User's Guide

EVGA X58 FTW 3 Motherboard

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Before You Begin…

Thank you for purchasing the EVGA X58 FTW3 Motherboard. This board is designed to take the already excellent performance of the EVGA lineup and push it into the future by adding support for SATA 6Gbps and USB 3.0. Also we have included EVBot support to facilitate your tweaking needs.

As always with this board you also get the added bonus of EVGA's industry leading technical support in case you ever have any issues or questions.

Parts NOT in the Kit

This kit contains all the hardware necessary to install and connect your new EVGA X58 FTW3 Motherboard. However, it does not contain the following items that must be purchased separately to make the motherboard functional.

- **Intel Microprocessor**
- **System Memory**
- **Cooling fan for the Microprocessor**
- **Graphics Card**
- **Power Supply**

EVGA assumes you have purchased all the necessary parts needed to allow for proper system functionality.

Intentions of the Kit

This kit provides you with the motherboard and all connecting cables necessary to install the motherboard into a system case. If you are *building* a PC, you will use most of the cables provided in the kit. If however, you are *replacing* a motherboard, you will not need many of the cables.

When *replacing* a motherboard in a system case, you will need to reinstall an operating system even though the current Hard Disk Drive may already have an operating system.

EVGA X58 FTW 3

Motherboard

Thank you for purchasing the EVGA X58 FTW3 Motherboard. This motherboard offers enthusiast performance and when combined with two or three SLI-Ready NVIDIA® GeForce® graphics cards, you get innovative NVIDIA® SLI® technology for enhanced system performance.

Motherboard Specifications

- Size
  ATX form factor of 12 inch x 9.6 inch
- Microprocessor support
  Intel Core i7 processor
- Operating systems:
  Supports Windows XP, Windows Vista and Win 7 32 and 64 bit
- Contains Intel X58 and ICH10R chipset
- System Memory support
  Supports triple channel DDR3-1600+. Officially supports up to 24GBs of DDR3 memory.
- USB 2.0 Ports
  Supports hot plug
  Twelve USB 2.0 ports (Eight rear panel ports, four onboard USB headers)
  Supports wake-up from S1 and S3 mode
  Supports USB 2.0 protocol up to a 480 Mbps transmission rate
- USB 3.0 Ports
  Two USB 3.0 ports (on I/O panel.)
  Backwards compatible USB 2.0 and USB 3.0 support.
  Supports transfer speeds up to 4.8Gbps

- Six(6) onboard SATA II Ports + 2 onboard SATA3 ports
  - 300MBps data transfer rate
  - Six SATA II connectors from south bridge with support for RAID 0, RAID 1, RAID 0+1, and RAID 5
- Two (2) SATA3 600MBps onboard ports from Marvell 88SE9128 Chipset
- Onboard LAN
  - Integrated Dual LAN ports
  - Supports 10/100/1000 Mbit/sec Ethernet
- Onboard IEEE1394a (Firewire)
  - Support hot plug
  - Two IEEE1394a ports (one rear panel port, one onboard header) with a rate transmission of 400 Mbps
- Onboard Audio
  - Realtek High-Definition audio
  - Supports 8-channel audio
  - Supports Jack-Sensing function
- Triple PCI-E Support
  - Three (3) PCI-E 2.0 Slots
  - Supports 4 GB/sec (8 GB/sec concurrent) bandwidth
  - Low power consumption and power management features
- Green Function
  - 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
  - Two PCI slots
  - One PCI-E x1 slot
  - Three PCI-E x8/x16 slots

Unpacking and Parts Descriptions

Unpacking

The EVGA X58 FTW3 Motherboard comes with all the necessary cables for adding a motherboard to a system case. If replacing a motherboard, you may not need many of these cables.

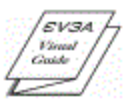
All parts shipped in this kit are RoHS-compliant (lead-free) parts.

Equipment

The following accessories are included with the EVGA X58 FTW3 Motherboard.

The EVGA X58 FTW3 Motherboard

This PCI-E motherboard contains the Intel X58 and ICH10R chipset and is SLI-ready for both 2-Way and 3-Way SLI configurations.



