Chapter 3

Putting the Computer Together

When you are ready to build your computer you will have the following materials to work with.

1. One motherboard.
2. One "ribbon" cable or "SATA" cable for the CD ROM drive.
3. One "SATA" cable for the hard drive.
4. One Central Processing Unit (CPU).
5. One tube of thermo grease.
6. One head-sync fan.
7. Two sticks of Random Access Memory (RAM).
8. One case fan.
9. One CD ROM drive.
10. One hard drive.
11. One power supply.
12. One computer case.
13. One straw.
14. Scissors.
15. Putty or tape.

Tools you will use are:

1. Philips head screwdriver.
2. Needle nose pliers.
3. Rubber, static- free mat.
4. Small metal cutters.

Steps for building your computer.

1. Open the box that has your motherboard. In this box you will find a "ribbon" cable, a "SATA" cable, a side panel that will go on the side of your computer case, a User's Guide, a CD with the drivers for your motherboard, and one motherboard in a static-free plastic bag.


2. Take the motherboard out of the plastic bag and lay it on the rubber mat.

3. Open the package that has your Central Processing Unit (CPU).
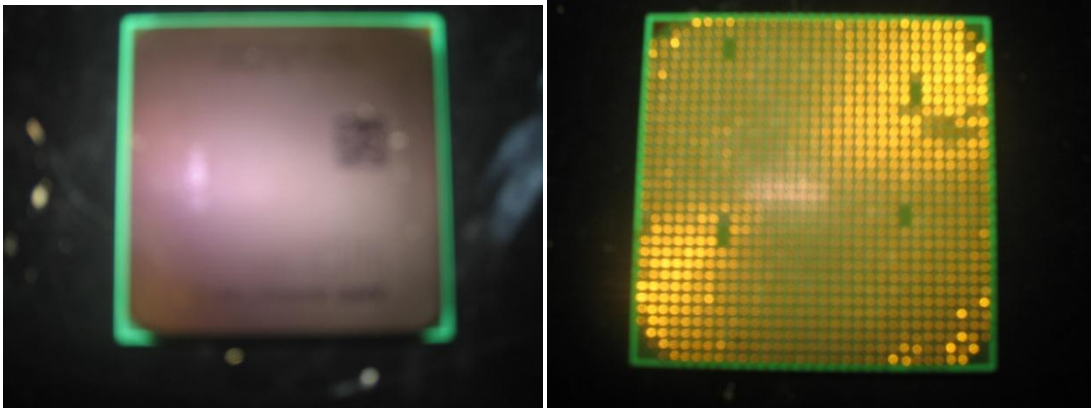
4. Fine the "socket" on your motherboard. If you are using an AMD chip the socket will feel list a square piece of plastic with many tiny holes in it. In you are using an Intel chip you will feel a metal cover—lift up this cover, take out the small plastic piece, lay your CPU chip in the middle. Make sure the chip is completely in this socket, apply thermo grease and close the lid or door. There is a round metal lever attached to the side of the socket. Press the loose end of this lever gently down and away from the socket. Gently life the lever until it points straight up. Put the CPU on the socket and gently move it until you feel it drop into the socket. Press the lever down and toward the socket until you feel it lock in place.
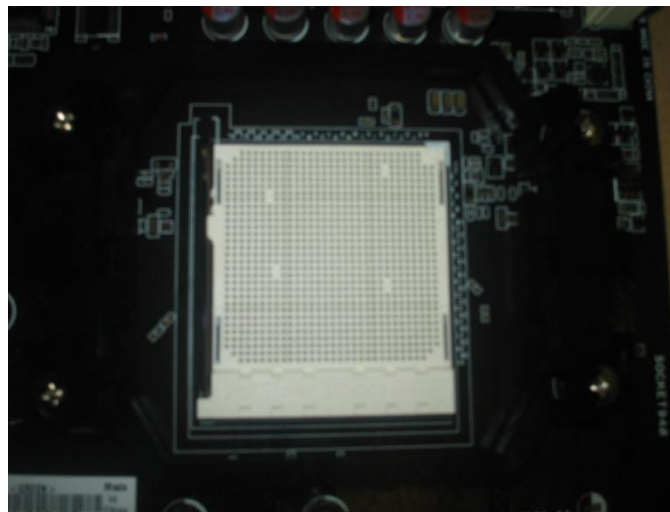

5. Apply thermo grease in a light smooth coat across the top of the CPU. If you are using a tube of thermo grease squirt a very small amount in the middle of the CPU, then use a thin plastic card to spread the grease across the top of the CPU. If you are using the liquid thermo grease that has a brush, paint a thin coast of grease across the top of the CPU. Do your best to keep the thermo grease only on the top of the CPU, and nowhere else.

6. Take the heat sync out of its box. You will feel a fan with a small electrical cord attached to an aluminum block, with a piece of hard plastic on the bottom of the block. Gently pull the hard plastic off of the bottom of the aluminum block. There may already be thermo-grease on the bottom so do not touch this area. Set the heat sync fan over the top of the CPU, making sure that brackets align with the socket brackets. If you are using an Intel chip, make sure the pins of the heat sync fan line up with the holes on the motherboard. Set one end of the bracket over one end of the socket bracket. Hold this in place with your thumb. Use your other hand to press down the opposite bracket, until it clicks or feels secure. There will be a lever on one of the two brackets. Use your thumb and index finger to move this into a locked position—push the lever from the beginning position until it points up, then continue pushing until it is locked on the opposite side. If the heat sync fan has pins, there will be four of them. Line the pins up with the holes on the motherboard and then gently press and slightly turn each pin in a right or clockwise direction until it clicks into locked position.


