



P8Z77-V PRO/THUNDERBOLT

First-choice Thunderbolt™ Z77 Motherboard - Blistering-fast Data Transfers, Blazing Performance Boosts, and DLNA Streaming Made Easy

- Dual Intelligent Processors 3 with SMART DIGI+ Power Control
- SMART DIGI+ - Get a Blazing Performance Boost and CPU Wattage Requirements Cut in Half!
- Thunderbolt onboard - Blistering-fast Data Transfer and Daisy Chain Expansion
- Wi-Fi GO! - DLNA Streaming and Remote Desktop Made Easy
- Fan Xpert 2 - The Most Customizable Fan Controls!
- USB 3.0 Boost - Faster USB 3.0 Transmission with UASP(170%)

Product Highlights

Thunderbolt™ Onboard

"Intel and Asus have worked closely on the implementation of Thunderbolt™ technology onto their motherboards", said Jason Ziller, Intel's Director of Thunderbolt Marketing. "It is our pleasure to state the P8Z77-V PREMIUM is the first Thunderbolt certified motherboard in the industry, a testament to its solid design and compatibility."

An industry first, ASUS has placed Thunderbolt I/O technology onboard, and are set to revolutionize the speed at which peripherals and displays operate. Featuring a maximum bi-directional speed of 10 Gbps, Thunderbolt is 2 times faster than USB 3.0 and an incredible 20 times faster than USB 2.0. And with the ability to daisy-chain up to six devices without the need for a hub or switch, that means less overhead for a clutter free computing experience. For example, users can connect multiple native Thunderbolt storage devices, an HD video capture device and even an HD display to a single Thunderbolt chain while maintaining maximum throughput. You can also connect a DisplayPort, DVI, HDMI or VGA display with an existing adapter.



For a list of certified Thunderbolt products, please visit: <https://thunderbolttechnology.net/products>

Dual Intelligent Processors 3 with SMART DIGI+ Technology

The world's first Dual Intelligent Processors from ASUS pioneered twin onboard chips - TPU (TurboV Processing Unit) and EPU (Energy Processing Unit). Dual Intelligent Processors 3 builds on that foundation with new SMART DIGI+ power control, which includes multiple digital voltage controllers, allowing ultra-precise tuning for the CPU, iGPU and DRAM. It's upgraded with one-click extreme performance optimization and selectable CPU wattage levels, offering easier power control and better power savings with the user-friendly AI Suite II utility.



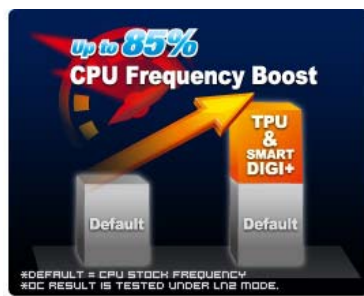
TPU plus SMART DIGI+

TPU with the All-New SMART DIGI+ for a Blazing Performance Boost

Always at the forefront of power design, ASUS propels you into the future standard of power management again by SMART DIGI+ Technology, which works with the TPU (TurboV Processing Unit) to ramps up performance to its maximum. Enable the all-new SMART DIGI+ key with a single click and adjust CPU ratios manually in the TPU to increase CPU frequency up to an incredible 85%!

CPU Wattage Cut in Half!

SMART DIGI+ Technology also includes the Smart CPU Power Level profile, which reduces CPU power consumption to a specific indicated wattage with a single click, creating a cooler and quieter PC. With next generation Intel® VRD 12.5 future power technology, ASUS once again leaps to the future of innovation.



ASUS Exclusive Features

Wi-Fi GO!