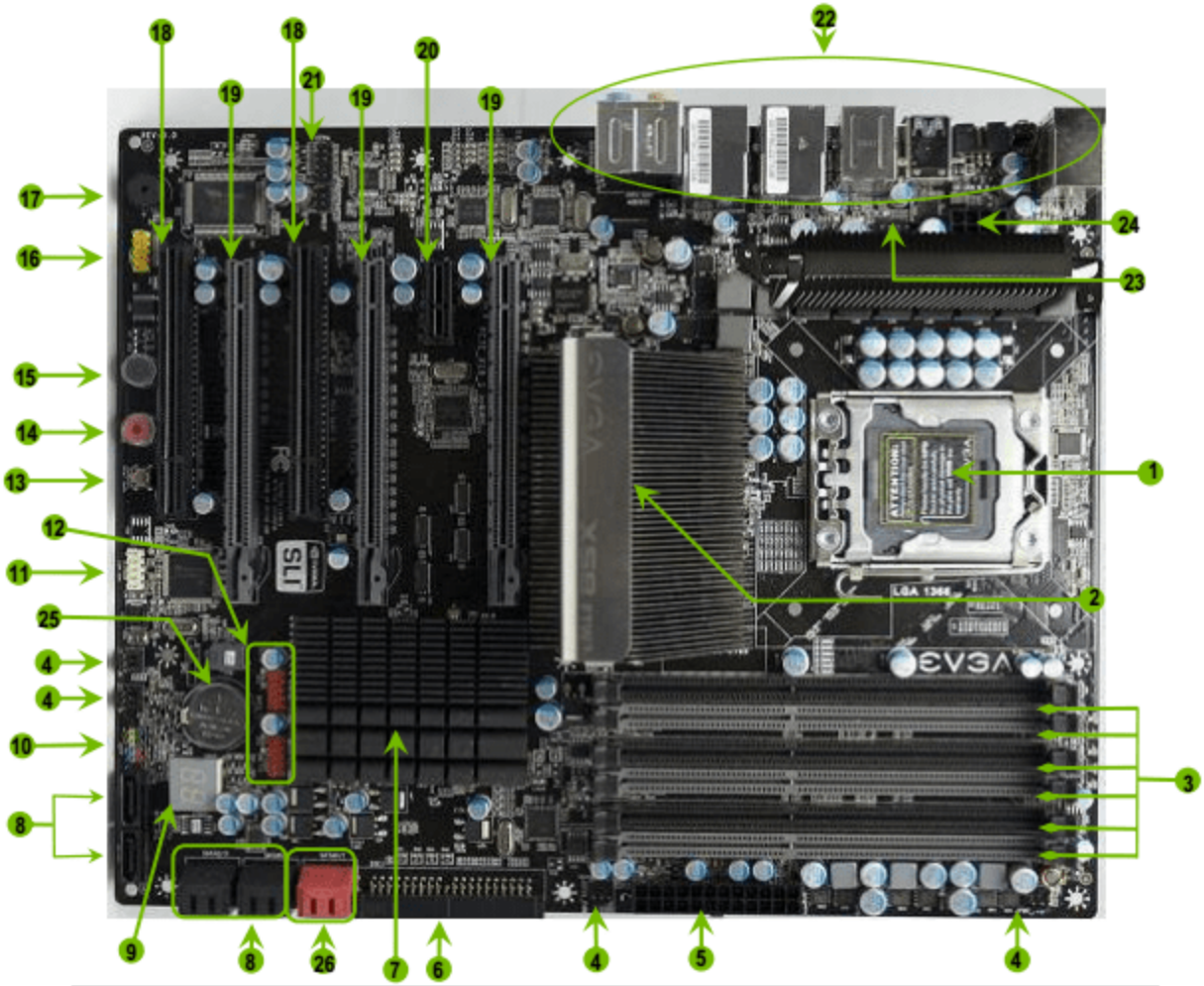
1 - Visual Guide

Helps to quickly and visually guide you through the hardware installation of the motherboard.

