The LGA2011 Processor Socket

The motherboard has the LGA 2011 socket and supports the Intel Core I7 processor family. The socket is used on server and high performance desktop computers. It has 2011 pins.

Before installing a second generation processor in the LGA2011 socket, we want to follow proper Electro Static Discharge (ESD) procedures. This includes standing on an ESD mat that is properly grounded, wearing a ground strap that is grounded and wearing of gloves that insulate the electrical properties of our bodies from the processor.

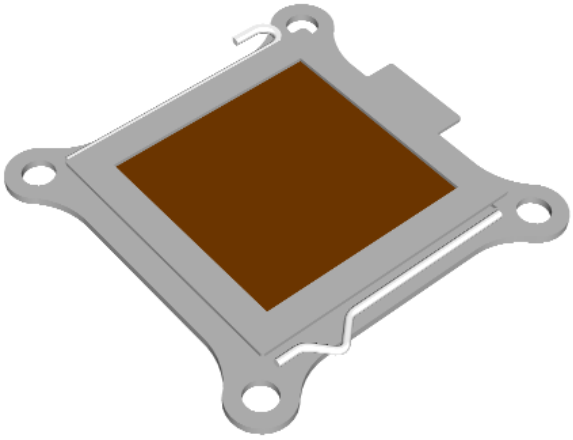

Figure 3.5 – LGA2011 Socket

When we are ready to place the second generation Core I7 processor in the LGA2011 socket, we need to lift the u-shaped locking level and lift it approximately 35° as shown in figure 3.6 where the lever arm will start to offer resistance. Do not force the locking arm past this position or we will damage it. Next, we will unlock the v-shape loading latch on the opposite side of the socket and put it in a 90° position to the socket as shown in figure 3.7.

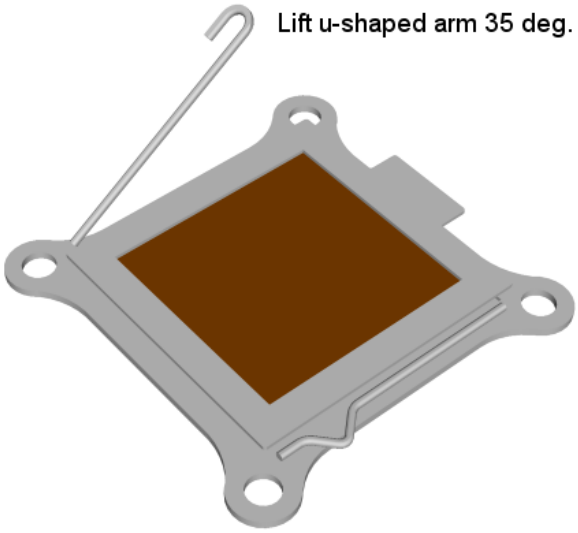

Figure 3.6 – Locking Arm Up 35 Degrees

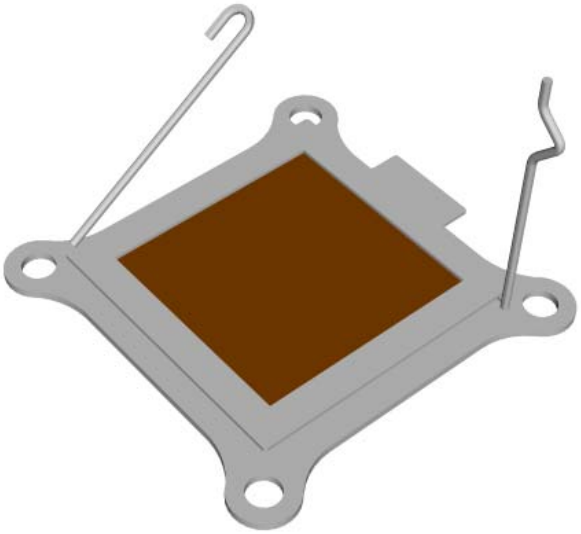

Figure 3.7 – Loading Arm Up 90 Degrees

With the loading arm in the upward position, we can lift the metal processor cover and allow it to rest in an approximate 135° position as shown in figure 3.8. Before we place the second generation Core I7 processor in the socket, we need to observe a couple of features that will assist in aligning the processor and keep us from damaging its gold contact pads. In the corner that is opposite the hinged metal cover, we can see an imprint of a triangle in the socket. That will match with the gold triangle on the Core I7 processor. There are four notches in the body of the processor and four corresponding notches in the socket. When we place the processor on the socket as shown in figure 3.9 and 3.10, we will align the notches. Next, we close the metal processor cover as shown in figure 3.11. We then lower the loading arm and lock it into position. Then we lower the locking arm and secure it.