Connect Your Life – The Perfect Fusion of Desktop, Smartphones and Pads

ASUS Wi-Fi GO! makes enjoying home entertainment and remote control capabilities easier than ever by linking PCs, pads, smartphones and TV together. With a Wi-Fi module on board, ASUS Wi-Fi GO! adds a host of useful and free Wi-Fi functions, which provide DLNA streaming so you can enjoy a home theater PC, while also providing remote access to your PC with a smart device. This feature leads the market by integrating Wi-Fi connectivity, DLNA access and all smart devices with a one-stop utility for a futuristic connected lifestyle.

> [Click Here to Learn More](#)



1. **Wi-Fi hotspot setup for convenience:** quickly set up and connect anywhere at home thanks to instant soft access point and device detection. Build your network without an extra router!



2. **Turn smartphones and tablets into a remote control:**

- **Remote Desktop:** access your PC from a tablet? No sweat! Control your PC in real-time from a mobile device for complete comfort. This function brings notebook-like convenience, by creating a virtual remote desktop, offering portable access to your data in desktop with a smartphone or pad.
- **Motion control your PC:** entertaining and customizable! Using natural gestures, you can move directionally to use applications with a smartphone or tablet's motion sensors. For example, in media players you can fast forward, go next, stop, or create a music playing motion control profile. You can even program sensor scenarios to design your own motion-based game!
- **Remote keyboard and mouse:** sit back and control your computer by using your tablet's built-in QWERTY keyboard to type and click ! (Ensure to download Wi-Fi GO! Remote to your smart devices either from Android Market or App store.)



3. **DLNA streaming made easy:** enjoy HD content, music and photos from the PC on your DLNA devices via Wi-Fi connectivity, the perfect match for creating your own home theater!

4. **Easy file and screenshot transfers:**

- **File Transfer:** send and share files between your PC and smart devices* with only a right click on the mouse.
- **Capture & Send:** capture and send screen shots from your PC to smart devices directly by pressing the hotkey**

*iPad/iPhone can only send, not receive files from the PC.

**Hotkey set by users.





DLNA Media Hub - Streaming Multimedia Content is Easier Than Before



Easy File and Screenshot Transfers



* Set up Your Home PC with Wi-Fi GO!

1. Wi-Fi environment setup: connect PC and smart devices on the same home network
2. Install Wi-Fi GO! software on your PC
3. Download Wi-Fi GO! Remote to your smart devices (Supported Systems: iOS 4.0 or later & Android 2.3 or later)
4. Set up complete - get a host of useful free apps with ASUS Wi-Fi GO!

Fan Xpert 2

The Most Customizable Cooling Controls, Ever

ASUS Fan Xpert 2 unleash the true potential of your fans for the ultimate cooling and silence. Learn how to become a real fan expert with our easy, informative and flexible fan settings! > [Click Here to Learn More](#)

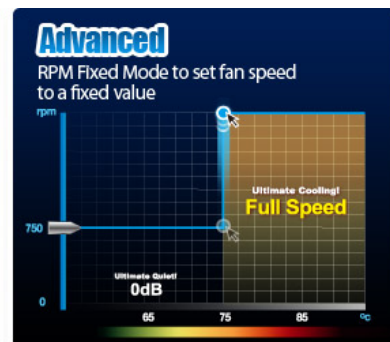
Fan Auto Tuning Mode

Seeing an opportunity for more fine-tuned control, Hardware-level ASUS Fan Xpert 2 literally blows away the competition. It provides an exclusive Fan Auto Tuning Mode to scan each fan's characteristics through the exclusive automatic fan speed detection, giving custom speed settings of each fan with a single click, achieving the best balance of cooling performance and low noise.



RPM Fixed Mode

Fan Xpert 2 also includes an RPM Fixed Mode for users who wish to reduce noise levels to near 0dB with highly specific fan speed control. It reacts to system loads for greater control.



