Z87 OC FORMULA

Intel® Z87 Chipset

ASRock







HDMI-In

Product Brief



- Supports NickShih's OC Profile, Formula Drive, FAN-Tastic Tuning
- Supports Fine-Tuning V-Controller, Interactive UEFI, Timing Configurator, USB Key
- Supports Rapid OC, PCIe ON/OFF, V-Probe
- Free Bundle : 1 x Front USB 3.0 Panel with 2.5" HDD/SSD Rack, 10 x OC Stands

Detail Specification

Platform
- EATX Form Factor
- Premium Gold Capacitor design (100% Japan-made high-quality Conductive Polymer Capacitors)

A-Style
- Home Cloud
- Conformal Coating
- Purity Sound™
- HDMI-In

OC Formula Kit

OC Formula Power Kit
- 12 Power Phase Design
- Digi Power
- Dual-Stack MOSFET (DSM)
- Multiple Filter Cap (MFC) (Filters different noises by 3 different capacitors: DIP cap, DIP cap, POSCAP and MLCC)
- Premium Alloy Choke (Reduces 70% core loss compared to iron powder choke)

OC Formula Connector Kit
- Hi-Density Power Connector (8 pin)
- 15μ Gold Finger (CPU socket, memory slots and PCIEx16 slots)
- Distortion-Free Slot

OC Formula Cooling Kit
- Twin-Power Cooling (Combine active air cooling and water cooling)
- 8 Layer PCB
- 4 x 2oz Copper
- GELID Solutions GC-Extreme Thermal Compound

OC Formula Monitor Kit
- Status OLED
- Multi Thermal Sensor

CPU
- Supports 4th Generation Intel® Core™ i7 / i5 / i3 / Xeon® / Pentium® / Celeron® in LGA1150 Package
- Supports Intel® Turbo Boost 2.0 Technology
- Supports Intel® K-Series unlocked CPU
- Supports ASRock BCLK Full-range Overclocking

Chipset
- Intel® Z87

Memory
- Dual Channel DDR3 memory technology
- 4 x DDR3 DIMM slots
- Supports DDR3 3000+(OC)/2933(OC)/2800(OC)/2400(OC)/2133(OC)/1866(OC)/1600/1333/1066 non-ECC, un-buffered memory
- Max. capacity of system memory: 32GB
- Supports Intel® Extreme Memory Profile (XMP) 1.3 / 1.2
- Distortion-Free Slot

Expansion Slot
- 3 x PCI Express 3.0 x16 slots (PCIE1/PCIE2/PCIE4: single at x16 (PCIE1); dual at x8 (PCIE1) / x8 (PCIE2); triple at x8 (PCIE1) / x4 (PCIE2) / x4 (PCIE4))
- 1 x PCI Express 2.0 x16 slot (PCIE6: x4 mode)
- 2 x PCI Express 2.0 x1 slots
- 1 x mini-PCI Express slot

*mini-PCI Express slot is shared with PCIE5 slot.
- PLX8605 embedded
- Supports AMD Quad CrossFireX™, 4-Way CrossFireX™, 3-Way CrossFireX™ and CrossFireX™
- Supports NVIDIA® Quad SLI™ and SLI™

Graphics

* Intel® HD Graphics Built-in Visuals and the VGA outputs can be supported only with processors which are GPU integrated.
- Supports Intel® HD Graphics Built-in Visuals : Intel® Quick Sync Video with AVC, MVC (S3D) and MPEG-2 Full HW Encode1, Intel® InTru™ 3D, Intel® Clear Video HD Technology, Intel® Insider™, Intel® HD Graphics 4400/4600
- Pixel Shader 5.0, DirectX 11.1
- Max. shared memory 1792MB
- Supports HDMI Technology with max. resolution up to 4K x 2K (4096x2304) @ 24Hz
- Supports Auto Lip Sync, Deep Color (12bpc), xvYCC and HBR (High Bit Rate Audio) with HDMI (Compliant HDMI monitor is required)
- Supports HDCP function with HDMI port
- Supports Full HD 1080p Blu-ray (BD) playback with HDMI port

Audio
- 7.1 CH HD Audio with Content Protection (Realtek ALC1150 Audio Codec)
- Premium Blu-ray audio support
- Supports Purity Sound™
  - 115dB SNR DAC with differential amplifier
  - TI® NE5532 Premium Headset Amplifier (supports up to 600 Ohms headsets)
  - Direct Drive Technology
  - EMI shielding cover
  - PCB isolate shielding
- Supports DTS Connect

LAN
- Gigabit LAN 10/100/1000 Mb/s
- Giga PHY Intel® I217V
- Supports Intel® Remote Wake Technology
- Supports Wake-On-LAN
- Supports Energy Efficient Ethernet 802.3az
- Supports PXE