7. Feel the area of the motherboard next to the heat sync fan to find a set of four small pins. You should feel at the back of these pins a small piece of plastic that sticks up. Take the end of the wire from the heat sync fan and feel for the side that has two slightly raised lines. Align the side of the wire that has the two lines to the piece of plastic that is sticking up, and gently press down. You have now connected your heat sync fan to your motherboard's electrical system—this connection will power the fan on the heat sync.
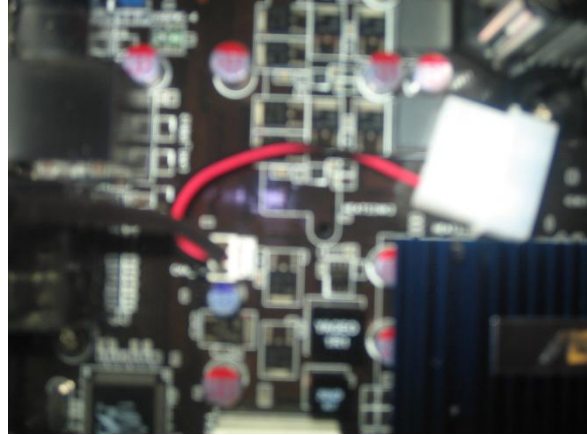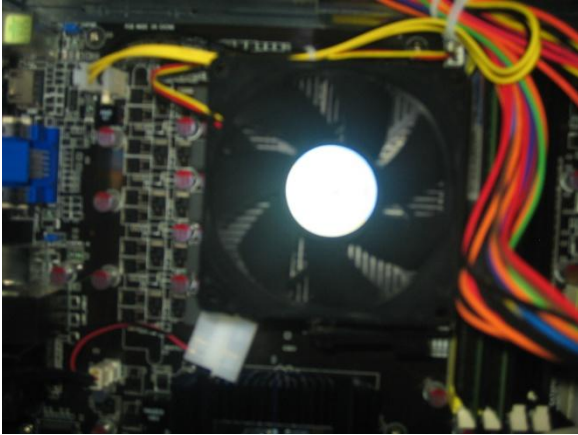
8. Take the Random Access Memory (RAM) out of its package. RAM feels like a long, thin, rectangular stick. Make sure to hold the ram on the side opposite from the brass area. Find the heat sync fan, slide your fingers down to the motherboard, and feel around the sides until you find two or more long slots. This is where you will place the RAM. At both ends of each slot will be a plastic lever. Gently press each lever down—the lever will move only a little, and will be in a down position. Line up the metal part of the RAM with the slot. Gently press down. If the RAM will not click into place turn it around and try again. While you do not want to force the RAM into the slot, you will have to apply a little pressure. Try grasping the left and right top of the RAM and gently press down one end and then the other until you hear or feel it click into place. If you have a second RAM stick do the same thing you did for the first RAM stick.
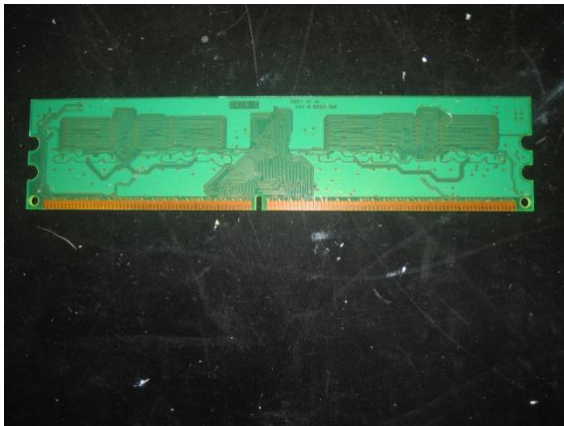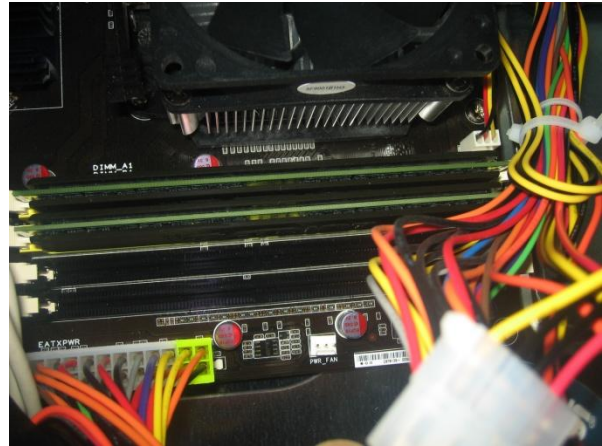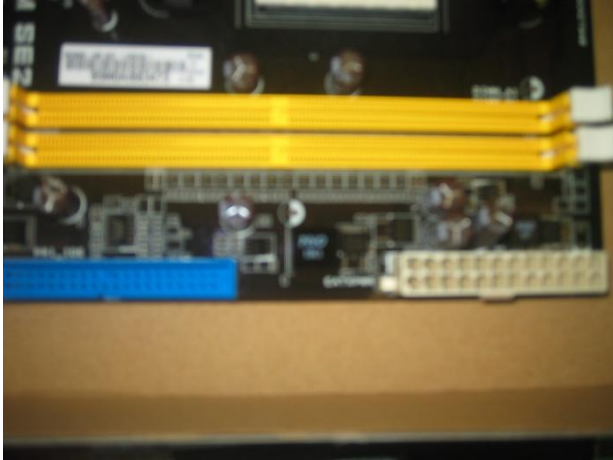
9. Place the motherboard back into its static free plastic bag. Place the bag inside the motherboard box and lay it aside.

10. Open the computer case box. This is a large box with tape on the top and bottom. Pull off or cut this tape. Open the lid of the box and you will feel Styrofoam and a plastic bag. Place the box between your ankles, or have a friend hold the bottom of the box. Grasp the Styrofoam and gently pull up. Make sure you are either close to the floor or directly over a table. Lay the case down and pull off the Styrofoam. Remove the plastic bag. Find the front, top, bottom, back, left and right sides of the case. Most standard computer cases are ATX. Most ATX cases have the area for the motherboard on the left side, if you are feeling the back of the case. If you have an ATX type case, lay it on its left side. Find the back of the case. Feel along the top of the back side of the case. You should find two (2) screws. On some cases these are "thumb screws," and can be remove by turn them to the left. If the screws are Philips head screws, insert the Philips head screwdriver and turn it left until the screw comes out. Place these two screws where you can easily find them. Place your thumb on the back of the case and your four fingers on the side of the case. Gently press your thumb into the back of the case and your four fingers down on the side of the case. Move your four fingers back towards the back of the case. The side should come loose. Lift and remove the side of the case and put it where it will be easy to find.
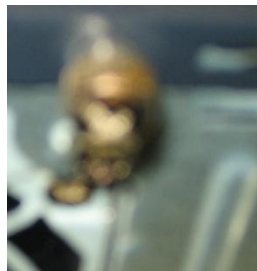
11. With the back of the computer case facing you, feel to the left. If the power supply is pre-installed you will feel a metal box with wires coming out the end, into the inside of the computer case. Place a piece of tape or putty on the side of the power supply facing into the inside of the computer case—do not confuse this with the area of the power supply where the wires are coming out. There are four screws on the outside of the back of the case where the power supply is. Use a Philips head screwdriver to remove these screws, then lift out the power supply. Make sure the screws you want to remove are slightly larger than other screws in the area of the power supply. Lay the power supply aside.

12. Inside the case, on the side away from you, there are bracket areas for items such as the hard drive and CD ROM drive. Affixed to these brackets with wire ties are the power cord for the computer case, and a plastic bag with screws. Undo the wires and lay the power cord aside. Open the bag and sort out the screws, risers, washers, and any other items.

13. There is a pre-cast metal piece just to the right of where the power supply is located. This area will have a few round holes and a few rectangular holes. This part needs to be cut out of the back of the case. Use a small pair of metal cutters (the size of a set of pliers) to make this cut. There will be a distinct ridge or line where this part meets the case. From the inside of the case feel for this area, then the top ridge or line. Place the tips of the metal cutters at the left corner of the ridge/line, and gently slide them to the right. Do this slowly. Within a few inches you will feel the metal cutters either stop, or feel like they have touched a different area. Gently press the metal cutters toward you, then press the handles together. You should feel and hear a slight click. Now, continue moving the metal cutters to the right until you feel them either stop, or touch a slightly different area. Press the metal cutters gently toward you and press the handles together. You should feel and hear a click. Lay the metal cutters aside. If these two parts have been correctly cut you should be able to press the top area of this piece, from the outside of the case, toward the inside of the case. If this is possible, gently press this piece until it touches the bottom of the case, then gently pull it back until it touches the side of the case. Do this again-and-again until it snaps off. There will be a larger rectangular how where the metal piece was originally located.