USB 3.0 Boost

Faster USB 3.0 Transmission with UASP

New ASUS USB 3.0 Boost technology supports UASP (USB Attached SCSI Protocol), the latest USB 3.0 standard. With USB 3.0 Boost technology, a USB device's transmission speed is significantly increased up to 170%, adding to an already impressive fast USB 3.0 transfer speed. ASUS software automatically accelerates data speeds for compatible USB 3.0 peripherals without the need for any user interaction. > [Click Here to Learn More](#)

- World's 1st USB 3.0 UASP Support – 170% faster instantly
- Complete USB 3.0 Solution – Performance boost for most USB devices
- Simple Plug & Boost – Auto detection design ensures best performance always



USB BIOS Flashback

Simple Plug & Press - Hardware-based BIOS Flashback

A truly revolutionary hardware-based update solution. USB BIOS Flashback offers the most convenient way ever to update the BIOS! It allows users to update new UEFI BIOS versions even without hardware such as a CPU or DRAM installed into the motherboard. Just plug in a USB flash drive containing the BIOS file, and press the BIOS Flashback button for 3 seconds with the power supply connected. The UEFI



Network iControl

Real-time Network Bandwidth Control

With a single-click on/off button, the application currently in use has its data and network bandwidth prioritized over other programs. Moreover, you can prioritize your favorite software easily by configuring profiles through the intuitive user interface. Within the profile, programs can be pre-scheduled to run in a specific time period to avoid network congestion and long-waits on downloads. Auto PPPoE network connection provides a one-



BIOS will then automatically update without requiring further interaction. With its new, complementary Windows application, users can regularly check for UEFI BIOS updates and download the latest BIOS automatically. Hassle-free updating for the ultimate convenience!



* The image beside is for reference. Please see the BIOS Flashback button on the motherboard for actual appearance.

step setup for enhanced online convenience. Overall, it's an intuitive network bandwidth control center.



LucidLogix Virtu MVP

Up to 60% Hybrid Graphics Boost and 3X Faster Video Conversion

LucidLogix Virtu MVP featuring HyperFormance™ Technology boosts your discrete graphics card up to 60% beyond its original performance through the test of 3DMark Vantage. Designed for Intel® processor graphics and Windows® 7 PCs, it perfectly combines the performance of discrete graphics cards with fast computing iGPU. Also with the newly designed Virtual Sync, users can enjoy a smoother gaming experience by eliminating tearing artifacts. LucidLogix Virtu MVP could also dynamically assign tasks to the best available graphics resource, based on power, performance and system load. This allows users to fully utilize 3x faster video conversion with Intel® Quick Sync Video 2.0 technology while retaining high-end 3D rendering and gaming performance, provided by both NVIDIA® and AMD graphic cards. When the discrete graphics card is not required, power consumption goes automatically down to near zero, making the system more environmentally-friendly. For users searching for perfection, LucidLogix Virtu MVP provides great graphical performance and the best flexibility and efficiency.



* LucidLogix® Virtu Universal MVP™ supports Windows® 7 operating system.

** Intel® Quick Sync Video feature is supported by 3rd/2nd generation Intel® Core™ processor family.

*** System Config: OS: Windows 7 64bit SP1 | MB: P8Z77-V DELUXE | CPU: CPU-1155-QB15-2700K-3.5G-Sandy BRIDGE100-8M

| DIMM: DDR3 G.SKILL 17000CL9Q-16GBZH 4GB * 4 | Lucidvirtu MVP version: V2.1.110.19997 | On-board Intel VGA Driver version: V8.15.10.2598 | ASUS GTX580 Driver version: V8.17.12.8562

Latest Transfer Technology

PCIe 3.0 Ready

The latest PCI Express bus standard delivers improved encoding for twice the performance of current PCIe 2.0. Total bandwidth for a x16 link reaches a maximum of 32GB/s, double the 16GB/s of PCIe 2.0 (in x16 mode). PCIe 3.0 provides users unprecedented data speeds, combined with the convenience and seamless transition offered by complete backward compatibility with PCIe 1.0 and PCIe 2.0 devices. It's a must-have feature for PC users aiming to improve and optimize graphics performance, as well as have the latest, most future-proof technology.