Rear Panel I/O
- 1 x PS/2 Mouse/Keyboard Port
- 1 x HDMI-Out Port
- 1 x HDMI-In Port
- 1 x Optical SPDIF Out Port
- 2 x USB 2.0 Ports
- 4 x USB 3.0 Ports (Intel® Z87)

* USB3_10_11 is shared with PCIE6. If the PCIE6 slot is occupied, USB3_10_11 shifts to USB 2.0.
- 4 x USB 3.0 Ports (Etron EJ188H)
- 1 x RJ-45 LAN Port with LED (ACT/LINK LED and SPEED LED)
- 1 x Clear CMOS Button
- HD Audio Jack: Rear Speaker / Central / Bass / Line in / Front Speaker / Microphone

Storage
- 6 x SATA3 6.0 Gb/s connectors by Intel® Z87, support RAID (RAID 0, RAID 1, RAID 5, RAID 10, Intel Rapid Storage Technology 12 and Intel Smart Response Technology), NCQ, AHCI and Hot Plug
- 4 x SATA3 6.0 Gb/s connectors by ASMedia ASM1061, support NCQ, AHCI and Hot Plug

Connector
- 1 x COM port header
- 1 x Power LED header
- 2 x CPU Fan connectors (1 x 4-pin, 1 x 3-pin)
- 4 x Chassis Fan connectors (1 x 4-pin, 3 x 3-pin)
- 1 x Power Fan connector (3-pin)
- 1 x MOS Fan connector (3-pin)
- 1 x 24 pin ATX power connector
- 2 x 8 pin 12V power connectors (Hi-Density Power Connector)
- 1 x SLI/XFire power connector
- 1 x Front panel audio connector
- 2 x USB 2.0 headers (support 4 USB 2.0 ports)
- 1 x Vertical Type A USB 3.0
- 2 x USB 3.0 headers (support 4 USB 3.0 ports)
- 1 x Power Switch with LED
- 1 x Reset Switch with LED
- 1 x Clear CMOS Switch
- V-Probe™: 2 x 7 set of onboard voltage measurement points laid
- Rapid OC Button: +/- buttons to adjust the frequency
- 1 x PCIe ON/OFF Switch
- 1 x Post Status Checker (PSC)
- 1 x Slow Mode Switch
- 1 x LN2 Mode Switch
- 1 x BIOS Selection Switch

BIOS Feature
- 2 x 64Mb AMI UEFI Legal BIOS with Multilingual GUI support (1 x Main BIOS and 1 x Backup BIOS)
- Supports Secure Backup UEFI Technology
- ACPI 1.1 Compliance Wake Up Events
- SMBIOS 2.3.1 Support
- CPU, DRAM, PCH 1.05V, PCH 1.5V Voltage Multi-adjustment

Support CD
- Drivers, Utilities, AntiVirus Software (Trial Version), CyberLink MediaEspresso 6.5 Trial, Google Chrome Browser and Toolbar, Start8 (30 days trial), MeshCentral, Splashtop Streamer

Unique Feature
- ASRock Formula Drive
- ASRock Instant Flash
- ASRock APP Charger
- ASRock XFast USB
- ASRock XFast LAN
- ASRock XFast RAM
- ASRock Crashless BIOS
- ASRock OMG (Online Management Guard)
- ASRock Internet Flash
- ASRock UEFI System Browser
- ASRock UEFI Tech Service
- ASRock Dehumidifier Function
- ASRock Easy RAID Installer
- ASRock Interactive UEFI
- ASRock Fast Boot
- ASRock Restart to UEFI
- NickShih's OC Profile
- Fine-Tuning V-Controller
- Timing Configurator
- ASRock USB Key
- ASRock FAN-Tastic Tuning
- Hybrid Booster:
  - CPU Frequency Stepless Control
  - ASRock U-COP
  - Boot Failure Guard (B.F.G.)
- Good Night LED

Hardware Monitor
- CPU/Chassis/Power/MOS Temperature Sensing
- CPU/Chassis/Power/MOS Fan Tachometer
- CPU/Chassis/MOS Quiet Fan (Allows Chassis Fan Speed Auto-Adjust by CPU Temperature)
- CPU/Chassis/MOS Fan Multi-Speed Control
- Multi Thermal Sensor
- Voltage Monitoring: +12V, +5V, +3.3V, CPU Vcore
- 1 x Status OLED

OS
- Microsoft® Windows® 8 / 8 64-bit / 7 / 7 64-bit compliant

Certifications
- FCC, CE, WHQL
- ErP/EuP Ready (ErP/EuP ready power supply is required)

