

User Guide

EVGA Z97 FTW

**Specs and Initial Installation
(Part 1)**

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Before You Begin...

Welcome to a new class of high performance motherboards that boast 4th and 5th Generation Intel® Core™ Processor compatibility. The Z97 platform takes you to a new level of performance and efficiency. We have refined the GUI BIOS interface, reimagined power VRM that focuses on efficiency, added M.2 support and loaded with features like 2-Way-SLI, Intel Gigabit LAN, native SATA 6G/USB 3.0 and more. All sitting on a 6 layer PCB to improve performance and efficiency.

Did we also mention that this motherboard is designed for the overclocker? Built from the ground up to give you all the essentials that you need for overclocking, with a GUI BIOS that is focused on functionality, ultra high quality components and robust PCI-E 3.0 and memory trace layout.

With these features and more, it is clear that the EVGA Z97 motherboards are engineered to exceed the best.

Parts NOT in the Kit

This kit contains all the hardware necessary to install and connect your new EVGA Z97 FTW Motherboard. However, it does NOT contain the following items that must be purchased separately in order to make the system fully functional and install an Operating System:

- ❑ **Intel -Socket 1150 Processor**
- ❑ **DDR3 System Memory**
- ❑ **CPU Cooling Device**
- ❑ **PCI Express Graphics Card**
- ❑ **Power Supply**
- ❑ **Hard Drive or SSD**
- ❑ **Keyboard / Mouse**
- ❑ **Monitor**
- ❑ **(Optional) Optical Drive**

EVGA assumes you have purchased all the necessary parts needed to allow for proper system functionality. For a full list of supported CPUs on this motherboard, please visit www.evga.com/support/motherboard

Intentions of the Kit

This kit provides you with the motherboard and all connecting cables necessary to install the motherboard into a PC case.

When replacing a motherboard in a PC case, you will need to reinstall an operating system even though the current storage drive may already have one installed.

EVGA Z97

Motherboard

Motherboard Specifications

- ❑ **Size:**
 - ATX form factor of 12 inches x 9.6 inches
- ❑ **Microprocessor support:**
 - Intel Socket 1150 Processor
- ❑ **Operating Systems:**
 - Supports Windows 8 / 7
- ❑ **Contains Intel Z97 chipset**
- ❑ **System Memory support:**
 - Supports Dual channel DDR3 up to 2666MHz+.
 - Officially supports up to 32GB of DDR3 memory.
- ❑ **USB 2.0 Ports:**
 - 6x from Intel Z97 PCH – 4x external, 2x internal
 - Supports hot plug
 - Supports wake-up from S1 and S3 mode
 - Supports USB 2.0 protocol up to a 480 Mbps transmission rate
- ❑ **USB 3.0 Ports:**
 - 6x from Intel Z97 PCH – 4x external, 2x internal
 - Supports transfer speeds up to 5Gbps
 - Backwards compatible USB 2.0 and USB 1.1 support
- ❑ **SATA Ports:**
 - Intel Z97 PCH Controller
 - 6x SATA 3 Ports up to 6G (600 MB/s) data transfer rate
 - Support for RAID 0, RAID 1, RAID 0+1, RAID 5, AND RAID 10

- Supports hot plug
2x SATA3/6G Marvell 88E9182

❑ **Onboard LAN:**

1x Intel i217 Gigabit PHY
Supports 10/100/1000 Mb/sec Ethernet

❑ **Onboard Audio:**

Realtek Audio (ALC898)
Supports 8-channel (7.1) audio
Supports Jack-Sensing function
Supports Optical Output

❑ **PCI-E 3.0 Support:**

Low power consumption and power management features

❑ **Power Functions:**

Supports ACPI (Advanced Configuration and Power Interface)
Supports S0 (normal), S1 (power on suspend), S3 (suspend to RAM), S4
(Suspend to disk - depends on OS), and S5 (soft - off)

❑ **Expansion Slots:**

4x PCI-E 16x slot 1x16/8, 1x8/4, 1x4, 1x1
1x PCI-E 1x slot
1x M.2 slot

❑ **1x Display Port (Full size)**

❑ **1x HDMI Port (Full Size)**

Unpacking and Parts Descriptions

Equipment

The following accessories are included with the EVGA Z97 FTW Motherboard:



The EVGA Z97 FTW Motherboard

This PCI-E motherboard contains the Intel Z97 chipset.