*This motherboard is ready to support PCIe 3.0 SPEC. Functions will be available when using PCIe 3.0-compliant devices. Please refer to www.asus.com for updated details.

ASUS Crystal Sound

DTS Connect

Expand Your PC Audio Experience

To get the most out of your audio entertainment across all formats and quality levels, DTS Connect combines two enabling technologies. DTS Neo:PC™ upmixes stereo sources (CDs, MP3s, WMAs, internet radio) into as many as 7.1 channels of incredible surround sound. Consumers can then connect their PC to a home theater system. DTS Interactive is capable of performing multi-channel encoding of DTS bitstreams on personal computers, and sending encoded bitstreams out of a digital audio connection (such as S/PDIF or HDMI) designed to deliver audio to an external decoder.



DTS UltraPC II

DTS UltraPC II delivers exceptional 7.1 surround through the most popular PC audio setups - your existing stereo speakers or headphones. In addition to virtual surround, it upgrades original sound to new levels with Audio Restoration, recreating the dynamic range of audio files. Symmetry mode improves the balance of perceived loudness across different input sources and Enhance boosts audio quality through high and low frequency equalization. With these technologies, users experience better home theater audio with ease.



CPU, Chipset and Graphics Features

LGA1155 Intel® 3rd/2nd Generation Core™ i7/ Core™ i5/ Core™ i3/ Pentium® / Celeron® Processors Ready

This motherboard supports Intel® 3rd generation Intel® Core™ processor-based platform and 2nd generation Core™ i7/i5/i3/Pentium®/Celeron® processors, with iGPU, memory and PCI Express controllers integrated to support onboard graphics output with dedicated chipsets, 2-channel (4 DIMM) DDR3 memory and 16 PCI Express 3.0/2.0 lanes. This provides great graphics performance. Intel® 3rd generation Intel® Core™ processor-based platform and 2nd generation Core™ i7/i5/i3/Pentium®/Celeron® processors are among the most powerful and energy efficient CPUs in the world.



Intel® Z77 Express Chipset

The Intel® Z77 Express Chipset is a single-chipset design to support socket 1155 Intel® 3rd generation Intel® Core™ processor-based platform and 2nd generation Core™ i7/i5/i3/Pentium®/Celeron® processors. It provides improved performance by utilizing serial point-to-point links, allowing increased bandwidth and stability. Additionally, Z77 chipset provides 4 USB 3.0 ports for 10 times faster data retrieval speed. Moreover, Intel® Z77 Express Chipset can also enable iGPU function, letting users enjoy the latest Intel® integrated graphic performance.

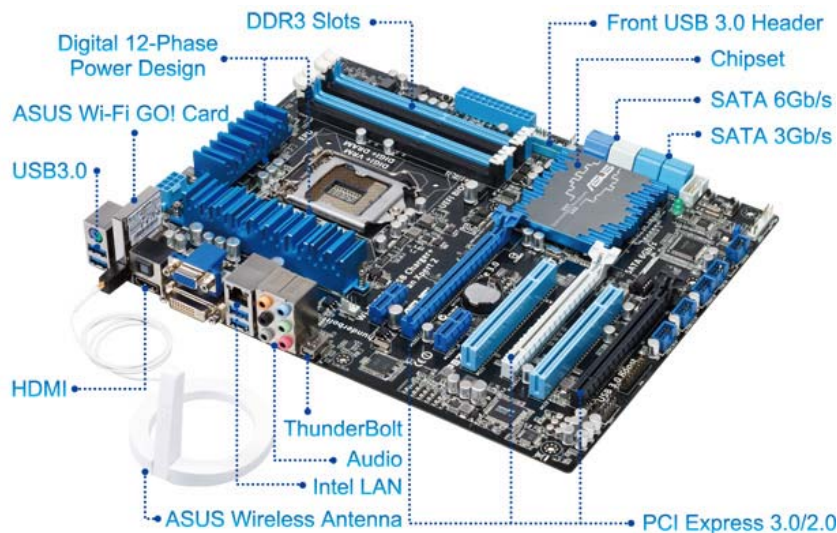


Quad-GPU SLI and Quad-GPU CrossFireX Support!