14. Inside the motherboard box is a thin, rectangular piece of aluminum, wrapped in a plastic sleeve. Remove this piece from the sleeve. The front of this piece will be smooth, with round and rectangular. This is the side panel that will be placed inside the computer case, where you cut out the original piece, in the above step. There are tabs that will need to be bent back flush or even with the back of this

piece before you place it in the computer case. Feel the back of this thin piece. There will be a number of metal tabs slightly sticking out. Be very careful with these tabs because they can cut your fingers. Place the tip of one of your fingers on the end of one of these tabs. Gently move this tab backwards until it is touching the back of this thin piece. Be careful not to bend the piece itself. Bend all of these tabs back in the same way. Now, take the needle-nosed pliers and align them to the place where one of these tabs connects to the back of this piece. Make sure they are over a part of the tab, then gently squeeze. This will flatten the tab to the back of this piece. Once again, be careful not to bend the piece.
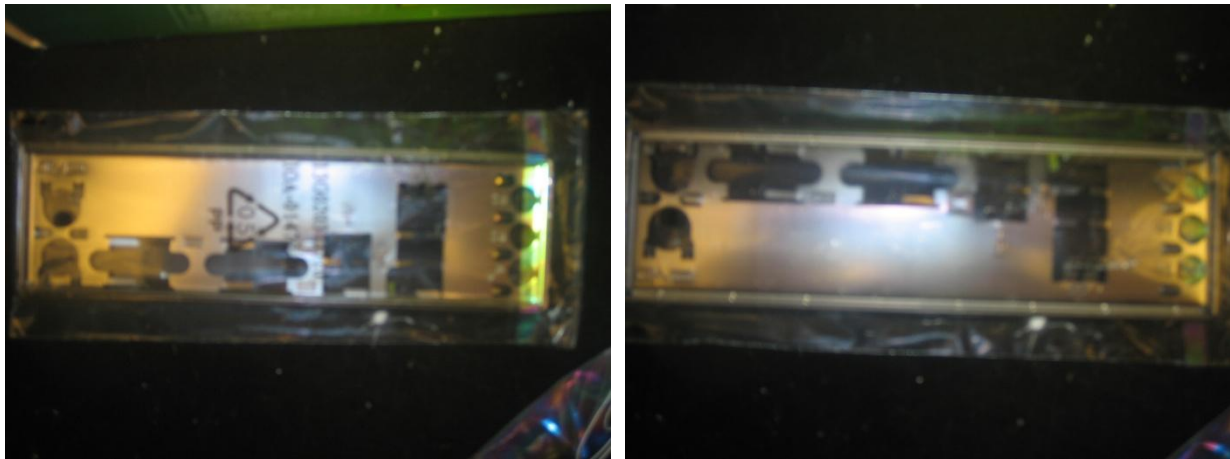
15. Take the motherboard out of its bag and align the thin side panel in step 14 (the one you just bent the tabs on) to the side of the motherboard where all of the connectors are. If this piece fits flat to this area of the motherboard, you have correctly bent back all of the tabs. If it does not fit flat, re-check the tabs on the back of the flat side panel and make sure they are all bent back. Now that you have positioned the thin metal piece flat to the side of the motherboard, pull it away from the motherboard and gently place it so that it covers the larger rectangular hole in the back of the computer case. Use one index and middle finger to press in and hold the top left corner and the bottom left corner in the hole. You may hear and feel a slight click when you do this. Now, take your right index finger and press the top right corner of the side panel into the hole in the computer case. Place your thumb over the top right corner and use the right index finger to press in the bottom right corner of the thin, metal side panel. Do not force this thin metal side panel to the point where you bend it. If it will not go, remove it, then carefully feel along the inside edges of the larger rectangular how to be sure there is no metal sticking up. If there is a piece of metal sticking up it may be sharp, so move slowly and with very light pressure. If you find a piece of metal sticking up use the metal cutters to remove it. The best way to do this is to

lay the side of the metal cutters on the area where a metal piece is sticking up, open them, then gently squeeze the handles together. Now, re-insert the thin metal side panel into the larger rectangular how in the back of the computer case.

16. Feel in the bottom of the computer case. Start near the area where the power supply will go (left side nearest you). Move your fingers along the back bottom area, just beside the back of the computer case. You will begin to feel very small holes. These holes are where the risers will go. Risers are important because they keep the bottom of the motherboard off the bottom of the computer case, preventing shorts and other problems. After you have moved your fingers all the way to the right side of the bottom of the computer case, return them to the left side near the power supply area. Move your fingers a few inches forward or away from you. Repeat the left to right process. Do this again-and-again until you come to the area furthest away from you, where the brackets for the CD ROM and hard drive are located. You will notice some thin wires with small rectangular heads in the bracket area. Push these wires gently into the area of the brackets and away from the main area of the bottom of the computer case. They may slide back out, so push them in as you need to. Pick up one riser and try different screws until you find a screw that easily screws into the top of the riser. The top of the riser is larger than the bottom and has a small hole in it. Sort out seven or eight of these screws and place a paper washer on each one. Lay these screws with washers aside where you can easily find them.

a. Now for the tricky part. How are we going to know which holes to put the risers in? There are generally six holes or so on an ATX sized motherboard. There are ten or more holes for risers on the bottom of the computer case. One method is to feel the bottom of the motherboard for the hole positions.
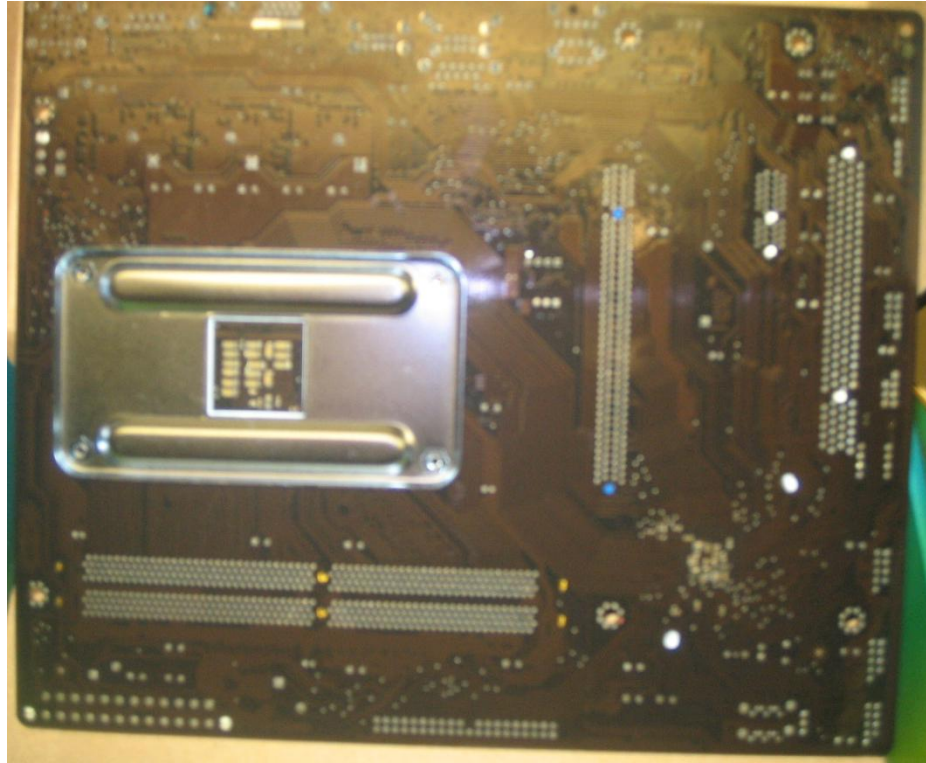

Another method, if you have enough risers, is to put a riser in each hole in the bottom of the computer case. Another method is to cut a drinking straw into one inch pieces, place either tape or putty at one end of the piece, then gently press the other end through a hole on the bottom of the motherboard. Determine which method works best for you and use it. If you do the straw method, insert the straws, align the motherboard so that

the side connectors go through the holes in the side panel (the thin metal piece that you bent the tabs on), then gently press down. Press down each straw, then slowly slide the motherboard back a fraction of an inch from the side panel connector area, then up—make sure to keep re-checking the straws to keep them affixed to the bottom of the motherboard. Once the motherboard is removed and placed back in its bag and put into the motherboard box, start with the straw at the back left of the bottom of the computer case, near the power supply. Place a riser between your thumb and index finger. Move the rise to the straw. Remove the straw making sure the tape of putty is also cleared away from the small hole. Place the small (threaded) end of the riser into the small hole. Turn the riser to the right in a clockwise direction until it is tight. Be careful to not over tighten the riser. Move to the next hole to the right and repeat the process. Do this same sequence until the holes that align to the bottom of your motherboard area filled with risers.

b. If you are using the straw method take the putty or tape off the ends of the sections of straws. Place the straws back into the holes on the motherboard, from the bottom side. Gently place the motherboard back into the case, making sure the thin wires near the brackets for the CD ROM drive and hard drive are out of the way. Slide the motherboard connector area into the side panel connector area. Do not press too hard, but make sure the connectors are slightly sticking through the side panel. You will know if the connectors are through by feeling the side panel area on the outside of the back of the computer case. Pick up one screw and washer set. Move it to the straw at the back left of the computer case, near the power supply area. Remove the straw and place the screw into the hole. Use a Philips head screwdriver to gently turn the screw to the right. Make sure the screw cannot turn any further—do not over tighten or you will hear a crack and your motherboard will be broken. Pick up another screw and washer set, move your fingers to the next straw to the right, and repeat the above process. Do this set of steps until all of the straws are gone. Your motherboard is now attached or mounted to the bottom of the computer case.

