test Environment | Result | Remark |
|------|------------------|---|--------|--------|
| 1 | PassMark Rating | Intel(R) Core(TM) i3-8145UE 2.2GHz Kingston KVR21S15D8/16 (Micron 7JH45D9VHP) WDS250G2B0A-00SM50 | PASS | 4047.1 |
| 2 | CPU Mark | | PASS | 5649.2 |
| 3 | 2D Graphics Mark | | PASS | 778.4 |
| 4 | 3D Graphics Mark | | PASS | 874 |
| 5 | Memory Mark | | PASS | 2190.4 |
| 6 | Disk Mark | | PASS | 4792.3 |

Windows 10 64-bit

| Item | Weighted Suite | Test Environment | Result | Remark |
|------|------------------|--|--------|--------|
| 1 | PassMark Rating | Intel(R) Core(TM) i3-8145UE 2.2GHz Kingston KVR26S19S8/8 8GB (Micron 8BE77D9VPP) WDS250G2B0A-00SM50 | PASS | 2925.6 |
| 2 | CPU Mark | | PASS | 5598.0 |
| 3 | 2D Graphics Mark | | PASS | 766.8 |
| 4 | 3D Graphics Mark | | PASS | 869.6 |
| 5 | Memory Mark | | PASS | 2092.0 |
| 6 | Disk Mark | | PASS | 4959.3 |

Windows 10 64-bit

| Item | Weighted Suite | Test Environment | Result | Remark |
|-------------|-----------------------|---|---------------|---------------|
| 1 | PassMark Rating | Intel(R) Core(TM) i3-8145UE 2.2GHz Crucial CT4G4SFS8213.8FA2 2133 4GB (Micron 5RA77D9RGQ) WDS250G2B0A-00SM50 | PASS | 2782.6 |
| 2 | CPU Mark | | PASS | 5546.6 |
| 3 | 2D Graphics Mark | | PASS | 759.4 |
| 4 | 3D Graphics Mark | | PASS | 838.8 |
| 5 | Memory Mark | | PASS | 1706.9 |
| 6 | Disk Mark | | PASS | 4895.3 |

Windows 10 64-bit

| Item | Weighted Suite | Test Environment | Result | Remark |
|-------------|-----------------------|--|---------------|---------------|
| 1 | PassMark Rating | Intel(R) Celeron® 4305UE 2.0GHz Kingston KVR21S15D8/16 (Micron 7JH45D9VHP) WDS250G2B0A-00SM50 | PASS | 1838.1 |
| 2 | CPU Mark | | PASS | 2641.1 |
| 3 | 2D Graphics Mark | | PASS | 449.1 |
| 4 | 3D Graphics Mark | | PASS | 664.6 |
| 5 | Memory Mark | | PASS | 1651.4 |
| 6 | Disk Mark | | PASS | 4815.9 |

Windows 10 64-bit

| Item | Weighted Suite | Test Environment | Result | Remark |
|-------------|-----------------------|---|---------------|---------------|
| 1 | PassMark Rating | Intel(R) Celeron® 4305UE 2.0GHz Kingston KVR26S19S8/8 8GB (Micron 8BE77D9VPP) WDS250G2B0A-00SM50 | PASS | 1797.5 |
| 2 | CPU Mark | | PASS | 2599.7 |
| 3 | 2D Graphics Mark | | PASS | 444.4 |
| 4 | 3D Graphics Mark | | PASS | 643.1 |
| 5 | Memory Mark | | PASS | 1565.6 |
| 6 | Disk Mark | | PASS | 4818.4 |

Windows 10 64-bit

| Item | Weighted Suite | Test Environment | Result | Remark |
|-------------|-----------------------|--|---------------|---------------|
| 1 | PassMark Rating | Intel(R) Celeron® 4305UE 2.0GHz Crucial CT4G4SFS8213.8FA2 2133 4GB (Micron 5RA77D9RGQ) WDS250G2B0A-00SM50 | PASS | 1777.9 |
| 2 | CPU Mark | | PASS | 2615.8 |
| 3 | 2D Graphics Mark | | PASS | 449.6 |
| 4 | 3D Graphics Mark | | PASS | 642.1 |
| 5 | Memory Mark | | PASS | 1387.6 |
| 6 | Disk Mark | | PASS | 4926.3 |

5.6 Geekbench 4

| |
|---|
| Test Environment |
| Intel(R) Core(TM) i7-8665UE 1.7GHz Kingston KVR21S15D8/16 (Micron 7JH45D9VHP) WDS250G2B0A-00SM50 |