	**1 - 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.
	**3 - 2-Port SATA Power Cables** Allows a Molex power connector to adapt to a SATA power connector.
	**1 - IEEE1394a (Firewire) Bracket** Provides one (1) additional IEEE1394a port to the back panel of the chassis.
	**1 - 4-Port USB 2.0 Bracket** Provides four additional USB ports to either the front or back panels of the chassis.
	**6 - SATA Data Cables** Used to support the SATA protocol and each one connects a single drive to the motherboard.
	**1 - IDE Data Cable** Passes data between the IDE connection on the motherboard and IDE device.
	**1 - 2-Way SLI Bridge** Bridges two (2) graphic cards together which allows for 2-Way SLI.
	**1 - 3-Way SLI Bridge** Bridges three (3) graphic cards together which allows for 3-Way SLI.
	**1 - Installation CD** Contains drivers and software needed to setup the motherboard.

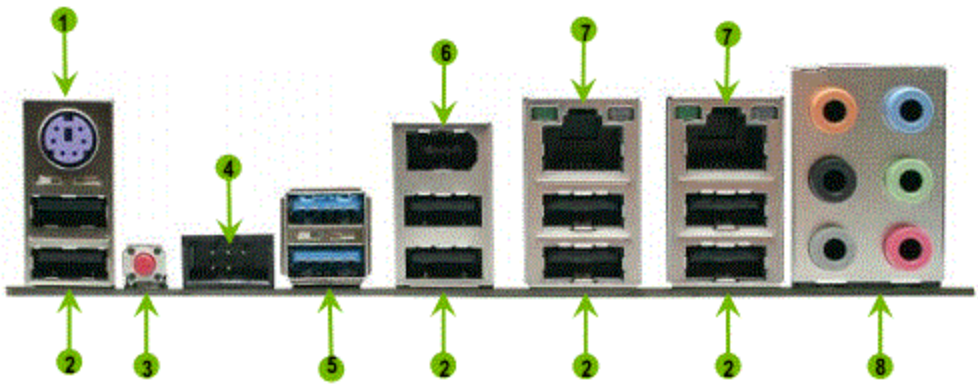
EVGA X58 FTW3 Motherboard

The EVGA X58 FTW3 Motherboard with the Intel X58 and ICH10R chipset is a PCI-E, SLI-ready motherboard. Figure 1 shows the motherboard and Figures 2 shows the back panel connectors.

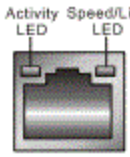


1. CPU Socket 1366	11. IEEE1394a Connector	21. Front Panel Audio Connector
2. Intel X58 Chipset	12. USB Headers	22. Back Panel Connectors (Figure 2)
3. DDR3 DIMM Slots 1 – 6	13. Clear CMOS Button	23. CPU Fan Connector
4. Fan Connectors	14. Power Button	24. 8-pin ATX_12V Power Connector
5. 24-Pin ATX Power Connector	15. Reset Button	25. Motherboard Battery
6. IDE Connector	16. Serial Connector	26. SATA3 600MBps Ports
7. Intel ICH10R Chipset	17. PC Speaker	
8. Serial-ATA (SATA) Connectors	18. PCI slots	
9. Debug LED Display - CPU Temperature Monitor	19. PCI-E 2.0 Slots	
10. Front Panel Connector	20. PCI-E x1 Slot	

Figure 1. EVGA X58 FTW3 Motherboard Layout



1. PS/2 Keyboard Port
2. USB 2.0 Ports (Eight)
3. Clear CMOS Button
4. EVBot Connector
5. USB 3.0 ports (two)
6. IEE1394a (Firewire) Port
7. Dual LAN Ports with LEDs to indicate status:



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

8.

Audio Port	2-Channel	6-Channel	8-Channel
Blue	Line-In	Line-In	Line-In
Green	Line-Out	Front Speaker Out	Front Speaker Out
Pink	Mic In	Mic In	Mic In
Orange		Center/Subwoofer	Center/Subwoofer
Black		Rear Speaker Out	Rear Speaker Out
Grey			Side Speaker Out

Figure 2. Chassis Back Panel Connectors

Hardware Installation

This section will guide you through the installation of the motherboard. The topics covered in this section are:

- Preparing the motherboard
  - Installing the CPU
  - Installing the CPU fan
  - Installing the memory
- Installing the motherboard
- Connecting cables

Safety Instructions

To reduce the risk of fire, electric shock, and injury, always follow basic safety precautions.