17. Pick up the power supply. Slide it into the area just to the left of the motherboard, making sure the area that you put the tape or putty on is facing the motherboard or inside of the computer case. The side where the wires are should be facing the direction of the brackets for the CD ROM drive. Remove the tape or putty. Pick up one of the power supply screws, line it up with one of the four power supply holes on the back of the computer case, and screw it in. Make

sure the screw stops turning, but do not over-tighten. Repeat this set of steps for the other three screws.
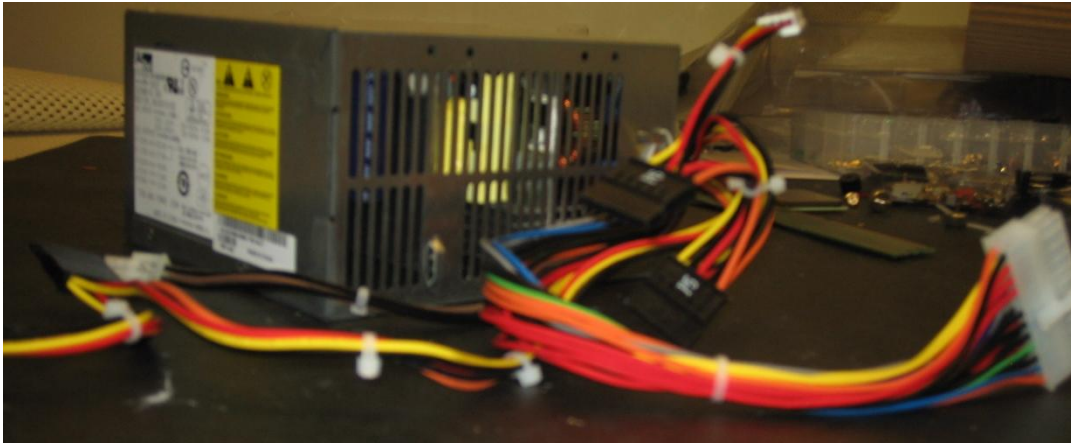

18. The wires on the power supply may have a rubber band around them. Remove this rubber band. Feel for the longest piece of plastic that connects a group of wires. This piece has about twenty small square holes. Hold this plastic piece in one hand and feel for a side clip on it with the other hand. Next, feel along the side of the motherboard nearest or next to the area where the brackets for the CD ROM drive and hard drive are located. You will feel a plastic rectangle shape with many square holes. There is a small ridge on the side edge of this plastic. Place the plastic end you have in your hand into this rectangular slot, making sure the clip side is on the side where the small ridge is—usually this is facing the brackets for the CD ROM and hard drive. Gently press down until there is a click, or you feel that it is locked in place. You have just connected the power supply to the main part of your motherboard.
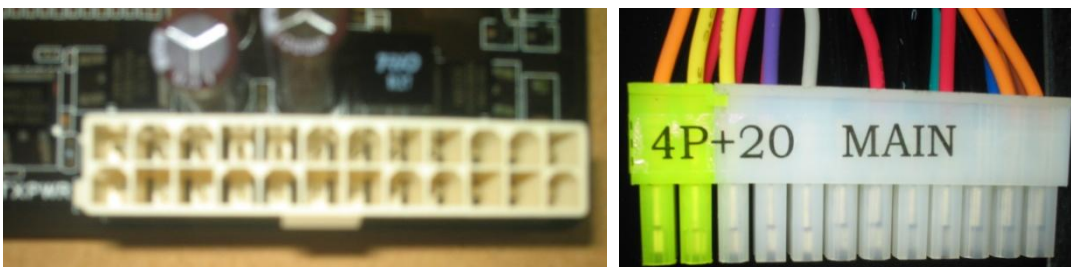
19. On a group of wires coming from the power supply will be a smaller plastic square connector which feels like it has four holes on the end. There is a plastic clip on one side of this connector. This connector powers the CPU and is placed into a connection in the area near the fan heat-sync. This connection point will feel like a plastic square with four holes, sticking up from the motherboard. There will be a small line or edge on one side. Align the clip side of the connector with the small line or edge on the motherboard connector and gently

press down. You may feel or hear a click which tells you this is in place. Do not press too hard. If this connector will not go check to be sure the clip and the edge are on the same side then try again. You now have electrical power going to your CPU.
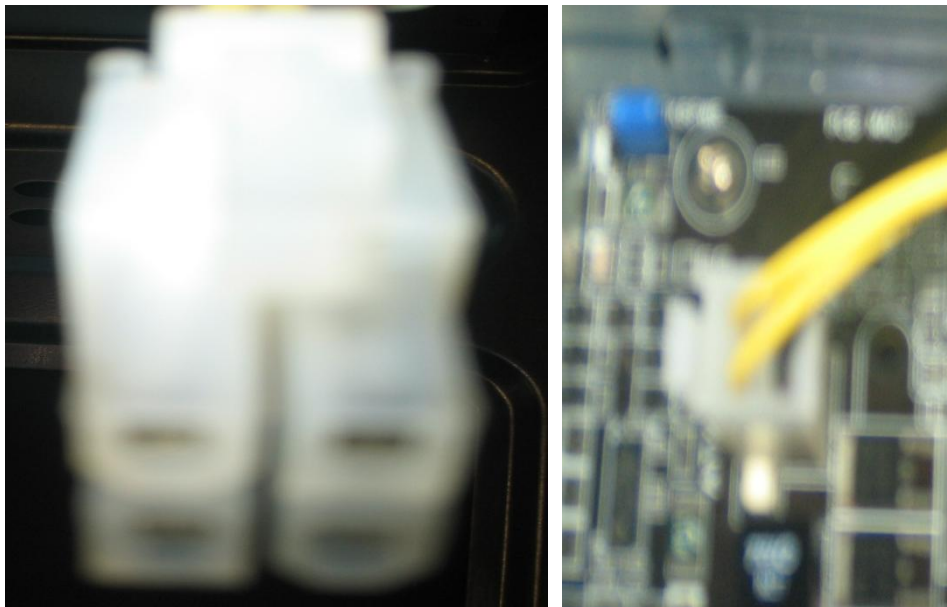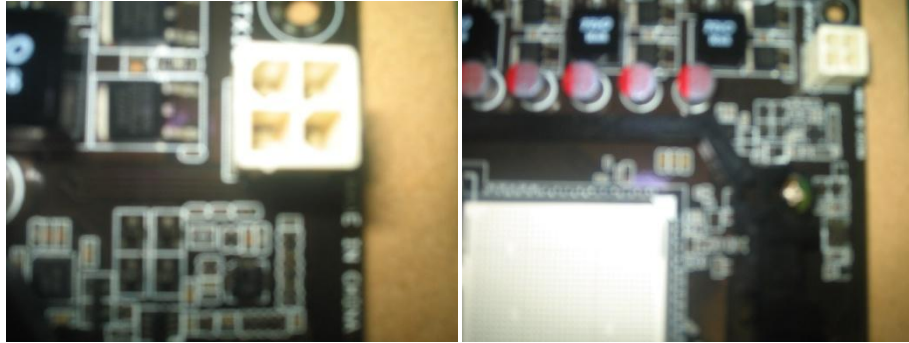

