Intel Processors: Haswell vs. Ivy Bridge

According to Moore's law, the number of transistors on integrated circuits doubles approximately every two years. Assuming that the effect of more transistors makes the chip faster, this means that the performance of a chip doubles every two years. However, if we consider the performance of a Haswell and an Ivy Bridge chip which were released recently by Intel, we can see that there is not a huge performance increase between the two chips. For this presentation, we will be examining the similarities and the differences between these two types of chips.

Originally, Haswell's microarchitecture was designed to be a mobile-focused chip. One of the biggest features in Haswell is the full integration of the voltage regulator onto the CPU. The voltage regulator is able to take a single voltage input and splits it into different rails. The result of this split reduces the overall power consumption in system as well as idling, but an increase in load power consumption. For a mobile device user, this is good news because it extends battery power, but for a hardcore PC gamer, this is bad news because it lowers the overclock capacity.