Remember to remove power from your computer by disconnecting the AC main source before removing or installing any equipment from/to the computer chassis.

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.

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

Unhook the socket lever by pushing *down* and *away* from the socket.

Put your finger on the tail of the load plate and press down with light pressure to lift the load plate up.

Lift the load plate. There is a protective socket cover within the CPU socket to protect the socket when there is no CPU installed.

Remove the protective socket cover from the CPU Socket.

Note: After removing the CPU socket cover, it is recommended that you keep it in case you need to remove CPU for any reason you can replace the cover to avoid damaging the CPU socket pins.

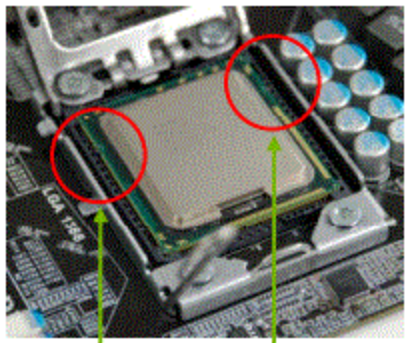
Align the notches in the processor with the notches on the socket.

Lower the processor straight down into the socket with out tilting or sliding it into the socket

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

Close the load plate over the CPU and press down while you close and engage the socket lever.

The CPU installation is complete.



Align notches with notches on the CPU

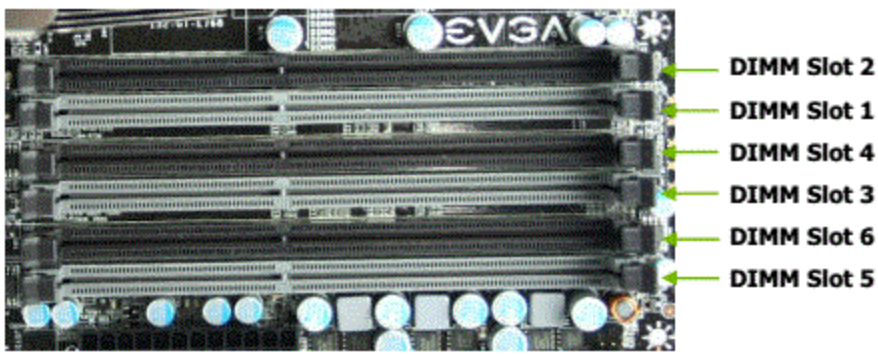
Installing the CPU Fan

There are many different fan types that can be used with this motherboard. Follow the instruction that came with you fan assembly. Be sure that the fan orientation is correct for your chassis type and your fan assembly.

Installing System Memory (DIMMs)

Your new motherboard has six 240-pin slots for DDR3 memory. These slots support 1GB, 2GB, 4GB DDR3 technologies. There must be at least one memory bank populated to ensure normal operation. Use the following the recommendations for installing memory. (See Figure 1 on page 15 for the location of the memory slots.)

- **One DIMM**: If using 1 DIMM (**Single Channel**), install into: **DIMM slot 1**.
- **Two or Four DIMMs**: If using 2 DIMMs (**Dual Channel**), install into: **DIMM slots 1 and 3**. If using 4 DIMMs (**Dual Channel**), install into: **DIMM slots 2, 1, 4, and 3**.
- **Three DIMMs**: If using 3 DIMMs (**Triple Channel**), install into: **DIMM slots 1, 3 and 5**.
- **Six DIMMs**: If using more than 4 DIMMs, use: **DIMM slots 2, 1, 4, and 3** then proceed to occupy the following DIMM slots **in this order: 5 and 6.**



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

1. Unlock a DIMM slot by pressing the module clips outward.

Align the memory module to the DIMM slot, and insert the module vertically into the DIMM slot. The plastic clips at both sides of the DIMM slot automatically lock the DIMM into the connector.