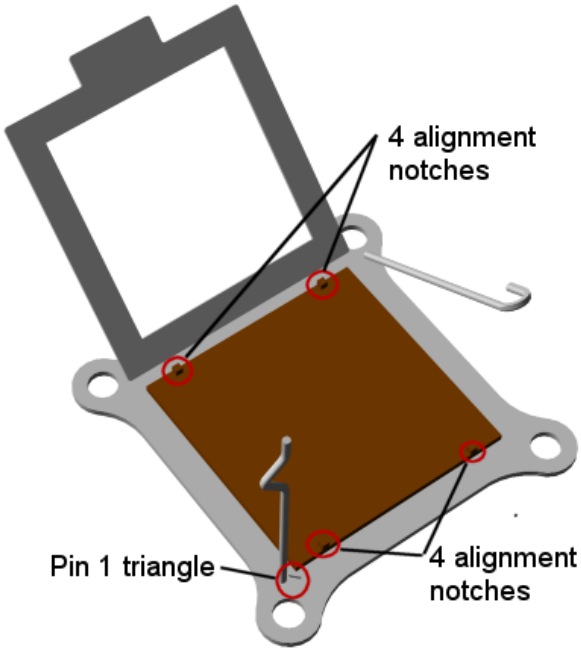

Figure 3.8 – Open the Processor Cover

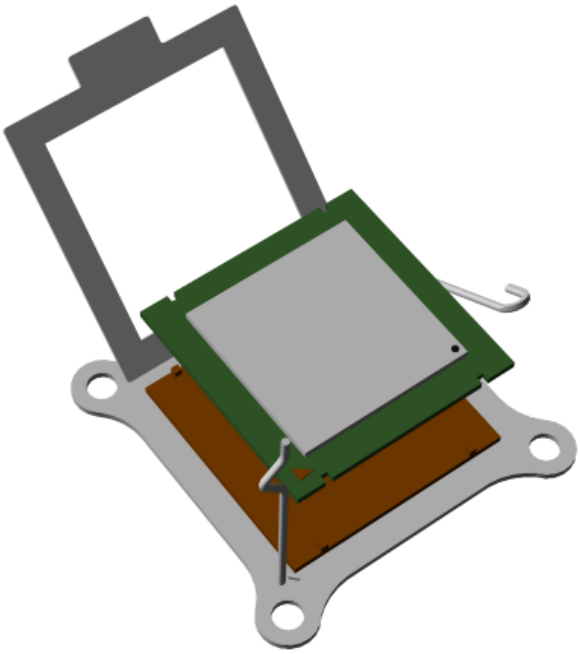

Figure 3.9 – Aligning the Processor

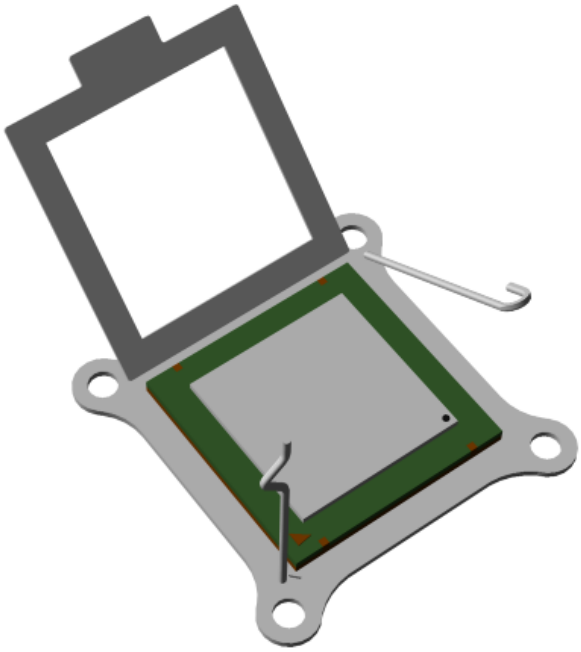

Figure 3.10– Processor in the Socket

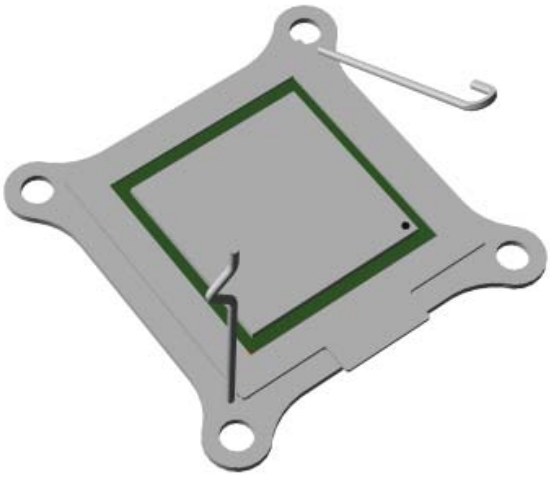

Figure 3.11 – Close the Metal Cover

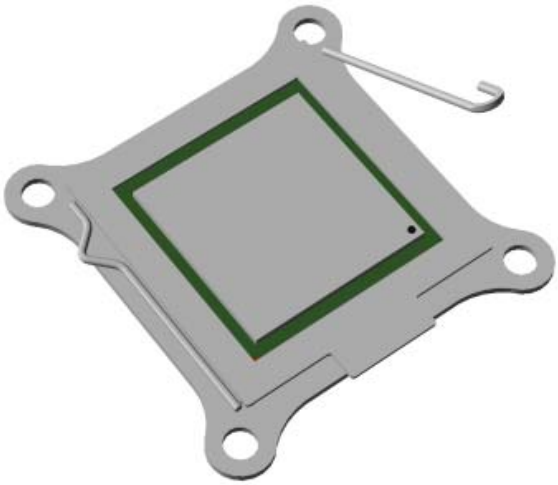

Figure 3.12 – Close the Loading Arm

The next step in assembling the computer and in our process is to attach the heatsink on top of the processor. We will apply a generous amount of thermal compound on top of the processor prior to installing the heatsink to make a better heat transfer from the processor to the flat surface of the heatsink. Before we continue, we want to review the process we just learned. Some older processor sockets have just one locking lever but the entire scheme of aligning the processor to the socket is similar.