20. Now it is time to install the CD ROM drive. Take the CD ROM drive out of its box. You will have one drive and possibly a manual and CD with programs on it. There will be a bag with four very small screws. Make sure to lay the bag of screws where you can easily find it. Before we can put the CD ROM into the computer case we must remove one of the plastic tabs from the front top of the computer case. You are standing at the back of the computer case with the case laying on its left side. Move your left hand along the left outside (this will be the top of the case when the computer is standing up) of the case until you reach the corner furthest away from you. Move your hand around this corner until you feel a plastic piece that has a rectangular cut all around it. There will be a number of these rectangular pieces and it does not really matter which one you take out. Press lightly on the front of one of these pieces. Move your right hand to the

power supply, then follow the inside of the computer until you reach the bracket area for the CD ROM drive. Now move your right hand going right until you feel one of the rectangular pieces. Gently press out or away from you on each piece until you find the piece your left hand is on. Now press toward your right hand with your left hand and the piece will pop out. Pick up the CD ROM drive and feel its back, sides and front. On the front of most CD ROM drives the "open" drawer button is on the bottom left. Turn the CD ROM drive so that the side faces down with the button on the front being closest to the table. Use your left hand to find the hole on the front of the case where the plastic tab (or insert) was. With your right hand position the end of the CD ROM drive in this hole. Push the CD ROM drive in from the front of the computer case. Take one small screw from the bag of four screws. Hole the screw in your right hand and use your left hand to find the back of the CD ROM drive, then the bracket area where the CD ROM is located. There will be four small holes. Place the screw over one of these holes. Slide the CD ROM drive slight forward until you feel the screw connect to the hole. Use a small Philips head screw driver to turn the screw to the right. Tighten the screw until it will not turn, but do not over tighten. If you have put the screw into a hole furthest away from you, find a hole closer to you and put in a second screw. Set the bag of screws aside for the moment.

21. Take the hard drive out of its package. The drive will be in a static free bag. Cut off one end of this bag and take out the hard drive. There will be a bag with four small screws. Lay this aside. Feel the hard drive and you will find a smooth top, a bottom with a circuit board, a smooth front, and a back where a cable and a power connector can be connected. Hold the hard drive in your right hand. You want the smooth top facing left and the circuit board facing right. The area for the connections is facing back toward you. Notice that you are holding the hard drive in a sideways position. With your left hand find the bracket area where the CD ROM drive is located, on the inside of the computer case. Move your left hand to the right until you find a smaller bracket area.
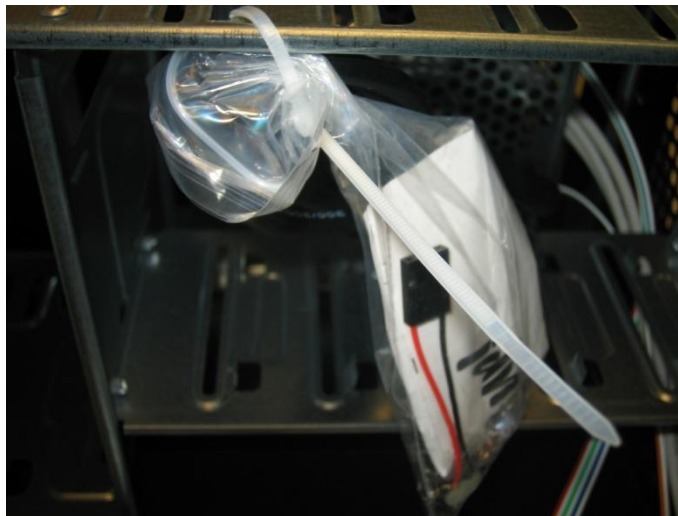

Move the hard drive to the area where your left hand is, and work to line up the hard drive with the bracket. Once lined up, you should be able to push the hard drive away from you and into this bracket. Although you can push the hard drive all of the way into the bracket, leave about two inches that are not in the bracket. Take out one of the hard drive screws. The side of the bracket where is can be confusing, but there should be at least one round hole. Place the screw over the hole you select then move the hard drive slightly forward and backward until you feel the screw slip into place. Use a small Philips head screw driver to turn the screw to tighten the screw. Turn the screw to the right (clockwise) until it stops. Do not over tighten.   Pick up the second screw. You may not actually find a second round hole. What you may feel is a longer area where a screw can go. Place the screw at one end of this and slide it toward the other end. Stop when you feel the screw make contact with a hole. Use the Philips head screw driver to tighten the screw. Turn the screw to the right until it stops. Do not over tighten the screw. Lay the bag with the other two screws aside.

22. Set the computer case upright. Now, lay it down on the rubber mat on its right side—this is the side that you have just been working in. Have the back of the computer facing you. Feel along the back top edge to find a screw on the left side and another screw on the right side. Use a Philips head screw driver to remove both of these screws. Lay these screws where you can easily find them. Place your thumbs on the back side of the computer case and your fingers on the side of the case. Press your fingers down, then move them toward you. The side of the case should slide back towards you. Take off the side of the case and lay it where you can easily find it. Pick up one of the CD ROM drive screws. The CD ROM is now on the right side of the case, furthest away from you. Find the back of the CD ROM drive, then move your hand onto the bracket area where you will find four holes. Place the screw into one of these holes and use a small Philips head screw driver to tighten it. Turn the screw to the right (clockwise) until it stops. Do not over tighten the screw. If you placed the screw in one of the holes furthest away from you, find a hole nearer you and place a screw in it. If you put the first screw in a hole closest to you, find a hole further away from you and place the screw in it. Tighten the screw.
23. Pick up a screw for the hard drive. Move your hand to the CD ROM drive, then feel to the left until you find the hard drive area. Sometimes the hard drive will not be correctly aligned with the bracket so you may have to press the hard drive to the right, find a hole for the screw, then inset it, keeping pressure on it until you place the screw driver on top of the screw. Using a small Philips head screw driver, tighten the screw by turning it to the right. Do not over tighten the screw. The second screw will probably have to be slid along an area that feels like a straight line that is cut into the bracket. Start at one end of this area until the screw stops. Use the small Philips head screw driver to tighten the screw, turning it to the right until it stops.
24. Pick up the side of the case. Make sure it is the side you just took off. Lay the side flat on the side of the computer case, slide it back towards you about two or

three inches, press down slightly, then push it forward until it locks in place. Screw in the two screws you took out when you removed this side of the case. Set the computer upright, then lay it on its left side. You should be at the back of the computer case and be able to reach the inside area.