Windows 10 64-bit

| Item | Weighted Suite | | Result | Remark |
|------|---|-------------|--------|--------|
| 1 | Run CPU Benchmark Score | Single-core | PASS | 4722 |
| | | Multi-core | | 13040 |
| 2 | Run Compute Benchmark (OpenCL Score) | | PASS | 19324 |

| |
|--|
| Test Environment |
| Intel(R) Core(TM) i7-8665UE 1.7GHz Kingston KVR26S19S8/8 8GB (Micron 8BE77D9VPP) WDS250G2B0A-00SM50 |

Windows 10 64-bit

| Item | Weighted Suite | | Result | Remark |
|------|---|-------------|--------|--------|
| 1 | Run CPU Benchmark Score | Single-core | PASS | 4828 |
| | | Multi-core | | 12976 |
| 2 | Run Compute Benchmark (OpenCL Score) | | PASS | 19233 |

| |
|---|
| Test Environment |
| Intel(R) Core(TM) i7-8665UE 1.7GHz Crucial CT4G4SFS8213.8FA2 2133 4GB (Micron 5RA77D9RGQ) WDS250G2B0A-00SM50 |

Windows 10 64-bit

| Item | Weighted Suite | | Result | Remark |
|-------------|---|--------------------|---------------|---------------|
| 1 | Run CPU Benchmark Score | Single-core | PASS | 4792 |
| | | Multi-core | | 12751 |
| 2 | Run Compute Benchmark (OpenCL Score) | | PASS | 18375 |

| |
|---|
| Test Environment |
| Intel(R) Core(TM) i5-8365UE 1.6GHz Kingston KVR21S15D8/16 (Micron 7JH45D9VHP) WDS250G2B0A-00SM50 |

Windows 10 64-bit

| Item | Weighted Suite | | Result | Remark |
|-------------|---|--------------------|---------------|---------------|
| 1 | Run CPU Benchmark Score | Single-core | PASS | 4470 |
| | | Multi-core | | 12037 |
| 2 | Run Compute Benchmark (OpenCL Score) | | PASS | 18144 |

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| Test Environment |
| Intel(R) Core(TM) i5-8365UE 1.6GHz Kingston KVR26S19S8/8 8GB (Micron 8BE77D9VPP) WDS250G2B0A-00SM50 |

Windows 10 64-bit

| Item | Weighted Suite | | Result | Remark |
|-------------|---|--------------------|---------------|---------------|
| 1 | Run CPU Benchmark Score | Single-core | PASS | 4615 |
| | | Multi-core | | 11838 |
| 2 | Run Compute Benchmark (OpenCL Score) | | PASS | 18439 |

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| Test Environment |
| Intel(R) Core(TM) i5-8365UE 1.6GHz Crucial CT4G4SFS8213.8FA2 2133 4GB (Micron 5RA77D9RGQ) WDS250G2B0A-00SM50 |

Windows 10 64-bit

| Item | Weighted Suite | | Result | Remark |
|-------------|---|--------------------|---------------|---------------|
| 1 | Run CPU Benchmark Score | Single-core | PASS | 4578 |
| | | Multi-core | | 12296 |
| 2 | Run Compute Benchmark (OpenCL Score) | | PASS | 17879 |

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| Test Environment |
| Intel(R) Core(TM) i3-8145UE 2.2GHz Kingston KVR21S15D8/16 (Micron 7JH45D9VHP) WDS250G2B0A-00SM50 |

Windows 10 64-bit

| Item | Weighted Suite | | Result | Remark |
|-------------|---|--------------------|---------------|---------------|
| 1 | Run CPU Benchmark Score | Single-core | PASS | 4248 |
| | | Multi-core | | 8192 |
| 2 | Run Compute Benchmark (OpenCL Score) | | PASS | 18714 |

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| Test Environment |
| Intel(R) Core(TM) i3-8145UE 2.2GHz Kingston KVR26S19S8/8 8GB (Micron 8BE77D9VPP) WDS250G2B0A-00SM50 |

Windows 10 64-bit

| Item | Weighted Suite | | Result | Remark |
|-------------|---|--------------------|---------------|---------------|
| 1 | Run CPU Benchmark Score | Single-core | PASS | 4393 |
| | | Multi-core | | 8322 |
| 2 | Run Compute Benchmark (OpenCL Score) | | PASS | 18605 |

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| Test Environment |
| Intel(R) Core(TM) i3-8145UE 2.2GHz Crucial CT4G4SFS8213.8FA2 2133 4GB (Micron 5RA77D9RGQ) WDS250G2B0A-00SM50 |

Windows 10 64-bit

| Item | Weighted Suite | | Result | Remark |
|-------------|---|--------------------|---------------|---------------|
| 1 | Run CPU Benchmark Score | Single-core | PASS | 4404 |
| | | Multi-core | | 8186 |
| 2 | Run Compute Benchmark (OpenCL Score) | | PASS | 18020 |