Flexible Multi-GPU Solutions, Your Weapon of Choice! P8Z77-V PRO brings you the multi-GPU choice of either SLI™ or CrossFireX. The motherboard features the most powerful Intel® Z77 platform to optimize PCIe allocation in multiple GPU configurations. Expect a brand-new gaming style you've never experienced before!



P8Z77-V PRO/THUNDERBOLT Product Overview



Other ASUS Features

Auto Tuning

Achieve extreme yet stable overclocking results automatically



TPU

The Ultimate Turbo Processor



EPU

Energy Efficiency All Around



MemOK!

Quickly ensures memory boot compatibility.



100% Japan-made Solid Cap

Uses 100% Japan-made Solid Capacitor.



AI Suite II

One-stop Access to Innovative ASUS Features



Fanless Heatsink Design

Stylish heatsink features 0-dB thermal solution that offers a noiseless PC environment.



Q-Design

ASUS Q-Design enhances your DIY experience!



Specifications

CPU	Intel® Socket 1155 for 3 rd /2 nd Generation Core™ i7/Core™ i5/Core™ i3/Pentium®/Celeron® Processors Supports Intel® 22 nm CPU Supports Intel® 32 nm CPU Supports Intel® Turbo Boost Technology 2.0 * The Intel® Turbo Boost Technology 2.0 support depends on the CPU types.
Chipset	Intel® Z77
Memory	4 x DIMM, Max. 32GB, DDR3 2600(O.C.)/2400(O.C.)/2200(O.C.)/2133(O.C.)/2000(O.C.)/1866(O.C.)/1800(O.C.)/1600/1333 MHz Non-ECC, Un-buffered Memory Dual Channel Memory Architecture Supports Intel® Extreme Memory Profile (XMP)