Accessories
- 1 x ASRock Flexible SLI Bridge Connector Cable
- Quick Installation Guide, Support CD, I/O Shield
- 10 x SATA Data Cables
- 2 x SATA 1 to 1 Power Cables
- 1 x Front USB 3.0 Panel with 2.5" HDD/SSD Rack
- 4 x HDD Screws
- 6 x Chassis Screws
- 1 x Rear USB 3.0 Bracket
- 10 x OC Stands
- GELID Solutions GC-Extreme Thermal Compound
- 1 x WiFi Module Screw

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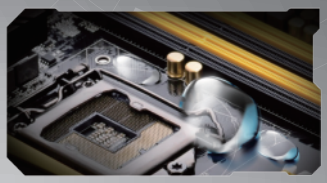
A-STYLE



Waterproof by Conformal Coating

Conductive liquids such as water pretty much destroy all kinds of electronics on contact. That's why ASRock has implemented a special layer of Conformal Coating on our motherboards, which makes the motherboards invulnerable to conductive liquids, corrosion and dust. Users won't have to worry about spilling liquid nitrogen, liquid helium or even clam chowder over their motherboards while overclocking.



HDMI-In

Connect your PC and another device to one monitor and toggle between the primary and secondary screen without replugging the connectors every time.



Home Cloud

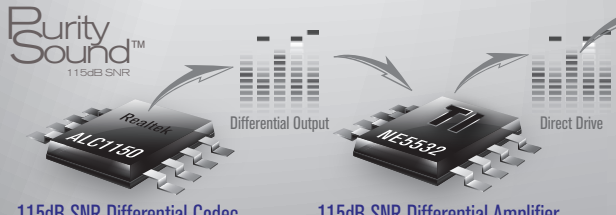
Intel® Ethernet

This motherboard supports remote wake with the onboard Intel LAN, so you can connect with your PC from anywhere in the world. You will be able to power your PC on or turn it off, monitor and take control of it remotely with another smartphone, tablet or computer.



Purity Sound™ 115dB SNR

Purity Sound™ is a combination of several hardware, software audio solutions and technologies that will satisfy even the pickiest audiophiles.



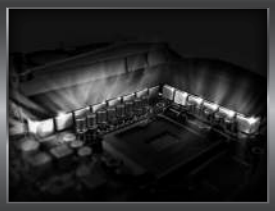
115dB SNR Differential Codec

115dB SNR Differential Amplifier

Purity Sound™ brings you:

- 115dB SNR
- Excellent Bass
- Less Sound Distortion
- More Details
- Supports up to 600ohm headphones

POWER KIT



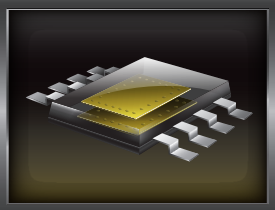
12 Power Phase Design

Designed with a 12 Power Phase Design, this motherboard features sturdy components and completely smooth power delivery to the CPU. Plus, it offers unmatched overclocking capabilities and enhanced performance with the lowest temperature for advanced gamers as well.



Premium Alloy Choke (PAC)

Compared to iron powder chokes, Premium Alloy Chokes highlight a special alloy formula which is able to reduce up to 70% core loss. Moreover, the revolutionary choke construction features a highly magnetic and heat resistant design increasing the board's lifespan.



Dual-Stack MOSFET (DSM)

By stacking two dies into one MOSFET, DSM provides larger die area and lower Rds(on), so the power supply for the CPU Vcore is more efficient.

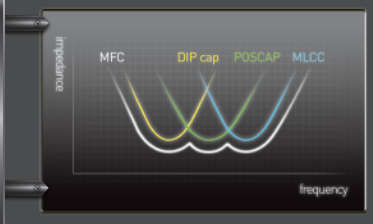


Digi Power

This motherboard uses a digital PWM (Pulse-Width Modulation) design, providing CPU Vcore voltage more efficiently and smoothly.



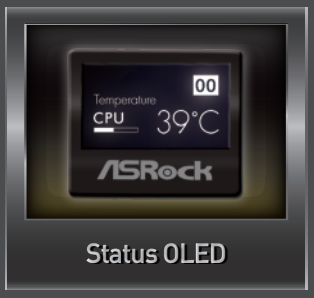
Multiple Filter Cap (MFC)



With the combined power of three kinds of capacitors, MFC allows users to overclock their PC rig to extreme levels without worrying about the hardware components.

MONITOR KIT





Status OLED

Status OLED shows various information of the system on a new high resolution OLED screen. Now you can use three buttons to toggle between information of the power on self test, debug codes, the current time, temperatures, frequencies and voltages of various points on the motherboard.