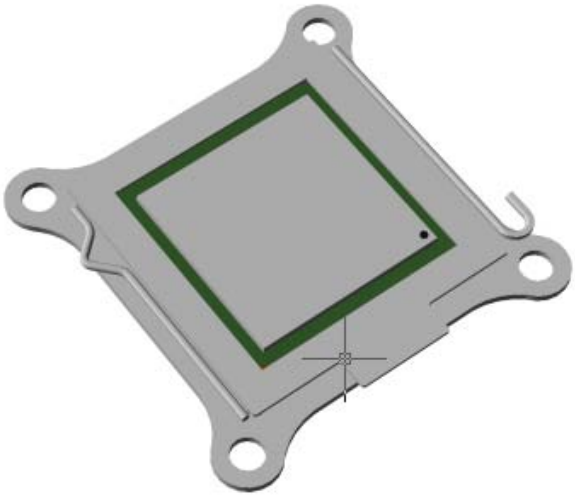

Figure 3.12 – Close the Locking Arm

The processor and motherboard can be the two most expensive devices in the computer, so we want to perform the processor installation correctly every time we build a machine. We can practice our techniques on older computers in the lab so we do not make mistakes on the newer and more expensive machines.

Install a Core I7 Processor in a LGA2011 Socket

1. **Open the u-shaped locking arm in the 35° position**
2. **Open the v-shaped loading arm in the 90° position**
3. **Open the metal processor cover**
4. **Align the alignment arrow and the 4 notches in the processor with the socket**
5. **Lay the processor in the socket**
6. **Close the metal processor cover**
7. **Close the l the v-shaped loading arm**
8. **Close the l the u-shaped loading arm**