	<p>* Hyper DIMM support is subject to the physical characteristics of individual CPUs.</p> <p>* Refer to www.asus.com or user manual for the Memory QVL (Qualified Vendors Lists).</p>
Thunderbolt	<p>VGA output support</p> <p>Data transfer rate up to 10 Gbps</p> <p>Daisy-chain up to 6 Thunderbolt devices</p>
Graphic	<p>Integrated Graphics Processor</p> <p>Multi-VGA output support : HDMI/DVI/RGB/Thunderbolt ports</p> <ul style="list-style-type: none"> - Supports HDMI with max. resolution 1920 x 1200 @ 60 Hz - Supports DVI with max. resolution 1920 x 1200 @ 60 Hz - Supports RGB with max. resolution 2048 x 1536 @ 75 Hz - Supports Thunderbolt with max. resolution 2560 x 1600 @ 60 Hz <p>Supports Intel® HD Graphics, InTru™ 3D, Quick Sync Video, Clear Video HD Technology, Insider™</p>
Multi-GPU Support	<p>Supports NVIDIA® Quad-GPU SLI™ Technology *¹</p> <p>Supports AMD Quad-GPU CrossFireX™ Technology</p> <p>Supports AMD 3-Way CrossFireX™ Technology</p> <p>Supports LucidLogix® Virtu™ MVP Technology *²</p>
Expansion Slots	<p>3 x PCIe 3.0/2.0 x16 *³</p> <p>2 x PCIe 2.0 x16 *⁴</p> <p>2 x PCIe 2.0 x1</p>
Storage	<p>Intel® Z77 chipset : *⁵</p> <p>2 x SATA 6Gb/s port(s), gray</p> <p>4 x SATA 3Gb/s port(s), blue</p> <p>Support Raid 0, 1, 5, 10</p> <p>Supports Intel® Smart Response Technology, Intel® Rapid Start Technology, Intel® Smart Connect Technology *⁵</p> <p>ASMedia® PCIe SATA controller : *⁶</p> <p>2 x SATA 6Gb/s port(s), navy blue</p>
LAN	<p>Intel® 82579V, 1 x Gigabit LAN Controller(s)</p> <p>Intel® LAN- Dual interconnect between the Integrated LAN controller and Physical Layer (PHY)</p>
Wireless Data Network	<p>Wi-Fi 802.11 b/g/n</p> <p>Supports single band frequency 2.4GHz</p>
Audio	<p>Realtek® ALC892 8-Channel High Definition Audio CODEC</p> <ul style="list-style-type: none"> - Supports : Jack-detection, Multi-streaming, Front Panel Jack-retasking <p>Audio Feature :</p> <ul style="list-style-type: none"> - Absolute Pitch 192kHz/ 24-bit True BD Lossless Sound - DTS Ultra PC II - DTS Connect - Optical S/PDIF out port(s) at back panel
USB Ports	<p>ASMedia® USB 3.0 controller : *⁷</p> <p>2 x USB 3.0 port(s) (2 at back panel, blue)</p> <p>Intel® Z77 chipset : *⁸</p> <p>4 x USB 3.0 port(s) (2 at back panel, blue, 2 at mid-board)</p> <p>Intel® Z77 chipset :</p> <p>10 x USB 2.0 port(s) (10 at mid-board)</p>
Overclocking Features	<p>Overclocking Protection :</p> <ul style="list-style-type: none"> - ASUS C.P.R.(CPU Parameter Recall)
Special Features	<p>ASUS Dual Intelligent Processors 3 - SMART DIGI+ Power Control :</p> <p>SMART DIGI+ :</p> <ul style="list-style-type: none"> - Smart DIGI+ Key- quickly delivers higher VRM frequency, voltage and current for superior CPU/iGPU/DRAM overclocking performance with one switch. - Smart CPU Power Level (Intel® VRD 12.5 Future Power Design)- provides the best digital power saving conditions. <p>ASUS TPU :</p> <ul style="list-style-type: none"> - Auto Tuning - TurboV - GPU Boost - TPU switch <p>ASUS EPU :</p> <ul style="list-style-type: none"> - EPU - EPU switch <p>ASUS Digital Power Design :</p> <ul style="list-style-type: none"> - Industry leading Digital 12 Phase Power Design (8 -phase for CPU, 4 -phase for iGPU) - Industry leading Digital 2 Phase DRAM Power Design - CPU Power Utility - DRAM Power Utility <p>ASUS Wi-Fi GO!</p> <ul style="list-style-type: none"> - Wi-Fi GO! Function: DLNA Media Hub, Smart Motion Control, Remote Desktop, Remote Keyboard & Mouse, File Transfer, Capture & Send - Wi-Fi GO! Remote for portable Smartphone/Tablet, supporting iOS & Android systems - Wi-Fi Engine for network sharing and connection: Client Mode, AP Mode <p>ASUS Exclusive Features :</p> <ul style="list-style-type: none"> - USB BIOS Flashback - MemOK! - AI Suite II - Ai Charger+