Installing the Motherboard

The sequence of installing the motherboard into a system case depends on the chassis you are using and if you are replacing an existing motherboard or working with an empty system case. Determine if it would be easier to make all the connections prior to this step or to secure the motherboard and then make all the connections. It is normally easier to secure the motherboard first.

Use the following procedure to install the I/O shield and secure the motherboard into the chassis.

Note: Be sure that the CPU fan assembly has enough clearance for the system case covers to lock into place and for the expansion cards. Also make sure the CPU Fan assembly is aligned with the vents on the covers. This will depend on the system case being used.

Installing the I/O Shield

The motherboard kit comes with an I/O shield that is used to block radio frequency transmissions, protects internal components from dust and foreign objects, and promotes correct airflow within the chassis.

Before installing the motherboard, install the I/O shield from the *inside* of the chassis. Press the I/O shield into place and make sure it fits securely. If the I/O shield does not fit into the chassis, you would need to obtain the proper size from the chassis supplier.

Securing the Motherboard into a System Case

Most system cases have a base with mounting studs or spacers to allow the motherboard to be secured to the chassis and help to prevent short circuits. If there are studs that do not align with a mounting hole on the motherboard, it is recommended that you remove that stud to prevent the possibility of a short circuit. In most cases, it is recommended to secure the motherboard using a minimum of nine (9) spacers and screws.

1. Carefully place the motherboard onto the stand off /spacers located inside the chassis.

Align the mounting holes with the studs/spacers.

Align the connectors to the I/O shield.

Ensure that the fan assembly is aligned with the chassis vents according to the fan assembly instruction.

Secure the motherboard with a recommended minimum of nine (9) screws.

Connecting Cables

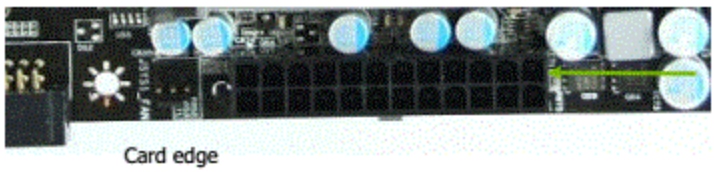
This section takes you through all the necessary connections on the motherboard. This will include:

- Power Connections
  - 24-pin ATX power (**PW1**)
  - 8-pin ATX 12V power (**PW12**)
- Internal Headers
  - Front panel
  - IEEE 1394a
  - USB Headers
  - Audio
  - COM
- IDE
- SATA II
- SATA 3

- Chassis Fans
- USB 2.0
- USB 3.0
- Expansion slots
- CMOS Clear Button

24-pin ATX Power (PW1)

PW1 is the main power supply connector located along the edge of the board next to the DIMM slots. Make sure that the power supply cable and pins are properly aligned with the connector on the motherboard. Firmly plug the power supply cable into the connector and make sure it is secure.



PW1 connector
Plug power cable from system power supply to PW1

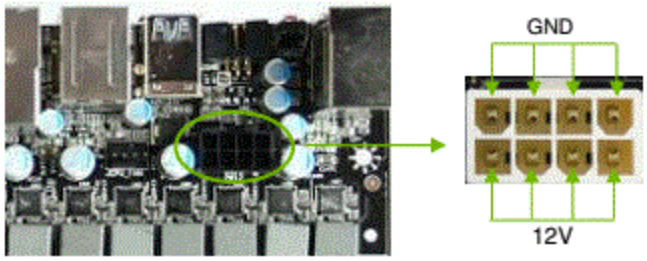
Figure 3. PW1 Motherboard Connector

Table 1. PW1 Pin Assignments

Connector	Pin	Signal	Pin	Signal
	1	+3.3V	13	+3.3V
	2	+3.3V	14	-12V
	3	GND	15	GND
	4	+5V	16	PS_ON
	5	GND	17	GND
	6	+5V	18	GND
	7	GND	19	GND
	8	PWROK	20	RSVD
	9	+5V_AUX	21	+5V
	10	+12V	22	+5V
	11	+12V	23	+5V
	12	+3.3V	24	GND

8-pin ATX 12V Power (PW12)

PW12, the 8-pin ATX 12V power connection, is used to provide power to the CPU. Align the pins to the connector and press firmly until seated.