25. There may be two ribbon cables on your motherboard box. Take out the widest of these two cables. One end of the ribbon cable will go in the back of the CD ROM drive and the other end will attach to the motherboard. Feel one end of the ribbon cable—it does not matter which end. You should feel a rectangular piece of plastic with a notch along one of the sides. Feel the back of the CD ROM drive. You should feel a rectangular area with many tiny pins. There should be a slight opening along one side of this area. Align the ribbon cable end with the notch on the side of the tiny opening and gently press until the cable is in. The other end of the ribbon cable will feel exactly the same as the end you connected to the CD ROM drive. Feel along the side of the motherboard closest to the brackets for the CD ROM drive and the hard drive. You should find a rectangular area like the one on the back of the CD ROM drive. Align the end of the ribbon cable with the notch and the tiny opening on the same side and then gently press down. You have just connected the CD ROM drive to the motherboard. On many ribbon cables there will be a connector hear the midpoint of the cable. If you want to add a second CD ROM drive, this is the connector to use.
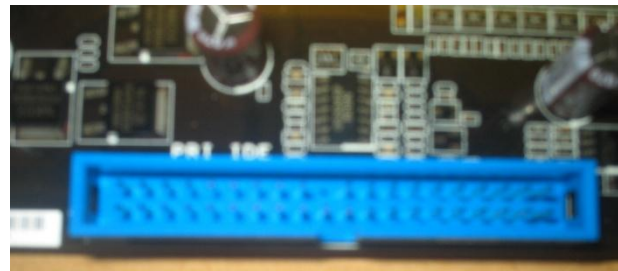

a. IF your CD ROM has a SATA connection on the back, you may need to purchase a SATA cable. The end of a SATA cable has an inset hole that is like a line that turns in a ninety-degree angle at one end—this is very difficult to feel. Most electronic stores carry SATA cables, as-well-as online stores. If you have a SATA connector on the CD ROM, take one end of the SATA cable and try to insert it into the SATA connector on the back of the CD ROM drive. This will be the smaller of the two connecting

areas. If it does not go, turn it around and try again. This may take some time to work in.

26. There are two main types of connectors for hard drives. One type has a ribbon cable and is not used often. This is the same ribbon cable that you used to connect the CD ROM drive. The other type is a SATA connector. One SATA cable should have came in your motherboard box. Take on end of this cable and try to connect it to the smaller SATA connector on the back of the hard drive. If it does not fit, turn the end around and try again. This may take some time to work in.
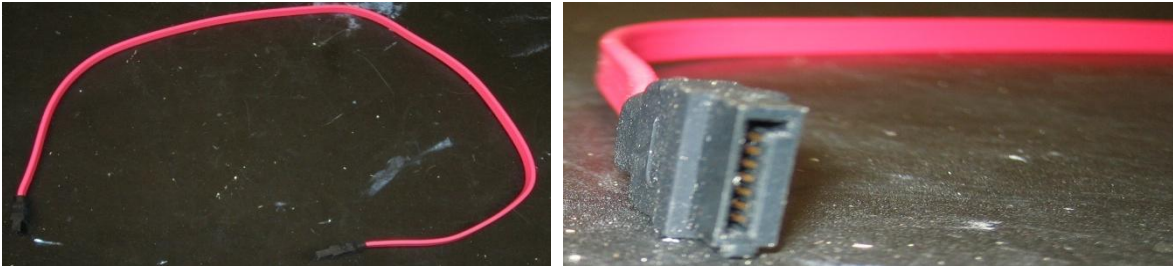

27. You now have one or two SATA cables connected to a drive or drives and the other two ends are loose. Feel on the right corner of the motherboard, near where the hard drive is located. You should feel two or more plastic connectors just a little larger than the end of your SATA cable. Place the loose end of the SATA cable into one of these connectors and gently press down. If it does not go, turn the end around and try again. This may take some time to work in. SATA has the advantage that it does not really matter which connector you plug into, even when you are connecting more than one SATA cable. You have now connected your hard drive and possibly your CD ROM drive to the motherboard.
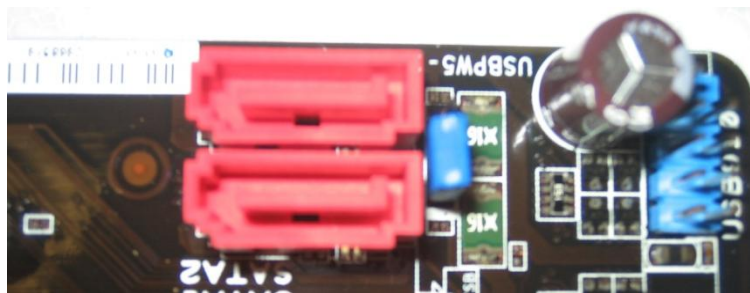
28. Although we have connected the CD ROM drive and the hard drive to the motherboard, they will not work until we connect them to the power supply. There are generally three different types of power connectors, leaving out the two connectors for the motherboard, on a power supply. The SATA connector is a flat hard, smooth plastic piece. There may be a very small connector for items such as floppy drives. The third type of connector feels like a rectangular piece of plastic with two or four larger pins inside. If your CD ROM drive used a ribbon

cable this third type of connector is the one you want. Place this connector to the right of the ribbon cable on the back of the CD ROM drive. There will be a connector that feels almost the same shape as the connector. It if does not fit, turn the end of the connector around and try again. Once you feel this connector start to go in, press until it is completely into the connector of the CD ROM drive. You have now completely connected the CD ROM.
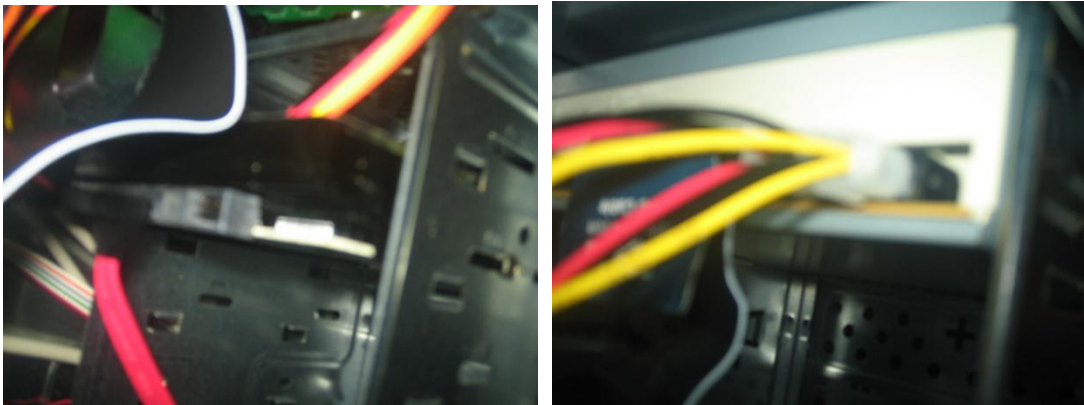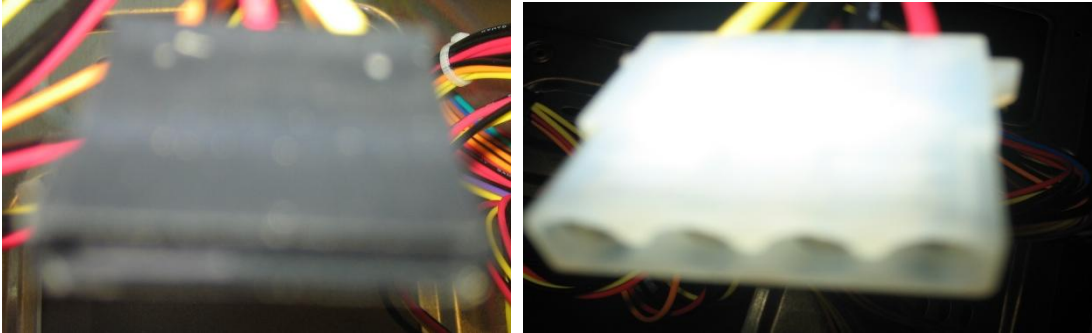
29. Grasp one of the power supply SATA connectors and feel for a slot just beside the SATA cable already inserted in the hard drive. Align and try to push the connector into   You have now completely connected the hard drive.
30. Everything is connected on your computer except for the wires for sound, audio, and the front panel buttons for power, reset, and the lights. Remember the small wires that you pushed toward the bracket area of the computer case when you first opened the case.