	<ul style="list-style-type: none"> - USB Charger+ - Anti-Surge - ASUS UEFI BIOS EZ Mode featuring friendly graphics user interface - Network iControl - USB 3.0 Boost - Disk Unlocker <p>ASUS Quiet Thermal Solution :</p> <ul style="list-style-type: none"> - Stylish Fanless Design Heat-sink solution - ASUS Fan Xpert 2 <p>ASUS EZ DIY :</p> <ul style="list-style-type: none"> - ASUS O.C. Tuner - ASUS CrashFree BIOS 3 - ASUS EZ Flash 2 <p>ASUS Q-Design :</p> <ul style="list-style-type: none"> - ASUS Q-Shield - ASUS Q-LED (CPU, DRAM, VGA, Boot Device LED) - ASUS Q-Slot - ASUS Q-DIMM - ASUS Q-Connector
Back I/O Ports	1 x PS/2 keyboard/mouse combo port(s) 1 x DVI-D 1 x D-Sub 1 x Thunderbolt port(s) * ⁹ 1 x HDMI 1 x LAN (RJ45) port(s) 4 x USB 3.0 1 x Optical S/PDIF out 6 x Audio jack(s) 1 x WLAN connector(s) for ASUS wireless module
Internal I/O Ports	1 x USB 3.0 connector(s) support(s) additional 2 USB 3.0 port(s) (19-pin) 5 x USB 2.0 connector(s) support(s) additional 10 USB 2.0 port(s) 1 x TPM connector(s) 1 x COM port(s) connector(s) 4 x SATA 6Gb/s connector(s) 4 x SATA 3Gb/s connector(s) 1 x CPU Fan connector(s) (4 -pin) 1 x CPU OPT Fan connector(s) (4 -pin) 3 x Chassis Fan connector(s) (4 -pin) 1 x S/PDIF out header(s) 1 x 24-pin EATX Power connector(s) 1 x 8-pin ATX 12V Power connector(s) 1 x Front panel audio connector(s) (AAFP) 1 x System panel(s) (Q-Connector) 1 x MemOK! button(s) 1 x TPU switch(es) 1 x EPU switch(es) 1 x CPU/DRAM overvoltage jumper(s) 1 x Clear CMOS jumper(s) 1 x USB BIOS Flashback button(s)
Accessories	User's manual ASUS Q-Shield 2 x SATA 3Gb/s cable(s) 2 x SATA 6Gb/s cable(s) 1 x SLI bridge(s) 1 x Q-connector(s) (2 in 1) 1 x 2-port USB 2.0 and eSATA module(s) 1 x ASUS Wi-Fi GO! card(s) 1 x Wi-Fi Ring Moving Antenna(s)
BIOS	64 Mb Flash ROM, UEFI AMI BIOS, PnP, DMI2.0, WfM2.0, SM BIOS 2.5, ACPI 2.0a, Multi-language BIOS, ASUS EZ Flash 2, ASUS CrashFree BIOS 3, F12 PrintScreen, F3 Shortcut Function and ASUS DRAM SPD (Serial Presence Detect) memory information
Manageability	WfM 2.0, DMI 2.0, WOL by PME, PXE
Support Disc	Drivers ASUS Utilities ASUS Update Anti-virus software (OEM version)
Form Factor	ATX Form Factor 12 inch x 9.6 inch (30.5 cm x 24.4 cm)
Note	*1: With 2 PCIeX16 graphics cards *2: LucidLogix Virtu MVP supports Windows® 7 operating systems. *3: PCIe 3.0 speed is supported by Intel® 3rd generation Core™ processors. Install the Ivy Bridge CPU before installing a device on the PCIeX16_3 slot. *4: The PCIe x1_2 slot shares bandwidth with SATA6G_E12. SATA6G_E12 is enabled by default for system resource optimization. *5: Supports on Intel® Core™ processor family with Windows® 7 operating systems.

*6: These SATA ports are for data hard drivers only. ATAPI devices are not supported.

*7: Supports ASUS USB 3.0 Boost UASP Mode.

*8: Supports ASUS USB 3.0 Boost Turbo Mode.

*9: Thunderbolt port shares bandwidth with SATA6G_E12, USB3_E12 and PCIeX1_2. The Thunderbolt port default runs at X2(Auto) mode, SATA6G_E12 and USB3_E12 are enabled for system resource optimization. Go to Advanced> Onboard Devices Configuration> Thunderbolt bandwidth in BIOS to configure the bandwidth to [X4] for full speed support.