**Organization and Architecture Computer**

**Assignment I**

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**Comparisson between 2 motherboard with different manufacture**

1. H81MDS2 PRO 6.x (BIOSTAR) VS GA-H81M-DS2V (Rev.2) (Gigabyte)

|  |  |  |
| --- | --- | --- |
| Name | H81MDS2 PRO 6.x | GA-H81M-DS2V (Rev.2) |
| Chipset | * Intel® H81 | * Intel® H81 Express Chipset |
| CPU SUPPORT | * Intel® Core™ i7 LGA 1150 Processor * Intel® Core™ i5 LGA 1150 Processor * Intel® Core™ i3 LGA 1150 Processor * Intel® Pentium® LGA 1150 Processor | * Intel® Core™ i7 LGA 1150 Processor * Intel® Core™ i5 LGA 1150 Processor * Intel® Core™ i3 LGA 1150 Processor * Intel® Pentium® LGA 1150 Processor * Intel® Celeron® LGA 1150 Processor |
| MEMORY | * Support Dual Channel DDR3 1600/1333/1066 MHz * 2 x DDR3 DIMM Memory Slot * Max. Supports up to 16GB Memory | * Support Dual Channel for DDR3 1600/1333 MHz * 2x1.5C DDR3 DIMM Memory Slot * Max. Supports up to 16GB Memory * Support memory modules non-ECC & XMP |
| EXPANSION SLOT | * 1 x PCI-E x16 2.0 Slot * 2 x PCI-E x1 2.0 Slot | * 1 x PCI-E x16 2.0 Slot * 2 x PCI-E x1 2.0 Slot |
| STORAGE | * 2 x SATA3 Connector * 2 x SATA2 Connector | * 2 x SATA3 Connector * 2 x SATA2 Connector |
| USB | * 2 x USB 3.0 Port * 2 x USB 2.0 Port * 2 x USB 2.0 Header | * 2 x USB 3.0/2.0 ports * 6 x USB 2.0/1.1 ports (2 ports back panel, 4 USB headers) |
| LAN | * Realtek RTL8111G - 10/100/1000 Controller * Support Super LAN Surge Protection | * Realtek® GbE LAN chip (10/100/1000 Mbit) |
| INTEGRATED VIDEO | * By CPU model * Supports DX12 | * Intel® HD Graphics support |
| REAR I/O | * 1 x PS/2 Mouse * 1 x PS/2 Keyboard * 2 x USB 3.0 Port * 2 x USB 2.0 Port * 1 x Printer Port * 1 x DVI Connector * 1 x VGA Port * 1 x RJ-45 Port * 3 x Audio Connector | * 1 x PS/2 keyboard/mouse port * 1 x D-Sub port * 1 x DVI-D port * 2 x USB 3.0/2.0 ports * 2 x USB 2.0/1.1 ports * 1 x RJ-45 port * 3 x audio jacks (Line In, Line Out, Mic In) |
| INTERNAL I/O | * 2 x USB 2.0 Header * 2 x SATA3 6Gb/s Connector * 2 x SATA2 3Gb/s Connector * 1 x Front Audio Header * 1 x Front Panel Header * 1 x CPU Fan Header * 1 x System Fan Header * 1 x Serial Header | * 1 x 24-pin ATX main power connector * 1 x 8-pin ATX 12V power connector * 2 x SATA 6Gb/s connectors * 2 x SATA 3Gb/s connectors * 2 x USB 2.0/1.1 headers * 1 x CPU fan header * 2 x system fan headers * 1 x front panel header * 1 x front panel audio header * 1 x Clear CMOS jumper |
| H/W MONITORING | * CPU / System Temperature Monitoring * CPU / System Fan Monitoring * System Voltage Monitoring | * CPU/system voltage and temperature detection * CPU/system overheating warning * CPU/system fan monitor |
| DIMENSION | * Micro ATX Form Factor Dimension: 22.6cm x 17cm ( W x L ) | * Micro ATX Form Factor; 22.6cm x 17.0cm |
| OS SUPPORT | * Support Windows 7 / 8 / 8.1 / 10(x64) | * Support for Windows 8.1/8/7 |
| BUNDLE SOFTWARE | * BullGuard * BIO-Remote2 * Smart Speed LAN * Intel Rapid Start Technology * Intel Smart Connect Technology | * Norton® Internet Security (OEM version) |
| FEATURES | * Supports 100% Solid capacitor * Supports Charger Booster * Supports BIOS Online Update | * Support for Q-Flash * Support for Xpress Install * Support for APP Center * Support ON/OFF Charger |

Note :

Those comparisson only show global overview of the device, there are still some specific feature of the device that not be listed in above table.

The device shown above had many same feature or specification, the differences are listed on CPU SUPPORT, MEMORY,INTEGRATED VIDEO, REAR I/O,INTERNAL I/O,OS SUPPORT, BUNDLE SOFTWARE and FEATURES.