One of these wires has a rubber shield around it, and has a number of smaller wires in it. At the end is a plastic connector. There are holes on the end of this connector with one filled in. On the motherboard, along the right side, nearest you, should be a set of pins that match the holes in the end of the connector. This is the sound wire. Try to determine by feel which way this connector should be placed on the pins, place it over the top, and try to gently press down. If the sound connector does not go, turn the end around and try again. You may need help with this wire. On some motherboards the sound pins will be towards the back center, near the area of the USB panel area. There are times when this wire has to be stretched to meet the connection point. If you cannot get this wire connected you will still have sound in the back of the computer but not for the headset and mic connectors on the front of the case.
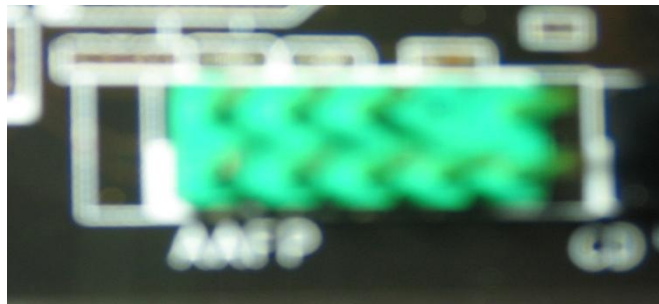
31. The USB wire is the next wire to be connected. The outside feels like the sound wire. The end of the connector feels similar to the sound connector, but a different hole is filled in. Along the right edge of the motherboard are generally two or three connecting points for this USB wire. Move the USB wire connector to the set of pins closest to you, align the end of the connector to the pins, and try to gently press down. If the connector does not go, turn it around and try again. You may need help with this wire.
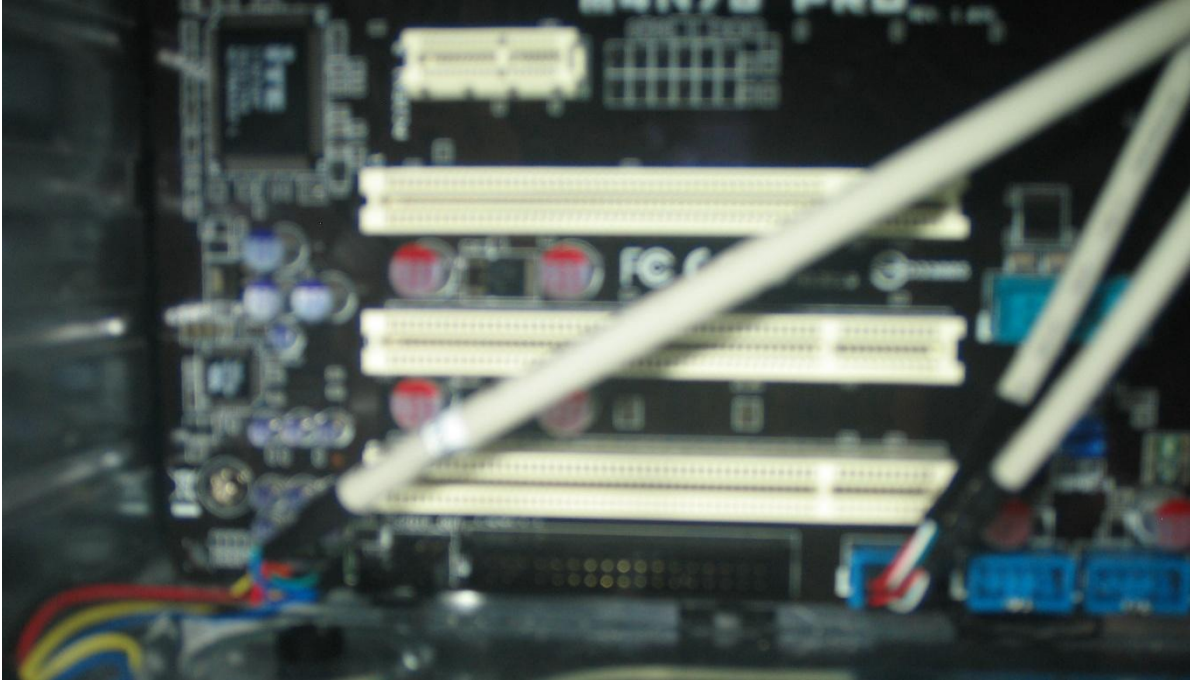
32. In the bag of screws for the motherboard there should have been a connector with four holes in the end, and two wires leading to a small, round plastic piece. This is the motherboard sound speaker. This is what makes the computer beep with something is not correct, or when the computer first starts or boots up. Along the right edge of the motherboard, possibly near the SATA connectors, or just after the USB connectors should be four pins. Align the motherboard sound connector over these pins and gently press down. There is no right or wrong was to this connection, as long as all four pins are covered.


33. The final set of wires are the most difficult. These are very small wires without a rubber shielding. They include the power, reset, hard drive light, and case lights. Depending on the case you are using this number of wires can be many or a few. In the case of the mid range ATX case there are about five wires—three of these wires have slightly wider connectors while the other two have very small connectors. The main wire to be interested in is the power wire. If you have no vision and cannot get help, you will have to experiment until you find the power wire. There will be a set of pins near the SATA connectors on the motherboard.

These are generally around the right corner area of the motherboard, if you have the back of the computer facing you. In many cases these pins are next to the motherboard sound connection. You will need to determine where these pins are located. It is suggested that you get help with this part of your computer build from a person who is sighted. There are nine of these pins. If the pins are on the right side of the motherboard, turn the case one ninety degree turn to the right. Now the pins are in front of you. There are two rows of pins. One row is upper and one is lower. There are four pins on the upper row. The end of the power wire goes over the two pins on the top row that are to the right side of the row. You might think of these pins as pin three and pin four. Place the end of the power wire connector over pins three and four and gently press down. The reset wire connector is connect to the two pins just below (nearest you) the power connector. This is bottom row, pins three and four. These two tiny wire connectors go on pins one and two of the top row. The hard drive light connector goes just below the two tiny connectors, on the bottom row, pins one and two.
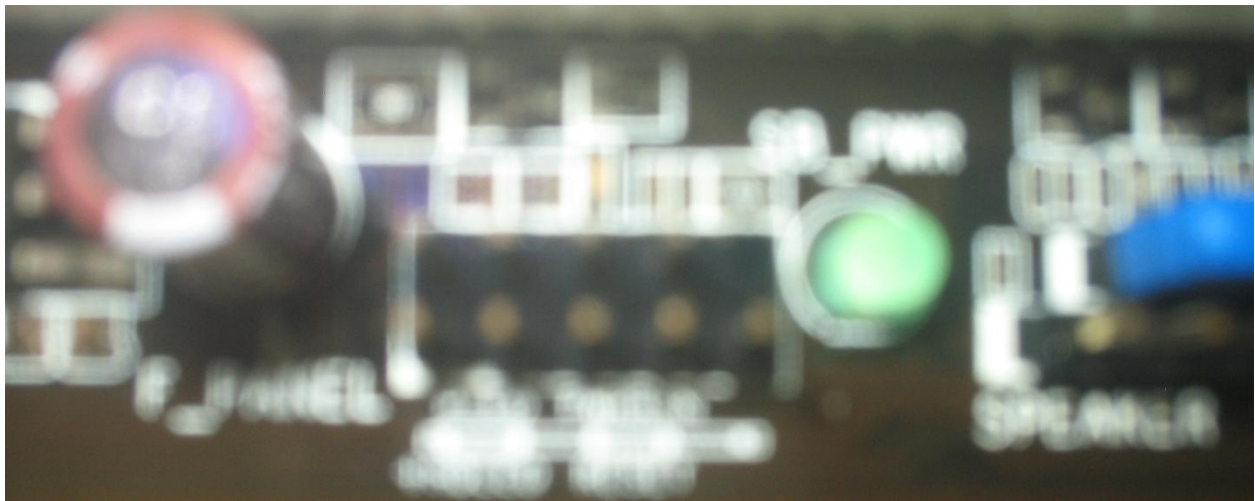
34. Turn the computer case to the left on ninety degree turn. Feel inside the case for wires or cables that might be touching the CPU fan. If this is the case, use tie-backs to move these wires or cables up and away from the CPU. Generally a tie back can be connect to the bracket area and other tie backs attached to it.