Multi Thermal Sensor

Multi Thermal Sensor provides users the temperature of various parts of the motherboard graphically, so that users may precisely keep track and control the temperature of each part of their motherboard when overclocking.

COOLING KIT



Twin-Power Cooling

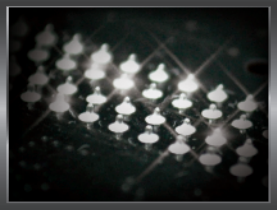
Twin-Power Cooling combines active air cooling with water cooling. The ultimate heat pipe cooling design maximizes the system's convection to expel hot air, providing better air flow and faster heat dissipation.



GELID Solutions GC-Extreme Thermal Compound

GELID Solutions GC-Extreme Thermal Compound is an added bonus that allows overclockers to stabilize the CPU's temperature.

CONNECTOR KIT



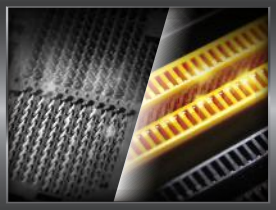
Distortion-Free Slot

ASRock's new pin design for the memory slots that effectively reduces distortion and promotes performance.



Hi-Density Power Connector

With Hi-Density Power Connectors for the motherboard's CPU power connector, it can reduce 23% power loss and decrease the connector's temperature up to 22°C.



15µ Gold Finger

Compared to other boards that come with only 3-4µ gold, this motherboard provides 15 µ gold within the CPU socket, DRAM slots and PCIE x16 slots, thus delivering three times better performance than usual.



8 Layer PCB

The 8 Layer PCB comes with 4 sets of 2 ounce copper inner layers, using only carefully selected copper materials for its PCB layers, delivering lower temperature and higher energy efficiency for overclocking.

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NickShih's OC Profile

Nick Shih's OC Profile offers presets for different levels of overclocking. It's your chance to learn a few tricks from the champion.



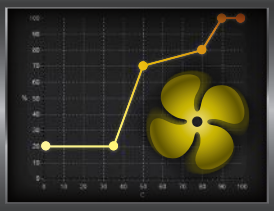
Interactive UEFI

ASRock Interactive UEFI is a blend of system configuration tools, cool sound effects and stunning visuals. The unprecedented UEFI provides a more attractive interface and brings a lot more amusing.



Formula Drive

ASRock Formula Drive is an all-in-one software for fine tuning different features in an user friendly interface.



FAN-Tastic Tuning

FAN-Tastic Tuning offers the flexibility to adjust the fan speed (RPM) relative to the system temperature. Users are able to adjust the setting by clicking the "+/-" and confirm by "APPLY" afterwards.



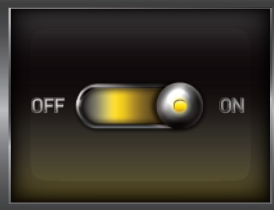
Rapid OC

The onboard Rapid OC buttons allows overclockers to manually raise or lower the CPU ratio, BCLK frequency and CPU Vcore voltage. Use it to find your CPU's best margin.



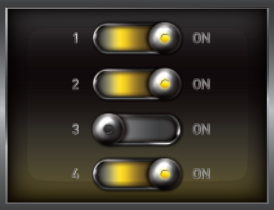
LN2 Mode

Use the onboard switch to activate LN2 Mode to disable the CPU's thermal protection.



Slow Mode

Use the onboard switch to toggle Slow Mode for forcing your CPU to run at its lowest frequency.



PCIe ON/OFF

For those who constantly need to remove and reinstall their PCIe cards, but fear of damaging the motherboard and its components, use the PCIe ON/OFF switches to enable or disable the PCIe slots with a flick of your finger.



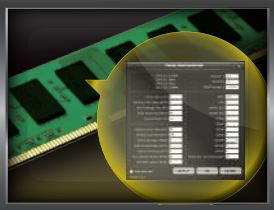
Fine-Tuning V-Controller

Fine-Tuning V-Controller is a new collection of voltage fine tuning options in the ASRock UEFI Setup Utility. It provides more than enough voltage configuration options for overclockers who wish to pursuit extremes.



V-Probe

V-Probe™ is a set of detection points laid on the motherboard. It allows overclockers to get accurate voltage readings via a multitester.



Timing Configurator

Timing Configurator is a fast and easy tool that provides users with an abundant collection of subtle DRAM settings for professional tweaking. It is an independent application that runs under Windows® OS and your changes will take effect immediately.



XFast 555

ASRock unique XFast 555 Technology (XFast RAM, XFast LAN, and XFast USB) allows users to experience 5 times performance boost in terms of system performance, LAN speed and USB transfer speed.

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