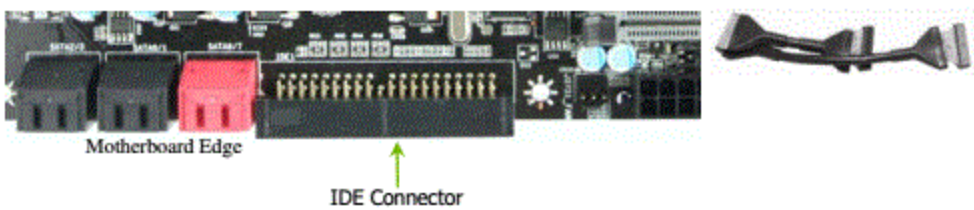
Connecting IDE Hard Disk Drives

The IDE connector supports Ultra ATA 133/100 IDE hard disk drives.

1. Connect the blue connector (the cable end with a single connector) to the motherboard.
2. Connect the black connector (the cable with the two closely spaced black and gray connectors) to the Ultra ATA master device.
3. Connect the grey connector to a slave device.

If you install two hard disk drives, you must configure the second drive as a slave device by setting its jumper accordingly. Refer to the hard disk documentation for the jumper settings.

Note: If an ATA-100 disk drive and a disk drive using any other IDE transfer protocol are attached to the same cable, the maximum transfer rate between the drives may be reduced to that of the slowest drive.

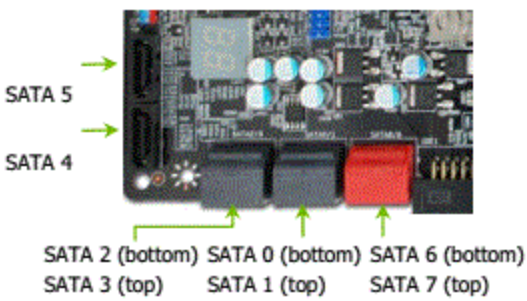


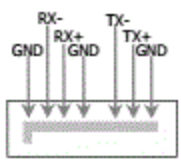
Connecting SATA Cables

The SATA II connector is used to connect the SATA II device to the motherboard. These connectors support the thin SATA II cables for primary storage devices. The current SATA II interface allows up to 300MB/s data transfer rate.

There Eight (8) internal SATA connectors on this motherboard. Connection points SATA0 - SATA5, are controlled by the South Bridge Chipset and operate at a speed up to 300MB/s.

The Onboard ports that are red in color are SATA3 ports and operate from the Marvell 88SE9128 chipset at a transfer rate up to 600MB/s





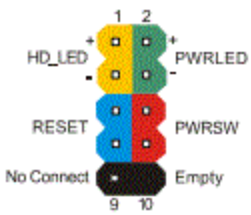
Connect the locking cable end to the motherboard connector.

Connect the end without the lock to the SATA device.

Connecting Internal Headers

Front Panel Header

The front panel header on this motherboard is one connector used to connect the following four cables.
(see Table 2 for pin definitions):



- **PWRLED**
  Attach the front panel power LED cable to these two pins of the connector. The Power LED indicates the system's status. When the system is turn on status, the LED is on. When the system is turned off, the LED is off. When the system is in S1, S1, S3, S4 status, the LED will blink.

Note: Some system cases do not have all four cables. Be sure to match the name on the connectors to the corresponding pins.

- **PWRSW**
  Attach the power button cable from the case to these two pins. Pressing the power button on the front panel turns the system on and off rather than using the onboard button.

- **HD_LED**
  Attach the hard disk drive indicator LED cable to these two pins. The HDD indicator LED indicates the activity status of the hard disks.

- **RESET**
  Attach the Reset switch cable from the front panel of the case to these two pins. The system restarts when the **RESET** switch is pressed.

Table 2.Front Panel Header Pins

	Pin	Signal
HD_LED	1	HD_PWR
	3	HD Active
PWRLED	2	PWR LED
	4	STBY LED
RESET	5	Ground
	7	RST BTN
PWRSW	6	PWR BTN
	8	Ground
No Connect	9	+5V
Empty	10	Empty