I/O Shield

Installs in the system case to block radio frequency transmissions, protect internal components from dust, foreign objects, and aids in proper airflow within the chassis.



4 x SATA 3G/6G Data Cables

Used to support the SATA protocol and each one connects a single drive to the motherboard.



I/O Cover

This optional cover attaches to the PCB and covers the I/O area



Installation CD

Contains drivers and software needed to setup the motherboard.



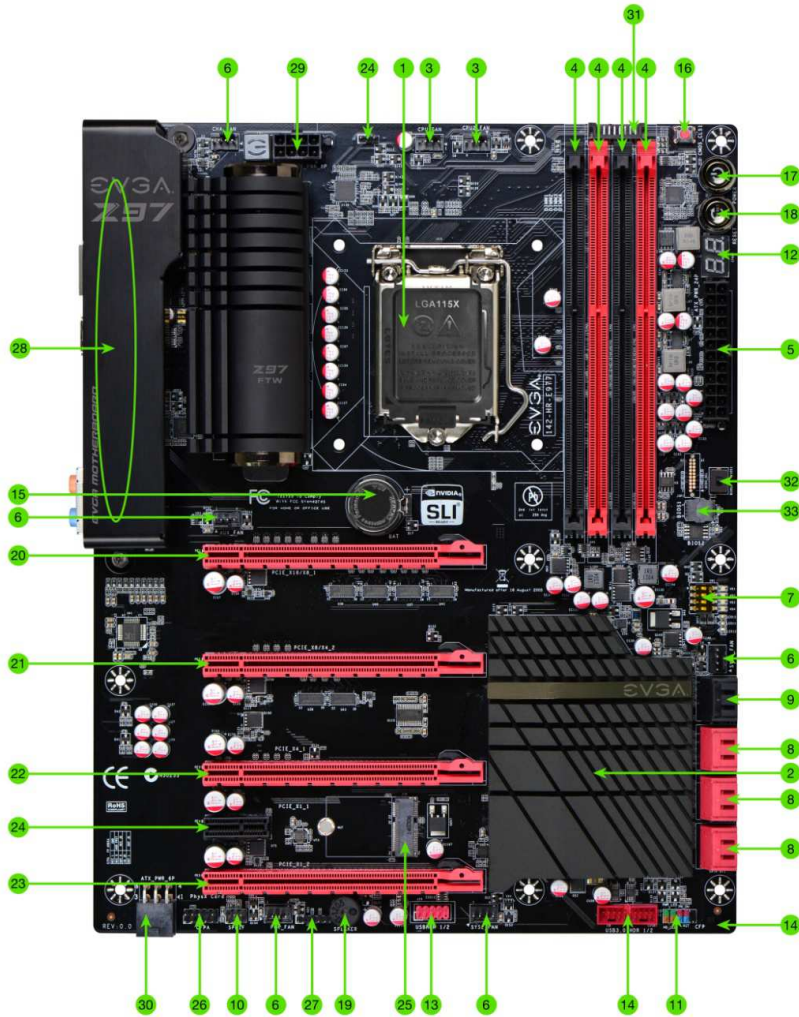
User Manual

The user manual you are reading right now!