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| Test Environment |
| Intel(R) Celeron® 4305UE 2.0GHz Kingston KVR21S15D8/16 (Micron 7JH45D9VHP) WDS250G2B0A-00SM50 |

Windows 10 64-bit

| Item | Weighted Suite | | Result | Remark |
|-------------|---|--------------------|---------------|---------------|
| 1 | Run CPU Benchmark Score | Single-core | PASS | 2578 |
| | | Multi-core | | 4348 |
| 2 | Run Compute Benchmark (OpenCL Score) | | PASS | 13572 |

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| Test Environment |
| Intel(R) Celeron® 4305UE 2.0GHz Kingston KVR26S19S8/8 8GB (Micron 8BE77D9VPP) WDS250G2B0A-00SM50 |

Windows 10 64-bit

| Item | Weighted Suite | | Result | Remark |
|-------------|---|--------------------|---------------|---------------|
| 1 | Run CPU Benchmark Score | Single-core | PASS | 2371 |
| | | Multi-core | | 3991 |
| 2 | Run Compute Benchmark (OpenCL Score) | | PASS | 13147 |

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| Test Environment |
| Intel(R) Celeron® 4305UE 2.0GHz Crucial CT4G4SFS8213.8FA2 2133 4GB (Micron 5RA77D9RGQ) WDS250G2B0A-00SM50 |

Windows 10 64-bit

| Item | Weighted Suite | | Result | Remark |
|-------------|---|--------------------|---------------|---------------|
| 1 | Run CPU Benchmark Score | Single-core | PASS | 2558 |
| | | Multi-core | | 4319 |
| 2 | Run Compute Benchmark (OpenCL Score) | | PASS | 13246 |

5.7 Cinebench R15

| |
|---|
| Test Environment |
| Intel(R) Core(TM) i7-8665UE 1.7GHz Kingston KVR21S15D8/16 (Micron 7JH45D9VHP) WDS250G2B0A-00SM50 |

Windows 10 64-bit

| Item | Weighted Suite | Result | Remark |
|-------------|-----------------------|---------------|---------------|
| 1 | OpenGL | PASS | 44.36 fps |
| 2 | CPU | PASS | 546 cb |

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|--|
| Test Environment |
| Intel(R) Core(TM) i7-8665UE 1.7GHz Kingston KVR26S19S8/8 8GB (Micron 8BE77D9VPP) WDS250G2B0A-00SM50 |

Windows 10 64-bit

| Item | Weighted Suite | Result | Remark |
|-------------|-----------------------|---------------|---------------|
| 1 | OpenGL | PASS | 44.8 fps |
| 2 | CPU | PASS | 574 cb |

| |
|---|
| Test Environment |
| Intel(R) Core(TM) i7-8665UE 1.7GHz Crucial CT4G4SFS8213.8FA2 2133 4GB (Micron 5RA77D9RGQ) WDS250G2B0A-00SM50 |

Windows 10 64-bit

| Item | Weighted Suite | Result | Remark |
|-------------|-----------------------|---------------|---------------|
| 1 | OpenGL | PASS | 42.97 fps |
| 2 | CPU | PASS | 561 cb |

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|---|
| Test Environment |
| Intel(R) Core(TM) i5-8365UE 1.6GHz Kingston KVR21S15D8/16 (Micron 7JH45D9VHP) WDS250G2B0A-00SM50 |

Windows 10 64-bit

| Item | Weighted Suite | Result | Remark |
|-------------|-----------------------|---------------|---------------|
| 1 | OpenGL | PASS | 42.8 fps |
| 2 | CPU | PASS | 565 cb |

| |
|--|
| Test Environment |
| Intel(R) Core(TM) i5-8365UE 1.6GHz Kingston KVR26S19S8/8 8GB (Micron 8BE77D9VPP) WDS250G2B0A-00SM50 |

Windows 10 64-bit

| Item | Weighted Suite | Result | Remark |
|-------------|-----------------------|---------------|---------------|
| 1 | OpenGL | PASS | 43.11 fps |
| 2 | CPU | PASS | 551 cb |

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|---|
| Test Environment |
| Intel(R) Core(TM) i5-8365UE 1.6GHz Crucial CT4G4SFS8213.8FA2 2133 4GB (Micron 5RA77D9RGQ) WDS250G2B0A-00SM50 |

Windows 10 64-bit

| Item | Weighted Suite | Result | Remark |
|-------------|-----------------------|---------------|---------------|
| 1 | OpenGL | PASS | 40.62 fps |
| 2 | CPU | PASS | 560 cb |