35. Optional case fans can be installed to make the air flow better in the computer. If you chose to use a case fan one common are to locate it is over the holes inside the case, just to the right of the power supply. There are four holes in this area. Press a case fan screw through one of these holes from the back outside of the computer. Move one of the holes of the case fan to the end of the screw. Hold the case fan in place with one hand and use a Philips head screw driver to tighten the case fan screw.. This will take some pressure. Once the first screw is partially in, place another screw in one of the other four holes and rotate the

fan to it. Partially screw in this screw. Screw in the other two screws. Tighten all four screws. There will be a wire with a small three hold connector at the end coming from this fan. On the mother board, near the CPU, will be a set of three pins. Place the connector over the three pins and gently press down. If it does not go, turn the connector around and try again.
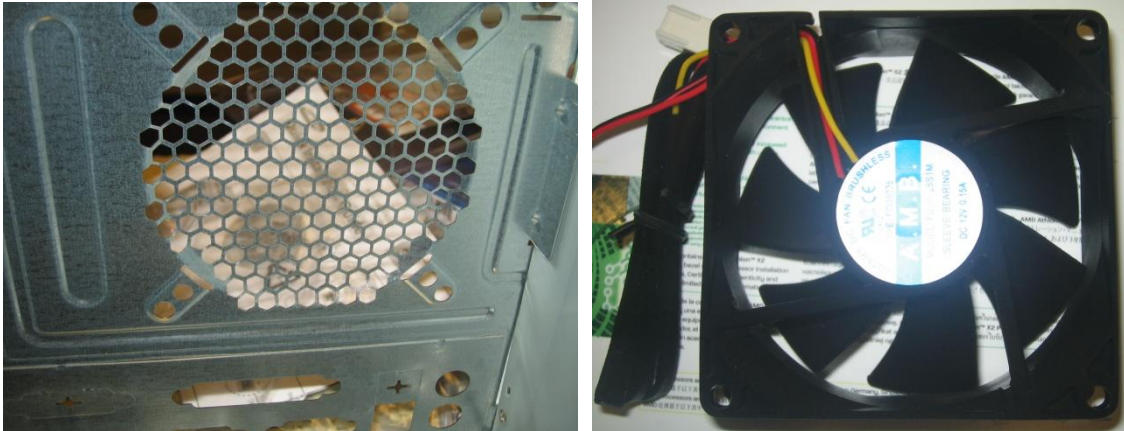

36. Make sure all wires are away from the case fan—use tie backs in needed.
37. Place the right case side on the computer case. Move it towards you two or three inches. Press down slightly and push forward. When the right side locks in place screw in the two screws. Attach the power cord to the power supply. On the back of the power supply is a connector that feels like a hole with three larger pines in it. The end of the power supply cable that goes into the power supply has three holes. Align these holes to the pins and press in. If it does not go, turn the end of the power cable around and try again.

38. The build of your computer is complete. At this point there is no operating system install, therefore more steps will need to be taken before you can use your computer. You will need to attach the monitor, keyboard, mouse and speakers. After that you will need to install your operating system, the

motherboard drivers (remember the CD in the book that came with your motherboard), and any programs you wish to use. Upcoming chapters will cover these topics.
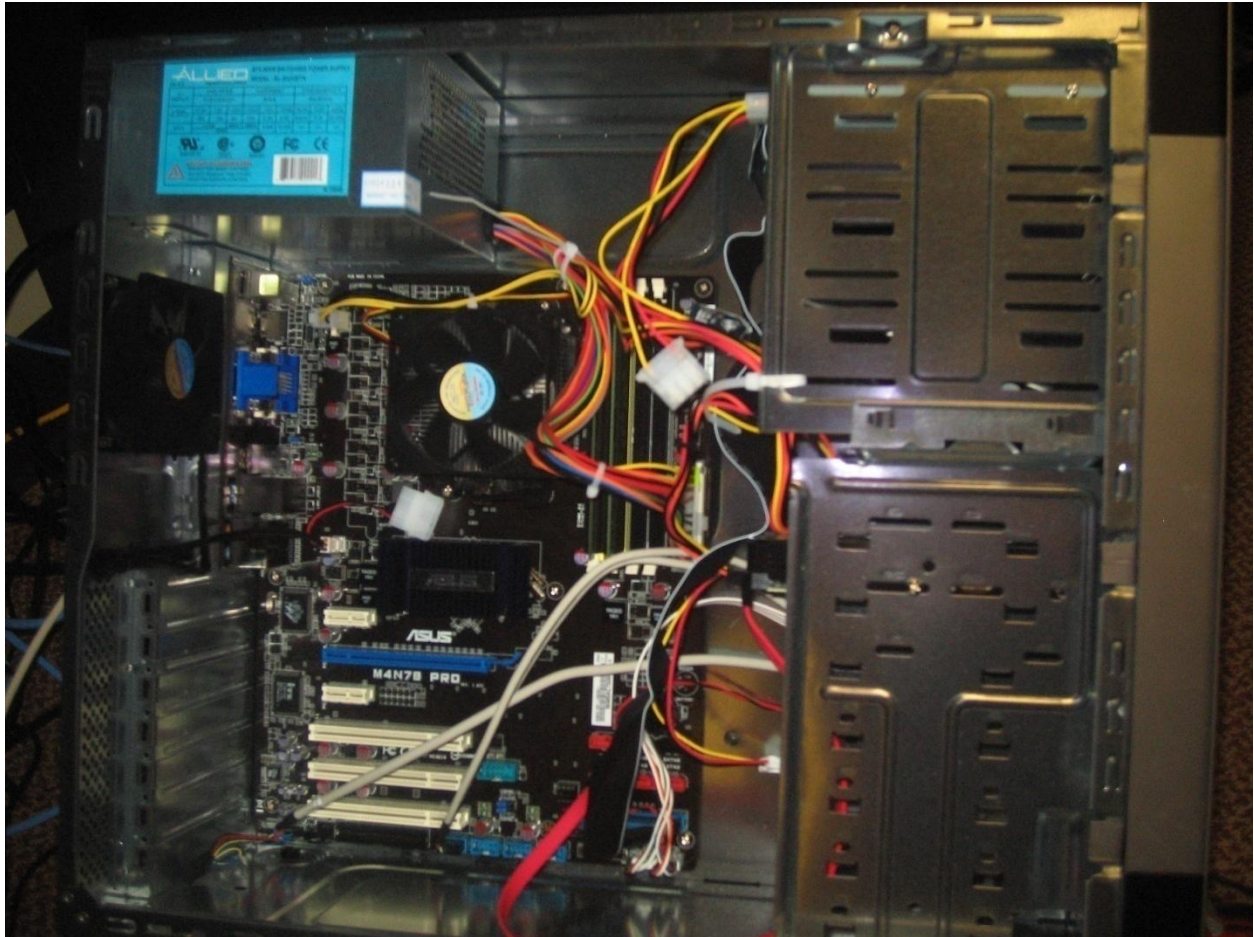
Chapter 3 Review

Test Your Knowledge

1. Name the part of the computer that contains the motherboard, CD ROM and hard drives.
2. Name the part of the computer where the CPU is placed.
3. Name the part of the computer that keeps the CPU cool.
4. Name the part of the computer that gives the motherboard, CPU, CD ROM and hard drives their power.
5. Name the part of the computer that helps the CPU remember what is happening.
6. Name the part of the computer that connects a CD ROM or hard drive to the motherboard.
7. Name the part of the computer that connects the power button to the motherboard.