Intel Z97 FTW Motherboard

The EVGA Z97 FTW Motherboard with the Intel Z97 and PCH Chipset. Figure 1 shows the motherboard and Figure 2 shows the back panel connectors

FIGURE 1. Z97 FTW Motherboard Layout

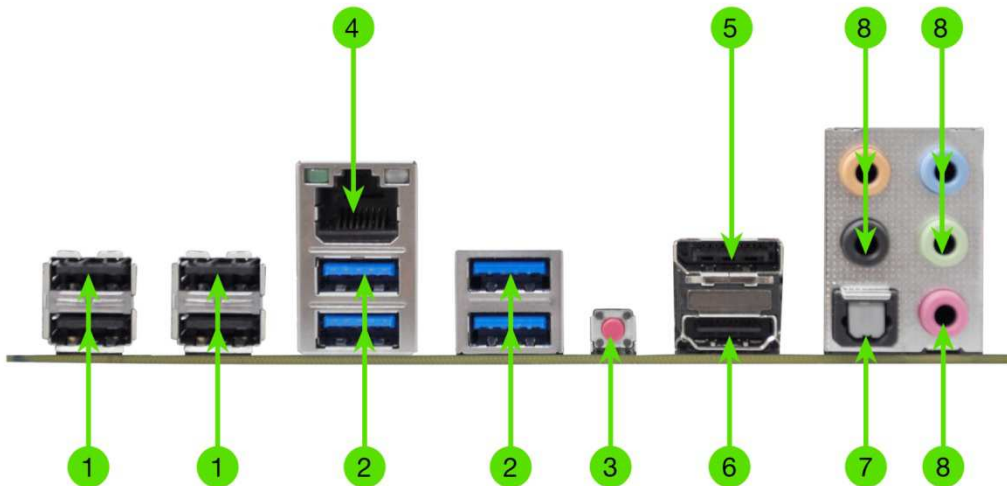


1. CPU Socket 1150	13. USB 2.0 Headers	25. M.2 Slot
2. Intel Z97 Southbridge	14. USB 3.0 Headers	26. Front Panel Audio Connector
3. CPU Fan Headers (1 amp PWM)	15. CMOS Battery	27. EVGauge
4. DDR3 Memory DIMM Slots 1-4	16. CMOS Reset Button	28. Back Panel Connectors (Figure 2)
5. 24-pin ATX power connector	17. Power Button	29. 8 pin EPS Connector
6. Fan Headers (1 amp DC)	18. Reset Button	30. Supplemental PCI-E 6pin Power
7. PCI-E Disable Dipswitches	19. PC Speaker	31. Probe It Header
8. Intel Sata 6G/3G Ports	20. PCI-E Slot 16x/8x	32. BIOS Selector Switch
9. Marvell Sata 6G Ports	21. PCI-E Slot 8x/4x	33. Removable BIOS Chip
10. S/PDIF Out	22. PCI-E Slot 4x (16x physical)	34. Debug Jumper
11. Front Panel Connectors	23. PCI-E Slot 1x (16x physical)	
12. Debug LED / CPU Temp Monitor	24. PCI-E Slot 1x	

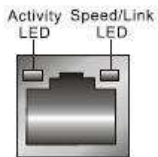
PCI-E Lane Distribution

- ❑ PE1 – x16 (x8 if PE2 is used)
- ❑ PE2 – x8 (x4 if PE3 is used)
- ❑ PE3 – x4
- ❑ PE4 – x1
- ❑ PE5 – x1 (x16 Physical)

Figure 2. Chassis Rear Panel Connectors



1. USB 2.0	4. NIC Port (Intel i217)	7. Optical Out
2. USB 3.0	5. Display Port	8. Analog Audio Output Jacks
3. BIOS/CMOS Reset	6. HDMI	



Activity LED Status	Description
Off	No data transmission
Blinking (Green)	Data transmission

Speed/Link LED Status	Description
Yellow	1000 Mbps data rate
Green	100 Mbps data rate
Off	10 Mbps data rate

Analog Audio Port Breakdown	2/2.1 (Channel)	(4.0/4.1 Channel)	5.1 (6 Channel)	7.1 (8 Channel)
Blue	Line in	Line In	Line in	* Side channel
Green	Line Out/ Speaker Out	Front Speaker/ Speaker+Sub Out	Front Speaker/ Speaker+Sub Out	Front Speaker/ Speaker+Sub Out
Pink	Mic In	Mic In	Mic In	Mic In
Black		Rear Speaker Out	Rear Speaker Out	Rear Speaker Out
Orange			Center/Voice channel	Center/Voice channel

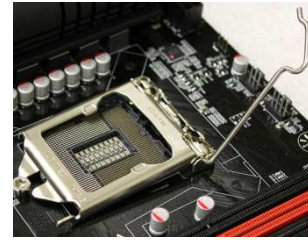
* Only used in 7.1 and is changed via Realtek Software from within Windows.