1. Z370 GODLIKE GAMING (MSI) VS Z370-LIGHTSABER (ECS)

|  |  |  |
| --- | --- | --- |
| Name | Z370 GODLIKE GAMING | Z370-LIGHTSABER |
| Chipset | * Intel® Z370 Chipset | * Intel® Z370 Express Chipset |
| CPU SUPPORT | * Max Support Intel® Core™ i7 8th Generation LGA 1151 Processor | * Intel® K Series Unlock |
| MEMORY | * 4 x DDR4 memory slots, support up to 64GB * Dual channel memory architecture * Supports Intel® Extreme Memory Profile (XMP) | * Dual-channel DDR4 Memory architecture * Supports DDR4 2400 non-ECC, Un-buffered SDRAM Memory * Support up to 64 GB\* * Intel® extreme Memory Profile (XMP) 1.3/1.2 Memory Modules |
| EXPANSION SLOT | * 4 x PCIe 3.0 x16 slots\* * 1 x PCIe 3.0 x1 slot | * 3 X PCI Express X16 Gen 3.0 slot(s) * 3 X PCI Express X 1 Gen 3.0slot(s) |
| STORAGE | * 6 x SATA 6Gb/s ports\* * Supports RAID 0, RAID 1, RAID 5 and RAID 10 for SATA storage devices | * 6 X Serial ATAIII 6Gb/s * RAID0, RAID1,RAID5, RAID 10 configuration |
| USB | * 6 x USB 3.1 Gen1 * 6 x USB 2.0 | * 6 X USB3.0 port(s) |
| LAN | * 3 x Killer™ E2500 Gigabit LAN controller | * Killer E2500 Gigabit Fast Ethernet Controller * Wake-On-LAN |
| REAR I/O | * 1 x Clear CMOS button * 2 x Wi-Fi Antenna connectors * 1 x PS/2 keyboard/ mouse combo port * 6 x USB 3.1 Gen1 Type-A ports * 3 x LAN (RJ45) ports * 1 x USB 3.1 Gen2 Type-A port * 1 x USB 3.1 Gen2 Type-C port * 1 x 6.3mm Gold-plated stereo headphone jack * 5 x OFC audio jacks * 1 x Optical S/PDIF OUT connector1 x RJ-45 Port | * 1 x PS/2 keyboard/mouse port * 1 x D-Sub port * 1 X PS/2 combo connector * 1 X Audio port (Line-in,4x Line-out, Mic in) * 1 X HDMI port(s) * 1 X Display port * 1 X Optical S/PDIF Out port(s) * 2 X USB3.1 port(s) * 6 X USB3.0 port(s) * 4 X USB2.0 port(s) * 1 X Clear\_CMOS Button |
| INTERNAL I/O | * 1 x 24-pin ATX main power connector * 1 x 8-pin ATX 12V power connector * 1 x 4-pin ATX 12V power connector * 1 x 6-pin ATX PCIe power connector * 6 x SATA 6Gb/s connectors * 4 x M.2 slots (M Key x3 ,E Key x1) * 1 x U.2 port * 1 x USB 3.1 Gen2 Type-C port * 2 x USB 3.1 Gen1 connectors (supports additional 4 USB 3.1 Gen1 ports) * 3 x USB 2.0 connectors (supports additional 6 USB 2.0 ports) * 1 x 4-pin CPU fan connector * 1 x 4-pin Water Pump connector * 8 x 4-pin system fan connectors * 2 x Front panel connectors * 1 x Front panel audio connector * 1 x TPM module connector * 1 x Chassis Intrusion connector * 3 x 2-pin Thermal Sensors connectors * 1 x 5050 RGB LED 12V connector (JRGB1) * 1 x Rainbow 5050 RGB LED 5V connector (JRAINBOW1) | * 1 X 24-pin ATX Power Supply connector * 1 X 8-pin ATX 12V Power Connector * 2 X 4-pin CPU\_FAN connector * 2 X 4-pin SYS\_FAN connector * 1 X 4-pin PWR\_FAN connector * 1 X Power on button * 1 X Reset button * 1 X Front Panel switch/LED header * 1 X Front panel audio header * 1 X Speaker header * 1 X USB 3.0 header   + Support additional 2 USB ports * 2 X USB 2.0 header   + Support additional 3 USB ports * 6 X SATA III 6Gb/s connector(s) * 1 X CLR\_CMOS header * 1 X 7S-LED Display * 1 X Chassis intrusion header * 1 X 80P Switch button * 1 X Quick OC button * 1 X BIOS set button * 1 X ROM Backup button * 1 X BIOS Update button * 4 X RGB header |
| DIMENSION | * 12 in. x 10.7 in. (30.5 cm x 27.2 cm) * E-ATX Form Factor | * ATX Form Factor * 305mm x 244mm |

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