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|---|
| Test Environment |
| Intel(R) Core(TM) i3-8145UE 2.2GHz Kingston KVR21S15D8/16 (Micron 7JH45D9VHP) WDS250G2B0A-00SM50 |

Windows 10 64-bit

| Item | Weighted Suite | Result | Remark |
|-------------|-----------------------|---------------|---------------|
| 1 | OpenGL | PASS | 40.86 fps |
| 2 | CPU | PASS | 335 cb |

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|--|
| Test Environment |
| Intel(R) Core(TM) i3-8145UE 2.2GHz Kingston KVR26S19S8/8 8GB (Micron 8BE77D9VPP) WDS250G2B0A-00SM50 |

Windows 10 64-bit

| Item | Weighted Suite | Result | Remark |
|-------------|-----------------------|---------------|---------------|
| 1 | OpenGL | PASS | 40.55 fps |
| 2 | CPU | PASS | 336 cb |

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|---|
| Test Environment |
| Intel(R) Core(TM) i3-8145UE 2.2GHz Crucial CT4G4SFS8213.8FA2 2133 4GB (Micron 5RA77D9RGQ) WDS250G2B0A-00SM50 |

Windows 10 64-bit

| Item | Weighted Suite | Result | Remark |
|-------------|-----------------------|---------------|---------------|
| 1 | OpenGL | PASS | 39.95 fps |
| 2 | CPU | PASS | 340 cb |

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|--|
| Test Environment |
| Intel(R) Celeron® 4305UE 2.0GHz Kingston KVR21S15D8/16 (Micron 7JH45D9VHP) WDS250G2B0A-00SM50 |

Windows 10 64-bit

| Item | Weighted Suite | Result | Remark |
|-------------|-----------------------|---------------|---------------|
| 1 | OpenGL | PASS | 29.25 fps |
| 2 | CPU | PASS | 158 cb |

| |
|---|
| Test Environment |
| Intel(R) Celeron® 4305UE 2.0GHz Kingston KVR26S19S8/8 8GB (Micron 8BE77D9VPP) WDS250G2B0A-00SM50 |

Windows 10 64-bit

| Item | Weighted Suite | Result | Remark |
|-------------|-----------------------|---------------|---------------|
| 1 | OpenGL | PASS | 29.02 fps |
| 2 | CPU | PASS | 158 cb |

| |
|--|
| Test Environment |
| Intel(R) Celeron® 4305UE 2.0GHz Crucial CT4G4SFS8213.8FA2 2133 4GB (Micron 5RA77D9RGQ) WDS250G2B0A-00SM50 |

Windows 10 64-bit

| Item | Weighted Suite | Result | Remark |
|-------------|-----------------------|---------------|---------------|
| 1 | OpenGL | PASS | 29.13 fps |
| 2 | CPU | PASS | 158 cb |

5.8 Storage Performance

5.8.1 HDD

Test environment:

OS Windows 10 64bit

Program: HD Tune

| HDD Model | Interface | Capacity | Average | Burst Rate | Access Time |
|----------------------------|-----------|----------|--------------|--------------|-------------|
| INTEL SSDSC2BW240A4 | SSD | 240 GB | 315.3 MB/sec | 293.3 MB/sec | 0.213 ms |
| SPCC Solid State disk(S55) | SSD | 120 GB | 179.6 MB/sec | 95.0 MB/sec | 0.054 ms |
| CT120 BX500 | SSD | 120 GB | 324.2 MB/sec | 151.1 MB/sec | 0.059 ms |
| WDS250G2B0A | SSD | 250 GB | 397.9 MB/sec | 36.8 MB/sec | 0.079 ms |
| Kingston SV300S37A | SSD | 240 GB | 241.2 MB/sec | 138.6 MB/sec | 0.155 ms |
| Kingston DT100G3/32G | USB | 32 GB | 65.9 MB/sec | 53.2 MB/sec | 0.326 ms |
| ADATA UV128/16GB | USB | 16 GB | 108.3 MB/sec | 43.9 MB/sec | 1.36 ms |

5.8.2 DVD-ROM

Test environment:

OS Windows 10 64bit

Program (NERO)

| DVD-ROM Model | Interface | Average Speed | Full Read | Burst Rate | DVD |
|--------------------------|-----------|---------------|-----------|------------|----------|
| Transcend DVD TS8XDVDS-K | USB | 5.76 x | 295 ms | 19 MB/s | 1 - 16 x |
| LITEON DVD eTAU108 | USB | 5.57 x | 208 ms | 18 MB/s | 1 - 16 x |
| PIONEER DVD DVR-XD11T | USB | 5.80 x | 181 ms | 20 MB/s | 1 - 16 x |
| ZYNET GT32N A201 | USB | 5.70 x | 213 ms | 20 MB/s | 1 - 16 x |