Preparing the Motherboard

Installing the CPU

Be very careful when handling the CPU. Hold the processor only by the edges and do not touch the bottom of the processor.

Note: Use extreme caution when working with the CPU, not to damage any pins in the CPU socket on the motherboard!



Use the following procedure to install the CPU onto the motherboard:

- ❑ Remove the plastic protective socket cover by pulling it straight up. Be sure not to damage any of the pins inside the socket.
- ❑ Unhook the socket lever by pushing down and away from the socket.
- ❑ Pull the socket lever back and the load plate will lift.
- ❑ Open the load plate and make sure not to damage any of the pins inside the socket.

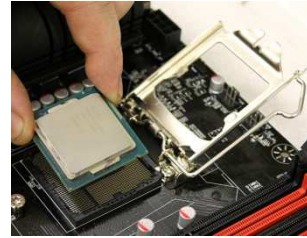


Note: After removing the CPU socket cover, it is recommended to store it in case you ever need to transport your motherboard. If you ever remove the CPU, it is highly recommended to reinstall the socket cover.

- ❑ Align the notches on the CPU to the notches in the socket.
- ❑ Lower the processor straight down into the socket.

Note: Make sure the CPU is fully seated and level in the socket.

- ❑ Lower the load plate so it is resting on the CPU.
- ❑ Carefully lock the lever back into place.



Installing the CPU Cooling Device

There are many different cooling devices that can be used with this motherboard. Follow the instructions that come with your cooling assembly.

Installing System Memory (DIMMs)

Your Z97 FTW has (4) 240-pin slots for DDR3 memory. These slots support 2GB, 4GB and 8GB DDR3 DIMMs. There must be at least one memory slot populated to ensure normal operation.

The Intel Z97 chipset supports dual channel memory; supports a maximum of 32GB of DDR3 and up to 2666MHz+ in dual channel configuration. It is required to populate slot 1 first. The board will not boot if slot 1 is not populated.

Use the following procedure to install DIMMs. Note that there is only one gap near the center of the DIMM slots. This slot matches the slot on the DIMM to ensure the component is installed properly.



- ❑ Unlock a DIMM slot by pressing the module clips on both sides outward.
- ❑ Align the memory module to the DIMM slot, and insert the module vertically into the DIMM slot, pressing straight down to seat the module. The plastic clips at top side of the DIMM slot automatically lock the DIMM into the connector.

Note: The memory controller on most Haswell and Broadwell CPUs runs at a default frequency of 1600MHz. To achieve memory speeds above 1600+ may require manual setting of the memory timings, frequency and voltages and/or overlocking of the CPU.

Refer to the memory manufacturer specifications for the recommended memory timings. For overlocking support you can visit our forums: <http://forums.evga.com/>

Compliance Information

FCC Compliance Information

This device complies with FCC Rules Part 15. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation. This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the manufacturer's instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures: (1) Increase the separation between the equipment and signal source, or (2) connect the equipment to an outlet on a circuit different from that to which the signal source is connected. Consult the dealer or an experienced computer technician for help. The use of shielded cables for connection of peripheral devices to the PC systems is required to ensure compliance with FCC regulations. Changes or modifications to this unit not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

CE Compliance Information

Generic Radiation Interference Standard for Information Technology Equipment. (EN 55022: 2006, Class B), (EN 61000-3-2: 2006), (EN 61000-3-3: 1995 + A1: 2001 + A2: 2005). Warning: This is a Class B product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measure. Generic Immunity Standard for Information Technology Equipment. (EN 55024: 1998 + A1: 2001 + A2: 2003).

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